LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN

SOLAR FARM
DUNS TEW ENERGY PARK
OXFORDSHIRE

Client:

Greenheath NRG Limited

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REVISION & REVIEW RECORD

Revision details

Rev	Date	Amendment	Creator	Checked
P01	8th Feb 2023	Issue for contribution by client team – section in red	CB	KmJ
P02	21st Feb 2023	Finalisation of the report	CB	KmJ
P03	23rd Feb 2023	Finalisation of the report	CB	KmJ
P04	13th Mar 2023	Finalisation of the report following comments	CB	KmJ

Review record

Rev	Date	Reviewers comments or page references	Initials / organisation
P03	23rd Feb 2023	Minor omissions following a review	YK – Western Ecology
P04	13th Mar 2023	Minor changes to scheme description	Client

INTRODUCTION ONE

1.1 Appointment and Brief

1.1.1 This Landscape & Ecological Management Plan has been prepared by Applied Landscape Design (ALD) with input from Western Ecology on behalf of Greenheath NRG Limited.

1.2 Planting, Management and Targets

1.2.1 Planting and on-going site management will be undertaken by suitably qualified and experienced operatives / contractors employed by the management company for the period of this management plan.

1.3 Scope of the Management Plan

1.3.1 This Landscape & Ecological Management Plan initially sets out the short-medium term (10 year) management objectives for the site**,** whilst also providing details of the management prescriptions, as required to meet these objectives. This is all in accordance with BS 42020:2013 Biodiversity. Code of practise for planning and development.

1.3.2 These considerations and objectives of the Landscape & Ecological Management Plan provide the basis for the detailed management prescriptions for the long-term site management. After the initial 10 years are up the medium-term management objectives (some of which are detailed in this report) should also be considered for subsequent iterations of this landscape management plan for the site as well as the wider context of the area. The landscape ecological & management plan looks to establish a programme of monitoring and review, and sets out how the success of the plan will be reviewed and updated over time.

1.3.3 This landscape plan and its associated drawing aim to illustrate the best possible chance of establishment and long-term survival of the proposed species. To ensure that the landscape is maintained as designed and thrives to support the ecology it was intended for.

1.3.4 This Landscape & Ecological Management Plan has been put together to assist in the clearance of Planning Conditions 6 and 11 of Planning Permission 20/00574/F dated 26th February 2020. Sections 4.2.16 through to 4.2.22, are specifically written to meet Planning Condition 11 of the development alongside drawing ALD848_PL401 - Outside of Redline Boundary Planting Scheme. This drawing is to assist in understanding of where the maintenance of an 8m (minimum) ecological buffer zone alongside Deddington Brook is sited (As per Planning Condition 11), this ecological buffer zone was measured from the top of the bank, and is to be free from built development. However as noted on the plan, all land between Deddington Brook and the site fenced security boundary is to be dedicated as an Ecological Buffer Zone, and this is significantly greater than the 8m stipulated.

1.3.5 The purpose of this maintenance & management plan is therefore to provide an account for the maintenance of all created landscape works within the development. Acting as a framework which allows the appointed maintenance team to successfully manage the site to maintain and enhance aesthetic planting and biodiversity value, to an appropriate standard which reflects the quality of individual landscape types.

1.4 Programme of Implementation

1.4.1 It is intended that the softworks for the scheme are installed in the relevant planting season that accords with the progress of development. Before the scheme can be installed the softworks contractor requires that the grounds will be prepared to accept all relevant vegetation. Planting will then commence at some point in the mid October to February period and no later than March prior to the end of the planting season. Planting should not take place between the end of April and start of October.

1.4.2 Installation of wildflower and grassland mixes will occur in the warmer, moister months of August to September, and March to April following appropriate ground preparation (in line with seed supplier's instructions) e.g. bare, cultivated soil devoid of established weeds and other vegetation. The exact timing of planting will be dictated by the project programme.

DESIGN AND MANAGEMENT CONSTRAINTS TWO

2.1 The following section provides a summary of the principal constraints, opportunities and considerations to be taken into account within the proposed Solar Farm development.

2.2 Landscape Design

2.2.1 ***Strategy***

2.2.2 The proposed development is described as the following:

2.2.3 *"Installation, operation and decommissioning of a renewable energy generating station comprising ground-mounted photovoltaic solar arrays and battery electricity storage containers together with substation, inverters, site access, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and biodiversity enhancements."*

2.2.4 The landscape design strategy is intended to be implemented to create a functional site that is easy to manage due to its size and intended use as a Solar Farm, however the landscape plant selection has been ecologically driven to also reflect its opportunity to provide a positive function as a wildlife space to protect and enhance local species through the creation of appropriate habitat. Some of the key roles for the site include:

- Affording a softening of the built environment as viewed by the users of the local roads, Public Right of Way Network and neighbouring village;
- Be a tool to enhance and compliment the local biodiversity and green corridors / links within the surrounding area, and
- The proposed planting of native species will enhance the ecological value of the site.

2.2.5 A large proportion of the site associated with the Solar Farm is intended to be a rougher more nature focused space that humans will be discouraged from interacting with an no formal paths will be allowed through, this area contains the grass meadows and areas suitable for reptile habitats.

2.2.6 Across the hierarchy of spaces within the site, a planting palette of UK native and other naturalised, dependable species have been selected to provide habitat for birds, insects & animals, as well as give an aesthetically pleasing appearance that blends in with the surrounding landscape character.

2.2.7 The proposed planting species mix also provides a desirable mixture of textures, colour and year-round visual interest whilst allowing for relative ease of maintenance, promoting aesthetic interest and supporting ecological gain. All the proposed hedgerows and trees have been selected to complement existing native species found within the site, and the local area, with seed mixes bringing an even greater benefit to the site having regard to the existing ecology.

2.2.8 The planting specification calls for all planting stock and seed sources being used in association with the creation of wildlife habitats, to be of native origin, and where available of local provenance.

2.2.9 The use of native species will inherently increase the ecological value of the site. In addition, a number of other species selected are known to benefit UK wildlife for example through nectar, seed or fruit sources and are suitably robust, withstanding the everyday environment of the local climate.

2.2.10 The existing hedgerows and perimeter trees to be retained are to be managed and maintained (some with new infill planting) to maximise their ecological diversity, safety and amenity value.

2.2.11 During construction in and around trees, works should be undertaken in line with (a) *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations* and (b) the Arboricultural Survey.

2.2.12 The hard landscape will be a small element of the site, limited to the internal maintenance access tracks, batteries, inverters, transformers, substation and storage containers and the perimeter fencing.

2.2.13 ***Key Elements*** of the Landscape softscape strategy comprise:

- Retention of the majority of the existing trees and hedgerows associated with site;
- Replacement of any perimeter vegetation lost through construction or operational activity to ensure the integrity of the vegetated site boundary;
- Proposed lengths of native hedgerow, and closing up gaps within exiting hedgerows, and
- Proposed areas of grassland (seed mixes relevant to the soil types and locations).
- Proposed areas of wet woodland to strengthen the vegetation along Deddington Brook
- A watermain buffer zone where no development of planting of anything other than grass can occur.

2.2.14 These elements are on the whole to be found within the land external to the perimeter security fence which is also the solar farm site boundary. The solar farm covers 12.82 hectares. The planting covers an additional area external to this that is available for landscape / biodiversity enhancements beyond the fenced security boundary.

2.2.15 *Existing Trees and Hedgerows*

2.2.16 Existing trees and hedgerows are to be managed and targeted towards maintaining their ecological diversity, safety and amenity value.

2.2.17 *Proposed Areas of Wet Woodland*

2.2.18 An area of wet woodland will be planted to compliment and reinforce Deddington Brook. Comprising of a core of native UK woodland trees such as Sycamore, Cherry, Salix and Alder, with woodland edge species such as Alder (Alnus cordata), Silver Birch (Betula pendula), Poplar (Populus tremula), English Oak (Quercus robur) and Goat Willow (Salix caprea). It is designed to have the look and feel of the of the existing vegetation along Deddington Brook, blending into the overall landscape aesthetic. The woodland is predominantly designed as habitat for local animal, insect and bird species, also contributing to the connectivity of the network of woods in the wider landscape, aiding species dispersal and migration, and providing visual mitigation for this introduced built form.

