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MILFORD ROAD WASTEWATER TREATMENT WORKS HABITAT MANAGEMENT PLAN

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HABITAT MANAGEMENT PLAN

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1. INTRODUCTION

1.1 Background

Ramboll UK Limited ("Ramboll") was commissioned by Downing Renewable Developments LLP (the "client") to advise and report on enhancing and protecting the ecological value of land off Milford Road, Lymington (the "site") through the preparation of a Habitat Management Plan (HMP). This report is required to support a planning application for a proposed solar PV array (the "proposed development").

The site is located at Ordnance Survey (OS) grid reference SZ309933, approximately 2.3 km to the south-west of Lymington.

An Ecological Impact Assessment (EcIA), Habitats Regulations Assessment (HRA), and Biodiversity Net Gain (BNG) Assessment have been produced by Ramboll and accompany the planning application.

These reports (and this HMP) have been informed by:

- A desk study (including data provided by Hampshire Biodiversity Information Centre and Wetland Bird Survey data);
- An extended UK habitat (UKHab) survey with Habitat Condition Assessment (conducted in September 2023); and
- Reptile presence / absence surveys (conducted between September and October 2023).

1.2 Proposed Development

The proposed development comprises the installation of a 860 kW solar PV array on land adjacent to Southern Water's existing Wastewater Treatment Works (WTW) at Milford Road, Pennington.

The aim of the project is to reduce the need to purchase energy from the national grid, with the project also contributing towards Southern Water's target of carbon zero by 2030, and helping Southern Water achieve its target of 25% of Southern Water energy consumption being generated by renewable energy at this WTW.

1.3 Habitat Management Plan – Context and General Aims

This HMP considers the required management for retained and enhanced habitats, and newly created habitats, in relation to biodiversity and for a period of up to 30 years after completion of the development.

Section 2 presents key information with regard to the site setting, existing ecological features, and the proposed landscaping for the development.

Section 3 addresses the measures to be implemented during the construction stage to minimise the impact of the proposed development on wildlife, by specifying the programming of work, measures for protecting existing ecological features, responses to unexpected wildlife on site, and training of site maintenance staff.

Section 4 proposes measures to ensure that the habitats provided by the development of the site are created and maintained as appropriately to fulfil specific biodiversity requirements. It also outlines the recommended locations and specifications for discrete protected species features, with prescriptions for long-term maintenance and monitoring.

The time period over which this plan should be implemented is 30 years, in compliance with the required timeframes associated with BNG. On-going monitoring of habitats will inform the need for remedial action or alterations to these management prescriptions. This document should therefore be updated (if required) at Years 5, 10 and 20.

1.4 Assumptions

This report is not intended as legal advice, nor an exhaustive review of site conditions and/or compliance. Unless otherwise stated in this report, the assessment and conclusions made assume that the site will continue to be used for its current purpose and end-use without significant changes either on-site or off-site.

2. SITE INFORMATION

2.1 General Information

Site Name:	Milford Road Wastewater treatment Works
Location:	Lymington
National Grid Ref:	SZ309933
Site Area:	1.81 hectares (ha)
Site Owner:	Southern Water
Site Manager:	Southern Water
Contractor:	Downing Renewable Developments LLP
Planning Authority:	Hampshire County Council
Local Council:	New Forest District Council

2.2 Existing Site Information

The site is to the southwest of Lymington in Hampshire, directly adjacent to the existing Southern Water operational WTW and existing Pennington Recycling Centre Solar Farm.

The site is surrounded by agricultural fields, which are predominantly pastoral. There are several blocks of woodland within close proximity to the site (immediately south of the site and west of the WTW) and the southern coastline is approximately 1.6 km from the site at its closest point. The Avon Water runs north to south through the landscape, approximately 250 m west of the site, and there are several ponds within close proximity, approximately 50m to the east.

Adjacent and surrounding land uses include:

- North by pastoral fields and beyond those, the town of Lymington;
- East by Milford Road and the New Milton Sand and Ballast site;
- South by the Pennington Recycling Centre Solar Farm and further pastoral fields; and
- West by the existing Southern WTW and beyond that, the Avon Water and associated woodland and riparian habitats.

2.3 Existing Ecological Information

2.3.1 Habitats

Baseline habitats at the site comprise part of a horse-grazed grassland field, with scattered scrub at the south end and dense scrub surrounding the site (although the majority of this is outside of the application boundary).

There is a Public Right of Way (PRoW) running the entire length of the eastern boundary of the site, with a stock fence separating the field from the PRoW and the adjacent boundary hedgerow. There is similar stock fencing around the south and west perimeters of the field. There are no built structures on the site.

A baseline habitat plan for the proposed development area is provided at Appendix 1, Baseline UKHab Plan.

2.3.2 Species

The site is within close proximity to the Solent and Southampton Water Special Protection Area (SPA) and Ramsar Site, which are designated for its associated assemblages of over-wintering birds (specifically species of waders and geese). The site itself is not suitable for these species, however, the field adjacent to the site (on the opposite side of Milford Road) has been identified as a Core Area within the Solent Wader and Brent Goose Strategy (2020)¹.

During reptile surveys in 2023, a single juvenile slow worm (*Anguis fragilis*) was recorded adjacent to off-site dense scrub at the south-east corner of the site. No other reptiles were recorded during these surveys.

The site itself is of no more than site level importance for all other protected or notable species considered within the EcIA.

2.4 Legal Requirements

The Environment Act (2021) sets out an obligation for development projects to achieve a mandatory 10% net gain in biodiversity value of the site, including approval of a Biodiversity Net Gain Management Plan and protection of newly created / enhanced habitats for 30 years post-consent. This requirement will come into force in January 2024, when the Environment Act is set to amend the Town and Country Planning Act (1990 as amended).

2.4.1 New Forest District Council Local Plan 2016-2036²

The following policies outlined within the New Forest District Council Local Plan 2016-2036 are relevant to biodiversity:

ENV1 Mitigating the impacts of development on International Nature Conservation Sites

Where harmful impacts are identified to be likely, development can only take place where that harm is avoided, or fully mitigated if it cannot be avoided. Avoidance of harm is best achieved by not locating high impact activities in sensitive locations, but within the Plan Area this cannot be wholly avoided. Where harmful effects cannot be ruled out, the requirements of the Conservation of Habitats and Species Regulations 2017 can best be met by applying the Precautionary Principle to avoid or mitigate possible harm. Mitigation measures will be applied until such time as it can be demonstrated (based on monitoring and review of the impact of mitigation measures through the Local Plan review process) that it can reasonably be concluded that development is unlikely to have a harmful effect on International Nature Conservation sites.

