Whaddon Solar Farm S73

Landscape & Ecological Management Plan





Prepared by Pegasus Group on behalf of BRS Energy Ltd January 2024 | P23-1076_EN_02A

PEGASUS GROUP



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1.0 Introduction

1.1 The objective of this Landscape and Ecological Management Plan (LEMP) is to set out the management and maintenance procedure for the solar park development at Whaddon Farm.

1.2 This LEMP is designed for the operational phase of the development and will commence from the handover date from the landscape contractor to the management company.

1.3 This document is supported by Detailed Planting Proposals drawing no. P23-1076_EN_01.

Landscape and Ecological Management Plan

1.4 The purpose of this Landscape and Ecological Management Plan (LEMP) is:

- To ensure that clear objectives for this new solar park at Whaddon Farm, Hilperton are agreed and laid down.
- To set clear standards for the performance of landscape maintenance work prior to the handover to the landscape maintenance contractor.
- To develop work programmes and schedules for landscape maintenance staff for the first year after completion and thereafter for a period of 40 years.
- To preserve and enhance the site biodiversity.
- To help in the allocation of financial resources for landscape maintenance.
- To help monitor success and progress against management targets.

Planning

1.5 This Landscape and Ecological Management Plan has been prepared to aid the planning application for this new development at Whaddon Farm.

Management Aims

1.6 The main aims for the site landscape management and maintenance are:

- To assimilate the solar park into the local landscape, thereby minimising any effects on local landscape character, landscape elements and visual receptors;
- To manage operational activities associated with the solar park so as to protect existing retained trees and hedgerows and prevent short term damage and longer term adverse impacts;
- To manage existing trees so as to minimise and unacceptable risks that they may present for operational staff associated with the solar park; and
- To maintain new and existing trees, hedgerows and grassland in order to maximise their landscape and ecological benefits.
- To provide new nesting, roosting and sheltering opportunities for a range of species.

Review

1.7 This document should be seen as an operational guide for maintaining the landscape and ecological proposals for the lifetime of the solar park and is subject to change and improvement as the different landscape features mature and develop.

1.8 We recommend that this management plan is reviewed with the input of an ecologist, as required, to ensure the management aims are still necessary and relevant for the duration/life span of the solar park.

2.0 Site Description

Landscape Proposals

2.1 The application site boundary consists of a number of fields separated and surrounded by established hedgerows and scattered tree planting.

2.2 All existing vegetation along the boundaries and hedgerows within the internal field patterns will all be retained and reinforced as necessary to fill gaps, using native species of local provenance to match existing which will both strengthen field patterns as well as the local landscape character.

2.3 An existing Public Right of Way (PRoW) runs in a parallel direction offset from the northern boundary. Proposals for this boundary are to supplement the existing hedgerows and trees. For a short stretch at the western end of the northern boundary a new length of hedgerow is proposed where a section of the field is not currently contained. This will both provide full enclosure and afford filtered views only across the site from the PRoW.

2.4 It is proposed to strengthen the eastern boundary to help screen views of the development from locations along Whaddon Lane including residential properties. Planting proposed will consist largely of a reinforcement double staggered planted hedgerow. Species will be native species of local provenance to match and tie in with the existing hedgerow. Additional tree planting has also been proposed along this boundary where gaps allow within the existing canopy cover.

2.5 The Kennet and Avon Canal runs parallel to the southern boundary of the site. It is proposed to infill and reinforce the existing hedgerow along this boundary, and where gaps are currently evident, to infill with new extra heavy standard oak trees that will again, provide screening and filtered views of the development from the canal towpath. It is proposed again, to widen the extent of the existing hedgerow along this boundary with an additional line of double staggered native hedgerow planting.

2.6 The south east corner of the site to the south of the existing buffer planting along the southern boundary will be in-filled with proposed native thicket woodland buffer planting. This will consist of native species consistent with the existing and comprise a mix of larger feathered stock as well as smaller transplant stock to provide structure that will assimilate well with the existing buffer in this corner.

2.7 The Marsh Farm Solar Farm is located along the western boundary of the new development. Again, It is proposed to strengthen the west boundary to help screen views of this development. Planting proposed will largely consist of a reinforcement double staggered planted hedgerow. Species will be native species of local provenance to match and tie in with the existing hedgerow. Additional tree planting again has also been proposed to further filter the views.