2.2.19 *Proposed Lengths of Native Hedgerow*

2.2.20 New hedgerows will be planted and where required existing hedgerows will be gapped up, with plants comprising of native UK species ideally of a local provenance. The hedges will be planted with 'whips' using UK native species such as Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa) and Hazel (Corylus avellana). They are intended to have the look and feel of the typical English, rural hedgerow, blending into the overall landscape aesthetic. The hedgerows act as habitat for local animal, insect and bird species and will also contribute to the connectivity of the wider landscape matrix, aiding species dispersal and migration.

2.2.21 *Proposed Areas of Grassland*

2.2.22 New grassland meadows will also be sewn to the edges of the site, or created through management of existing diverse grass sword providing the area with a more natural character. These grassland meadows will act as habitat for small mammal, insect and bird species and will also contribute to the connectivity of the wider landscape matrix, aiding species dispersal and migration.

2.2.23 ***Buffer Zone Protection for Existing Vegetation and Deddington Brook***

2.2.24 At the start of construction, a security fence will be erected around the perimeter of the Site. The security fence will be as detailed in the planning application drawings and will be installed prior to the commencement of the installation of the PV arrays. This security fence will act to protect the existing hedgerows, trees, Deddington Brook and other habitats / wildlife on the site during the construction stage and will remain in situ surrounding the site during the operational period.

2.2.25 Storage of any materials or waste within this buffer zone is prohibited to allow wildlife to pass around the site, enabling connectivity of the existing hedgerows, and for field margins to remain undisturbed. This is crucial in all areas not being developed, but especially the 8m buffer zone that has been requested as part of Planning Condition 11 (20/00574/F dated 26th February 2020) in the planning conditions to protect Deddington Brook.

2.3 Natural and Physical Factors

2.3.1 ***Landform and Existing Site Conditions***

2.3.2 Both portions of the fields that are proposed to be covered by solar panels are currently a mixture of arable out of the flood plain (southern aspect) and grass within the flood plain (northern aspect). The boundary to the north and northeast is this buffer of pastoral land associated with the local stream and its related vegetation (this is well treed), to the southeast and south there is no formal boundary just the remainder of the 2 large fields and a redundant hedgerow, to the west the existing solar farm and its 2m high deer fencing form the boundary.

2.3.3 The access track that will be used for the build of the solar farm connects the Oxford Road (A4260) to the east of the site, this track follows the existing well used farm tracks, there is open arable fields to the south and hedgerows / trees to the north.

2.3.4 The left-hand field slopes gently from a southwest to northeast direction towards the stream at approximately 89m AOD to 86m AOD. The right-hand field slopes with a slightly greater incline from a south to north direction towards the stream at approximately 92m AOD to 86m AOD. The access track follows the local topography so varies in height from approx. 100m AOD at the Oxford Road to 88m AOD at the eastern edge of the solar farm

2.3.5 **Invasive Species**

2.3.6 There is no Japanese Knotweed present on site however if it were to be found on site within the future it will have significant management implications - Japanese Knotweed is classified as an invasive weed in the Wildlife and Countryside Act 1981, under which Schedule 9, Section 14 makes it an offence for anyone to knowingly allow the species to spread.

2.3.7 Other species that could be found on sites like this, are on Schedule 9 of the Wildlife and Countryside Act 1981 which makes it an offence to cause these species to spread in the wild. Landscape management procedures must control the spread of these species and the continued maintenance operations must be cognisant not to bring such species to site.

2.3.8 The site over time may also contain other notable weed species such as ragwort, docks and thistle which are specified under the Weeds Act 1959. The Weeds Act enables DEFRA to investigate complaints where there is a risk of weeds spreading to land used for grazing horses or livestock. It is important that management procedures ensure that effective control of the spread of these species when development occurs.

2.3.9 ***Control of Natural Succession***

2.3.10 Grassland habitats, such as those associated with the tussocky grassland and wildflower meadow areas, will require ongoing maintenance works to protect them from scrub invasion and over-enrichment which may result in the reduction of species rich habitats. It is important that any management operations undertaken within the development boundary are undertaken in accordance

with this report. Where there is any perceived conflict between the management recommendations, the site managers should seek the advice of the project Ecologist.

2.3.11 ***Sensitivity of Wildlife Habitats***

2.3.12 All landscape maintenance works and management strategies must be particularly sensitive to wildlife habitats and aim to promote establishment; and enhance the habitat diversity through the promotion of (i) foraging, roosting and connective habitat for bats; (ii) terrestrial habitats for bird nesting and (iii) bare ground for invertebrates (iv) potential foraging habitats for animals such as badgers.

2.3.13 In order to help protect the naturalness of any surrounding sites it is important not to introduce, or allow to spread, unmanaged populations of non-native plants that could contaminate the site or the surrounding habitats.

2.3.14 The future revisions of this management plan should be undertaken in line with objectives of the relevant UK Biodiversity Action Plans.

2.3.15 Due to the nature of this site as a wildlife enhancement area **there will be limited use of** herbicides or pesticides when undertaking landscape maintenance operation. This includes any application of glyphosate based substances, especially formulations containing the surfactant Polyethoxylated tallow amine (POEA) as research has shown that this element can cause high amphibian larvae mortality.

2.4 Social Factors

2.4.1 ***Public Amenity***

2.4.2 The balance of both wildlife conservation and public amenity interests should always be carefully managed in order to allow responsible public access and stimulate an interest in and sense of value for the natural environment whilst minimising disturbance to sensitive habitats and wildlife, however in this instance there will be no formal access allowed to site.

2.4.3 ***Undesirable Behaviour***

2.4.4 The design for the site has limited potential for unofficial public access. The necessity to control undesirable behaviour will need to be considered, but is not a priority, however it will influence access and boundary treatment within the site and will also need to be taken into account within the future management of the site, particularly in terms of levels of site monitoring in the short and medium term.

2.4.5 CCTV will be operational to the site boundaries, so it is hoped that this will be enough to deter the majority of the potential undesirable behaviour.

2.4.6 ***Narcotics, Solvents, etc*.**

2.4.7 Narcotic substances, solvents and associated equipment found in landscaped areas must not be touched or removed by the Contractor. The Contractor must immediately report his findings to the Police and inform the managing agent as soon as possible.

2.5 Legal Factors

2.5.1 ***Health and Safety Issues***

2.5.2 The interests of the public and employees, health and safety measures must be maintained at all times. In particular this will relate to issues of working at height, also the presence of dead wood within trees and potential for slips and trip hazards along the internal site pathways.

2.5.3 ***Compliance with Environmental Legislation***

2.5.4 The following legal and non-legal obligations must be considered in carrying out any management operations:

i The Health and Safety At Work Act 1974:

All operations carried out on site must only be undertaken by trained personnel, using methods and equipment approved by the Health and Safety Executive.

ii Wildlife and Countryside Act 1981:

There is an obligation to comply with legislation for UK species protected under this Act. Of particular relevance to the legislation relating to Japanese knotweed, great crested newts, breeding birds and bats.

iii Occupiers Liability Act 1984:

The Occupier's Liability Act imposes an obligation on the chosen management organisation (to be confirmed) to ensure that every reasonable care is taken to remove any risks to both legitimate visitors and to any trespassers on the reserve. In compliance, it will be necessary:

a. To make sure that all stiles, footpaths and any other structures are safe.
b. To remove any hazardous objects.
c. To conduct an annual safety audit in order to identify any further hazards.

iv The Conservation (Natural Habitats etc.) Regulations 1994:

There is an obligation to comply with legislation for European species protected under these regulations, notably great crested newts.

v Environmental Protection Act 1990:

There is an obligation to keep the site free from litter and refuse.

vi Protection of Badgers Act (1992)

Badgers are protected under this act and the Wildlife & Countryside Act (1981). Under this legislation it is an offence to:

- Destroy any part of a sett;
- Disturb any part of a sett;
- Obstruct access to entrances of setts;
- Disturb badgers in occupation of a sett; and,
- Take, kill or injure a badger.

vii Countryside and Rights of Way Act 2000

The CROW Act imposes a new right of access on foot to registered common land and other areas of 'open countryside' which under certain circumstances allows access without being confined to footpaths. It also increases the protection of great crested newts introducing the new offence of a 'reckless' act affecting great crested newts.

viii Environment Act 2021

Is an Act to make provision about targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes. Specific points to note in relation to this report are

- Strengthened biodiversity duty
- Strengthen woodland protection enforcement measures

DESIGN MANAGEMENT OBJECTIVES THREE

3.1 Objectives

3.1.1 The following objectives set out a framework for the future improvement and management of the site and provide the basis for development of specific maintenance operations. Many of the objectives are cross-cutting; recommended management operations will meet a number of different objectives;

3.1.2 ***Aim 1: Manage the Site Sustainably***

Objectives

- Promote an ecological based best practice management approach;
- Maximize the sustainability of site maintenance operations;
- Promote a cost-effective management strategy which demonstrates value for money;
- Comply with all statutory duties and demonstrate use of best practice, and
- Maintain a flexible management approach which responds to landscape change and user requirements.