Saved Policy DM2 Nature conservation, biodiversity, and geodiversity

Development proposals which would be likely to adversely affect the integrity of a designated or candidate Special Area of Conservation (SAC), classified or potential Special Protection Area (SPA), or listed Ramsar site will not be permitted unless there is no alternative solution and there are imperative reasons of overriding public interest which would justify the development.

Development proposals within or outside a Site of Special Scientific Interest (SSSI) which would be likely to adversely affect the site will not be permitted unless the benefits of the development outweigh both the adverse impacts on the site and any adverse impacts on the wider network of SSSIs.

Development which would result in damage to or loss of a site of biodiversity or geological value of regional or local importance (including Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), Regionally Important Geological/Geomorphological Sites (RIGGS),

¹ Whitfield, D (2020) Solent Waders and Brent Goose Strategy Hampshire and Isle of Wight Wildlife Trust. Curdridge.

² New Forest District Council Local Plan 2016-2036 [online] www.newforest.gov.uk/article/1510/Local-Plan-2016-2036-part-1-Planning-strategy [December 2023]

and habitats of species of principal importance for biodiversity) will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.

Development proposals will be expected to incorporate features to encourage biodiversity and retain and, where possible, enhance existing features of nature conservation value within the Site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity.

Where development is permitted, the local planning authority will use conditions and/or planning obligations to minimise the damage, provide mitigation and Site management measures and, where appropriate, compensatory and enhancement measures.

Development will not be permitted which would adversely affect species of fauna or flora that are protected under national or international law, or their habitats, unless their protection can be adequately secured through conditions and/or planning obligations.

Saved Policy DM9 Green Infrastructure Links

Development proposals should maintain, and where possible enhance, the integrity of the network of green infrastructure within settlements.

In designing new development, even where the loss of some trees and hedgerows or other existing green infrastructure is unavoidable, developers should seek to:

- Retain identified 'Landscape features';
- Minimise the loss of existing 'green' features on a site;
- Maximise the potential to create links with adjoining green infrastructure;
- Provide natural green spaces within a development; and
- Maintain or create wildlife corridors through a site.

The following green infrastructure linkage features, which have an important role in providing connectivity between other green infrastructure and open spaces, will be identified in the Green Infrastructure Strategy Supplementary Planning Document:

- i. 'Green links between green spaces within the settlements and between the built-up area and the countryside;
- ii. 'Green buffers' between development and major transport routes;
- iii. Tree-lined streets and streets with spacious verges; and
- iv. Watercourses and their banks.

The presence of these features should be considered and influence the design of development proposals.

Nesting birds are protected by the Wildlife and Countryside Act 1981 (as amended). It is recommended that any suitable habitat including grassland, scrub and plantation are removed between September and February to avoid the risk of damaging bird nests.

2.5 Ecological Recommendations

The majority of the habitats temporarily impacted by the proposed development will be reinstated post-installation of solar panels. These include areas of neutral grassland and mixed scrub, with modified grassland introduced into the proposed development around the perimeter of the site.

See Appendix 2, Post-Development UKHab Plan and Appendix 3, Illustrative Landscape Masterplan for post-development site layout and habitats.

Reinstated neutral grassland has been designed to match the UKHab definition of 'Other Neutral Grassland', with target species including (but not limited to) common bent (*Agrostis capillaris*), false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), sweet vernal grass

(*Anthoxanthum odoratum*), crested dog's tail (*Cynosurus cristatus*), lady's smock (*Cardamine pratensis*), sorrel (*Rumex acetosa*), yarrow (*Achillea millefolium*), meadow buttercup (*Ranunculus acris*) and ribwort plantain (*Plantago lanceolata*). Species present in the seed bank (recorded during the initial extended UKHab survey), such as creeping cinquefoil (*Potentilla reptans*), common fleabane (*Pulicaria dysenterica*), selfheal (*Prunella vulgaris*), black medick (*Medicago lupulina*), common centaury (*Centaureum pulchellum*), common knapweed (*Centaurea nigra*) and common mouse-ear (*Cerastium fontanum*), will also be promoted with appropriate management that doesn't allow any one species to become dominant.

The majority of the new grassland will be managed to achieve Good condition, with grassland cover between 50% and 70%, forbs comprising up to 50% cover and managed in a way to encourage a varied sward height, scrub and invasive / broadleaved weeds removed, and more than eight native species per metre square in the newly created grassland. Any areas shaded by the solar infrastructure are considered likely to achieve Moderate condition. The grassland will not be mown closely, and marginal areas will be allowed to grow tall.

Newly created modified grassland will be managed to achieve Moderate condition around the perimeter of the site within the site fencing to allow for access and maintenance.

The reinstated mixed scrub will be managed to achieve Moderate condition, by encouraging a range of age classes from seedlings to mature shrubs, and ensuring no invasive non-native species are present within the habitat.

Native hedgerow with trees created along the northern boundary, and native hedgerow created along the eastern boundary, will be managed to achieve Moderate condition. A suitably diverse range of species will be included in new hedgerow planting, using native species of local provenance, and taking into consideration climate resilience. Hedgerows will be protected from damage through grazing or other activities, to promote the growth of a diverse understorey and create strips of undisturbed land along at least one aspect of every hedgerow. Appropriate management practices will ensure hedgerows are maintained at a minimum of 1.5 m wide and 1.5 m high, and invasive and non-desirable species will be controlled. In some instances, hedge laying may be appropriate, especially for younger hedges, to improve structure and form in the long-term. Newly planted hedgerows will be allowed to grow up and out and will be trimmed back on a three-year rotation, to allow flowers and fruit to grow.

2.6 Additional Requirements

Consideration has been given to protected species known to be using the site currently, and those for which the proposed habitat retention and creation will provide resources and opportunities.

This includes sensitive lighting parameters³ if new lighting is required, for the prevention of light spill onto habitats (both new and retained) suitable for use nocturnal wildlife. However, it should be noted that no operational lighting is anticipated to be necessary.

The following protected species features will also be provided:

- Reptile / amphibian hibernacula;
- Deadwood piles; and
- Insect hotels.

2.7 Cultural Information

The site will be surrounded by perimeter security fencing and will not be accessible to the public.

³ Bat Conservation Trust and Institution of Lighting Professionals (2023) Guidance Note 08/23. Bats and Artificial Lighting at Night.

There is an existing Public Right of Way (PRoW) through the eastern site boundary that will be retained but disturbance from public footfall will be minimised and restricted via the existing stock fencing between the PRoW and the site.

3. PROTECTION DURING CONSTRUCTION

3.1 Habitat and Species Protection

The proposed development will be subject to a Construction Environmental Management Plan (CEMP), which will include measures to reduce run-off, noise, lighting, and dust impacts caused during the demolition and construction period, to avoid impacts on surrounding habitats where these will be retained, and individuals of protected species in the relatively unlikely event that they are present during the construction phase.