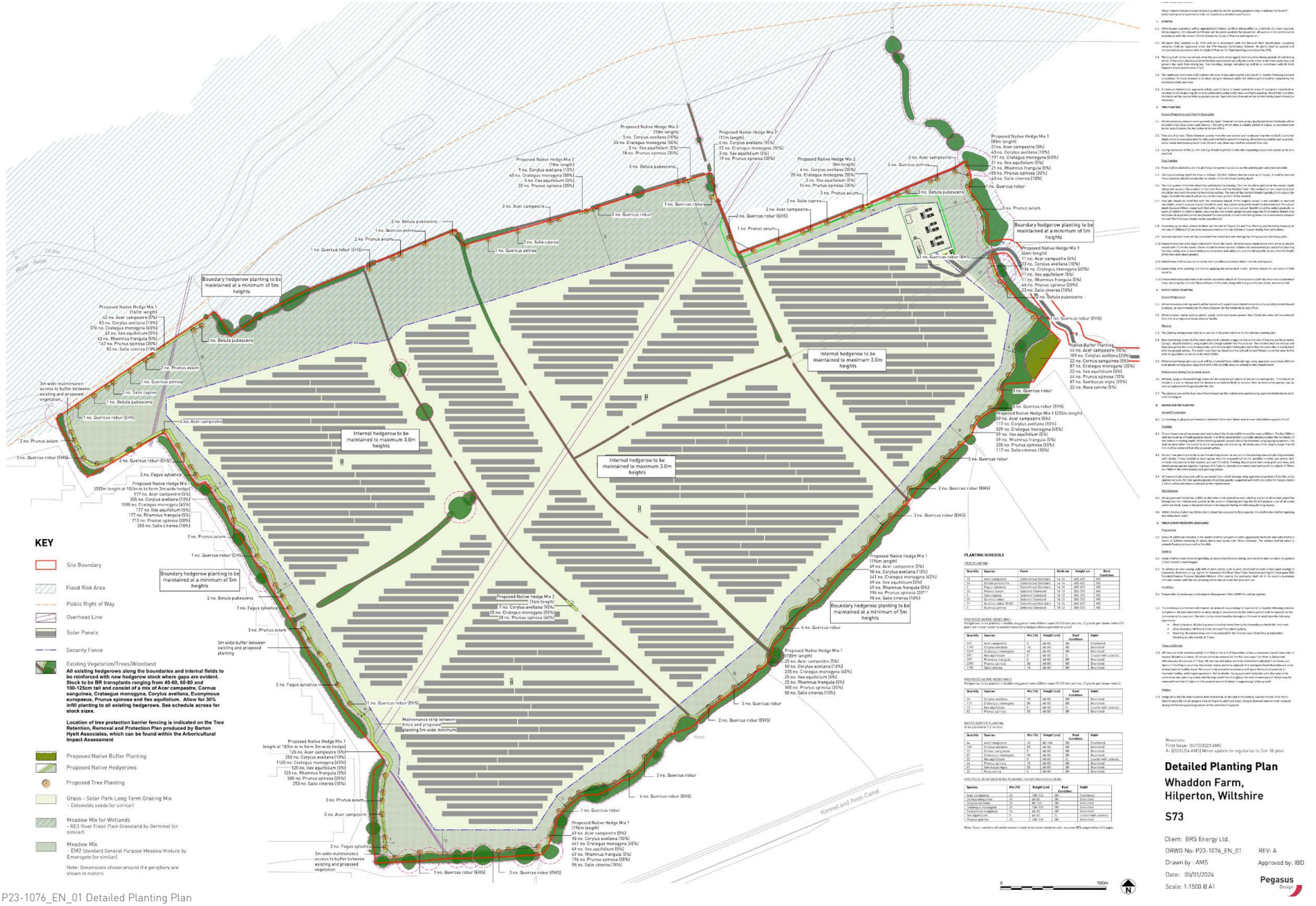
2.8 The layout of the development proposals provides an opportunity to enhance the boundary planting thereby enhancing ecological connectivity. Through strengthening and making the existing boundary hedgerows wider along with the inclusion of additional native tree planting, the development seeks to enhance and reinforce the existing ecological network.

2.9 It has been desirable to maintain proposed tree and shrub species consistent with the landscape character, however, enhancing and reinforcing the ecology and biodiversity of the site has also been at the forefront of the design intent. Proposing species consistent with character of area but also valuable for wildlife and habitat, provides huge ecological benefits and biodiversity gains. It should be noted therefore, that the design proposals and production of this LEMP has been prepared in close collaboration with Clarkson & Woods Ecological Consultants. This document should therefore, also be read in conjunction with the Biodiversity Management Plan (BDP) produced by Clarkson & Woods.

