

Rampion 2 Wind Farm

Category 7: Other Documents

Outline Landscape and Ecology Management Plan (clean)

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Executive Summary

This Outline Landscape and Ecology Management Plan (LEMP) has been prepared to provide the measures with regards to landscaping and habitat creation, reinstatement and monitoring and management of these measures. The Outline LEMP is part of a set of management plans that secure the delivery of measures committed to in the Development Consent Order (DCO) Application to manage the impacts arising during the construction and operation of the Proposed Development

The Outline LEMP has been produced following the targeted surveys and assessment carried out in the **Chapter 22: Terrestrial ecology and nature conservation, Volume 2** of the ES [APP-063] and **Chapter 18: Landscape and visual impact, Volume 2** of the ES [APP-059]. This process has identified the embedded environmental measures secured within these documents.

This Outline LEMP includes the landscaping and habitat creation at the onshore substation at Oakendene and the existing National Grid Bolney substation extension works and reinstatement for the works associated with the onshore cable corridor. It also includes the monitoring and management requirements to ensure success of the embedded environmental measures designed to minimise impacts resulting from the Proposed Development.

Stage specific LEMPs will be produced by the appointed Contractor(s) following the grant of the Development Consent Order (DCO) and prior to the relevant stage of construction. This will be produced in accordance with this **Outline LEMP** for approval of the relevant planning authority, prior to the commencement of that stage of works. The stage specific LEMPs for the onshore substation and National Grid Bolney substation extension works shall be developed and submitted for approval alongside the detailed design of this infrastructure.

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1. Introduction

1.1 Overview of the Proposed Development

- 1.1.1 Rampion Extension Development Limited (hereafter referred to as 'RED') (the Applicant) is developing the Rampion 2 Offshore Wind Farm Project (Rampion 2) located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel.
- 1.1.2 Rampion 2 will be located between 13km and 26km from the Sussex Coast in the English Channel and the offshore array area will occupy an area of approximately 160km².
- 1.1.3 The key offshore elements of the Proposed Development will be as follows:
- up to 90 offshore wind turbine generators (WTGs) and associated foundations;
 - blade tip of the WTGs will be up to 325m above Lowest Astronomical Tide (LAT) and will have a 22m minimum air gap above Mean High Water Springs (MHWS);
 - inter-array cables connecting the WTGs to up to three offshore substations;
 - up to two offshore interconnector export cables between the offshore substations;
 - up to four offshore export cables each in its own trench, will be buried under the seabed within the final cable corridor; and
 - the export cable circuits will be High Voltage Alternating Current (HVAC), with a voltage of up to 275kV.
- 1.1.4 The key onshore elements of the Proposed Development will be as follows:
- a single landfall site near Climping, Arun District, connecting offshore and onshore cables using Horizontal Directional Drilling (HDD) installation techniques;
 - buried onshore cables in a single corridor for the maximum route length of up to 38.8km using:
 - ▶ trenching and backfilling installation techniques; and
 - ▶ trenchless and open cut crossings.
 - a new onshore substation, proposed near Cowfold, Horsham District, which will connect to an extension to the existing National Grid Bolney substation, Mid Sussex, via buried onshore cables; and
 - extension to and additional infrastructure at the existing National Grid Bolney substation, Mid Sussex District to connect Rampion 2 to the national grid electrical network.

- 1.1.5 A full description of the Proposed Development is provided in **Chapter 4: The Proposed Development, Volume 2** of the ES [APP-045].

1.2 Purpose

- 1.2.1 This Outline LEMP addresses the following elements of the Proposed Development:
- Landscaping and habitat creation at the onshore substation at Oakendene and the National Grid Bolney substation extension works;
 - Reinstatement of habitat and landscape features on the onshore cable corridor and temporary compounds; and
 - Landscape and habitat monitoring and management.
- 1.2.2 The Outline LEMP is part of a set of management plans that secure the delivery of measures committed to in the Development Consent Order (DCO) Application to manage the impacts arising from the construction and operation of the Proposed Development.
- 1.2.3 The **Outline Code of Construction Practice (CoCP) [PEPD-033]** covers the landscape and ecology issues associated with construction works. This includes measures to ensure legal compliance with relevant wildlife legislation, vegetation retention plans, pollution control and scheduling of construction works to minimise effects.
- 1.2.4 The **Design and Access Statement [AS-003]** provides indicative proposals for landscaping and ecological enhancements at the onshore substation and National Grid Bolney substation extension works including an Indicative Landscape Plan for each site. These are included in **Figure 1: Oakendene onshore substation - Indicative Landscape Plan** and **Figure 2: National Grid Bolney substation extension works – Indicative Landscape Plan** for ease of reference. Design principles are provided with which the detailed design shall accord. This includes relevant design principles for landscape and ecology.
- 1.2.5 The draft DCO requires stage specific LEMPs for areas of habitat creation and reinstatement along the onshore cable corridor, including associated areas such as temporary compounds. The stage specific LEMPs for the onshore substation and National Grid Bolney substation extension works will include detailed landscape plans. These shall be designed in accordance with the design principles in the **Design and Access Statement [AS-003] (updated at Deadline 3)** and submitted for the relevant stage alongside the detailed design for the substation sites for approval by the relevant planning authority.
- 1.2.6 The stage specific LEMPs shall also include planting specifications, plant schedules (detailing number of plants / density / size and species), landscape programme of works (including targeted planting seasons and advance planting opportunities) and a landscape management plan (including maintenance and monitoring) in accordance with Section 8.5 Replacement Planting of **Appendix 22.16: Arboricultural Impact Assessment [APP-194]** to cover years one to ten to ensure the establishment of the landscape proposals. The information within the stage specific LEMPs will be informed by updated habitat survey information

(recording habitat type and habitat condition) recorded within the appropriate season during the detailed design phase of the Proposed Development.

2. Landscape design and mitigation

- 2.1.1 This section of the Outline LEMP sets out the Landscape Strategy or approach for the Proposed Development, covering the onshore substation at Oakendene and the National Grid Bolney substation extension works and associated areas of construction (Oakendene West and Oakendene substation construction compounds and areas of the cable corridor, including trenchless crossing compounds) within or adjoining the substation sites.
- 2.1.2 The Landscape Strategy for the reinstatement of landscape elements (vegetation and 'hard works' such as footpath surfacing and the provision of gates / stiles and field boundaries along the onshore cable corridor is detailed in **Section 4: Landscape and Habitat Reinstatement**.
- 2.1.3 The landscape related design principles for each substation are also provided in the **Design and Access Statement (DAS) [AS-003]** (updated at Deadline 3) along with the Indicative Landscape Plans for each site.

2.2 Landscape strategy for onshore substation

- 2.2.1 The Landscape Strategy is illustrated in **Figure 1: Oakendene Onshore Substation – Indicative Landscape Plan** and in **Appendix D** of the **Design and Access Statement [AS-003]**. A key design principle is the intention that the Oakendene substation will be screened by existing vegetation and proposed landscape planting from the majority of views into the site from the surrounding landscape and in most cases will present with limited or no visibility. Where visible, the appearance of structures will be considered as part of an Architectural Strategy to soften their appearance. Otherwise views towards Oakendene substation will be designed to maintain the existing rural landscape character as follows:
- A272: Except for the proposed access, the rural character of this road corridor, lined with existing trees and hedgerows will be maintained and strengthened with existing hedgerows managed to increase in height and increased native woodland planting provided beyond the hedgerow. The appearance of the access off the A272 will be designed to appear low key, matching the style of existing farm / estate access with limited signage. The site access road will incorporate a curve, with planting to prevent views along a 'straight' access road into the substation, maintaining the rural appearance of views from this road.
 - Kent Street: Existing mature trees and hedges along this wooded road corridor will be retained and strengthened with additional native woodland planting alongside the substation provided to ensure limited views of the substation even in winter. The wooded, rural character of Kent Street will be retained.
 - Cowfold Stream and PRow 1786 Taintfield Wood: Views of the substation from PRow 1786 where it crosses high ground to the north of Taintfield Wood; and where it is routed near the lake to the south of Oakendene Manor are

unavoidable (see **Figures 18.12a-j, Volume 3** of the ES **[APP-099]**). Whilst landscape planting has been maximised, the rural character and views across the parkland landscape at Oakendene Manor from part of PRow 1786 will be adversely affected and the Architectural Strategy (determining building colour and roofline) will be required to soften this effect.