The CEMP will include the following:

- Pollution prevention measures to prevent work causing run-off, pollution, or hydrological changes to retained habitats (such as adjacent grassland or dense scrub habitat);
- Protective measures (such as suitable fencing) to ensure retained habitat adjacent to the proposed development area is not directly or indirectly impacted;
- Specifications for the appropriate timing of works, such as vegetation clearance works, to be undertaken outside of the nesting bird season (March to August inclusive);
- Measures to ensure exposed excavations are secured with appropriate fencing, or provided with mammal ladders, to prevent animals becoming trapped;
- A Precautionary Method of Working (PMoW) to be employed during vegetation clearance and removal of any discrete features that may be suitable for use as refugia by wildlife (such as small mammals, amphibians, or reptiles), specifically in relation to vegetation clearance at the longer grassland margins; and
- Sensitive lighting parameters for the prevention of light spill onto retained or adjacent habitats, suitable for use by nocturnal wildlife.

To avoid impacts on the integrity of the Solent and Southampton Water SPA, works must take place outside of the wintering bird season (November to March inclusive). Works are therefore likely to take place during the breeding bird season (March to August inclusive).

Where vegetation clearance at mixed scrub is required during the breeding bird season (March to August inclusive), vegetation will be checked for the presence of nesting birds by an experienced ecologist prior to removal. If nests are identified, an appropriate buffer will be implemented around the nest, where works cannot recommence until nestlings have fledged.

3.2 Training and Communication

The contractor will brief on-site workers on the appropriate procedures in the event that protected species are encountered during construction. Should any protected species, not previously identified, be found on-site, works will cease in that area and the contractor will be informed immediately. An ecologist will be contacted and will plan and manage the procedure for dealing with the protected species.

During the site induction and during routine toolbox talks, site workers will be instructed to ensure that all deep trenches and pits are constructed with ramps at one end, to allow animals which might become trapped in a trench to escape. If site workers are working near an excavation, they will be aware of the possibility of wildlife, and inspect the excavation prior to commencing work.

3.3 Monitoring and Review of Ecological Issues

Actions taken to protect biodiversity would be recorded by the Site Manager or an appointed representative (such as an Environmental Manager). The effectiveness of these actions would be monitored throughout the construction process. By ensuring that ecological features are protected, and the works are appropriately timed, the Environmental Manager would ensure that construction activities do not have a detrimental effect on the environment or on biodiversity at the site.

Milford Road Wastewater Treatment Works

Habitat Management Plan

4. HABITAT CREATION PLAN

4.1 Post-Development Habitat Plans

The post-development habitat plan is provided at Appendix 2 and shows the inclusion of the following new habitats within the site:

- Other neutral grassland;
- Modified grassland;
- Mixed scrub;
- Native hedgerow;
- Native hedgerow with trees; and
- Pond.

4.2 Specific Ecological Features of Interest

Additional opportunities for enhancement include discrete protected species features.

Given the context of the site and the existing / proposed habitats within it, the following features are considered appropriate:

- Reptile / amphibian hibernacula;
- Deadwood piles; and
- Insect hotels.

4.3 Capital Works

4.3.1 Habitat Creation

After works to install solar PV arrays and associated cabling, landscape capital works (including planting) will take place. A summary of capital works in relation to specific habitats is provided at Appendix 3.

The following sections describe how new landscaping will be created to achieve the habitats outlined, according to the UKHab (v2)⁴ definitions, for which brief summary descriptions are given.

The following sections also describe which criteria, according to the DEFRA Metric v4.0 Habitat Condition Sheets⁵ criteria, are likely to be achieved to reach target condition of newly created habitat.

Other Neutral Grassland

Other neutral grassland comprises a neutral grassland that does not meet the definition of either lowland meadow or upland hay meadows AND that meets at least three or the following four criteria:

1. >20% cover of broadleaved herbs and sedges;
2. >8 species per m² (including forbs, grasses, sedges, and rushes, and excluding bryophytes);
3. ≥1 grass species that is not generally sown for intensive agricultural production; and
4. Cover of rye-grasses (*Lolium* sp.) and white clover (*Trifolium repens*), where present, is <30%.

⁴ UKHab Ltd (2023) *UK Habitat Classification Version 2.0* [online] www.ukhab.org [Oct 2023]

⁵ Biodiversity Metric 4.0: Technical Annex 1 – Condition Assessment Sheets and Methodology, Natural England www.publications.naturalengland.org.uk/publication/6049804846366720 [Oct 2023]

Emorsgate EM5 (Meadow Mixture for Loamy Soils)⁶ will be used to create areas of other neutral grassland. This seed mix contains a good range of wildflowers and grasses once common in unimproved flower-rich lowland meadows, including indicator species for other neutral grassland such as common bent, crested dog's-tail, yarrow, meadow buttercup and ribwort plantain.

Grassland cover will be between 50% and 70% (with forbs up to 50% cover) and managed in a way to encourage a varied sward height, with any scrub and invasive / broadleaved weeds removed.

To prepare the ground adequately, the grassland will either be scarified, or, where bare soil has been exposed during the installation process, this will be harrowed to a medium tilth and rolled to produce a firm surface. Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and should be applied by machine due to the relatively large areas of proposed grassland. To achieve an even distribution the seed can be divided into multiple batches and sown in overlapping sections. The seed should not be covered, but firmed in with a roller, to give good soil/seed contact.

Most of the sown meadow species are perennial and are slow to establish. Species indicative of disturbed ground were also recorded during the initial extended UKHab baseline survey and are therefore likely to be present in the seed bank. Soon after sowing there may therefore be a flush of annual weeds. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are beneficial for invertebrates. Annual weeds should not be cut back until mid to late summer of the first year after sowing (August is the optimum month), with all arisings removed.

To achieve Good condition, the following criteria for grassland of medium, high or v. high distinctiveness will be met:

- Criteria A – Presence of 6-8 vascular plant species per m², including at least two forbs;
- Criteria B – Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm);
- Criteria C – Some scattered scrub may be present, but scrub accounts for less than 20% of total grassland area;
- Criteria D – Physical damage is evident in less than 5% of total grassland area;
- Criteria E – Cover of bare ground is between 1% and 10%;
- Criteria F – Cover of bracken (*Pteridium aquilinum*) is less than 20%; and
- Criteria G – There is an absence of non-native plant species.

Where grassland is present beneath solar PV arrays, it is considered likely that not all of these criteria will be met and the target condition has therefore been set at Moderate for these areas only.

Modified Grassland

Modified grassland comprises species-poor grassland with less than 9 species per m², dominated by a few fast-growing grasses on neutral soils. Although species from the existing seedbank are likely to grow through the sward (particularly those that are associated with disturbed ground), the species diversity is considered likely to remain relatively low around the perimeter where vehicular access is required for maintenance of solar panels.