3.1.3 ***Aim 2: Maintain and Enhance the Site's Amenity Value***

Objectives

- Maintain a high quality, visually attractive setting for employees and local residents without compromising ecological requirements;
- Maintain a high level of cleanliness and maintenance throughout the site, and
- Enhance and maintain amenity provisions throughout the site.

3.1.4 ***Aim 3: Conserve and Enhance the Character of the Landscape and its Ecological Value***

Objectives

- To take all practicable steps to minimise the impact of the development on the landscape at all levels and to encourage the continuity of the surrounding area;
- Protect and enhance local biodiversity and ecological value of the site, and
- Ensure that undesirable invasive weed species are removed and prevented from establishing on the site, whilst also encouraging the establishment of desirable species even if in a different location to originally designed and specified.

3.1.5 ***Aim 4: To Minimise Waste.***

Objectives

- This means the use of non-renewable resources in land management activities, to undertake site-wide composting and encourage recycling.

3.1.6 ***Aim 5: To Ensure Legal Compliance and Monitor Environmental Incidents.***

Objectives

- This is an essential requirement of any management and maintenance plan, and
- The management plan provides all the prescriptions for detailed monitoring of the physical environment that will enable successes to be recorded and adjustments for any difficulties encountered to be made.

MANAGEMENT INTENTIONS AND OPERATIONS FOUR

4.1 Routine Landscape Maintenance Operations

4.1.1 The principal landscape elements to be managed on the Solar Farm are summarised in the following chapters and tables, they are also illustrated on the Landscape Masterplan drawing as listed in the appendices.

4.1.2 The management prescriptions and measures provided below assume implementation of this design, and are set out to ensure establishment of the planting material, and promote its ongoing success.

Soft Landscape Elements
Existing Mature Trees and Woodland Blocks
Existing Hedgerows
Proposed Wet Woodland
Proposed Hedgerows
Proposed Grassland
Access Requirements
Plant Replacement
Fertilisers
Invasive Species

Hardscape and Structural Elements
Hard Surfaces
Signage
Fences

4.2 Soft Landscape Elements

4.2.1 ***Standards***

4.2.2 All soft landscape maintenance operations shall be undertaken to the following standards:

- BS 3882:2015 - Specification for topsoil
- BS 3936-1:1992 - Nursery stock. Specification for trees and shrubs
- BS 3936-10:1990 - Nursery stock. Specification for ground cover plants
- BS 3998:2010 - Tree work. Recommendations
- BS 4428:1989 – Code of practice for general landscape operations (excluding hard surfaces)
- BS 6031:2009 - Code of practice for earthworks
- BS 7562-4:1992 - Planning, design and installation of irrigation schemes. Guide to water resources
- BS ISO 15799:2019 Soil quality. Guidance on the ecotoxicological characterization of soils and soil material
- BS EN 12579:2013 - Soil improvers and growing media. Sampling
- BS EN 13037:2011 - Soil improvers and growing media. Determination of pH

4.2.3 ***Existing Mature Trees and Woodland Blocks***

4.2.4 The management of mature trees should be targeted towards maintaining their ecological diversity, safety and amenity value. During construction in and around trees, works should be undertaken in line with BS 5837: Trees in relation to construction.

4.2.5 An appropriately qualified arboriculturalist should carry out an annual inspection of mature specimen trees within or adjacent to areas of public access. These assessments should check for damage and disease to ensure that the tree is in a safe, sound condition, so as to maintain appropriate height clearances for safe pedestrian access. Any remedial arboricultural work will be carried out as soon as possible in order to ensure the longevity of the tree. It is important that an assessment for the presence of bat roost is undertaken prior to commencing tree works. When trees are ultimately felled, replacement planting is to be of the same species where necessary, or at least of a native long term deciduous species to maintain a diverse age structure.

4.2.6 *General Arboricultural Operations*

4.2.7 The following specifications are applicable to all arboricultural works onsite.

a. An appropriately qualified operative such as Arboriculturalist or Tree Surgeon must be consulted prior to undertaking any major tree works within the site.

b. Formative tree works must be undertaken during the winter months (preferably January – February) outside of the bird-breeding season.

c. Where bat roosts may be present, tree works must be authorised and supervised by an appropriately qualified ecologist.

d. Wood under 250 mm diameter collected from thinning, brashing, or coppicing should, wherever possible, be chipped and used on site for mulching, either by blowing directly back into planting

areas or by storing on site for future use. Larger timber should be retained on site where possible to provide dead wood habitat.

e. Trees for coppicing should be cut back to 50 cm above ground level. Where a number of stems are coppiced on one plant, cut faces are to slope away from the centre. Care should be taken to ensure that thinning operations do not cause damage to desirable plants, or rutting of the ground in wet conditions.

4.2.8 ***Existing Hedgerows***

4.2.9 Maintenance should seek to regain the definition of a hedgerow, with extending leaders which spread above the hedgerow line to be removed, and side branches to be pruned back in order to regain neat hedgerow height of approximately 2-3m or as suitable dependant on the condition / spread of the existing vegetation. All works should be timed to be undertaken outside of the bird breeding season, i.e. between September and February and preferably in January - February to allow foraging opportunities for wildlife through the winter.

4.2.10 Where hedgerows are required to be gapped up, depending on the size of the gaps and the specific scenarios the new gapped up sections will either need to conform to the existing hedgerows (shorter lengths) or the proposed hedgerows (longer lengths), judgement will need to be made at the time on site.

4.2.11 *Existing Hedgerow Long-term Management Requirements*

4.2.12 Once the hedgerow shape has been regained, subsequent hedge cuts should be undertaken every 2-3 years on rotation (except in areas where safety / visibility dictates otherwise), the established hedgerows will be cut so that 50% of each side is trimmed and the hedge is maintained to a minimum 3m high. As above works should be timed to be undertaken outside of the bird breeding season, i.e. between September and February and preferably in January - February to allow foraging opportunities for wildlife through the winter.

4.2.13 ***Wet Woodland Planting***

4.2.14 The new native wet woodland planting will comprise of a mixed palette of native tree and shrub species. Within the woodland block planting, the management approach should facilitate shrub establishment and encourage tree canopy. The initial management will therefore primarily comprise of the re-firming of trees / shrubs where required; regular beating up, strimming of weeds, grasses and other unwanted plant materials; spot control of ruderal weeds around shrub base by herbicide application, monitoring the condition of plant growth and minor restructuring through thinning to establish a diverse boundary structure. Occasional re-planting should take place when a gap of $5m^2$ or more occurs. After 5 years of growth, all tree guards should be removed.

4.2.15 Such management will involve undertaking a regular (i.e. annual) assessment of condition and structure of trees to inform future management requirements in relation to requirements for thinning, hazard tree work, formative pruning and addressing branch/stem breakages. An appropriate cyclical programme of thinning, felling, coppicing (e.g. 5-10yr cycle) should then be implemented, which increases species and structural diversity of the area, whilst also enhancing its amenity value. Coppicing should aim to improve the shrub structure and facilitate successful establishment of desirable specimen trees.

4.2.16 ***Wet Woodland Specifically Within the 8m Wide Ecological Buffer Zone Alongside Deddington Brook***[1]

4.2.17 Mixed scrub and tree planting will be created along the northern boundary (southern side of Deddington Brook) to create an ecological buffer between the solar farm and the brook. Planting will comprise a core of native UK woodland trees and shrub such as Sycamore, Cherry, Salix and Alder, with woodland edge species such as Alder, Silver Birch, Poplar, Pedunculate Oak and Goat Willow. Management in the long term will:

- Aim for the presence of at least two age classes of tree species;
- Aim to ensure no invasive species present;
- Promote open spaces within the wet woodland buffer;
- Leave any standing or fallen dead wood is left to support presence of invertebrates;
- Ensure no nutrient enrichment occurs.