- Oakendene Manor: Principle, designed views from the manor house to the lake within the parkland landscape at Oakendene Manor will be retained and unaffected. Southeast views from the house towards the substation will be partly screened by existing mature trees and woodland. Tree planting (native parkland trees, woodland and shrub planting) will be undertaken to provide further screening, whilst respecting the parkland character. Provision has been made within the proposed DCO Order Limits in the area of Works No. 17 (see **Onshore Works Plans [PEPD-003]**) to implement historic parkland style tree planting, to be confirmed at detailed design. The Architectural Strategy (determining building colour and roofline) will also be required to soften the visual appearance of the substation in any remaining views.

2.2.2 To conclude, the appearance of the Oakendene substation in the wider landscape setting will be limited to views from part of PRow 1786 and private views from Oakendene Manor. For the vast majority of visual receptors (people viewing the site from the surrounding landscape including settlements, residential properties, roads and PRow), there will generally be no view of the substation and the existing rural character of the landscape will be retained (See **Section 18.9 in Chapter 18 Landscape and visual impact, Volume 2** of the ES **[APP-059]**).

2.2.3 An Architectural Strategy will inform the detailed design based on the principles in the DAS. At the Oakendene substation, where possible the structures such as the main buildings will be coloured to reduce their visibility from the wider landscape. For example, photomontages for Years one, five and ten during the operation and maintenance period illustrate views of the indicative substation (**Figures 18.10 to Figure 13a-h, Volume 3** of the ES **[APP-098]**) which is coloured in a combination of greys (as dictated by materials) and greens which help to break up the mass and scale of the development and provide a better accommodation into the surrounding landscape, particularly during the summer months. The photomontages indicate the maximum design parameters, and the Architectural Strategy will consider the roof line and visible components of the Oakendene substation in order to further soften the appearance of the onshore substation when viewed from the surrounding area in its landscape setting.

Oakendene substation landscape design principles

2.2.4 Design principles with which the detailed design of the Oakendene Substation shall accord are detailed in Tables 3-1 to 4-1 of the **Design and Access Statement [AS-003]** (updated at Deadline 3) and secured by **draft DCO [REP2-002]** Requirement 8 and 12. The landscape design principles are a subset of this and are reproduced here in **Table 2-1** below:

Table 2-1 Landscape design principles for Oakendene

Reference	Principle	Substation
LV1	<p><u>Continued Detailed Design Evolution:</u> the Landscape Strategy, including detailed landscape design of the Indicative Landscape Plan will be developed by landscape architects in collaboration with technical and environmental disciplines to further the landscape design (see below) and embedded environmental measures, maintaining or advancing the current standard of design and reviewing opportunities to optimise the design within the maximum design parameters¹.</p>	Oakendene and National Grid Bolney
LV2	<p><u>Retention and Protection of Landscape Elements:</u> existing vegetation will be protected and retained as indicated on the Indicative Landscape Plan and in accordance with the Outline CoCP [PEPD-033] (updated at Deadline 3) Appendix B – Vegetation Retention Plans.</p>	Oakendene and National Grid Bolney
LV3	<p>Landscape Design: Indicative Landscape Plan:</p> <ul style="list-style-type: none"> the Oakendene substation will be screened by existing retained vegetation and proposed landscape planting from the majority of views into the site, from the surrounding landscape, and in most cases will have limited or no visibility. 	Oakendene
LV4	<p>Eastern boundary:</p> <ul style="list-style-type: none"> along Kent Street: Existing perimeter vegetation (mature trees and understorey) will be maintained and supplemented with additional native woodland and understorey planting. Attenuation basins will be planted with wet woodland species such as willow and alder. 	Oakendene

¹ Maximum design parameters are shown in the Design and Access Statement [AS-003] (updated at Deadline 3) Section 2

Reference	Principle	Substation
	<ul style="list-style-type: none"> the existing perimeter vegetation along Kent Street will be maintained by providing a trenchless crossing (see Outline CoCP Appendix A – Crossing Schedule crossing reference TC-28) for the onward cable connection to Bolney. Native shrubs / scrub will be planted within the cable easement. 	
LV5	<p>Southern boundary:</p> <ul style="list-style-type: none"> the existing perimeter vegetation along the southern boundary will be maintained by providing a trenchless crossing (see Outline CoCP [PEDP-033] (updated at Deadline 3) Appendix A – Crossing Schedule crossing reference TC-27) for the onshore cable connection into the onshore substation site. Native shrubs / scrub will be planted within the cable easement to the north of the tributary of Cowfold Stream. Existing perimeter vegetation (mature trees and understorey) will be maintained and supplemented with additional native woodland and understorey planting. Attenuation basins will be planted with wet woodland species such as willow and alder. 	Oakendene
LV6	<p>Western boundary: Existing perimeter vegetation (mature trees and hedgerows) will be maintained and supplemented with additional native woodland planting, understorey, hedgerows and individual native parkland trees. See also LV13 regarding advance planting. Attenuation basins will be planted with wet woodland species such as willow and alder.</p>	Oakendene
LV7	<p>Views from Oakendene Manor / parkland, to and from the lake, across associated landscape parkland west of the substation will be retained.</p>	Oakendene

Reference	Principle	Substation
LV8	Views from PRow 1786 near Taintfield Wood, towards Oakendene Manor and associated landscape parkland, will be retained and onshore substation screening maximised.	Oakendene
LV9	A272 and Site Access: outwith visibility splays and access requirements, existing roadside vegetation (trees and hedgerow) will be maintained, and hedgerow height managed to infill any gaps and allow it to grow to an increased height. Increased native woodland planting will be provided to the south of the existing hedgerow along the A272 to increase roadside screening. Beyond this, a temporary internal screen fencing will be provided to further screen works, demark advance planting (see LV13) and existing vegetation and allow small mammal passage.	Oakendene
LV10	The site access road will include a curve with planting to prevent a direct line of sight from the A272 into the onshore substation.	Oakendene
LV11	Site entrance signage and gates will be designed to be attractive, 'low key' and set back to preserve the rural character of the A272 road corridor.	Oakendene
LV12	<p>Architectural Strategy: To be developed by architects in collaboration with technical and environmental disciplines to further the landscape design and embedded environmental measures, maintaining or advancing the current standard of design and reviewing opportunities to optimise the design within the maximum design parameters</p> <ul style="list-style-type: none"> • Positioning and orientation of the built form and hard surfaced areas of the substation to be designed considering both the functional requirements and to reduce the visual impact of the substation; • The architectural form of the substation buildings and roofline are 	Oakendene

Reference	Principle	Substation
LV13	<p>to be designed for its functional requirements along with its visual appearance in order to soften and reduce the visual impact of the substation from nearby receptors;</p> <ul style="list-style-type: none"> Choice of colour scheme and materials / rendering of the building façades and roof to reduce the contrast with existing features in surrounding views and help integrate the substation into its landscape setting; and The substation security fence design to be considered for its aesthetic and visual qualities along with its functional requirements. Appropriate material and colours to be used to reduce the impact of the fence on nearby receptors. 	
LV14	<p>Advance planting (see also TE2 in Table 3-3 of the DAS for ecology)</p> <ul style="list-style-type: none"> Planting of the site perimeter shall be provided in the first available planting season following commencement of the onshore substation works, external to the temporary internal screen fence required to secure the works; Historic parkland tree planting to screen views from Oakendene Manor shall be provided in the first available planting season following commencement of the onshore substation works; and Further planting will be undertaken prior to completion of construction as areas of the site works are completed. <p>Lighting:</p> <ul style="list-style-type: none"> lighting requirements (for scheduled maintenance outages or emergencies) within the onshore substation will be directed downward and shielded to reduce glare outside the facility. 	Oakendene and National Grid Bolney