To prepare the ground adequately, the grassland will either be scarified, or, where bare soil has been exposed during the installation process, this will be harrowed to a medium tilth and rolled to

⁶ EM5 Meadow Mixture for Loamy Soils [online] www.wildseed.co.uk/product/mixtures/complete-mixtures/meadow-mixtures-for-specific-soils/meadow-mixture-for-loamy-soils/ [Dec 2023]

produce a firm surface. Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and should be applied by machine due to the relatively large areas of proposed grassland. To achieve an even distribution the seed can be divided into multiple batches and sown in overlapping sections. The seed should not be covered, but firmed in with a roll, to give good soil/seed contact.

Most of the sown meadow species are perennial and are slow to establish. Species indicative of disturbed ground were also recorded during the initial extended UKHab baseline survey and are therefore likely to be present in the seed bank. Soon after sowing there may therefore be a flush of annual weeds. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are beneficial for invertebrates. Annual weeds should not be cut back until mid to late summer of the first year after sowing (August is the optimum month), with all arisings removed.

To achieve Moderate condition, the following criteria for grassland of low distinctiveness will be met:

- Criteria A – Presence of 6-8 vascular plant species per m², including at least two forbs;
- Criteria C – Some scattered scrub may be present but accounts for less than 20% of the total grassland area;
- Criteria E – Cover of bare ground is between 1% and 10%;
- Criteria F – Cover of bracken is less than 20%; and
- Criteria G – There is an absence of invasive non-native plant species.

Mixed Scrub

Dense mixed scrub comprises patches of shrubs that are <5 m in height with continuous (>75%) cover.

Scrub planting will include predominantly native species, such as hazel (*Coryllus avellana*), blackthorn (*Prunus spinosa*), goat willow (*Salix caprea*), hawthorn (*Crataegus monogyna*), downy birch (*Betula pubescens*), hornbeam (*Carpinus betulus*), field maple (*Acer campestre*), dog rose (*Rosa canina*), elder (*Sambucus nigra*) and guelder-rose (*Viburnum opulus*).

The ideal timing for scrub planting is between November and February, although planting in waterlogged or frozen ground should be avoided. To prepare the ground, the soil should be harrowed to loosen and aerate, after which shrubs will be planted according to the supplier's recommendations. This will generally include placing the shrub in the planting hole and positioning to ensure that first flare roots are level with the soil surface and deep planting (which prevents air movement) is avoided. Shrubs will be watered to saturation on the day of planting and again the following day. Stakes are not required for shrub planting although the use of guards to prevent browsing by deer or rabbits may be required.

To achieve Moderate condition, the following criteria for new scrub planting will be achieved:

- Criteria A – Scrub is a good representation of the habitat type and at least 80% native, with at least three woody species and no single species comprising more than 75% cover;
- Criteria B – Seedlings, saplings, young shrubs, and mature shrubs are present;
- Criteria C – There is an absence of invasive non-native plant species and species indicative of sub-optimal condition make up less than 5% of the ground cover; and
- Criteria D – The scrub has a well-developed edge with scattered scrub and tall grassland and /or forbs present between the scrub and adjacent habitat.

Native Hedgerow and Native Hedgerow with Trees

Species-rich native hedgerows comprise hedgerows with ≥ 5 native or archaeophyte woody species in a 30 m section.

Hedgerow planting will be predominantly native and should include species such as hazel, hawthorn, spindle (*euonymus europaeus*), wild privet (*Ligustrum vulgare*), field maple, downy birch, holly, and blackthorn.

The ideal timing for hedgerow and tree planting is between November and February, although planting in waterlogged or frozen ground should be avoided. To prepare the ground, the soil should be harrowed to loosen and aerate, after which shrubs will be planted according to the supplier's recommendations. This will generally include placing the shrub or tree in the planting hole and positioning to ensure that first flare roosts are level with the soil surface and deep planting (which prevents air movement) is avoided. Two staggered rows will be planted approximately 30 cm apart (or five bare root whips per metre) along the length of the new hedge line, with the aim of creating a hedgerow that is at least 1.5 m wide on average along its length. Where tree planting is proposed, trees will be planted at appropriate intervals along the hedge line to ensure that sufficient room for root spread is accommodated. Shrubs will be watered to saturation on the day of planting and again the following day.

To achieve Moderate condition, the following criteria for new hedgerow planting will be achieved:

- Criteria A:
 - A1 – Height >1.5 m average along length;
 - A2 – Width >1.5 m average along length;
- Criteria B:
 - B1 – Gap between the ground and base of the canopy <0.5 m for $>90\%$ of length;
 - B2 – Gaps make up $<10\%$ of the total length with no canopy gaps <5 m; and
- Criteria C:
 - C1 – More than 1 m width of undisturbed ground with perennial herbaceous vegetation for $>90\%$ of length, measured from the outer edge of the hedgerow and present on at least one side of the hedgerow.

For hedgerows with trees, the following additional criteria will be achieved:

- Criteria E:
 - E2 – At least 95% of hedgerow trees are in a healthy condition, with little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.

Pond

Ponds comprise permanent and seasonal standing water bodies that are <2 ha in size. Excavated material will be used on site in the creation of reptile and amphibian hibernacula, and invertebrate hotels.

The newly created pond will be made up of an area of standing water (created using a liner or puddled clay to maintain water levels), as well as aquatic habitat features including areas of emergent and marginal planting, to provide a diverse range of habitats. The new pond will include a variety of depths of water, with stepped edges, to maximise the range of plants supported and in turn, the diversity of invertebrates.

To achieve Moderate condition, the following criteria for new pond habitat will be achieved:

Criteria A - The pond is of good water quality, with clear water indicating no obvious signs of pollution;

Criteria C – Less than 10% of the water surface is covered with duckweed (*Lemna* sp.) or filamentous algae;

Criteria D – The pond is not artificially connected to other waterbodies;

Criteria E – Pond water levels can fluctuate naturally throughout the year;

Criteria F – There is an absence of listed non-native plant and animal species; and

Criteria G – The pond is not artificially stocked with fish.

4.3.2 Specific Ecological Features of Interest

The specific features of interest within the newly introduced landscaping are:

- Hibernacula – Hibernacula comprise ground level features including split logs, dead wood and rocks, loosely filled with topsoil. These features should have a slope of approximately 1:3 (dependent on materials available) and be capped with a layer (approximately 50 – 100 mm) of topsoil, turf, and / or moss;
- Deadwood piles – Deadwood piles will comprise suitable logs / brash produced during scrub clearance works, created adjacent to scrub and hedgerow planting; and
- Insect hotels – Insect hotels will be installed adjacent to grassland margins and hedgerow planting. The area in front of the invertebrate hotels will be free of plants and vegetation that would obscure entrance to the feature, although these features will be close to pollen-producing nectar resources including wildflowers and hedgerow planting.