4.2.18 Planting will occur in a 'haphazard' manner to create a random mix, with plant material conforming to the National Plant Specification. Plant handling will be in accordance with HTA Handling and Establishing Landscape Plants, Part I-III. All transplants to be notch-planted, and all bare root transplants to be protected with 1.2m high, biodegradable, tree guards/shelters.

4.2.19 A deer/rabbit-proof fence will be erected around the perimeter until the habitat has sufficiently established.

4.2.20 *Initial (establishment phase) Management Requirements*

The initial management will primarily comprise:

- The watering of newly planted trees (eg during drought conditions) when necessary;
- The re-firming of trees / shrubs where required;
- Regular beating up, strimming of weeds, grasses and other unwanted plant materials;
- Spot control of ruderal weeds around shrub base by herbicide application;
- Monitoring the condition of plant growth and minor restructuring through thinning to establish a diverse boundary structure. Occasional re-planting should take place when a gap of 5m^2 or more occurs;
- During establishment, inspections will be undertaken at a minimum of 6 monthly intervals for the first 3 years, and
- Plants/shrubs that have failed to thrive will be rectified and replaced with equivalent plants/shrubs. Replacements will match the size of adjacent or nearby plants of the same species. Making good will occur during the next suitable planting season.

[1] This is to meet condition 11 of the permission to develop, application number 20/00574/F.

- The new plantings will not be cut in the first growing season. In the second year, the previous season's growth will be trimmed back between November and early March by approximately half to encourage bushy growth. In the third year the lateral and lead branches and shoots will be trimmed back to give a more even shape.
- After shrubs have become established (potentially after 3 years), mechanical trimming can be used.

4.2.21 *Long-term management requirements*

4.2.22 The long-term management approach will continue to facilitate the development of a biodiverse habitat with mixed woodland vertical structure, support of on-going woodland regeneration, and a mix of age ranges (saplings through to mature in the long-term) and tree species present.

4.2.23 On-going management will comprise:

- After 5 years of growth, all tree guards should be removed;
- Annual assessment of condition and structure of trees to inform future management requirements in relation to requirements for thinning, hazard tree work etc. If heavy storm or flood damage is likely to have occurred, a visit is recommended to establish potential damage and remedial work;
- Removal of ruderal weeds and bramble scrub from base of trees/shrubs (no herbicides to be used);
- Monitoring the condition of plant growth to inform minor restructuring through thinning to establish a diverse boundary structure;
- Undertake a cyclical programme of thinning where required, leaving any standing or fallen dead wood;
- Suitable species will be coppiced (alder, every 10 years) or pollarded (willow, every 2 or 3 years) with the aim of rapidly attaining a woodland with varied vertical structure;
- Some standard trees will be retained within coppiced areas to retain diverse woodland ground flora;
- Natural regeneration of native woody species will be encouraged via the allowance of breaks in the canopy to allow young trees to develop, and
- The riparian edge habitats will be kept clear of bramble scrub, and managed through an annual autumn cut using light machinery, and cutting the sward to no less than 300mm.

4.2.24 ***Proposed Native Hedgerows***

4.2.25 Several new hedgerows will be planted and existing ones gapped up. They will aim to enhance site boundaries, maintain and enhance habitat connectivity and discouraging access across the adjacent sensitive wildlife habitats. Native UK species of a local provenance will be used, with hawthorn, blackthorn and hazel.

- All new planting will be carried out in December to March;
- Plant material to conform to the National Plant Specification;
- Plant handling to be in accordance with HTA Handling and Establishing Landscape Plants, Part I-III;
- The location of any overhead or underground services is to be checked on site by the contractor prior to any works being carried out and proposed landscaping will take into account requirements in and around utilities, and
- New hedgerow shrubs to be planted at 375mm centres in double staggered row at 6N^{o} plants per l/m.

4.2.26 *Initial (establishment phase) Management Requirements*

4.2.27 The management of newly planted hedgerows will be targeted towards encouraging vigorous growth of all species in order to quickly establish continuous boundaries that are expected to be a final height of -3m and a final width of 2-3m where space allows. Management operations during the establishment phase will comprise the following:

- Maintain a weed-free area around each shrub, minimum diameter the larger of 1m or the surface of the original planting pit;
- Water newly planted shrubs where necessary;
- weed control by hand 3 times a year, re-firming hedgerow plants as required and formative ‘facing up’ of the hedgerow to establish dense branch growth;
- Plants/shrubs that have failed to thrive will be rectified and replaced with equivalents;
- The new plantings will not be cut in the first growing season. In the second year, the previous season's growth will be trimmed back between November and early March by approximately half to encourage bushy growth. In the third year the lateral and lead branches and shoots will be trimmed back to give a more even shape;
- If used, rabbit guards will be removed when hedgerow species have reached sufficient maturity so as not to be susceptible to predation, and
- After any new section of hedgerow has become established (potentially after 3 years), mechanical trimming will be used.

4.2.28 *Maintenance of Young Specimen Trees in Hedgerows*

4.2.29 Where considered suitable within the existing landscape (not where they may over shadow solar panels), desirable young specimen trees growing through the existing hedge should be retained to compliment the aesthetic character and enhance ecological significance of the hedge line. Retention should favour native species that will not shade out hedgerow species, e.g. Oak. Trees should be retained at random spacing to ensure a naturalistic appearance, though should be at least 6m apart. These trees need to be marked with a Wooden Stake that sits approx. 1m above to enable them to be spotted easily.

4.2.30 *Long-term Management Requirements*

4.2.31 At this point once hedgerow shape has reached the desired shape and size the proposed hedgerows fall under the same maintenance regime as the existing hedgerows. Subsequent hedge cuts should be undertaken every 2-3 years on rotation (except in areas where safety/ visibility dictates otherwise), the established hedgerows will be cut so that 50% of each side is trimmed and the hedge is maintained to a minimum three metres high. As above works should be timed to be undertaken outside of the bird breeding season, i.e. between September and February and preferably in January - February to allow foraging opportunities for wildlife through the winter.

4.2.32 ***Proposed Grassland Areas***

4.2.33 Ground preparation and sowing is to be carried out as per the recommendations of the seed provider for all grassland areas. Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.

4.2.34 *EG10 - Tussock Grass Mixture* (By Emorsgate) is to be established on land outside of the security fence, but within site ownership along the site boundary. The best time to sow will be in the autumn or spring. Initially establishment season's mowing is to be to 4 to 6cm high to help control annual weeds, with later cuts being left longer to aid establishment.

4.2.35 Once the tussocky grassland is established, only 50% of the habitat should be mown per annum on a rotational basis. Unwanted perennial weeds (docks, thistles) may need to be controlled by selective scything before seeding. Scrub control will be required when woody stemmed growth (e.g. of brambles, blackthorn or tree seedlings) has developed, this could be done through cutting or with targeted herbicide application.

4.2.36 For wildlife, this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge. Mowing established tussocky grassland may require heavy duty cutting equipment where woody stemmed scrub growth has developed: lawn mowers are not tough enough to deal with thick tussocks or woody scrub. Tractor mounted flail mowers are suitable for large areas; petrol brush cutters (professional 'strimmers') are good for small or awkward areas. Tussock grassland is not as diverse as meadow grassland; however dense tussocks establish a layer of thatch that provide valuable shelter and over wintering areas. In order to expedite this establishment, the tussock grassland areas will have minimal maintenance and will not require harrowing or the removal of arisings.

4.2.37 *Grassland Buffer Edge* is to be established on land outside of the security fence, but within site ownership along the site boundary. It has been selected as it creates a low input grassland that will be supportive on many invertebrates and birds and provide valuable over wintering habitat. Establishment of this grassland is via management of the existing diverse grass sward that is being retained.

4.2.38 In the first summer, cutting the sward when it is 10cm tall will help to control weeds and encourage grasses to tiller. This may require three cuts. Removing the cut vegetation is desirable where this is possible, as swaths of cut grass lying on top of the sward suppress establishing plants. If possible, piling up cuttings away from sensitive areas to decompose can be useful egg-laying sites for grass snakes.

4.2.39 Routine management of the grassland areas should include cutting the grass sward at an acceptable time to prevent disturbance to ground nesting birds (i.e. no cuts to be undertaken between mid-March to late August). Scrub control will be required through cutting or targeted (limited) herbicide application. Scrub should not be allowed to become woody and dense.