2.10 Within the security fenced enclosures of the solar panels, a Solar Park Long term Grazing Mixture is specified which is suitable for sheep grazing.

2.11 External to the fenced enclosure, a standard general purpose meadow mixture is proposed. This again seeks to enhance biodiversity and ecological corridors around the site to the base of the boundary hedgerow planting.

2.12 Both the north and east boundaries are located within a designated flood plain and therefore the seed mix proposed to these areas will be a wild flower meadow mixture suitable for river flood plains.



P23-1076_EN_01 Detailed Planting Plan

3.0 Environmental Considerations

3.1 This section details the environmental considerations that need to be examined to enable a thorough landscaping management strategy for the site.

Horticultural Peat

3.2 Horticultural peat is not to be used as mulch on any beds or as a soil conditioner. Wherever possible plants grown without peat will be preferred to those grown using peat.

Recycled Materials

3.3 Where appropriate, use should be made of materials made from recycled components e.g. wood chip mulch.

Pesticides/Herbicides

3.4 A minimal intervention and organic approach will be used in terms of weed control. In areas of transplant tree, ornamental shrub and herbaceous planting, this is to be achieved by using mulch mats and hand weeding. Weed killer and other chemicals will be used as little as possible on site. Spot removal of weeds will be carried out by hand removal as necessary.

Water Management

3.5 Where necessary, maintenance staff are to water plants at appropriate times of the day to ensure minimum water evaporation. If appropriate and available, recycled water should be used e.g. from rainwater harvesting.

4.0 General Maintenance Requirements

General Maintenance

4.1 It is recommended that all new planting on site is subject to on going management to maximise the value of these habitats to wildlife. Minimal use of pesticides and ensuring vegetation pruning works take place outside of the bird nesting season will aid this approach.

4.2 Maintenance operations are to be carried out in accordance with BS 4428: Code of Practice for General Landscape Operations. Maintenance of soft landscaping (other than amenity turf) to be in accordance with BS 7370-4: Grounds Maintenance. Recommendations for Maintenance of Soft Landscape.

Trees and Associated Works

4.3 No pruning works to trees or hedgerows are to be undertaken during the general bird nesting season of 1st March to 31st August inclusive. Works within this time period should be subject to checks by an ecologist to ensure there are no nesting birds present.

4.4 All tree surgery work is to be carried out to BS 3998:2010 Tree Work– Recommendations, and should be undertaken by a suitably qualified operative. Where a tree poses a health and safety hazard, advice will be sought from an arboriculturist.

New Planting

4.5 Planting of new trees should have regard to Section 10 of BS 8545:2014 Trees: from nursery to independence in the landscape. All plants to conform to BS 3936 and be in accordance with the National Plant Specification.

4.6 All new tree planting shall be checked at each maintenance visit for damage, security, firmness, fixing and support. Any trees that fail to thrive in the first year shall be replaced with the same species and variety at the size specified on the original landscape planting plans.

4.7 Trees should be checked in September and marked with paint, or noted on a plan, as necessary. Replacements will be planted during the following planting season. If a particular species fails to establish successfully then an alternative, comparable species should be considered as replacement, in agreement with the landscape consultant. Replacement planting of container plants to be undertaken as required, root-ball/bare root planting to be undertaken November to March.

4.8 Amenity bark mulch shall be topped up annually to a depth of 50mm to ensure maximum coverage as specified and areas of bare soil is prevented. To avoid accidentally damaging plants, herbicides will not be used to control weeds once foliage covers 75% of the ground surface.

4.9 An 800mm diameter circle of bark mulch to a depth of 50mm will be retained around individual trees in grass in order to suppress grass and weed growth and minimise the risk of mower/strimmer damage.

4.10 Care should be taken not to over-water planting. Until well established all trees are to be watered during the growing season. Following any dry periods of 7-10 days, soil moisture content should be assessed and watering undertaken as necessary. Each tree is to receive 40 litres of water or as required to ensure all tree planted areas are brought up to field capacity at each visit. If trees are showing signs of drought stress the watering regime should be reviewed and increased as required. Care should be taken to ensure applied water is absorbed into the root-zone and does not run off the surface.