The proposed locations of specific ecological features of interest are provided on the Illustrative Landscape Masterplan at Appendix 4.

5. COMPLETED DEVELOPMENT BIODIVERSITY MANAGEMENT PLAN

5.1 Management Considerations

Due to the known presence of protected species in the surrounding landscape, and the desire to encourage these species to use new and enhanced habitats within the site during the completed development stage of the project, the following constraints to management have been identified:

- Reptiles, amphibians, and small mammals that use grassland habitats for foraging and basking from spring to autumn, and hibernating during the winter, are vulnerable to intense mechanical management, including flailing or mowing; and
- There are specific prescriptions that must be adhered to for the enhancement of retained and new vegetative landscaping to achieve target condition (as set out in the following sections).

These constraints are taken into consideration in the following sections, when outlining prescriptions to achieve Management Objectives (MOs).

5.2 Biodiversity Management Objectives

The MOs for the proposed post-development habitats reinstated and created are:

- MO1 General maintenance of structures;
- MO2 Achieving the proposed target condition of reinstated and created habitats;
- MO3 Maintenance of protected species features; and
- MO4 Enhancing connectivity of ecologically valuable habitats at a landscape level.

Each MO has a number of associated Management Prescriptions (MP), in order to achieve the objectives for the habitats at the site. The MO and associated MPs are detailed in the following sections and a summary is provided at Appendix 5.

The majority of maintenance activities can be undertaken by grounds maintenance staff.

5.3 MO1: General Maintenance of Structures and Habitats

5.3.1 General Management Prescriptions

Several management prescriptions should be applied to all habitats within new landscaping.

MP1

Remove and dispose of all litter, stones, and other debris, which might damage plant or create a possible hazard to persons and property.

MP2

Artificial fertilisers, manure, or other substances that will increase nutrient levels, will not be used.

MP3

Remove invasive non-native plant species.

5.4 MO2. Achieving Target Condition

5.4.1 Other Neutral Grassland

The best results for this habitat type are generally obtained by traditional meadow management, based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

MP4

Cessation of mowing from spring through to late July / August.

MP5

Undertaking a 'hay cut' in July or August, using a petrol strimmer or sit-on mower to approximately 50 mm, leaving the 'hay' to dry and shed seed for one week before removing arisings.

MP6

Mow re-growth through to November / December to approximately 50 mm and again in March / April if needed.

5.4.2 Modified Grassland

Management prescriptions for modified grassland primarily aim to encourage as much diversity within the sward as possible, taking into consideration the use of this habitat for access and maintenance requirements.

MP7

Cessation of mowing from spring through to late July / August.

5.4.3 Mixed Scrub

Rotational pruning of mixed scrub will be carried out on all shrubs that have reached >1 m height, on a third-year basis after establishment (with a different 20% cut every third year). Cutting should be carried out in small blocks across the total planting area, rather than one contiguous unit. The cutting of berry, seed and fruit bearing species should be left as late as possible in order to retain foraging opportunities for birds and mammals.

MP8

Rotational pruning (during October / November) on a three-year cycle, to cut 20% of the shrubs >1 m tall back by one third, encouraging bushy vigorous growth, with all arisings removed (material may be collected in deadwood piles).

MP9

Diseased branches shall be pruned out and over vigorous shrubs shall be pruned to prevent suppression of smaller species.

MP10

Where safe to do so, standing deadwood will be left *in situ*, or (if required) pruned but kept within the site as deadwood piles.

MP11

Check wrap round spiral guards (if fitted) and ensure that they are not causing damage to the plant – adjust, re-firm and re-fix as necessary.

MP12

Regularly inspect plants for signs of disease or damage (through herbivore browsing or damaging human activity) to the stem, crown, or branches.

MP13

Allow saplings and young shrubs to create well-developed edges of scattered scrub at scrub / grassland transition.

5.4.4 Native Hedgerow

Hedgerows to be monitored annually with the following prescriptions implemented where necessary.

MP14

Where hedgerow planting fails, it is to be replanted to ensure no large gaps are present and gaps make up no more than 10% of the overall hedgerow length.

MP15

Pruning to re-shape and maintain bushy growth will take place on a three-year rotation, with different sections of the hedgerow cut in consecutive years and the condition of the hedgerows will be managed to ensure there are no gaps >0.5 m at the base.

MP16

Diseased branches shall be pruned out and over vigorous shrubs shall be pruned to prevent suppression of smaller species.

MP17

Where safe to do so, dead wood will be left *in situ*, or (if required) pruned but kept within the site as deadwood piles.

MP18

Raise cutting height and width with each cut until desired width and height (between 1.5 m and 2 m).

5.4.5 Native Hedgerow with Trees

Native hedgerows with trees will be managed following the same MPs as Native Hedgerows, with additional consideration given to tree specimens allowed to grow out.

MP19

Ensure that specimen trees (included at intervals along the hedgerow length) are allowed to grow up and out and are not accidentally cut back during rotational cutting of hedgerows (i.e. cutting must be selective and NOT wholesale flailing).

5.4.6 Pond

Management aims for the pond habitat should focus primarily on ensuring the water level and quality of the feature is maintained.

MP20

Assess quality of water (turbidity and presence of undesirable plants or algae) and implement remedial action as required.

5.5 MO3. Maintenance of protected species features

Protected species features must be visually inspected to ensure they remain fit for purpose.

MP21

Protected species features will be inspected visually each year following installation, during general landscape maintenance and on-going management works, to ensure they remain fit for purpose and will be repaired where required.

5.6 MO4. Enhancing connectivity of ecologically valuable habitats at a landscape level.

MP22

Management activities within the site should actively promote connectivity to surrounding green infrastructure (specifically woodland and hedgerows) and should not seek to prevent connectivity through significant vegetation removal or damaging management practices (such as flailing or wholesale grubbing out).

6. MONITORING

Monitoring will be required to ensure that habitats are on track to achieve the target condition as outlined within the BNG Assessment Report that accompanies the planning application. Condition will be measured against the DEFRA Metric v4.0 Habitat Condition Assessment sheet for the relevant habitat type.

The methodology for monitoring of several habitats is explicitly recommended and referenced within the DEFRA Metric v4.0 Habitat Condition Assessment sheets and has therefore been recommended in the following sections. Where no such methodology is recommended within the DEFRA Metric v4.0 Habitat Condition Assessment sheets, methodologies collaboratively developed and published online have been used to inform recommendations⁷.