Reference	Principle	Substation
	<ul style="list-style-type: none"> the principles of lighting design will be informed by the joint guidance provided by the Bat Conservation Trust and Institution of Lighting Professionals (2023). the lighting design will account for the potential effects on people (residents, road users, walkers and tourists) and biodiversity by taking measures to minimise lighting use, minimise light spill, use most appropriate wave lengths of light and locate lighting in the most appropriate locations. 	
LV15	<p>Landscape Design: Indicative Landscape Plan</p> <ul style="list-style-type: none"> The existing National Grid Bolney substation extension will be screened by retention of existing vegetation and proposed landscape planting. Additional planting of individual native trees / shrubs / hedging will be provided adjacent to Bob Lane to provide screening of the existing National Grid Bolney substation extension, and the existing hedgerow and trees will be managed to enhance their screening potential. 	National Grid Bolney
LV16	<p>Wineham Lane and Site Access: Existing access to the existing National Grid Bolney substation will be used and no further works are required.</p>	National Grid Bolney

2.3 Landscape design strategy for National Grid Bolney substation extension

2.3.1 The landscape approach is illustrated in **Figure 2: National Grid Bolney substation extension works – Indicative Landscape Plan – AIS and GIS Option** and in **Appendix C** of the **Design and Access Statement [AS-003]**. It includes additional native tree planting along Bob Lane to reinforce existing mature

roadside vegetation in this location. A key design principle is the intention that the National Grid Bolney substation extension will be largely screened from public view in all directions by combinations of the existing National Grid Bolney substation, the existing Rampion 1 substation and existing mature vegetation comprising trees, woodland and hedgerows (**Section 18.10 in Chapter 18: Landscape and visual impact, Volume 2** of the ES [APP-059]). As a result, the existing wooded character of the surrounding landscape will be retained.

- 2.3.2 Design principles with which the detailed design of the National Grid Bolney substation extension work shall accord are detailed in Tables 3-1 to 4-1 of the **Design and Access Statement [AS-003]** (updated at Deadline 3) and secured by **draft DCO [REP2-002]** Requirement 9 and 12. The landscape design principles are reproduced here in Error! Reference source not found. above.

2.4 Landscape design: other opportunities

- 2.4.1 The temporary Oakendene West Construction Compound will be restored to its existing use and landscape character.
- 2.4.2 The reinstatement of the Oakendene substation construction compound will also be restored to its existing land use and returned to the landowner, subject to areas of required landscaping and ecological mitigation being retained shown on the **Figure 1: Oakendene onshore substation - Indicative Landscape Plan**.
- 2.4.3 Additional landscape provision and habitat creation beyond that in the proposed DCO Order Limits will be delivered through the approach to Biodiversity Net Gain (BNG) (**Appendix 22.15: Biodiversity Net Gain information, Volume 4** of the ES [APP-193] by third parties on behalf of RED and secured in the **draft DCO [REP2-002]**. These areas are therefore not considered further in this Outline LEMP.

2.5 Landscape design and vegetation retention

- 2.5.1 As per the design principles, the maximum footprint of the onshore substation will be located to retain the existing hedgerows and mature trees that currently exist on southern, eastern and western edges of the site to maintain the existing screening they provide. The maximum footprint for the Oakendene substation has also been sited to reduce the loss of hedgerows and mature trees within the proposed DCO Order Limits.
- 2.5.2 All existing vegetation (trees and hedgerows) within the Oakendene West Construction Compound will be retained.
- 2.5.3 The retention of these hedgerow and trees is secured through the Vegetation Retention Plan included in **Appendix B** of the **Outline Code of Construction Practice [PEPD-033]**.
- 2.5.4 Existing vegetation to be retained is also shown on **Figure 1: Oakendene onshore substation - Indicative Landscape Plan**.
- 2.5.5 In order to facilitate vegetation retention, trenchless crossings have been included (and secured in the Crossing Schedule in **Appendix A** of the **Outline CoCP**

[PEPD-033]) where the onshore cable corridor enters the substation to the south and where the corridor exits to the east towards the National Grid Bolney substation. The hedgerow, tree lines and areas of woodland to be retained at both the onshore substation and the National Grid Bolney substation are shown on the Vegetation Retention Plans in [Appendix B](#) of the [Outline CoCP \[PEPD-033\]](#).

2.6 Stage specific LEMP

2.6.1 The stage specific LEMP (for the stages comprising the construction of the Oakendene substation and the National Grid Bolney extension) will include landscape specification for the landscape works including, where appropriate, habitat creation and landscape and habitat reinstatement. Reference will be made, but not limited to the following British Standards (BS) and any revisions:

- BS 5837:2021 – Trees in Relation to Design, Demolition and Construction;
- BS 8545:2014 Trees: from nursery to independence in the landscape – Recommendations; and
- BS 3998:2010 Tree work. Recommendations.

2.6.2 The stage specific LEMP will include detailed ‘contract ready’ Landscape Plans, suitable for implementation of the works for each of the substations and where appropriate the Oakendene West Construction Compound.

2.6.3 The stage specific LEMP will also include:

- Landscape specification / method statements describing the landscape construction works including the stages of implementation:
 - ▶ Site clearance and ground preparation / cultivation and reference to soils management in the stage specific Soils Management Plan (SMP).
 - ▶ Provision of protection including rabbit / stock proof fencing and gates where required.
 - ▶ Planting and provision of tree stakes, ties, guards etc.
 - ▶ Planting procurement, delivery and planting.
 - ▶ Provision of watering, water retention granules, fertiliser and / or mulch where required.
 - ▶ Provision of hard landscape features including stock fencing (post and rail / post and wire fencing) gates, stiles, hard surfacing and other boundary features including walls and retaining elements where required.
- Plant schedule - detailing number of plants / density / size and species. The trees and shrubs planted will be of a range of sizes (including whips, feathered trees, light standards through to extra heavy standards and semi-mature trees) to ensure that there is a good structure and rapid establishment.
- Landscape programme.
- Landscape management, including a maintenance and monitoring plan to cover years one to ten to ensure the establishment of the landscape proposals.

Programme of Landscape Works and Advance Planting

- 2.6.4 A programme of landscape works will be provided setting out the programme according to relevant planting seasons and maximising opportunities for advance planting prior to construction to allow trees to mature during the construction works and in advance of completion of the onshore substation.
- 2.6.5 Some of the landscaping will be established prior to the beginning of construction (advance planting), with the remainder being delivered during or following the completion of the substation and the decommissioning of temporary construction compounds. During construction habitat will be created either during the first available planting season following commencement or as parts of the area are no longer required for construction. The habitat to be created in the first available planting season, in accordance with LV13, will be established on the outer side of temporary fencing established to define the working areas.
- 2.6.6 **Figure 1: Oakendene onshore substation - Indicative Landscape Plan** shows areas of planting that will be established in advance of construction works commencing.

Species Selection and Growth Rates

- 2.6.7 Species selection will be confirmed as part of the relevant stage specific LEMP and will include the use of native species selected from Table 2-1. Where appropriate non-native species listed in Table 8-5 of Appendix 22.16 **Arboricultural Impact Assessment [APP-194]** may be included. Not all British natives will be suitable, and the species selection will be made to suit the local environmental conditions of where the plants are to be planted and chosen to meet to design principles and in particular the following objectives:
 - Ecological objectives for habitat creation and enhanced biodiversity;
 - Landscape objectives to support the landscape design principles for amenity, screening and enhanced landscape character; and
 - Provide reasonable climate change resilience according to their location within the detailed landscape plan.