4.2.40 ***General Access Requirements***

4.2.41 Access to the wider Solar Farm landscape will be provided for small vehicles for maintenance purposes only, this will be via the site, access gates have been positioned within the security fence to facilitate this.

4.2.42 ***Plant Replacements***

4.2.43 Undertake a monthly inspection of the plant stock during the first growing season to review its health and appropriateness in the scheme. Then submit a written report for recommendations if a need arises for main plant replacements at the end of the summer.

4.2.44 Prior to commencing plant replacement work confirm which plants are to be removed and replaced. Remove any dead, dying or diseased plants as agreed. Main plant replacements shall be undertaken during the next planting season. On-going plant replacements shall be undertaken to ensure that no significant gaps occur within the planting areas. Where persistent failures occur, investigate cause and make recommendations for replanting with different species.

4.2.45 ***Fertiliser***

4.2.46 Slow-release fertilizer shall be applied at the base of trees and shrubs in accordance with manufacturer's recommendations during spring through the plant establishment period if deemed necessary by annual soil testing results and recommendation.

4.2.47 Fertilisers and composts are not to be used in any of the grassland areas.

4.2.48 ***Invasive Species***

4.2.49 Pernicious weeds such as willowherb, dock, thistle and nettles should be controlled by manual pulling, with arising's collected for composting. Herbicide treatment should be limited to a controlled treatment of glyphosate and will require prior approval by the Environment Agency where within close proximity to waterbodies. Control mechanisms must be undertaken before the plant has set seed.

4.2.50 **Maintaining Hibernacula / Log Piles / Bird Boxes (If installed)**

4.2.51 These elements are to be managed and maintained with the highest sensitivity towards the wildlife they are designed for. They are to be left undisturbed as far as possible by the maintenance operations in this document. Where in doubt, leave these elements alone and unmaintained by the operations in this document. And speak with the project ecologist at the earliest opportunity.

4.3 Hard Landscape Elements

There are very few structural elements to be installed due to the nature of the solar farm. But it is still important that these features are appropriately maintained to retain both their functional and aesthetic properties.

4.3.1 ***Hard Surfaces***

4.3.2 All hard surfaces should be inspected on a regular basis (ideally quarterly) and minor repairs carried out promptly. Any hard surfacing considered to be unsafe must be removed or made safe and replaced as soon as possible. The use of materials for repairs and replacements will conform to the original design specification for external works. If for whatever reason an area of hard surfacing cannot be repaired as soon as it is identified, then the area needs to be clearly marked out to identify the problem.

4.3.3 The hard surface is intended to be only a small and simple element on site, this is limited to footings required for the containers and substation building. The internal maintenance access tracks will utilise existing access tracks where possible to minimise extent of new track required, and new tracks will be installed in a permeable MOT Type 3 or equivalent.

4.3.4 ***Signage***

4.3.5 Any interpretative and informative signs should be maintained to provide up to date information to site users (in this instance solar farm maintenance operatives), increasing their knowledge and understanding of the ecological issues specific to the site, and seek their co-operation in using particular routes, avoiding particularly sensitive areas or complying with temporary access restrictions.

4.3.6 Ensure that emergency access routes are free of obstructions.

4.3.7 ***Fences***

4.3.8 All fences should be inspected on a regular basis (ideally monthly or after significant winds) and minor repairs carried out promptly to prevent unauthorised access. Any item considered to be unsafe must be removed or made safe and replaced as soon as possible.

4.3.9 The use of materials for regular repairs (e.g. timber treatment to fencing), unforeseen repairs (e.g. due to wind damage), and replacements will conform to the original design specification for external works. It is important that all of these features are appropriately maintained, on a proactive basis, to retain both their functional and aesthetic properties.

4.4 Cleansing

4.4.1 ***General Cleansing Operations***

4.4.2 A general scavenge of all soft landscape elements and hard surfaces within the site should be carried out on a routine basis. Any maintenance team should strive to remove litter where found on site whether that is their purpose for being there or not. If they lack the required equipment to safely remove the found litter, the litter should be reported so that the appropriate team may come and remove it quickly.

4.4.3 All litter should be removed from site and disposed of in an authorised manner on a quarterly basis. If this proves to be insufficient for keeping the area litter free then the frequency must be increased as needed. When removing material from within or near to waterbodies care must be taken to check for amphibians, which may be hiding in or under items. Any amphibians found should be returned to suitable cover.

4.5 Site Inspections

4.5.1 ***General Site Inspections***

4.5.2 A high standard of site management is crucial to the success of the site as a whole and the landscape manger will be encouraged to be pro-active in managing the site. Regular inspection reports should be provided to the Site Agent. These reports should explain works underway and give deadlines for completion along with identification of any additional works required. Where there are significant cost implications for repairs, a dated photo should accompany the report.

4.5.3 ***Landscape and Habitat Inspections***

4.5.4 Annual inspections and assessments are required to vegetation and habitats in order to ensure the site is being managed appropriately. These inspections are to be undertaken as part of the maintenance operations on the site, but also need to include for the maintenance of the surrounding areas as any invasive management techniques may have knock on effects of the surrounding environment. These include;

- Tree hazard inspection: inspection of trees within or adjacent to areas of public access
- Assessment of condition and structure of trees (young structure planting areas) to assess requirements for thinning, beating up, hazard tree works, formative pruning and addressing branch/stem breakages.

4.5.5 Results from the monitoring procedures will be compiled and presented within the annual reports which will be used in the review of the management plan.

4.6 Periodic Replacements

4.6.1 An allowance has been undertaken for the site to provide for the periodic replacement of certain, mainly hard landscape elements that have a finite lifespan (fencing, gates, signage, light fitments etc).

4.7 Legal Management Issues

4.7.1 ***Environmental Liabilities and Obligations***

4.7.2 An important aspect of the site's management will be to manage environmental liabilities and obligations.

4.7.3 As a basic minimum, the Site Agent should undertake a detailed annual inspection of the site, looking for signs of disease, infestations, damage, unexpected dieback of vegetation etc. This will be part of the broader annual inspection of the site, which will also include Health and Safety and other issues. The Site Agent should also look for signs of problems during its quarterly site visits and at other times and will have a duty to report any concerns that they may have.

4.7.4 Where there are specific requirements for the site, which go beyond the basic minimum outlined above, the Site Agent should undertake more regular and specific monitoring. These should be outlined in an environmental risk management programme.

4.7.5 Specialist consultants may also be employed where more detailed and specialist support is required to investigate and resolve problems. The intention will be to identify problems early and take the necessary remedial action, thus minimising the potential harm that may be caused if the problem is allowed to develop.

4.7.6 ***Health and Safety***

4.7.7 In advance of taking on the site, the maintenance team should carry out / update a Health and Safety Risk Assessment for the operational and maintenance period with the client agent. This will be passed on to the managing agent who will take on general responsibility for Health and Safety under normal occupier's liability. The Site Agent should retain responsibility for the Health and Safety of the site. It should also review Health and Safety as part of its regular inspections of the site, including the annual inspection, as detailed earlier.

4.7.8 The site should be managed to comply with all relevant health and safety legislation, approved codes of practice (ACOP's) and Health and Safety Executive guidance. The managing agent will be responsible for ensuring that risk assessments are undertaken for the site as required under the Management of Health and Safety at Work Regulations 1999 and ACOP (L21), and for monitoring and reviewing the effectiveness of control measures implemented as a result of the risk assessment to ensure their effectiveness. It will take account of information passed on after the transfer of the site within the Health and Safety File and Site Risk Assessment undertaken by the Site Agent.

4.7.9 The managing agent will also be responsible for ensuring that accidents and incidents which occur on the site are reported to the relevant enforcing authority as required by the Reporting of Injuries, Disease and Dangerous Occurrences Regulations 1995.

MONITORING AND REVIEW FIVE

5.1 A system of monitoring performance in relation to the implementation of the landscape & ecological management plan, and for reviewing the contents and evolution of the landscape & ecological management plan will be agreed within the first year and periodically thereafter. A careful balance needs to be struck between ensuring that these inspections and reviews take place without it becoming a burden in its own right, which ends up distracting attention and resources from the actual management of the site.

5.2 Monitoring

5.2.1 Simple monitoring reports against key measures will be submitted to the client on an annual basis, together with and supporting financial information. Where required the client should seek the advice of a landscape architect, ecologist or similarly qualified individual to interpret any specific elements associated with the evolving landscape and habitats.