Litter and Arisings

4.11 Litter and debris shall be cleared by hand and removed from the site on a monthly basis, and prior to amenity grassed mowing operations. All arisings from landscape works will be either used to create compost heaps within the wildlife buffers outside the security fence or removed from site and disposed of at a registered facility. Recycling or composting of arisings should be a priority.

5.0 Maintenance Specification

5.1 Retained Native Tree & Shrub Hedgerow Boundaries

Management Aim

- To maintain the existing areas of tree and hedgerow planting to maximise biodiversity and habitat value;
- To ensure the on going health and longevity; and
- To maintain high quality visual appearance.

Management Objectives

- To maintain existing trees to ensure a maximum healthy development;
- To maintain the visual amenity and good diversity of species of the retained tree and shrub hedgerow boundaries;
- To ensure a healthy, dense, bushy, tree and shrub understorey with good species mix and no gaps;
- To maintain appropriate forms of trees for future growth;
- To ensure trees do not present a hazard to site users.
- To ensure access links are kept clear from boundary vegetation growth;
- To take care in construction and maintenance operations near boundary planting;
- To enhance ecological value;
- To manage boundaries at appropriate times to avoid impacts to nesting birds and to ensure the provision of winter foraging resources.

To avoid disturbing nesting birds, maintenance to the tree and shrub boundaries should take place between September and January i.e. outside the bird nesting season. Works outside of this time period should be subject to checks by an ecologist to ensure there are no nesting birds present.

All trees are to be subject to an annual basic walk-by visual inspection to identify any obvious hazard/defects (fungal brackets, splits/cracks in branches/stems etc.) that may require remedial works/further arboricultural assessment. Only trees identified with defects/hazards are to be recorded and further assessment is to be made by a qualified and competent person. A detailed condition survey/risk assessment is to be carried out by a qualified arboriculturist at least every 3-5 years (or as advised by the arboriculturist). Any necessary remedial works are to be carried out by a suitably competent and qualified contractor/arborist in accordance with BS 3998:2010.

Where the existing vegetation abuts footpath links and access roads, the portion of vegetation adjacent the links shall be cut-back annually to maintain free access.

All arisings should be removed from site, unless suitable to retain on site, e.g. for ecological benefits such as creating hibernacula for herpetofauna and loggeries for invertebrates.

Internal existing hedgerows are to be maintained at a height of maximum 3.0m, as annotated on the Detailed Planting Plan P23-1076_EN_01.

5.2 New Tree Planting

Management Aim

- To successfully establish new tree planting;
- To maintain tree planting ensuring a treescape rich in seasonal interest and future longevity; and
- To present and maintain high quality visual appearance of new tree planting.

Management Objectives

- To maintain newly planted trees to ensure good survival rate and development;
- To minimise competition from grass and weeds in the immediate vicinity of newly planted trees;
- To maintain the health and visual amenity of the new trees;
- To maintain appropriate forms of trees for future growth; and
- To ensure trees do not present a hazard to site users.

Tree stakes and ties will be regularly checked during the establishment period and adjusted as necessary to ensure that the developing trees are not damaged.

There will be a minimal pruning policy for trees as pruning wounds can provide a source of infection. Formative pruning of new trees will only be carried out to remove dead and diseased wood and to create a well balanced tree with a single leader. Clear stems of 1.8 metres will be maintained by rubbing off any shoots and when the trees reach 5 to 6 metres high lower branches will be removed to give a canopy height of approximately 2.4 metres.

In the event of tree death, the reason for growth failure shall be investigated and addressed before replanting a replacement. If death is due to the planting conditions, these shall be ameliorated. If death is due to pests or disease and likely to be present in the future, a resistant species of an alternative similar tree shall be selected.

Where trees have become moribund due to compaction or lack of nutrients, soil aeration techniques and the use of inoculants shall be considered.

Trees will establish successful anchor roots, increase stem girth and form a better stem taper if allowed to move in the wind, whilst remaining secured at ground level. Therefore, low staking (75mm dia x 1.8m length) will be used ensuring 600mm is visible above ground level.

Tree stakes will be securely fixed to new tree planting using proprietary rubber ties with spacers to prevent chaffing and damage to the tree.

Any necessary remedial works will be carried out as soon as possible. All tree work should be carried out in accordance with BS 3998:2010 (or any subsequent updates). All arisings will be either used to create compost heaps within the wildlife buffers outside the security fence or removed from site and disposed of at a registered facility.