Table 2-2 British native trees and shrubs

Common name	Species
Alder	<i>Alnus glutinosa</i>
Ash	<i>Fraxinus excelsior</i>
Aspen	<i>Populus tremula</i>
Beech	<i>Fagus sylvatica</i>
Birch	<i>Downy Birch, Betula pubescens & Silver Birch, Betula pendula</i>

Common name	Species
Blackthorn	<i>Prunus spinosa</i>
Box	<i>Buxus sempervirens</i>
Broom	<i>Cytisus scopariu</i>
Buckthorn	Alder Buckthorn: <i>Rhamnus frangula</i> Purging Buckthorn: <i>Rhamnus cathartica</i> Sea-buckthorn: <i>Hippophae rhamnoides</i>
Cherry	Bird Cherry: <i>Prunus padus</i> Wild Cherry: <i>Prunus avium</i>
Crab Apple	<i>Malus sylvestris</i>
Dogwood	<i>Cornus sanguinea</i>
Elder	<i>Sambucus nigra</i>
Elm	English Elm, <i>Ulmus procera</i> - Wych Elm, <i>Ulmus glabra</i> - Smooth-leaf Elm, <i>Ulmus minor</i>
Hawthorn or Quickthorn	Hawthorn: <i>Crataegus monogyna</i> Midland Hawthorn: <i>Crataegus leavigata</i>
Hazel	<i>Corylus avellana</i>
Holly	<i>Ilex aquifolium</i>
Hornbeam	<i>Carpinus betulus</i>
Juniper	<i>Juniperus communis</i>
Lime	Large Leaved Lime: <i>Tilia platyphyllos</i> Small Leaved Lime: <i>Tilia cordata</i>
Maple	<i>Acer campestre</i>
Oak	Common Oak: <i>Quercus robur</i> Sessile Oak: <i>Quercus petraea</i>
Poplar	Black Poplar: <i>Populus nigra</i> Aspen: <i>Populus tremula</i>
Rowan or Mountain Ash	<i>Sorbus aucuparia</i>
Scots Pine	<i>Pinus sylvestris</i>
Spindle	<i>Euonymus europaeus</i>
Strawberry Tree	<i>Arbutus unedo</i>

Common name	Species
Whitebeam	<i>Sorbus aria</i>
Wild Service Tree	<i>Sorbus torminalis</i>
Willow	Goat Willow: <i>Salix caprea</i> White Willow: <i>Salix alba</i> Crack Willow: <i>Salix fragilis</i> <i>Salix triandra</i> and <i>Salix pentandra</i>
Yew	<i>Taxus baccata</i>

- 2.6.8 The Forestry Commission reports that (Silviculture of Broadleaved Woodland, 1984) growth rates of native species, likely to be included in the planting plan, can range from approximately 10-50cm per year for Oak (*Quercus robur* and *Quercus petraea*) and to up to approximately 1-2m per year for willows (*Salix alba* and *Salix fragilis*) and poplars (*Populus tremula* and *Populus nigra*); according to variable environmental conditions such as soil type and weather.
- 2.6.9 Differences in maintenance, for example weeding / mulching or no weed control can result in further variability on growth rates. For example, the Forestry Commission (*Growing broadleaves for timber*, 1993) reports the height of an Oak transplant at Year five can vary between 0.9m (unprotected) to 1.77m (with tree guard).
- 2.6.10 Planting illustrated in the photomontages (**Figures 18.10 to 18.13a-h, Volume 3** of the ES [**APP-098 to APP-099**]) have therefore illustrated proposed planting heights conservatively as follows:
- Year 5: Planting shown at between 2-5m high.
 - Year 10: Planting shown at between 4-8m high.
- 2.6.11 Details on habitat management and monitoring are provided in **Section 5: Monitoring and Management**.

3. Habitat creation

- 3.1.1 Habitat creation within this Outline LEMP is defined as the delivery of habitat types in areas that currently do not support them (for example, planting of woodland on an area currently supporting an agriculturally improved grassland). For the Proposed Development this refers to two locations only; the onshore substation at Oakendene and National Grid Bolney substation extension works for which landscaping is proposed. Elsewhere within areas that are to be affected by the Proposed Development, habitats and landscape features will be reinstated (see **Section 4**) and returned to landowners for them to resume their current activities in these areas such as farming).
- 3.1.2 Additional habitats will be created and enhanced elsewhere within the local area; however, these will be delivered through the approach to Biodiversity Net Gain (BNG) described in the Biodiversity Gain Information (**Appendix 22.15: Biodiversity Net Gain information, Volume 4** of the ES [APP-193]. These habitats will be delivered, monitored and managed by third parties on behalf of RED, the detail of which will be provided in the stage specific documents to be provided to discharge requirement 14 of the **draft DCO [REP2-002]** (updated at Deadline 3). Therefore, these habitats are not considered further in this Outline LEMP.
- 3.1.3 Opportunities to deliver Biodiversity Net Gain on land temporarily lost, or within the same landholdings in close proximity, will be identified subsequent to grant of the DCO with affected landowners². The Biodiversity Gain information provides further information on the selection criteria for delivering new and enhanced habitats to meet the commitment of delivering a BNG of at least 10 percent which will be managed and monitored for at least 30 years.
- 3.1.4 The **Design and Access Statement [AS-003]** (updated at Deadline 3) includes the parameters for each site and the design principles with which the detailed design shall accord. The principles established will inform the detailed design phase as the finalised layout and size of the substation, access tracks and sustainable drainage solutions (SuDS) is determined. However, the environmental needs of the landscape design will remain constant and therefore, large-scale changes would not be expected.
- 3.1.5 The habitats to be established are shown on **Figure 1: Oakendene onshore substation - Indicative Landscape Plan** and **Figure 2: National Grid Bolney substation extension works – Indicative Landscape Plan** are as follows:

Onshore substation

² It should be noted that there are ongoing discussions identifying future opportunities with landowners within Arun District, Horsham District and the overlapping areas of the South Downs National Park. Strategic schemes including Wilder Horsham and Weald to Waves have also been highlighted by the local planning authorities and are under consideration.

- Native woodland - 0.8ha;
- Native wet woodland³ – 1.9ha (combined with drainage features);
- Individual semi-mature native tree species - nine standards; and
- Areas of native scrub – 0.9ha.

National Grid Bolney substation extension works

- Individual semi-mature native tree species - 31 standards

3.1.6 During development of the design and construction proposals at each site the aim has been to minimise the loss of existing vegetation. This has focused on the retention of trees / tree lines, woodland, scrub and hedgerows. Further detail on this can be found in the [Design and Access Statement\[AS-003\]](#) (updated at Deadline 3). **Figures 1 and 2** indicate the vegetation that is to be retained, this is secured in the Vegetation Retention Plans in the [Outline CoCP \[PEPD-033\]](#) (updated at Deadline 3). In addition to the landscape design principles and objectives, habitat retention has been maximised to:

- accord with the mitigation hierarchy (avoid, minimise, mitigate and compensate);
- maintain integral green corridors on both north south and east west axes at the onshore substation; and
- minimise the loss of habitats used by legally protected and notable species (including bats, dormouse, reptiles and nightingale) at the onshore substation.

3.1.7 Newly created habitats will:

- provide habitats at the onshore substation that ensure the favourable conservation status of the local dormouse and bat populations are retained;
- provide habitats into which reptiles can be translocated if necessary;
- provide scrub and damp areas for breeding nightingale;
- provide compensation for losses of trees, woodland and scrub; and
- deliver habitats that could contribute to BNG commitments on-site⁴.

³ Wet woodland is being created as it provides both for wildlife and for landscape screening, whilst utilising a space that would be otherwise grassed and is designed to receive increased levels of run-off.

⁴ The habitats at the onshore substation and National Grid Bolney substation extension works are represented within BNG calculations at this stage (see [Appendix 22.15 Biodiversity Gain Information, Volume 4](#) of the ES [APP-193] (updated at Deadline 3)). However, final contributions of these habitats to the BNG commitment will be determined during the detailed design phase, following negotiations with the landowner. Regardless of inclusion in BNG calculations, habitats will be delivered at the onshore substation for the purposes of mitigation and compensation (e.g., to underpin a European Protected Species licence application).