5.2.2 The Clients Agent should make periodic inspections of this site as follows: -

- An annual site meeting and review with the managing agent
- Quarterly (initially) formal site inspections with the managing agent
- Ad hoc unannounced inspections to be made as frequently as possible to review condition of entrances, site boundaries etc.

5.2.3 The results of all of the above will be documented and issues raised in writing with the managing partners.

5.3 Annual Report

5.4.1 An annual report will be produced by the landscape maintenance contractor, summarising the management of the site over the last year and the measures achieved. This will be submitted to the client agent and other key partners (where required).

5.4 Review

5.4.1 The management plan will be reviewed on a 5 yearly basis by a suitably qualified professional and other consultants / key partners to ensure that the plan is meeting the original management aims and objectives and responding to the developing needs of the site. The review will include both the management of the habitats and the uses and activities promoted and undertaken on the site.

5.5 Independent Audit

5.5.1 The management of this site will be audited by the project ecologist and site agent to ensure that the planting and habitat elements are achieving the establishment success that is required from an aesthetic / tenant visual perspective, whilst fulfilling an important contribution to the creation of a habitat matrix for the local area.

5.6 Financial Provision

5.6.1 The financial provision for undertaking the works described within this report will come from Greenhealth NRG limited, who are the named body responsible for the site and our client.

APPENDICES

Appendix One

Maintenance Operations and Frequencies Table

Appendix Two

Applied Landscape Design drawings:

Outside of Redline Boundary Planting Scheme ALD848_PL401

Appendix One

Maintenance Operations and Frequencies Table

MAINTENANCE OPERATIONS TABLE APPENDIX ONE

Maintenance Operations and Frequencies Table

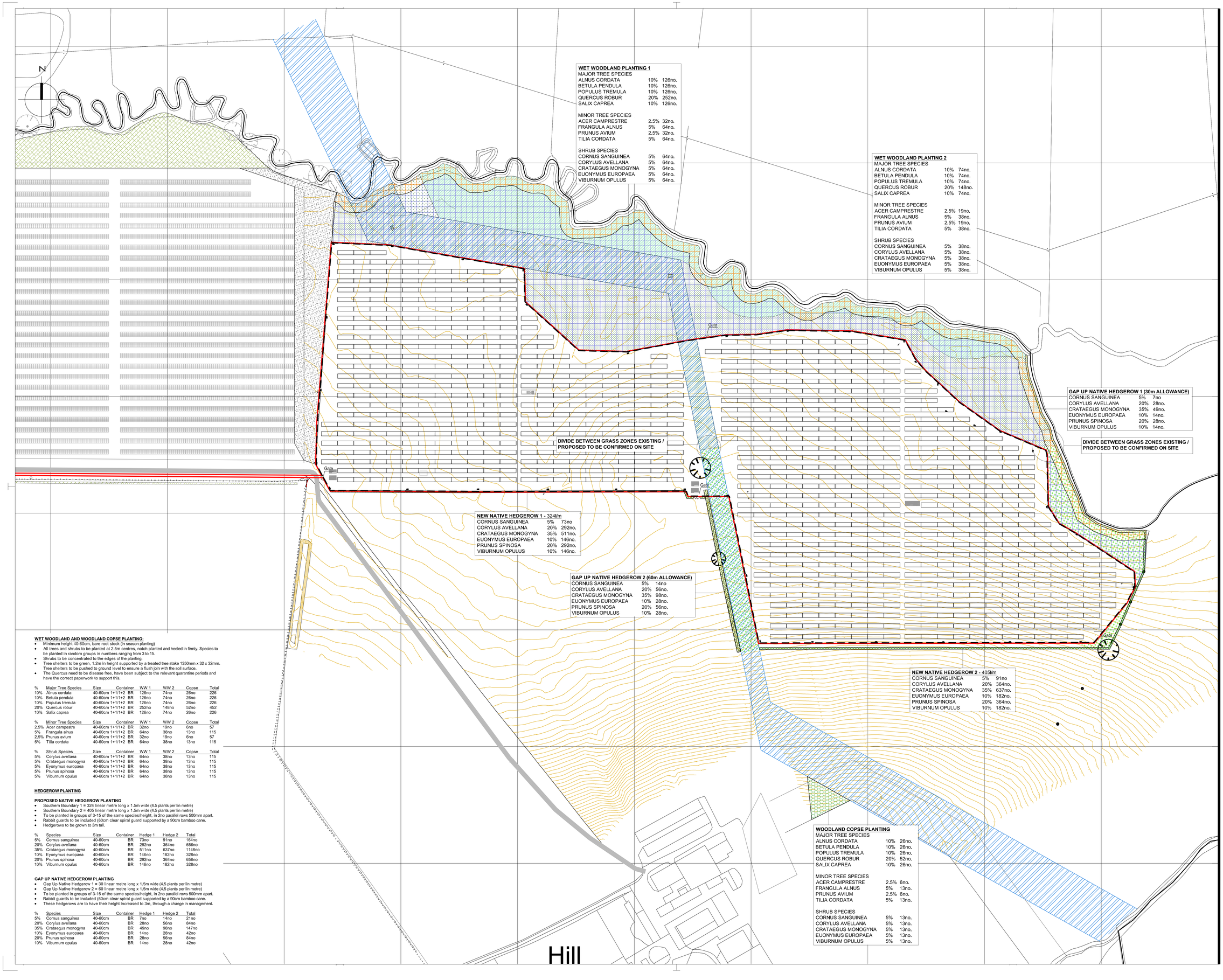
Maintenance Operations and Frequencies For the Proposed Duns Tew Energy Park																								Mar-23
Ref	Action	Year of work										No of ops/yr	Month of Operation												Notes
		1	2	3	4	5	6	7	8	9	10		Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Wet Woodland Planting																									
FERTILISER	Application of fertilizer as required.	*PROVISIONAL*										NA			*	*									
WEED / UNDESIRABLE SPECIES CONTROL	Regular beating up, strimming of weeds, grasses and other unwanted plant materials; spot control of ruderal weeds around shrub base by herbicide application	*	*	*	*	*	*	*	*	*	*	4					**1**		**1**	**1**		**1**			
PRUNING	Annual prune of current years growth to promote new growth if required, enhance vigour, prevent encroachment and facilitate ease of access. Consider individual species requirements, and utilise a free-form pruning style to retain the plant's natural form.	*	*	*	*	*	*		*		*	1											**1**		
TREE STABILISATION	Re-firming of trees / shrubs where required. It is anticipated that they will need adjusting at least twice annually	*	*	*	*	*						2			**1**								**1**		
RABBIT GUARDS	Remove individual rabbit guards where no longer required to facilitate desired growth	*	*	*	*	*						2			**1**								**1**		
WATERING	Water newly planted shrubs where necessary	*PROVISIONAL*										*NA*			*	*	*	*	*	*	*	*			
TREE WORKS	Remedial arboricultural works as required in response to annual inspection - including tree safety checks and procedures	*PROVISIONAL*										NA	*	*									*	*	
	Standard trees - Maintain clear stem height: 2000mm (not applicable for multistem trees / coppiced trees)	*	*	*	*	*	*	*	*	*	*	1	*	*								*	*	*	
	Removal of basal and epicormic growth and deadwood. Deadwood to be removed and retained on site within habitat piles where feasible.	*	*	*	*	*	*	*	*	*	*	1	*	*										*	
	Crown pruning as required to maintain form, health and vigour.	*PROVISIONAL*										NA	*	*									*	*	
COPPICING	Multistemmed Hazels (Corylus avellana) to be coppiced on a 5 - 10 year rotational cycle), Plants to be cut on a cyclical regime to achieve a diverse age structure. Plants to be cut down to 1 - 15cm above ground level. Avoid creating sharp ends to cuts. Cut material to be composted off site, branches to be used as habitat enhancement piles. First coppice cut to be 5 years from planting.					*	*			*	*	1	*	*								*	*	*	
Proposed Native Hedgerows																									
MAINTENANCE	Formative 'facing up' of the hedgerow to establish dense branch growth and encourage form and vigour and prevent encroachment onto adjacent areas.	*	*	*	*	*						3	**1**		**1**							**1**			
WEED / UNDESIRABLE SPECIES CONTROL	Strimming of weeds, grasses and other unwanted plant materials; spot control of ruderal weeds around shrub base by herbicide application	*	*	*	*	*	*	*	*	*	*	4					**1**		**1**	**1**		**1**			
RABBIT GUARDS	Remove individual rabbit guards where no longer required to facilitate desired growth	*	*	*	*							2			**1**								**1**		
WATERING	Water as necessary during establishment period and during dry spells	*PROVISIONAL*										NA			*	*	*	*	*	*	*	*			
Wet Woodland Planting - Within the 8m Buffer Zone																									