5.3 Reinforcement & New Native Hedgerow Planting

Management Aim

- To successfully reinforce and establish areas of native hedgerow tree and shrub planting to the site boundaries;
- To present and maintain a high quality visual appearance of the native tree and shrubs within the buffer edge planting, that provides both opportunities for wildlife foraging and habitat, as well as seasonal interest and colour.

Management Objectives

- To maintain newly planted native shrubs to ensure successful establishment and longevity;
- To minimise competition from grass and weeds;
- To keep planted areas tidy and free from litter and;
- To manage boundaries at appropriate times to avoid impacts to nesting birds and to ensure the provision of winter foraging resources.

New planting will be checked regularly throughout the growing season for pests and diseases and treated as necessary. Plant losses should be monitored and recorded. If a particular plant becomes subject to a fatal pest or disease it shall be replaced by an alternative resistant plant with a similar form and habit.

The native shrubs used to supplement the existing boundaries will be maintained to match the existing heights of the boundaries. This will be achieved by an appropriate cutting regime.

Within the native hedgerows to the boundaries, if new shrub specimens are identified as future standard trees they will be allowed to mature. In the long-term trees within the buffer, could potentially be managed as pollards adding structural diversity.

Newly planted stock within the hedgerow gaps will be protected from animal damage by the use of individual tree guards.

All new native planted areas will be maintained by weeding, pest & disease control and adjustment /removal of ties/stakes.



New internal hedgerow planting is to be maintained at a maximum of 3.0m in height, refer to plan P23-10765_EN_01 for details.

5.4 Grassland Areas

Management Aim

- To increase the biodiversity value of the grassland and prevent the sward from obscuring the panels.

Management Objectives

- To ensure grassland areas successfully establish;
- To increase biodiversity and grass species;
- To manage grassland, controlling weeds and opportunistic or invasive species;
- To manage the grassland sensitively to establish a rich sward and ensure that wildflowers can set seed;
- To manage grassland areas outside the arrays to establish a rough tussocky sward.

Initial Management
Grassland management will be carried out in accordance with the seed suppliers technical advice during the establishment phase.

RE3 Meadow Mix for Wetlands and EM2 General Purpose Meadow Mix.
During the first year of establishment, these grass mixes will require cutting at regular intervals to a height of 40-60mm. Topping and mowing regularly to enhance the establishment and flowering for the following years. These mixes are largely of perennial species and as such, slow to germinate and grow and will not usually flower in the first growing season.

Solar Park Long Term Grazing Mixture.
During the first year of establishment, regular cutting is to take place to ensure the sward never exceeds a height that obstructs the panels. If these areas are to be grazed within the first year, allow 10-12 weeks for initial establishment then sheep are able to graze for a week. Allow a period of grazing in late summer then again before winter, weather conditions allowing.

Long-term Management - Grazing (around solar array)
The area will be managed through low intensity pulse growing using sheep, which could be supplemented by mowing via an optional hay cut in August with subsequent aftermath grazing to further reduce fertility. This approach is presented in Table 1 below:

Table 1: Management of Grassland within Array via Grazing regime

January- February	Light grazing on any new growth.
Early March	Remove grazing; this allows forbs to grow and allows a good habitat for ground nesting birds to develop.
End of August	An optional hay cut may be taken. Cut hay once the wildflowers have seeded from August onwards. The arisings can be collected as a hay crop, mechanically raked and piled up or removed. Arisings must be removed with one or more of these methods to avoid harmful effects of grass mulch on plant species diversity. .
September to end of December	Main grazing period with light grazing down to a short sward height; a mosaic of plant heights helps encourage insects.

The intended outcome of a conservation grazing scheme will be to have a sward of the following height structure at the beginning of March:

- 75% at a height of approximately 5cm
- 25% at a height of approximately 25cm

A stocking density of between 0.5 – 1 Livestock units (LSUs) per hectare is recommended between late September and February. This is a typical stocking density for conservation grazing. However, the stocking density and timing of grazing will be at the discretion of the land manager, in order to achieve the desired sward structure given above. More animals could be used for shorter grazing periods.

Grazing is only to be undertaken by sheep. Cattle grazing will not be possible due to the damage this livestock may cause to the solar panel equipment

Should the sward height become a problem, with plants starting to shade the lower levels of the panels, a strip of no more than 1m wide +can be cut at the base of the panel to shorten the sward height in this area. This cutting can occur at any time and arisings will be either used to create compost heaps within the wildlife buffers outside the security fence or removed from site and disposed of at a registered facility.