The estimated time to achieving target condition varies across habitats (and the realistic condition proposed), therefore affecting the frequency at which monitoring should be undertaken, to allow remedial interventions if monitoring detects that target condition is unlikely to be met within the desired time frame. Where target condition is expected to be achieved in less than 30 years, monitoring will continue (at appropriate intervals) to Year 30 to ensure that the target condition is maintained for the entire period that this management plan covers.

Appendix 6 outlines the frequency at which monitoring is required, in relation to habitat type and target condition.

6.1 Grassland (Other Neutral and Modified)

To allow confirmation of grassland habitat type under UKHab classifications, and to measure condition robustly, grassland areas need to be surveyed using the DAFOR scale (to identify abundance of key indicator species) and quadrats (to estimate the average number of species per square metre).

At least five 1 m x 1 m quadrats should be undertaken within each grassland habitat parcel, with locations spread throughout the habitat parcel. Species recorded whilst walking between each quadrat, but not necessarily recorded within any of the quadrats, will be recorded on a full species list, using the DAFOR scale.

Sward height should be recorded using at least 10 drop disc samples, and areas of scrub, physical damage and cover of bare ground can be recorded using at least three 10 m x 10 m quadrats, depending on the overall size of the habitat parcel (i.e., in large parcels where estimating these parameters may be difficult).

The time to target condition for newly created other neutral grassland in Good condition is ten years. Monitoring at other neutral grassland habitat parcels with a target condition of Good will therefore take place annually from Year 1 to Year 5, after which monitoring will take place at Year 7, Year 10, Year 15, Year 20 and Year 30.

The time to target condition for newly created other neutral grassland in Moderate condition is five years. Monitoring at other neutral grassland habitat parcels with a target condition of Moderate will therefore take place annually from Year 1 to Year 5, after which monitoring will take place at Year 10, Year 15, Year 20 and Year 30.

The time for target condition for newly created modified grassland in Moderate condition is four years. Monitoring at modified grassland habitat parcels will therefore take place annually from Year 1 to Year 4, after which monitoring will take place at Year 10, Year 15 and Year 30.

⁷ Condition Assessment Method [online] www.digital-ecology.co.uk/condition-assessment-method.html [Dec 2023]

6.2 Mixed Scrub

To measure condition of mixed scrub, at least three 2 m x 2 m quadrats should be used to record age ranges. A walking around and through scrub habitat (where possible) should be conducted to determine species diversity and quality of edge habitat. Aerial imagery can also be used to inform assessment of the latter, where scrub interior is difficult to access.

The time to target condition for newly created mixed scrub in Moderate condition is five years. Monitoring of newly created mixed scrub with a target condition of Moderate will therefore take place annually from Year 1 to Year 5, after which monitoring will take place in Year 10, Year 15 and Year 30.

6.3 Native Hedgerow and Native Hedgerow with Trees

To adequately condition assess hedgerows throughout the site, the length of the hedgerow should be walked and height, width, gaps (between the hedge base and the ground, and within the canopy) should be recorded. In addition, evidence of nutrient enrichment and level of disturbance along a strip of 1 m either side of the hedgerow should be recorded.

The time to target condition for newly created native hedgerow in Moderate condition is five years. Monitoring at newly created hedgerows will therefore take place annually from Year 1 to Year 5, after which monitoring will take place in Year 10, Year 15, and Year 30.

The time to target condition for newly created native hedgerow with trees in Moderate condition is ten years. Monitoring at newly created hedgerows will therefore take place annually from Year 1 to Year 5, after which monitoring will take place at Year 7, Year 10, Year 15, Year 20 and Year 30.

6.4 Pond

The criteria for condition assessment of ponds reaching Moderate condition predominantly relies on assessing the quality (i.e., the turbidity or any obvious signs of pollution) of water contained within the feature. As such, visual monitoring will be undertaken during monitoring visits for other habitats, with recommendations for remedial action where required.

APPENDIX 1

UKHAB BASELINE PLAN



Legend

- Site Boundary
- Access Point
- Proposed Cable Route

UKHab

- g3c - Other Neutral Grassland
- h3h - Mixed Scrub
- u1b - Developed Land, Sealed Surface

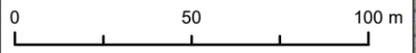


Figure Title Baseline UKHab Habitat Plan		
Project Name Milford Road		
Project No./Filey ID 1620015344-002 / REH2023N04158		
Date January 2024	Figure No. 1	Revision 1.0
Prepared By AB	Scale 1:2,000 @A3	
Client Downing Renewable Developments LLP		

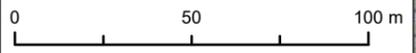
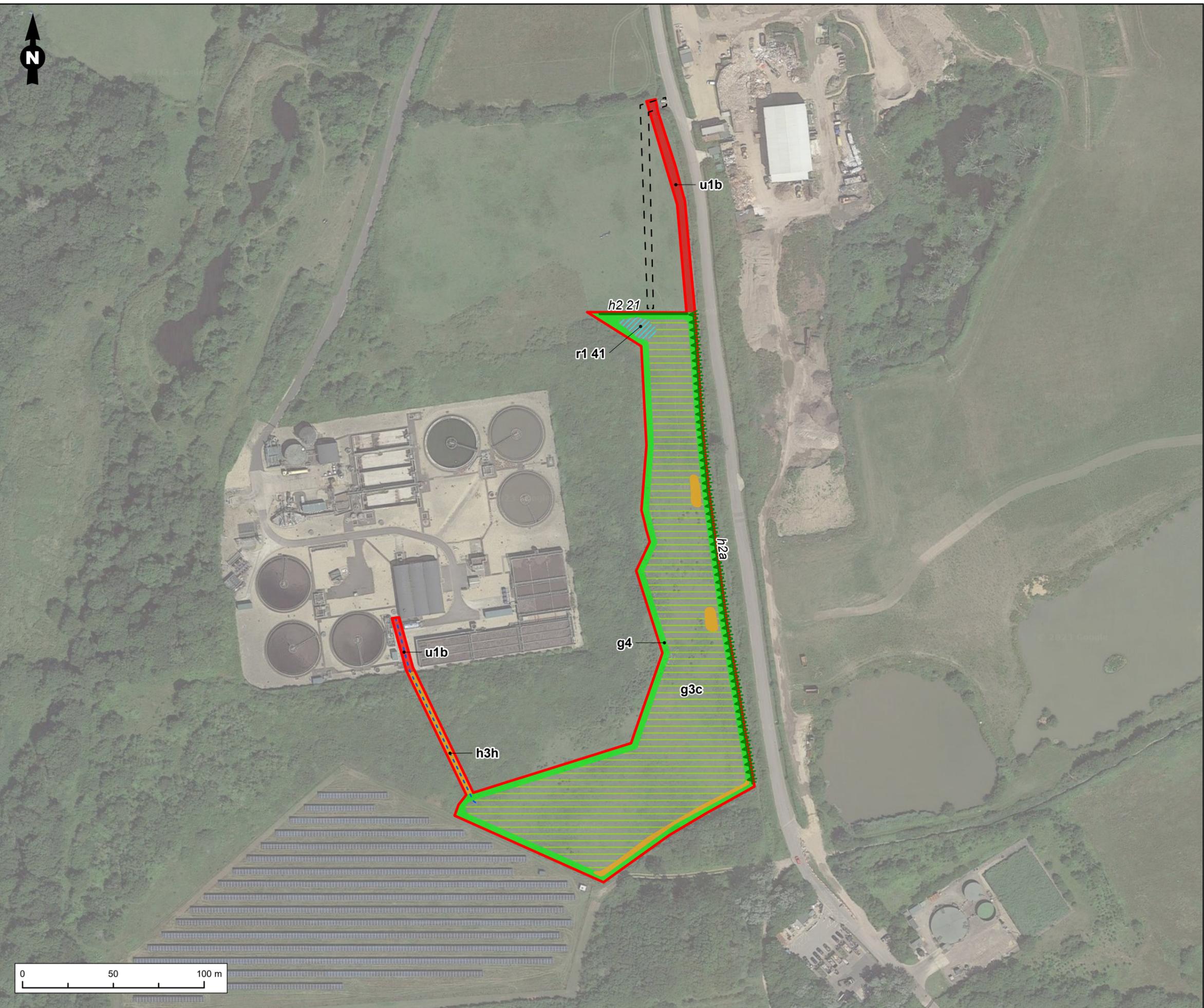
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APPENDIX 2