Maintenance Operations and Frequencies For the Proposed Duns Tew Energy Park																								**Mar-23**
Ref	**Action**	**Year of work**										**No of ops/yr**	**Month of Operation**												**Notes**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		**Jan**	**Feb**	**Mar**	**April**	**May**	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	
FERTILISER	Application of fertilizer as required.	*PROVISIONAL*										NA			*	*									
WEED / UNDESIRABLE SPECIES CONTROL	Regular beating up, strimming of weeds, grasses and other unwanted plant materials; spot control of ruderal weeds around shrub base by herbicide application	*	*	*	*	*	*	*	*	*	*	4					**1**		**1**	**1**		**1**			
RIPARIAN EDGE HABITATS	One cut per year in the autumn - to a minimum 300mm		*	*	*	*	*	*	*	*	*	1										**1**			
PRUNING	Annual prune of current years growth to promote new growth if required, enhance vigour, prevent encroachment and facilitate ease of access. Consider individual species requirements, and utilise a free-form pruning style to retain the plant's natural form.		*	*	*	*	*		*		*	1											**1**		
TREE STABILISATION	Re-firming of trees / shrubs where required. It is anticipated that they will need adjusting at least twice annually	*	*	*	*	*						2			**1**								**1**		
RABBIT GUARDS	Remove individual rabbit guards where no longer required to facilitate desired growth	*	*	*	*	*						2			**1**								**1**		
WATERING	Water newly planted shrubs where necessary	*PROVISIONAL*										*NA*			*	*	*	*	*	*	*	*			
TREE WORKS	Remedial arboricultural works as required in response to annual inspection - including tree safety checks and procedures	*PROVISIONAL*										NA	*	*									*	*	
	Standard trees - Maintain clear stem height: 2000mm (not applicable for multistem trees / coppiced trees)	*	*	*	*	*	*	*	*	*	*	1	*	*								*	*	*	
	Removal of basal and epicormic growth and deadwood. Deadwood to be removed and retained on site within habitat piles where feasible.	*	*	*	*	*	*	*	*	*	*	1	*	*										*	
	Crown pruning as required to maintain form, health and vigour.	*PROVISIONAL*										NA	*	*									*	*	
COPPICING	Multistemmed Hazels (Corylus avellana) to be coppiced on a 2 - 3 year rotational cycle), Alder (Alnus glutinosa) every 10 years. Plants to be cut on a cyclical regime to achieve a diverse age structure. Plants to be cut down to 1 - 15cm above ground level. Avoid creating sharp ends to cuts. Cut material to be composted off site, branches to be used as habitat enhancement piles. First coppice cut to be 5 years from planting.					*	*			*	*	1	*	*								*	*	*	

Maintenance Operations and Frequencies For the Proposed Duns Tew Energy Park																								Mar-23
Ref	Action	Year of work										No of ops/yr	Month of Operation												Notes
		1	2	3	4	5	6	7	8	9	10		Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Proposed Grassland - Tussock Grass																									
ENHANCEMENT CUTTING	Establishment season's mowing is to be to 4 to 6cm high to help control annual weeds, with later cuts being left longer to aid establishment Arisings are to be left on the ground for 2-3days to dry and allow seeds to drop.	*										7				1	1	1	1	1	1	1			
MAINTENANCE CUTTING	Rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge		*	*	*	*	*	*	*	*	*	1										1			
WEED / UNDESIRABLE SPECIES CONTROL	Scrub and bramble development in tussocky areas need cutting every 2-3 years between October and February, with the removal of arisings		*	*	*	*	*	*	*	*	*	As required	*	*								*	*	*	
WATERING	Water seed beds during establishment following prolonged periods of drought	*PROVISIONAL*										NA				*	*	*	*	*	*	*			
Proposed Grassland - Grassland Buffer Edge																									
ENHANCEMENT CUTTING	Establishment season's mowing is to be to help control annual weeds, with later cuts being left longer to aid establishment	*										3					1		1			1			
MAINTENANCE CUTTING	One cut per year in the autumn		*	*	*	*	*	*	*	*	*	1										1			
WEED / UNDESIRABLE SPECIES CONTROL	Scrub control will be required through cutting or targeted herbicide application. Scrub should not be allowed to become woody and dense		*	*	*	*	*	*	*	*	*	As required	*	*								*	*	*	
WATERING	Water seed beds during establishment following prolonged periods of drought	*PROVISIONAL*										NA				*	*	*	*	*	*	*			
OTHER SOFTWORKS ITEMS GENERALLY																									
DEFECTIVE PLANTS	Any failed plants following the 12 months defects period after implementation, should be replaced as necessary within the appropriate planting season using like for like species.	*										asap	*	*	*							*	*	*	
FERTILISER	Establishment of new planting: Fertiliser type and application rate to be confirmed in annual soil test by qualified soil scientist. To be applied to the base of trees / shrubs Spreading: spread evenly, carefully lift and replace any mulch materials. Slow release fertilizer shall be applied at the base of trees and shrubs in accordance with manufacturer's recommendations during spring through the plant establishment period	*PROVISIONAL*										NA			*	*	*								
SOIL DECOMPACTION AND AERATION	Spike / prick up soil using a hand fork to aerate the soil and break surface crust. Reduce crumb and level off. Do not damage plants / bulbs and their roots	*	*	*	*	*						2 (after maintenance works)	*	*	*	*	*	*	*	*	*	*	*	*	

Maintenance Operations and Frequencies For the Proposed Duns Tew Energy Park																								Mar-23
Ref	Action	Year of work										No of ops/yr	Month of Operation												Notes
		1	2	3	4	5	6	7	8	9	10		Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
HARD LANDSCAPE ELEMENTS																									
HARD SURFACES	All hard surfaces should be inspected on a regular basis and minor repairs carried out promptly. If for whatever reason an area of hard surfacing cannot be repaired as soon as it is identified, then the area needs to be clearly marked out to identify the problem.	*	*	*	*	*	*	*	*	*	*	4			1			1			1			1	
	Glyphosate application to weeds within hard surfacing. Allow for brushing and removal of moss as required.	*	*	*	*	*	*	*	*	*	*	4			1			1			1			1	
	Repairs to surfacing as required (as identified in quarterly site inspection reports).	*PROVISIONAL*										*NA*	*	*	*	*	*	*	*	*	*	*	*	*	
SIGNAGE	Interpretative and informative signs should be maintained to provide up to date information to site users as required	*PROVISIONAL*										*NA*	*	*	*	*	*	*	*	*	*	*	*	*	
FENCES	All fences should be inspected on a regular basis (ideally monthly or after significant winds) and minor repairs carried out promptly to prevent unauthorised access	*	*	*	*	*	*	*	*	*	*	12	1	1	1	1	1	1	1	1	1	1	1	1	
MONITOR AND REVIEW																									
ARBORICULTURAL ASSESSMENT	Undertake Annual Arboricultural Assessment	*	*	*	*	*	*	*	*	*	*	*NA*	*										*	*	To be undertaken by a qualified Arboriculturalist
REPORTS	Simple monitoring reports against key measures will be submitted to the client on a annual basis, together with financial information. Where required the client should seek the advice of a landscape architect or similarly qualified individual to interpret any specific elements	*	*	*	*	*	*	*	*	*	*	1						1							
	Hedgerow Planting / Grasslands - Monitor success and inform changes to management against the BNG Targets at Years 2, 5, 10, 15, 20, 25, 30, 35 and 40	*	*	*	*	*	*				*	1						1							To be undertaken by a qualified Ecologist
	All Habitats - Monitor success and inform changes to management / Planning Authority: 1. extent of habitats on site; 2. realistic constraints to net gain being realised, and 3. proposed rectifying actions to meet targets																								To be undertaken by a suitable experienced contractor
	An annual report will be produced by the landscape maintenance contractor, summarising the management of the site over the last year and the measures achieved	*	*	*	*	*	*	*	*	*	*	1						1							
Key	* Operation to be undertaken as required during specified period																								

APPLIED LANDSCAPE DESIGN DRAWINGS APPENDIX TWO



WET WOODLAND AND WOODLAND COPSE PLANTING:

- Minimum height 40-60cm, bare root stock (in season planting)
- All trees and shrubs to be planted at 2.5m centres, notch planted and heeled in firmly. Species to be planted in random groups in numbers ranging from 3 to 15.
- Shrubs to be concentrated to the edges of the planting.
- Tree shelters to be green, 1.2m in height supported by a treated tree stake 1350mm x 32 x 32mm. Tree shelters to be pushed to ground level to ensure a flush join with the soil surface.
- The Quercus need to be disease free, have been subject to the relevant quarantine periods and have the correct paperwork to support this.