For more information on stocking levels, see guidance from the Lowland Grassland Management Handbook produced by Natural England.

Long-term Management - Mechanical (Outside Solar Array)
The pasture grazing of new grassland within the arrays will create a sward of a particular character. Mechanical cutting of the grassland established outside of the security fence will create a different sward structure to the pasture, potentially supporting some different plants and invertebrates.

When mechanical cutting is used, one or possibly two cuts will be taken per year comprising an early cut in February (if necessary) to manage regrowth, and a second later in the season between August and September (each cut reducing sward to approximately 150mm). No cutting will take place throughout the summer to allow the seeds of the later flowering species to fall prior to the cut.

Cutting should adopt a systematic method, ie working outwards to towards the boundary features, allowing fauna such as invertebrates, birds and small mammals to temporarily and safely vacate the area.

Exact dates will be dependant upon weather conditions. A phased (rotational) cutting regime is recommended, ie the entire area should not be cut at the same time, in order to allow for more structured grassland.

Cuttings should remain for 3-5 days allowing seeds to disperse. Arisings must then be removed to promote the development of a species-rich sward. These will be either used to create compost heaps within the wildlife buffers outside the security fence or removed from the site and disposed of at a registered facility.

Grassed areas along hedgerow bases can be cut less frequently once established, with a single main cut (reducing to 150mm) in late August/ September, subject to weather conditions.

5.5 Ecology & Habitat

Management Aim

- To extend and consolidate the hedgerow network for wildlife;
- To maintain and enhance potential commuting routes for badgers, bats, reptiles, otters and water voles;
- To enhance foraging opportunities along core hedgerows for bats and other wildlife;
- To maintain and enhance potential foraging areas in open habitats for badgers, bats, reptiles, birds and invertebrates;
- To maintain and increase potential bat and bird roost/ nest sites; and
- To maintain and increase potential sheltering sites for reptiles and amphibians.

Management Objectives

- To establish and maintain a substantial ecological buffer zone along the northern site boundary;
- To establish and maintain new species-rich hedgerows;
- To infill/plant up gaps in existing hedgerows;
- To strengthen the key East-West hedgerow corridor via new hedgerow creation and in-fill planting;
- To establish and maintain wide species-rich grassland buffers between core hedgerows and solar panels;
- To ensure ecological corridors are maintained to increase foraging and commuting potential;
- To maximise the biodiversity value of proposed and existing habitats for reptiles and mammals;
- To ensure that both existing and newly created habitats are managed appropriately to provide long-term biodiversity benefits for wildlife;
- To introduce new potential roost/ nest/ shelter sites for protected species; and
- To monitor the success of the management plan by undertaking monitoring of habitats and species.

This document should be read in conjunction with Clarkson & Woods' Biodiversity Management Plan (BMP), dated February 2021.

Habitats

The landscape proposals entail the retention of existing hedgerows and valuable trees, alongside extensive new tree planting; new hedgerows and infill hedgerow planting; and botanically diverse grasslands. These proposals offer enhanced and additional habitats for a variety of wildlife including badgers, bats, reptiles, amphibians, birds, invertebrates and small mammals. As such, management and maintenance operations are required to ensure the longevity and diversity of these habitats, to further enhance and benefit this variety of wildlife. Management and maintenance is identified in Section 6 of this LEMP.

Additional Enhancements

In addition to the landscape enhancement measures proposed, 20 no. bird boxes, 15 no. bat boxes, 4 no. log piles and 2 no. hibernacula are proposed. Boxes will be erected on semi mature/mature trees located within the site and other features sited in appropriate habitats where they are not a risk of interference with routine management. Precise types of boxes and their locations will be determined by the ecologist and is further detailed within the BMP.

Monitoring

Monitoring arrangements will be put in place to ensure that the ecological aims and objectives of the landscape proposals are implemented fully and that they are successful. Where a change in the management of landscape / ecological features is required this will be discussed with the estate management company to agree revisions to the plan.

6.0 Schedule of Management and Maintenance

6.1 Establishment years 0-5

The schedules below sets out how the maintenance tasks for the management aims and objectives will be achieved for the establishment period of years 0-5 inclusive of the contract maintenance period that begins following practical completion.