- 3.1.8 Some of the habitat to be created around the onshore substations will be established prior to the beginning of construction, with the remainder being delivered following the completion of the substations and the decommissioning of temporary construction compounds. **Figure 1: Oakendene onshore substation - Indicative Landscape Plan** illustrates the areas of habitat that will be delivered prior to the commencement of construction, and those that will be created once the infrastructure is complete. The advance planting of some of the scrub and woodland planting is required as part of the strategy to maintain the favourable conservation status of the local dormouse population and provide areas into which small numbers of reptiles can be translocated. As detailed in the **Design and Access Statement [AS-003]** (updated at Deadline 3) timing and provision would be confirmed at detailed design and provided in the stage specific LEMP.
- 3.1.9 The design principles in the **Design and Access Statement [AS-003]** (updated at Deadline 3) provide for the effective mitigation and compensation for dormouse at the onshore substation through the retention of the habitat where positive signs of activity have been recorded and through the provision of new habitat that will be directly linked to the retained vegetation and comprise of a range of species valuable to this species (for example hazel, honeysuckle, pedunculate oak, hawthorn, blackthorn, hornbeam and wayfaring tree). This includes areas of planting delivered prior to construction commencing that are larger in area than the suitable habitats being lost elsewhere for the delivery of the onshore substation.
- 3.1.10 Following completion of the onshore substation the extent of scrub and woodland habitats will grow further through further habitat creation resulting in the potential for local population expansion in the future. The trees and shrubs planted will be of a range of sizes (including whips, feathered trees, light standards and standards) to ensure that there is a good structure and rapid establishment.
- 3.1.11 The design principles in the **Design and Access Statement [AS-003]** delivers effective mitigation and compensation for bats through the retention of the main boundaries of the onshore substation site on the eastern boundary (Kent Street), the southern boundary (retained via a trenchless crossing) and the majority of the western boundary (screening Oakendene Manor). These are the major lines of vegetation at the onshore substation site that provide connectivity around the working area and the landscape beyond. The trees, scrub, wet ditches (as part of the SuDS solution) and woodland provided for within the design principles and shown on **Figure 1: Oakendene onshore substation - Indicative Landscape Plan** provide commuting and foraging habitat for bats, with the provision of ten bat boxes⁵ (to be installed on retained mature trees) providing enhancement to existing roosting potential. The trees and shrubs planted will be of a range of sizes to ensure that there is a good structure and rapid establishment.
- 3.1.12 The design principles in the **Design and Access Statement [AS-003]** (updated at Deadline 3) will ensure habitat is provided for reptiles at the onshore substation, particularly where scrub and woodland interfaces with more open habitats (replicating current distribution). In the short term the newly planted woodland and scrub will provide areas with greater ground cover (e.g., the ground flora will be

⁵ Bat boxes will be made of woodcrete or similar durable material.

more complex than the current agricultural land), in areas close to places of refuge (e.g., existing tree lines / hedgerows etc.).

- 3.1.13 The design principles in the **Design and Access Statement [AS-003]** will also ensure provision of habitat for nightingale in the form of scrub and wet woodland (associated with the SuDS as proposed in the **Outline Operational Drainage Plan [APP-223]** favoured for feeding. In the short-term appropriate habitat structure for nesting nightingale will be provided in the retained vegetation, with newly planted areas providing foraging habitat. In the medium to long term there will be an increase in the amount of suitable nesting habitat for nightingale in the general surrounds.
- 3.1.14 For the National Grid Bolney substation extension works, habitat loss and loss of screening is minimised through the siting of the infrastructure and the temporary losses will be reinstated with further planting of individual native trees to the south of the extension works as per the design principles in the **Design and Access Statement [AS-003]**.
- 3.1.15 The stage specific LEMP for each site will detail the planting and habitats to be created including species mixes, planting densities and extents. It will also include a delivery schedule and details of the monitoring and management arrangements for each habitat type / area.
- 3.1.16 Any biodiversity units created on site (as measured with the Statutory Biodiversity Metric) that would qualify for registration on Natural England's Biodiversity Gain Site Register would be registered, managed and monitored in line with the mandatory system currently in operation.

4. Landscape and habitat reinstatement

- 4.1.1 Landscape elements and habitats within areas that will be subject to temporary loss during the installation of the onshore cables (between the landfall landward of Mean High Water Springs (MHWS), the onshore substation at Oakendene and grid connection point at the National Grid Bolney substation extension) will have habitats and associated landscape elements (such as hedgerows) reinstated with the exception of woodland – see **paragraph 4.4.1**.
- 4.1.2 The reinstatement of habitat will be of the same habitat type and at minimum to the same condition, although in landscape terms the reinstatement of landscape elements will take time to mature and new sections of field boundary fencing and / or hedgerow will be apparent post construction. The reinstatement to pre-existing state is to provide the landowner the opportunity to carry on usual activities (such as arable farming, grazing etc.) following installation of the onshore cables. Should landowners express an interest in the area affected (or other areas within their local landholding) being enhanced for biodiversity this would be delivered either through the commitment made to BNG (see **Appendix 22.15: Biodiversity Net Gain information, Volume 4** of the ES [APP-193] (updated at Deadline 3) or on a case by case basis for small areas/lengths of habitat that would not be secured for management over the 30 year period required to register as BNG (for example a defunct hedgerow could be planted to be a species rich hedgerow in agreement with landowner, but handed back for their management after the initial 10 year establishment period). These would be additional enhancements that would not be accounted for in the BNG calculations.
- 4.1.3 Reinstated habitats would be managed and monitored over a ten year period (measured from the completion of the final reinstatement within a given stage) and then the landowner would resume all responsibilities. Where habitats are enhanced as part of the delivery of BNG, they will be monitored and managed over the course of a 30 year period as part of the Biodiversity Net Gain strategy⁶.
- 4.1.4 The stage specific LEMP will detail the landscape elements and habitats to be reinstated; including species mixes, planting densities and extents as set out in **Section 2.6: Stage specific LEMP**. It will also include a delivery schedule and details of the monitoring and management arrangements for each habitat type / area over the 10 year establishment period.
- 4.1.5 The approach to different landscape elements and habitat types is described below.

⁶ It should be noted that in keeping with the recently consented linear project Yorkshire Green (consented on 14 March 2024) management for 30 years applies to those habitats being created or enhanced for BNG, as opposed to those being handed back to landowners to enable them to resume their typical business (see paragraph 3.5.49 of the Examining Authorities Recommendation report (file reference EN020024)).

4.2 Arable fields and pasture

- 4.2.1 The reinstatement of agricultural fields will be undertaken in discussion with landowners to ensure soil structure and commercial seed mixes (especially for improved pastures) are in keeping with the remainder of the field in question. For further information with regards soils, see the **Outline Soils Management Plan [APP-226]** (updated at Deadline 3) .
- 4.2.2 Approximately 71.11ha of arable fields (including tussocky grass strips) and 88.9ha of pasture is expected to require reinstatement (based on the realistic worst case land take scenario). The habitat condition (associated with Biodiversity Net Gain calculations – see **Appendix 22.15: Biodiversity Net Gain information, Volume 4** of the ES [APP-193] (updated at Deadline 3) of the pasture fields places approximately 80 percent in poor condition (intensively managed for grass production) and 20 percent in moderate condition (greater floral and structural diversity). In all instances commercial seed mixes of appropriate make-up will enable reinstatement to progress in a straightforward manner.
- 4.2.3 Areas of improved pasture within coastal and floodplain grazing marsh are described in **Section 4.6: Grasslands (other than improved grasslands)** (see also **Section 4.7: Watercourse and wet ditch crossings**).
- 4.2.4 Habitat reinstatement of agricultural fields will be monitored for a period of ten years. Any remediation required post initial restoration will be driven by commercial considerations of farming practice (e.g. land drainage is not functioning as previously) as opposed to habitat quality for biodiversity. Should any issues be identified, a programme of suitable works (such as alterations to land drains) will be agreed with the affected party.

4.3 Dense scrub

- 4.3.1 Dense scrub occurs both in patches and as linear features (often where hedgerows have not been managed regularly or bounding areas of woodland). Where scrub forms a linear feature in the landscape it will be assessed prior to any vegetation clearance occurring, with size of trees / shrubs, type of trees / shrubs and soil type considered. Should species of interest (such as black poplar) be present translocation using a tree spade will be considered (see **Outline Code of Construction Practice [PEPD-033]** (updated at Deadline 3) for further details). If the linear feature does not support species of particular note in the local area, are of a size where translocation would be difficult to achieve or in a location where the potential success of translocation is low the scrub would instead be cut and cleared from the working area. Where scrub occurs in patches/blocks or is scattered it will be cut and removed from the working area.
- 4.3.2 Following the completion of construction works in that area the scrub would be replanted with new plants or temporarily translocated stock returned to its original position in the first available winter period. The realistic worst-case scenario developed to inform the **Appendix 22.15: Biodiversity Net Gain information, Volume 4** of the ES [APP-193] (updated at Deadline 3) sees a temporary loss of 1ha of scrub.