UKHAB POST-DEVELOPMENT PLAN



1620015344_002-RAM-MA-IA-00005_Fig1_3PostDevHabitatPlan_02.pagx



Legend

-  Site Boundary
-  Access Point
-  Proposed Cable Route

UKHab

-  h2 21 - Hedgerow with Trees
-  h2a - Native Hedgerow
-  g3c - Other Neutral Grassland
-  g4 - Modified Grassland
-  h3h - Mixed Scrub
-  r1 41 - Pond (Non-priority)
-  u1b - Developed Land, Sealed Surface

Figure Title
Post-Development Habitat Plan

Project Name
Milford Road

Project No./Filey ID
 1620015344-002 / REH2023N04158

Date	Figure No.	Revision
January 2024	2	1.0

Prepared By	Scale
AB	1:2,000 @A3

Client
Downing Renewable Developments LLP



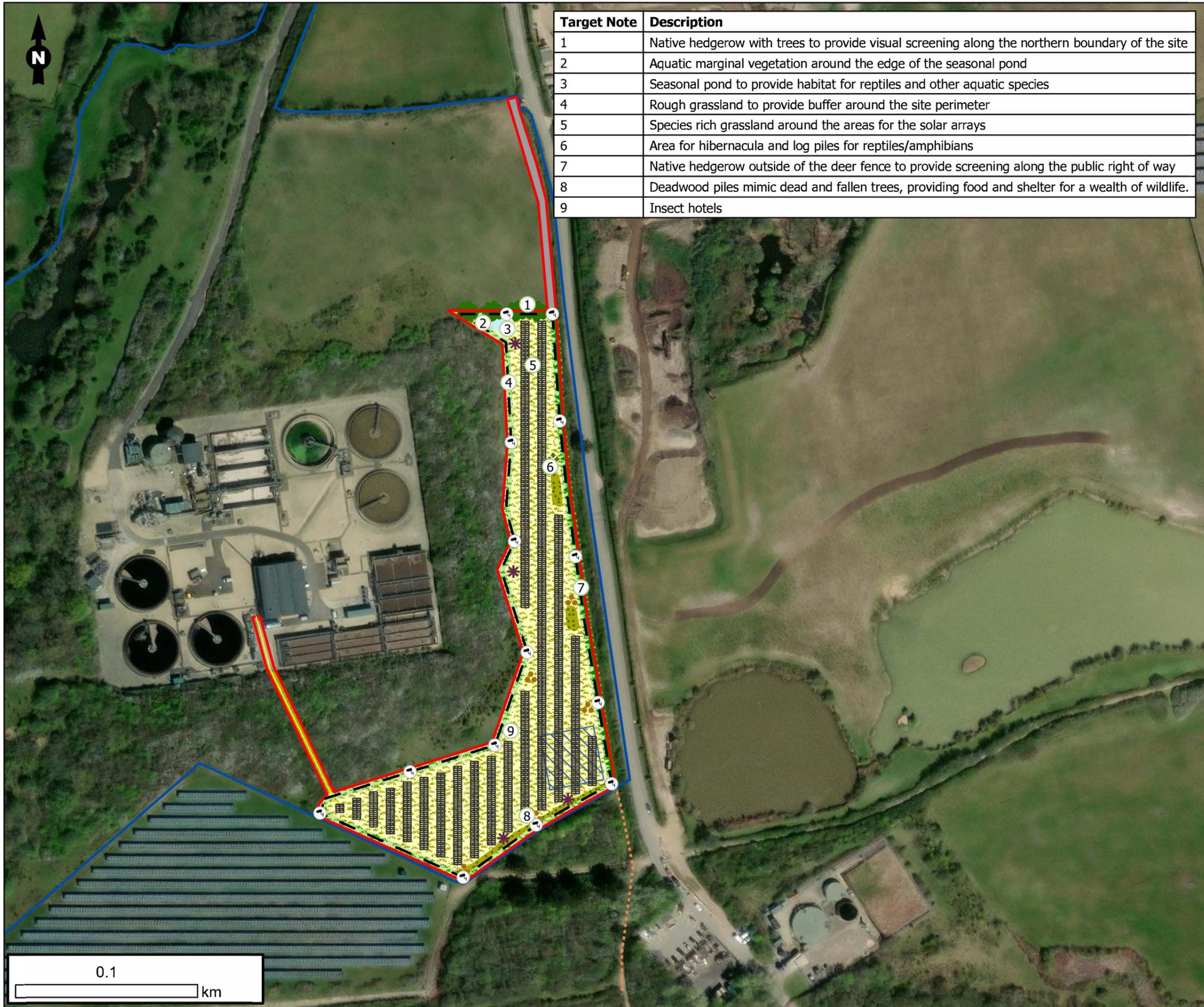
APPENDIX 3

HABITAT CREATION CAPITAL WORKS

Target Habitat Type	Capital Works	Timing of Works
Other Neutral Grassland	<ul style="list-style-type: none"> • Scarify grassland or harrow soil (as required) to produce a medium tilth and rolled to produce a firm surface; • Seed surface sown using a sowing machine; • Seed divided into multiple batches and sown in overlapping sections; and • Seed left uncovered but firmed in with a roller. 	Autumn OR Spring
Modified Grassland	<ul style="list-style-type: none"> • Scarify grassland or harrow soil (as required) to produce a medium tilth and rolled to produce a firm surface; • Seed surface sown using a sowing machine; • Seed divided into multiple batches and sown in overlapping sections; and • Seed left uncovered but firmed in with a roller. 	Autumn OR Spring
Mixed Scrub	<ul style="list-style-type: none"> • Soil harrowed to loosen and aerate; • Shrubs planted according to the supplier’s recommendations; • Watered to saturation on the day of planting and again on the following day; and • Guards may be installed depending on the risk of browsing by deer or rabbits. 	November to February
Native Hedgerow and Native Hedgerow with Trees	<ul style="list-style-type: none"> • Soil harrowed to loosen and aerate; • Shrubs planted in two staggered rows approximately 30 cm apart (or five bare root whips per metre) according to the supplier’s recommendations; • Plant individual trees at appropriate intervals with consideration given to root spread; • Watered to saturation on the day of planting and again on the following day; and • Guards may be installed depending on the risk of browsing by deer or rabbits. 	November to February
Pond	<ul style="list-style-type: none"> • Dig pond with stepped edges and various depths; and • Allow to naturally fill with rainwater. 	Autumn

APPENDIX 4

ILLUSTRATIVE LANDSCAPE MASTERPLAN



Target Note	Description
1	Native hedgerow with trees to provide visual screening along the northern boundary of the site
2	Aquatic marginal vegetation around the edge of the seasonal pond
3	Seasonal pond to provide habitat for reptiles and other aquatic species
4	Rough grassland to provide buffer around the site perimeter
5	Species rich grassland around the areas for the solar arrays
6	Area for hibernacula and log piles for reptiles/amphibians
7	Native hedgerow outside of the deer fence to provide screening along the public right of way
8	Deadwood piles mimic dead and fallen trees, providing food and shelter for a wealth of wildlife.
9	Insect hotels

Legend

- Site Boundary
- Ownership Boundary

Proposed Development

- CCTV Locations
- PV Supply
- Temporary Compound
- Solar Arrays
- Fence

Landscape Features

- Hedgerow Tree Planting
- Deadwood Piles
- Hibernacula
- Insect Hotels
- Target Note
- Native Hedgerow
- Seasonal Pond
- Aquatic Marginal Vegetation
- Grassland
- Species Rich Grassland
- Reinstated Scrub
- Scrub
- Path Surface - Type 1 Aggregate
- Existing Footpath

Figure Title
Illustrative Landscape Masterplan (ILMP)

Project Name
Milford Road Wastewater Treatment Works

Project No./Filey ID
 1620015344-002 / REH2023N00012

Date	Figure No.	Revision
January 2024	3	1.1

Prepared By	Scale
JRC	1:2,000 @A3

Client
Downing Renewable Developments LLP