Following final completion of the contractual works, the contractor will hand over the long term maintenance and ecological management to the clients appointed management company. The operations identified below will form the general requirements of the client appointed management company to ensure the continued successful establishment of the landscape scheme.

Establishment Years 0-5			
Ref	**Management Categories**	**Timing**	**Maintenance Task and Method**
6.1.1	All planting areas	Every Visit	• Ensure continued healthy growth of all planted stock - water as required to ensure that the planting continues to establish successfully. • Investigate any failed plant growth and take remedial action as necessary.
		Monthly	• Removal of rubbish and debris - clear litter and fly-tipped rubbish by hand and remove from site. Remove rubbish and debris from grass areas before mowing. • Inspect for vandalism - visual inspection of all landscaping for vandalism, report to owner. On instruction, replace any landscaping damaged by vandalism.
		Annually	• Monitor and record any plant losses and report to owner - on instruction, remove dead plants and replace as per original approved specification, unless otherwise agreed to plant alternative species. Maintain to ensure survival. Re-planting to be undertaken in the next following planting season. • Control vigorous plant species that are out competing less vigorous species. • Check all landscaped areas for invasive species e.g. self seeded sycamore, brambles, ground ivy and nettles. Reduce/clear by hand and remove from site.

Establishment Years 0-5			
Ref	**Management Categories**	**Timing**	**Maintenance Task and Method**
6.1.2	Trees - retained and newly planted	Monthly	• Ensure trees are stable - visually inspect trees to check for signs of bark damage and general tree damage. • Check that stakes, ties and guards are not too loose, too tight or broken. • Replace or upgrade guards/shelters as necessary. • Monitor transplants to ensure healthy development - visual inspection of plants, if not stable/upright rectify by replanting in an upright position and re-firm, if plant remains unstable remove by hand and replace. Undertake for the first two years. • Visual inspection for fungal activity (for trees this is to be performed by a qualified arboriculturist) - remove diseased wood or treat as appropriate. Keep use of pesticides to a minimum. Inspection to be undertaken March to October when trees are still in leaf.
		Annually	• Remove dead, damaged or dying branches as appropriate. • Formative pruning of new trees to be in accordance with BS 3998 (2010).
		Biennial (or as recommended)	• Check tree safety - identify hazards and carry out necessary maintenance works. A visual tree assessment is to be undertaken by a qualified arboriculturist of all new and existing tree planting, with instrumental back up where necessary. Any resulting tree works are to be carried out to BS 3998:2010. Keep records up to date.
		3 to 5 years after planting	• Confirm root growth is well established and remove shelters, stakes, guards and ties from trees/ transplants - to avoid damage cut shelters away then remove stakes • Detailed condition survey for new trees - to be undertaken by a qualified arboriculturist at least once every 5 years, any recommendations to assist with establishment must be undertaken as soon as possible.

Establishment Years 0-5			
Ref	**Management Categories**	**Timing**	**Maintenance Task and Method**
6.1.3	Hedgerow Planting - Retained and newly planted	Monthly	• Check hedgerows for additional/new gaps, record and infill during late October to March. Plant replacement tall whips, of a species mix to match the hedgerow or to increase native diversity, in a suitably prepared soil bed. Ensure successful establishment and protect from trampling/use as a shortcut using temporary fence/guards. • Keep hedgerow planting free from weeds - visually inspect bark mulch areas around planting and top up to 75mm depth, if required. Remove any weeds by hand, hoe or fork. Take care not to disturb shrub roots and excessive treading of bed surface. Do not use strimmers or herbicides in these areas - March to October.
		Annually	• Prune retained hedgerows to ensure a good shape and healthy growth and control future growth. Management to be undertaken in January/February. Face up and top off no more than 1 year in 3 (leaving at least 2/3rds of hedges untrimmed each year), to ensure thick nesting cover is available annually for birds and also to boost the berry crop that often develops on second year growth. Established hedgerows will be cut between late September and February using a tractor mounted flail or by using tractor mounted circular saws to reshape and manage more mature overgrown hedges. • Internal field hedgerows shall be cut to a maximum of 3.0m high and site boundary hedgerows will be retained and maintained at a minimum height of 5.0m to ensure views into the site are filtered. • Identify suitable growth in retained hedgerows to develop into frequent standard trees, maintain as per tree maintenance and management. • Re-plant in an upright position and re-firm plants that suffer from wind-rock - January/February.
		3-5 Years after planting	• Confirm root growth is well established and remove shelters, stakes, guards and ties from hedgerow transplants - to avoid damage cut shelters away then remove stakes.