- 4.3.3 Excavated soil from the area of scrub would be stored separately from the surrounding habitats to preserve the seedbank and returned following construction. Following the return of translocated scrub or planting of new shrubs / trees fencing would be erected to protect the area from herbivory. Weed control (spot treatment of undesirable species or dense grass cover) would be undertaken in each year for the first five years of the establishment phase; with need for weed control assessed periodically for the remaining five years of the establishment phase (i.e., establishment phase is to be ten years in total). At planting water retention granules would be included in the trench / pit and a watering plan (see **Section 5** for further details) devised for each location as necessary (based on ground conditions).
- 4.3.4 All scrub temporarily lost, other than at the temporary construction compounds and the onshore substation would be reinstated within two years of its loss. The reinstatement would occur during the planting seasons within the winter period, subject to appropriate weather and ground conditions.
- 4.3.5 The scrub would be monitored annually over a ten-year period following reinstatement. Should any of the plantings have failed in this period they will be replaced with a tree / shrub of a suitable size in the first planting season following the monitoring visit. Further, should other issues be identified (for example, excessive weed growth, herbivory damage etc.) additional measures would be employed to ensure the reinstatement is successful.
- 4.3.6 Management of scrub would take place over the operational life of the assets to avoid root damage to the onshore cables (see **Annex A: Planting and Management Wayleaves for Underground Electrical Cables**). Every tenth year following establishment the scrub within the wayleave would be thinned and reduced in height (where trees are greater than 4m in height) to prevent larger trees becoming established where necessary. This management is to be sympathetic and selective, as opposed to clear felling all scrub and allowing regeneration from root stock only.

4.4 Woodland

- 4.4.1 Where woodland is lost (approximately 0.4ha) the reinstatement will be in the form of scrub to prevent damage to the transmission cables. This scrub will provide visual diversity of landscape character and elements and habitat linkages between parts of the woodland that remain following construction. This scrub would be managed in the same way as described above. Where appropriate this could take the form of hazel coppice where this is a feature of the woodland blocks being crossed.

4.5 Hedgerows and treelines

- 4.5.1 Hedgerows occur regularly along the length of the cable corridor forming features of both landscape and ecological value. A distinction has been made in the assessment and on the **Vegetation Retention Plans** (see Appendix B of the **Outline Code of Construction Practice [PEPD-033]** (updated at Deadline 3) between 'hedgerows' which do not include trees and 'treelines' which are linear lines of trees that can overlap with hedges to provide hedgerows with trees. Linear

areas of woodland are assessed as 'woodland'. Linear features such as hedges and treelines are man-made features in the landscape that often form a particular function which may be a combination of utility and / or aesthetics. Often these landscape elements form component parts of established and valued landscape patterns and landscape character.

- 4.5.2 A total of 103 hedgerow and 32 treeline crossings are required on the onshore cable corridor. Hedgerow may be removed and reinstated with new plants or temporarily translocated to a pre-prepared planting trench and returned to its original position in the first available planting period.
- 4.5.3 Species selection and placement along the reinstated hedgerow or tree line will comply with **Annex A: Planting and Management Wayleaves for Underground Electrical Cables**. Tree planting can and should occur within some parts of the reinstated cable corridor and associated temporary construction compounds where it is remote from the centreline of the underground cable duct (10m for most tree species and +10m for willows (*Salix* sp.) and Poplars (*Populus* sp.)).
- 4.5.4 Care should be taken in the species selection, layout and spacing of trees along linear landscape elements such as hedges and treelines to avoid the creation of obvious 'notches' or 'breaks' in the landscape pattern that could lead to a permanent adverse effect on the landscape character. Landscape plans for hedgerow and treeline reinstatement may need to be produced in sensitive areas such as the SDNP and included within the stage specific LEMP.
- 4.5.5 The introduction of young trees to landscape elements in contrast to a mature or single age structure may be noticeable, but it will also bring benefits of increased diversity of age structure, habitat and succession or longevity of the landscape element which would otherwise decline if it became over mature.
- 4.5.6 Excavated soil from the hedgerow area (including hedge banks) will be stored separately from the surrounding habitats to preserve the seedbank and returned following construction. Following the return of translocated hedgerow or planting of new whips fencing will be erected to protect the area from herbivory. Weed control (spot treatment of undesirable species or dense grass cover) will be undertaken in each year for the first five years of the establishment phase; with need for weed control assessed periodically for the remaining five years of the establishment phase (establishment phase is to be ten years in total). At planting water retention granules will be included in the trench / pit and a watering plan (see Section 5 for further detail) devised for each location as necessary (based on ground conditions)..
- 4.5.7 All hedgerows temporarily lost would be reinstated within two years of its loss. The reinstatement would occur during the first available planting period.
- 4.5.8 The hedgerow would be monitored twice yearly in years one, two, three, four and five, and annually (in spring / summer) in years six to ten following reinstatement. Should any of the planted or translocated sections fail in this period they will be replaced with plants of a suitable size in the first planting season following the monitoring visit. Further, should other issues be identified (for example, excessive weed growth, herbivory damage etc.) additional measures would be employed to ensure the reinstatement is successful.

- 4.5.9 Management of hedgerow would take place over the operational life of the assets to avoid root damage to the transmission cables. Every tenth year following establishment, and if necessary, the hedgerow would be monitored and large tree species within the cable wayleave cut down or reduced in size to prevent larger trees becoming established (see **Annex A: Planting and Management Wayleaves for Underground Electrical Cables**).
- 4.5.10 Where standard trees or tree lines are lost these would not be replaced within the wayleave for the cable corridor (see **Annex A: Planting and Management Wayleaves for Underground Electrical Cables** and **Outline Code of Construction Practice [PEPD-033]** (updated at Deadline 3) for information on avoidance of standards).

4.6 Grasslands (other than improved grasslands)

- 4.6.1 Prior to the commencement of construction areas of semi-improved grassland and calcareous grassland within the working area would be subject to National Vegetation Classification (NVC) survey as per the **Outline Code of Construction Practice [PEPD-033]**. Those grasslands that were identified as meeting the criteria of a priority grassland in Natural England Technical Information Note TIN110 (2012) would be subject to restoration using the existing seed bank (as opposed to sowing a seed mixture). The exception to this would be coastal and floodplain grasslands that are often characterised by areas of intensively managed pastures. These areas would be sown with an appropriate commercial mix as agreed with the landowner.
- 4.6.2 Where reinstatement is from the existing seed bank, the top layer (~10cm) of the topsoil (referred to here as 'seed bank soil') will be removed and stored separately to the remainder, which in turn will be stored separately from the subsoil in accordance with the **Outline Soils Management Plan [APP-226]**. The seed bank soil would not be seeded when stored and would be held in a stockpile for a short a time as possible (aim of less than six months). This soil would then be dressed back onto the area it was removed from following completion of temporary works. Green hay would be cut from within the same field and strewn on dressed back areas to bolster the seed resource already within the soil.
- 4.6.3 Based on current information from Phase one Habitat Survey and NVC survey, this would apply to 0.96ha of semi-improved grassland and 0.9ha of the coastal and floodplain grazing marsh.
- 4.6.4 Monitoring the establishment of grassland would take place annually for a period of ten years. Where necessary spot treatments would be applied to undesirable species to facilitate the development of a diverse sward. Management of the grassland would follow that of current use (such as grazing would be expected in areas currently grazed), with planning for each regime being determined for each individual area. Where necessary, adaptive management measures (such as over-seeding etc.) would be implemented to ensure diversity of the sward is maintained.