APPENDIX 5

SUMMARY OF MANAGEMENT OBJECTIVES AND PRESCRIPTION

Management Objective	Management Prescriptions		Target Habitat	Timing of Works
MO1: General Management Prescriptions	MP1	Remove and dispose of all litter, stones, and other debris, which might damage plant or create a possible hazard to persons and property	All	On-going
	MP2	Artificial fertilisers, manure, or other substances that will increase nutrient levels will not be used		
	MP3	Remove invasive non-native plant species		
MO2: Achieving Target Condition	MP4	Cessation of mowing during the growing / flowering season.	Other Neutral Grassland	April to July / August
	MP5	Hay cut using a petrol strimmer / sit-on mower to approx. 50 mm, leaving arisings to dry and shed seed before removing one week after cutting.		July / August
	MP6	Mow re-growth to approx. 50 mm as required.		July / August to November / December AND March / April
	MP7	Cessation of mowing during the growing / flowering season.	Modified Grassland	April to July / August
	MP8	Rotational pruning to cut 20% shrubs >1 m tall back by one third, encouraging bushy vigorous growth, with all arisings removed (material may be collected in deadwood piles).	Mixed Scrub	October / November
	MP9	Diseased branches shall be pruned out and over vigorous shrubs shall be pruned to prevent suppression of smaller species.		
	MP10	Where safe to do so, standing deadwood will be left <i>in situ</i> , or (if required) pruned but kept within the site as deadwood piles.		
	MP11	Check, adjust, re-firm and re-fix spiral guards (if fitted), ensuring guards are not causing damage to the plants.		
	MP12	Regularly inspect plants for signs of disease or damage (through herbivore browsing or damaging human activity) to the stem, crown, or branches.		
	MP13	Allow saplings and young shrubs to create well-developed edges of scattered scrub at scrub / grassland transition.	Native Hedgerow and Native	October / November
	MP14	Where hedgerow planting fails, replant to ensure no large gaps are present and gaps make up no more than 10% of the overall hedgerow length.		

Management Objective	Management Prescriptions		Target Habitat	Timing of Works	
	MP15	Pruning to re-shape and maintain bushy growth with different sections of the hedgerow cut in consecutive years. Ensure there are no gaps >0.5 m at the base.	Hedgerow with Trees		
	MP16	Diseased branches shall be pruned out and over vigorous shrubs shall be pruned to prevent suppression of smaller species.			
	MP17	Where safe to do so, standing deadwood will be left <i>in situ</i> , or (if required) pruned but kept within the site as deadwood piles.			
	MP18	Raise cutting height and width with each cut until desired height and width (between 1.5 m and 2 m).			
	MP19	Selectively cut (i.e., no flailing) to ensure that specimen trees are allowed to grow up and out.	Native Hedgerow with Trees		October / November
	MP20	Assess quality of water (turbidity and presence of undesirable plants and / or algae) and implement remedial action as required.	Pond		On-going
MO3: Maintenance of protected species features	MP21	Visually inspect protected species features	Protected Species Features	November	
MO4: Enhancing connectivity of ecologically valuable habitats at a landscape level	MP22	Promote connectivity to surrounding green infrastructure and do not prevent connectivity where it naturally occurs unless specifically required for security or access.	All	On-going	

APPENDIX 6

SUMMARY OF MONITORING YEARS

Habitat Type	Target Condition	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y15	Y20	Y30
Other Neutral Grassland	Good	X	X	X	X	X		X			X	X	X	X
	Moderate	X	X	X	X	X					X	X	X	X
Modified Grassland	Moderate	X	X	X	X						X	X		X
Mixed Scrub	Moderate	X	X	X	X	X					X	X		X
Native Hedgerow	Moderate	X	X	X	X	X					X	X		X
Native Hedgerow with Trees	Moderate	X	X	X	X	X		X			X	X	X	X
Pond	Moderate	X	X	X	X	X		X			X	X	X	X