%	Major Tree Species	Size	Container	WW 1	WW 2	Copse	Total
10%	Alnus cordata	40-60cm	1+1/1+2 BR	126no	74no	26no	226
10%	Betula pendula	40-60cm	1+1/1+2 BR	126no	74no	26no	226
10%	Populus tremula	40-60cm	1+1/1+2 BR	126no	74no	26no	226
20%	Quercus robur	40-60cm	1+1/1+2 BR	252no	148no	52no	452
10%	Salix caprea	40-60cm	1+1/1+2 BR	126no	74no	26no	226

%	Minor Tree Species	Size	Container	WW 1	WW 2	Copse	Total
2.5%	Acer campestre	40-60cm	1+1/1+2 BR	32no	19no	6no	57
5%	Frangula alnus	40-60cm	1+1/1+2 BR	64no	38no	13no	115
2.5%	Prunus avium	40-60cm	1+1/1+2 BR	32no	19no	6no	57
5%	Tilia cordata	40-60cm	1+1/1+2 BR	64no	38no	13no	115

%	Shrub Species	Size	Container	WW 1	WW 2	Copse	Total
5%	Corylus avellana	40-60cm	1+1/1+2 BR	64no	38no	13no	115
5%	Crataegus monogyna	40-60cm	1+1/1+2 BR	64no	38no	13no	115
5%	Eyonymus europaea	40-60cm	1+1/1+2 BR	64no	38no	13no	115
5%	Prunus spinosa	40-60cm	1+1/1+2 BR	64no	38no	13no	115
5%	Viburnum opulus	40-60cm	1+1/1+2 BR	64no	38no	13no	115

HEDGEROW PLANTING

PROPOSED NATIVE HEDGEROW PLANTING

- Southern Boundary 1 = 324 linear metre long x 1.5m wide (4.5 plants per lin metre)
- Southern Boundary 2 = 405 linear metre long x 1.5m wide (4.5 plants per lin metre)
- To be planted in groups of 3-15 of the same species/height, in 2no parallel rows 500mm apart.
- Rabbit guards to be included (60cm clear spiral guard supported by a 90cm bamboo cane.
- Hedgerows to be grown to 3m tall.

%	Species	Size	Container	Hedge 1	Hedge 2	Total
5%	Cornus sanguinea	40-60cm	BR	73no	91no	164no
20%	Corylus avellana	40-60cm	BR	292no	364no	656no
35%	Crataegus monogyna	40-60cm	BR	511no	637no	1148no
10%	Eyonymus europaea	40-60cm	BR	146no	182no	328no
20%	Prunus spinosa	40-60cm	BR	292no	364no	656no
10%	Viburnum opulus	40-60cm	BR	146no	182no	328no

GAP UP NATIVE HEDGEROW PLANTING

- Gap Up Native Hedgerow 1 = 30 linear metre long x 1.5m wide (4.5 plants per lin metre)
- Gap Up Native Hedgerow 2 = 60 linear metre long x 1.5m wide (4.5 plants per lin metre)
- To be planted in groups of 3-15 of the same species/height, in 2no parallel rows 500mm apart.
- Rabbit guards to be included (60cm clear spiral guard supported by a 90cm bamboo cane.
- These hedgerows are to have their height increased to 3m, through a change in management.

%	Species	Size	Container	Hedge 1	Hedge 2	Total
5%	Cornus sanguinea	40-60cm	BR	7no	14no	21no
20%	Corylus avellana	40-60cm	BR	28no	56no	84no
35%	Crataegus monogyna	40-60cm	BR	49no	98no	147no
10%	Eyonymus europaea	40-60cm	BR	14no	28no	42no
20%	Prunus spinosa	40-60cm	BR	28no	56no	84no
10%	Viburnum opulus	40-60cm	BR	14no	28no	42no

All dimensions to be verified on site. Figured dimensions to take precedent to those scaled. Any areas indicated on this drawing are for guidance only, no responsibility is taken for their accuracy.

CDM/H&S

The works illustrated on this drawing have been reviewed against the Design CDM Risk Register and significant risks are noted as:

Construction:
- Proximity to water
- Low-lying, potentially boggy grounds in wet conditions
- Rough pasture, naturally undulating surface.
- Proximity of the site

Maintenance:
- Proximity to water
- Low-lying, potentially boggy grounds in wet conditions
- Rough pasture, naturally undulating surface.

Operation:
- Proximity to water
- Low-lying, potentially boggy grounds in wet conditions
- Rough pasture, naturally undulating surface.

NOTES / KEY:

SOLAR FARM SITE BOUNDARY

DEER FENCING
2m high, wooden fence posts every 4m with galvanized steel standard deer fence mesh

EXISTING TREES
To be retained

EXISTING WOODLAND
Immature and installed as part of the 2015 solar farm

EXISTING HEDGEROW
Immature and installed as part of the 2015 solar farm. To be maintained to height of 2.0m high.

EXISTING GRASSLAND
Various grassland areas installed as per of the 2015 solar farm

SITE TOPO / CONTOURS
Existing contours to remain unchanged

WET WOODLAND PLANTING
Zone for mixed broadleaved trees and shrubs at 2.5m centres, to be planted into existing grass. The whole are is not to be covered in planting. When planting respect existing stream side vegetation by allowing a 10m buffer, Graduate the planting into the grass area, minimal straight edges.

WOODLAND COPSE
Mixed broadleaved trees at 2.5m centres

NATIVE HEDGEROW PLANTING
4.5 shrub plants per lin metre 2no. rows 500mm apart. Ultimate height of planting 3m

GAP UP EXISTING HEDGEROW
Where required - 4.5 shrub plants per lin metre, 2no. rows 500mm apart. Management regime change to bring hedge upto 3m in height.

GRASSLAND BUFFER EDGE
To be created via management of existing diverse grass sword retained for creation of habitat suitable for nesting for Skylarks.

SEEDED GRASSLAND BUFFER EDGE
Tussock Grass Mixture by Emorsgate EG10. Sowing rates 2g/m2

WATERMAIN BUFFER
Existing below ground water main, the blue hatch represents the easement required where no development can occur

DEDDINGTON BROOK 8M BUFFER ZONE
Zone showing LPA requested minimum 8m wide ecological buffer zone alongside Deddington Brook - to be free from built development.

PROJECT BUFFER ZONE
Zone showing the additional (beyond 8m noted above) ecological buffer zone alongside Deddington Brook also being offered up by the project - to be free from built development.

NOTE:
All tree planting to be in accordance with BS8545:2014 and all landscaping in accordance with BS4428: 1989.

Existing levels to remain unchanged across the site, therefore no tree root-plates will be adversely affected.

No trees or hedgerows to be felled / removed as part of the solar farm development.

REFERENCE DRAWINGS/DOCUMENTS

REVISIONS

no.	Issued	date
P05	Addition of Buffer Zone	21.02.2023
P04	Solar Array & Site Boundary Change	19.11.2019
P03	Site Boundary Change	24.10.2019
P02	Final Issue	22.10.2019
P01	Draft Issue	18.10.2019

CLIENT:

GREENHEATH NRG LTD

LANDSCAPE ARCHITECT:

The Threshing Barn
Bignell Park Barns
Chesterton, Nr. Bicester
Oxfordshire,OX26 1TD

Tel: 01869 249776
Email: mail@appliedlandscape.co.uk

PROJECT:

SOLAR FARM,
DUNS TEW ENERGY PARK,
OXFORDSHIRE

DRAWING TITLE:

OUTSIDE OF REDLINE BOUNDARY
PLANTING SCHEME

drawn:	checked:
CB	KmJ
scale:	date:
1:500 @A0	18.10.2019
status:	xref file ref:
Planning	ALD848_PLbase

PROJECT NO.	DRAWING NUMBER:	REVISION:
ALD848	PL401	P05 WIP

ORIGINAL A0 SIZE SHEET