4.7 Watercourse and wet ditch crossings

4.7.1 As described in the [Outline Code of Construction Practice \[PEPD-033\]](#) (updated at Deadline 3), watercourses and wet ditches that will be crossed using open trenching techniques will be affected for relatively short periods. The bed material removed will be placed back in-situ and the banks re-profiled as necessary. Bank side vegetation will either be left to regenerate naturally where rough grassland or ruderal vegetation fringes are dominant, sown with an appropriate seed mix where the ditch is fringed by agriculturally managed habitats or planted with scrub where these habitats lie adjacent to the watercourse. Haul roads will be in place for longer periods and will be created from culverts or temporary clear span bridges (on SDNPA identified chalk streams and in any locations where water vole area present). These will be removed when no longer needed and the bed and banks reinstated as described above.

4.8 Hard landscape features

- 4.8.1 Hard landscape features include non-vegetative landscape elements such as fencing, walls, gates, stiles and footpath surfacing, not covered in **Section 4.7: Watercourse and wet ditch crossing**.
- 4.8.2 The reinstatement of hard landscape features will refer to a condition survey undertaken prior to the site clearance as part of the cable corridor setting out works. This will confirm the type of boundary fencing and the condition of the hard landscape feature to be reinstated with new fencing for example of matching or closely matching type (such as post and rail fencing to replace existing post and rail fencing and tie into existing fencing), unless agreed otherwise with the landowner or required to protect new reinstated planting (such as rabbit proof fencing).
- 4.8.3 The [Outline Public Right of Way Management Plan \(PRoWMP\) \[APP-230\]](#) (updated at Deadline 3) provides a summary of the temporarily affected PRoWs. Reinstatement of public access features such as new replacement gates, cattle grids and stiles will follow the same reinstatement approach with a condition survey undertaken prior to site clearance. Where appropriate public access provision will be upgraded to allow access for all / multiuse.
- 4.8.4 Where the boundary feature has interest and/or historic value as a landscape element, for example, natural stone paving slabs or post marker / feature, its condition will be recorded, and specific reinstatement and reporting plan provided as part of the stage specific LEMP. This is likely to include the taking down, safe storage and reinstatement of the original features post construction.
- 4.8.5 Where the hard surfacing of PRoW needs to be reinstated, this will also be subject to a condition survey undertaken prior to the site clearance as part of the cable corridor setting out works. Reinstatement will be undertaken to match or closely match the original (re-using features such as stone paving slabs where these can be salvaged), unless agreed otherwise following landowner consultation and agreement.
- 4.8.6 Hard landscape features will be monitored for a period of ten years (including a wet weather check). Where necessary defective field boundary, access features

and surfacing will be replaced (such as cracked fencing / paving or hard surfacing that has sunk and is subject to regular puddling).

4.9 Individual Trees

- 4.9.1 The rate at which individual trees would be replaced would be calculated as a function of their current stem size. Stem size is a good general proxy for tree age and also total biomass because of the annual expansion of a trunk's cross-sectional area. Older and larger trees tend to provide increased biodiversity opportunities and more environmental and amenity benefits than smaller trees. In this way replacement would respond to the scale of impact.
- 4.9.2 In simple terms, the tree replacement strategy adopted within the Proposed Development is the replacement of the cross-sectional area of stems that are removed, within 30 years. 30 years is chosen to align with biodiversity net gain, and because it represents a reasonable timescale for reinstatement.
- 4.9.3 In this assessment, the average stem diameter of newly planted trees after 30 years of growth (post-nursery) is assumed to be 300mm. This is based on a 'small tree' in the Tree Helper function of Statutory Biodiversity Metric. The Tree Helper uses Root Protection Area (12 times the diameter of a trees stem) as a proxy for biomass from which the stem diameters used in this assessment are derived. Values are also given for 'medium trees' (those with a stem diameter of greater than 300mm and up to 900mm), and 'large trees' (those with a stem diameter greater than 900mm) but it is highly unlikely that many species would attain a stem diameter greater than 0.3m within a 30 year period, and not in sufficient numbers to make meaningful difference to the average.
- 4.9.4 The replacement rate for each tree that would be removed would be calculated by dividing the current cross-sectional stem area, measured at 1.5m in height (the Diameter at Breast Height), by 0.07m² which is the cross-sectional stem area of a 300mm diameter tree. Where the result is a fraction, the number of replacement trees is rounded up to the nearest whole number. For example, a tree with a stem diameter of 600mm and a cross-sectional stem area of 0.28m² would be replaced by 4 trees, each contributing 0.07m².
- 4.9.5 The following tables provides representative examples of the replacement ratios that would apply to trees in different size bracket.

Table 4-1 Indicative Tree replacement rates

Stem diameter	Number of replacement trees per tree removed
100mm	1
200mm	1
300mm	1
400mm	2

500mm	3
600mm	4
700mm	6
800mm	8
900mm	9
1000mm	12
1100mm	14
1200mm	16

4.9.6 Tree groups and woodland that are removed would be replaced at the rates shown in **Table 4-2**. These would be applied based on the median stem size of the range recorded within each group. It may be necessary for additional survey detail to be gathered to inform the final mitigation calculations based on a detailed design.

4.9.7 The primary objective of Group and Woodland planting is to provide an equivalent or greater area of tree cover to that being removed. Group and Woodland planting would be delivered using young trees (whips) which would be planted at a high density (typically at 1m centres) than specimen trees. The ratio of new trees provided will therefore greatly exceed those provided for individually recorded Trees but will reduce over time through management, in the form of thinning, and natural suppression. Replacing groups based on their current canopy area also assures no net loss of future canopy cover, irrespective of future crown management. In reality, most new trees will develop branches that extend well beyond the planting footprint resulting in a net gain in long-term tree canopy cover.

Table 4-2 Representative Group and Woodland replacement rates

Stem diameter range	Area of replacement planting
≤300mm	1:1
>300mm to ≤900mm	1:1.1 (+ 10%)
>900mm	1:1.2 (+20%)

4.9.8 Hedges would be replaced at a rate of at least 1:1 by length as the vast majority will be replaced in situ as the cable installation works are completed. No additional hedgerow will be planted at these locations, although the commitment to BNG (C-104) will result in enhancements or creation of hedgerows elsewhere in the local area.

5. Monitoring and Management and Adaptive Management

- 5.1.1 Landscape and habitat management will include both maintenance and monitoring for ten years to ensure establishment.
- 5.1.2 All habitats created and reinstated will be monitored and managed for a period of no less than ten years. Where habitats are to count towards the commitment for BNG this period will be no less than 30 years (Department for Environment, Food and Rural Affairs (Defra), 2022) (see [Appendix 22.15: Biodiversity Net Gain Information \[APP-193\]](#) (updated at Deadline 3)) . Each stage specific LEMP will provide this information in a monitoring and management schedule.
- 5.1.3 The management will include a specification and programme of maintenance works covering items such as weeding / screening / mulching, watering, repair to plant protection and replacement of failed plants as required.
- 5.1.4 Newly planted vegetation will be monitored bi-annually for up to five years (at least one visit in spring/summer) and annually, during the summer for years five to ten. This monitoring effort would focus on ensuring that any failed habitat creation measures (e.g., die off of planted trees, excessive weed growth) is remedied at the earliest possible opportunity and that appropriate management actions are being taken to ensure that the target condition of the habitats will be reached. The timing of the biannual monitoring visits will allow any remedial actions to be undertaken in the first available season (e.g. replacement of failed whips in winter or additional weed control during the growing season) following identification of the issue. This will ensure that any planting failures identified in the spring/summer will be replaced in the subsequent autumn/winter period. The monitoring visits will be undertaken by a suitably qualified and experienced practitioner who will then have the responsibility to identify and organise delivery of:
- Replacement plantings for any failed trees or shrubs; and
 - Adaptive management measures aimed at achieving the target conditions of each habitat specified (for example, additional weed control, fencing installation / repair, tree guard removal / replacement).
- 5.1.5 Watering of newly planted hedgerows and scrub belts will be carried out every two weeks in the first spring / summer after planting unless weather conditions make this unnecessary. In the second and third spring / summer seasons after planting, watering will take place on a monthly basis between May and August unless weather conditions make this unnecessary or there are extended periods of dry weather that make it necessary to increase the frequency.
- 5.1.6 At each monitoring visit a proforma (format to be specified in the detailed LEMP) that will detail the status of each habitat created and any measures necessary to deliver effective adaptive management. All monitoring proformas (created on a stage specific basis) will be made available to the relevant planning authority within 6 weeks of the monitoring visit having taken place, and any adaptive

management measures will be discussed with them prior to implementation. As each habitat reaches the time within which target habitat condition should be reached, an assessment against the relevant criteria (Defra, 2023) will be provided.