Establishment Years 0-5			
Ref	**Management Categories**	**Timing**	**Maintenance Task and Method**
6.1.4	Grassland	Cutting Regime.	• Always refer to the seed supplier's technical advice during the establishment phase and for long term management advice. • Generally, cut all meadow grass mix areas at regular intervals during year 1 after seeding to promote a diverse species-rich sward. • During year 1, the grazing seed mix areas around the solar panels can be very lightly grazed after 12 weeks of initial establishment for a single week only, then again in late summer and again before winter (subject to weather conditions). • Year 2 onwards, the Solar Park Grazing Mix will be grazed from late September through to early March to allow time for flowers to set seed and reduce disturbance to ground nesting birds (subject to weather conditions). • Year 2 onwards. EM2 & RE3 Meadow Grass mixes shall be managed to help develop a rich grassland with a varied structure. After flowering take a summer 'hay cut' (with a scythe, petrol strimmer, or tractor mower) to 100mm in late August/September. This is to be repeated in Spring (late February) if needed. • Allow 'hay' to remain on-site for 3-5 days following the cut to allow seeds to disperse, and then to be removed to promote a species-rich sward.
		Monthly	• Keep grassland free from weeds - remove weeds and encroaching scrub by hand, hoe or fork, or mowing, as appropriate to prevent weeds from obstructing / damaging the solar panels. Undertake monthly from March to October, or as required. • Scrub removal to be undertaken outside of the bird nesting season.
		Annually	• Keep grassland areas in good condition - check and report to client on damaged areas. On instruction repair damaged/failed areas and re-sow seed. Undertake aeration and thatch removal if required April or September. • Maintain sward in optimum condition whilst enhancing biodiversity - allow low intensity grazing over a phased (rotational cutting regime, ensuring the entire area is not cut at the same time). Visual inspection to ensure stocking density is correct. Advise owner to reduce or increase if necessary. Only allow sheep to graze late September through to early March (subject to weather conditions).

6.2 Monitoring and Review

The below table sets out how the monitoring and review processes:

Monitoring and Review			
Ref	**Management Categories**	**Timing**	**Maintenance Task and Method**
6.2.1	Landscape Management	As necessary	• Monitor comments/suggestions from users - feedback comments to client and respond as instructed and incorporate into LEMP as required.
6.2.2	LEMP Review	As necessary	• Suitably experienced ecologist to undertake a review of habitat / landscape establishment and quality, to inspect and sign-off the completion of the various enhancement measures. A report to be prepared for the client and LPA with recommendations for active management as required and incorporate into LEMP as required.

6.3 Long Term Management

Long Term (6-40 Years)

As the planted stock grows, annual reviews will continue to take place beyond the initial 5 year period up until 40 years. During this period, the operations highlighted within 0-5 year period will continue to be necessary, however, their precise timing will become dependent on a programme of monitoring to ensure the appropriate maintenance operations are carried out at the appropriate time.

Annual reviews should continue to take place to check the structure and health of all trees to ensure they are maintained without posing a hazard. Annual reviews of trees and hedgerows should be carried out to identify any necessary remedial works and any works should be undertaken as necessary by a suitably qualified operative.

The cutting/grazing regime should continue as identified within 6.1.4. It may be necessary to over-seed the grazing mixture after year 5 to renew the quality of the rye grass and reduce invasive species which are lower quality. This also ensures the sward remains nutritious and beneficial as a livestock grazing ley.

7.0 Restoration and Decommissioning

The solar array will be decommissioned at the end of lifespan of development panels and returned to agricultural land. It is not known what the ecological value of the site will be at this point, but if the LEMP is followed it seems likely that the habitat within the area will be considerably more ecologically diverse than at present and protected species may be present within the area.

Pre-decommissioning ecological surveys will be required in line with guidance, legislation and planning policy available at the point of decommissioning, to ascertain the nature of ecological impacts and what, if any, mitigation measures will be required. This is likely to comprise an extended Phase 1 survey followed by species specific surveys (for example, great crested newt surveys, bird surveys, badger survey etc.). A full mitigation plan will be prepared and submitted to the LPA prior to decommissioning.

Commitment to decommissioning and restoration will also be made a planning condition as required by the LPA Ecologist.

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