- 5.1.7 The management of each habitat type at the onshore substation will follow standard practices for delivering habitats with the appropriate structure and diversity required to maximise biodiversity opportunity. These measures will be specified in the stage specific LEMP to be provided. The appropriate management will be informed by the species mix, soil conditions, understanding of the SuDS solutions etc.
- 5.1.8 Reinstated habitats will be managed to return them to the same state as at the time of temporary loss. Within agricultural settings the management and monitoring will be cognisant of the commercial activities and landowner management of the adjacent areas (sections of hedgerows or parts of fields subject to reinstatement will need to be managed in the same way as contiguous areas being actively managed by the landowner).

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6. Glossary of terms and abbreviations

Term (acronym)	Definition
BNG	Biodiversity Net Gain
BS	British Standards
Code of Construction Practice (COCP)	The code sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects.
DCO Application	An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for the Proposed Development.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Defra	Department for Environment, Food and Rural Affairs
Development Consent Order (DCO)	This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.
DAS	Design and Access Statement
Horizontal Directional Drilling (HDD)	An engineering technique avoiding open trenches.
HVAC	High Voltage Alternating Current
LEMP	Landscape and Ecology Management Plan
MHWS	Mean High-Water Springs
NVC	National Vegetation Classification
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for

Term (acronym)	Definition
	renewable energy projects with an installed capacity greater than 100MW.
Onshore	The onshore elements of the Proposed Development refer to works landward of the Mean High Water Springs (MHWS).
Proposed Development	The development that is subject to the application for development consent, as described in Chapter 4: The Proposed Development, Volume 2 of the ES[APP-045].
RED	Rampion Extension Development Limited (the Applicant)
SDNPA	South Downs National Park Authority
SuDS	Sustainable Drainage Systems
The Applicant	Rampion Extension Development Limited (RED)
Wind Turbine Generators (WTGs)	The components of a wind turbine, including the tower, nacelle, and rotor.

7. References

Bat Conservation Trust and Institution of Lighting Professionals, (2023). *Bats and Artificial Lighting at Night*. [Online] Available at: <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/> [Accessed 10 April 2024].

Department for Environment, Food and Rural Affairs (Defra), (2022). *Consultation on Biodiversity Net Gain Regulations and Implementation*. [Online] Available at: https://consult.defra.gov.uk/defra-net-gain-consultation-team/consultation-on-biodiversity-net-gain-regulations/supporting_documents/Consultation%20on%20Biodiversity%20Net%20Gain%20Regulations%20and%20Implementation_January2022.pdf [Accessed 21 June 2023].

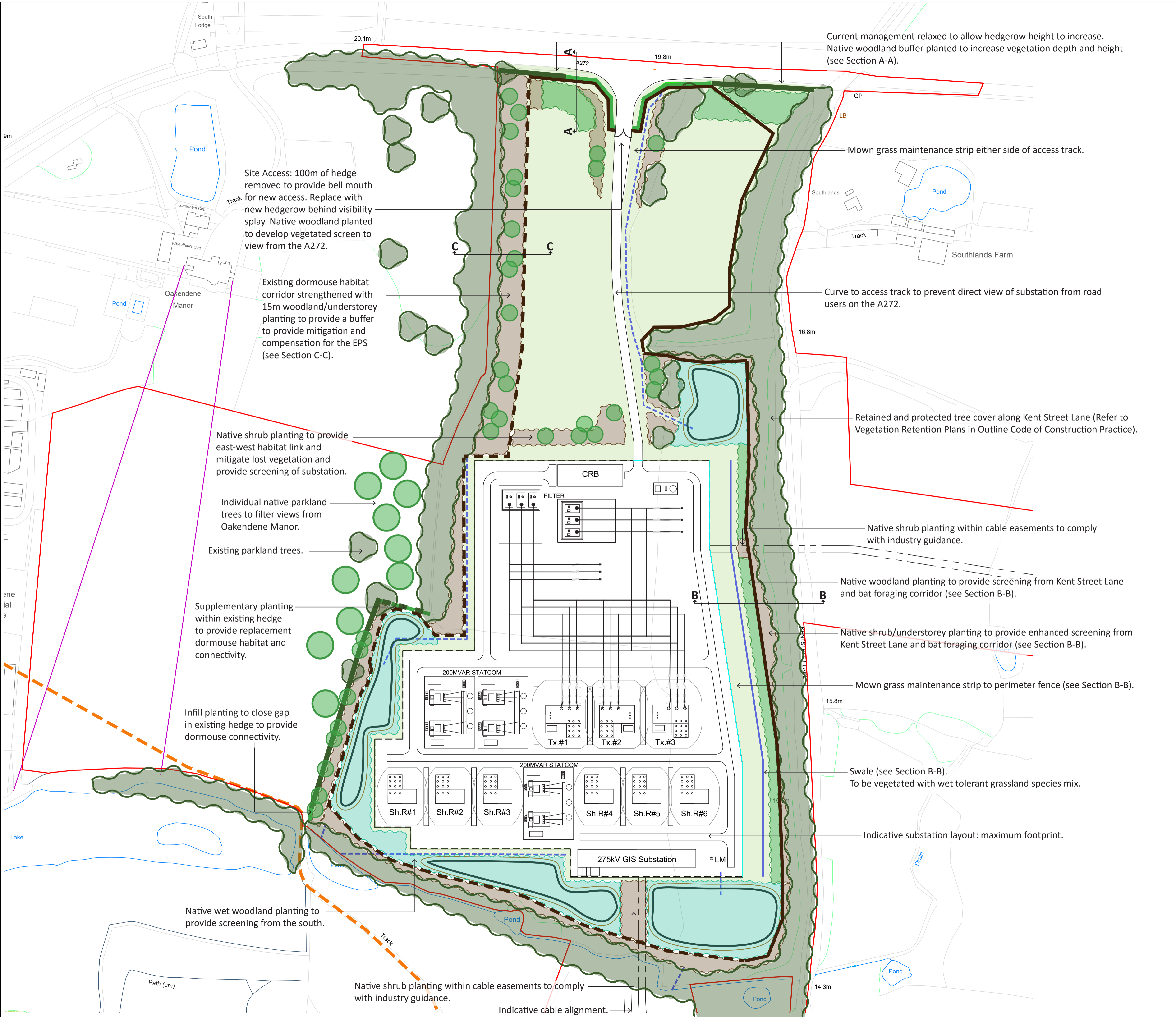
Natural England and Other Parties, (2023). *The Biodiversity Metric 4.0 User Guide*. [Online] Available at: <https://publications.naturalengland.org.uk/publication/6049804846366720> [Accessed 20 June 2023].

Natural England, (2012). *Assessing whether created or restored grassland is a BAP Priority Habitat (TIN110)*. [Online] Available at: <https://webarchive.nationalarchives.gov.uk/ukgwa/20150902172513/http://publications.naturalengland.org.uk/publication/1649037> [Accessed 21 June 2023].




















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Figures

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Key

-  Existing parkland/standard trees retained
-  Existing intact hedgerow retained
-  Existing gappy hedgerow retained
-  Existing woodland/vegetation retained
-  Proposed parkland trees (provided as semi-mature trees)
-  Proposed standard trees (provided as a mix of extra heavy-light standards)
-  Proposed native species hedge
-  Proposed supplementary native species hedge planting within existing hedge
-  Proposed native woodland planting
-  Proposed wet woodland planting
-  Proposed native shrub/understorey planting
-  Grass/Maintenance Strip
-  Attenuation basin extent and 1m contour (Max. 1:3 slope)
-  Swale
-  Filter drain (1m width)
-  Temporary close boarded screen fence around perimeter of Site to north and east
-  Construction boundary fence (Heras or similar) around perimeter of Site to west and south
-  Retained view from Oakendene Manor
-  Onshore cable route (indicative)

N
0 50m 100m 150m
Scale 1:1250 @ A1

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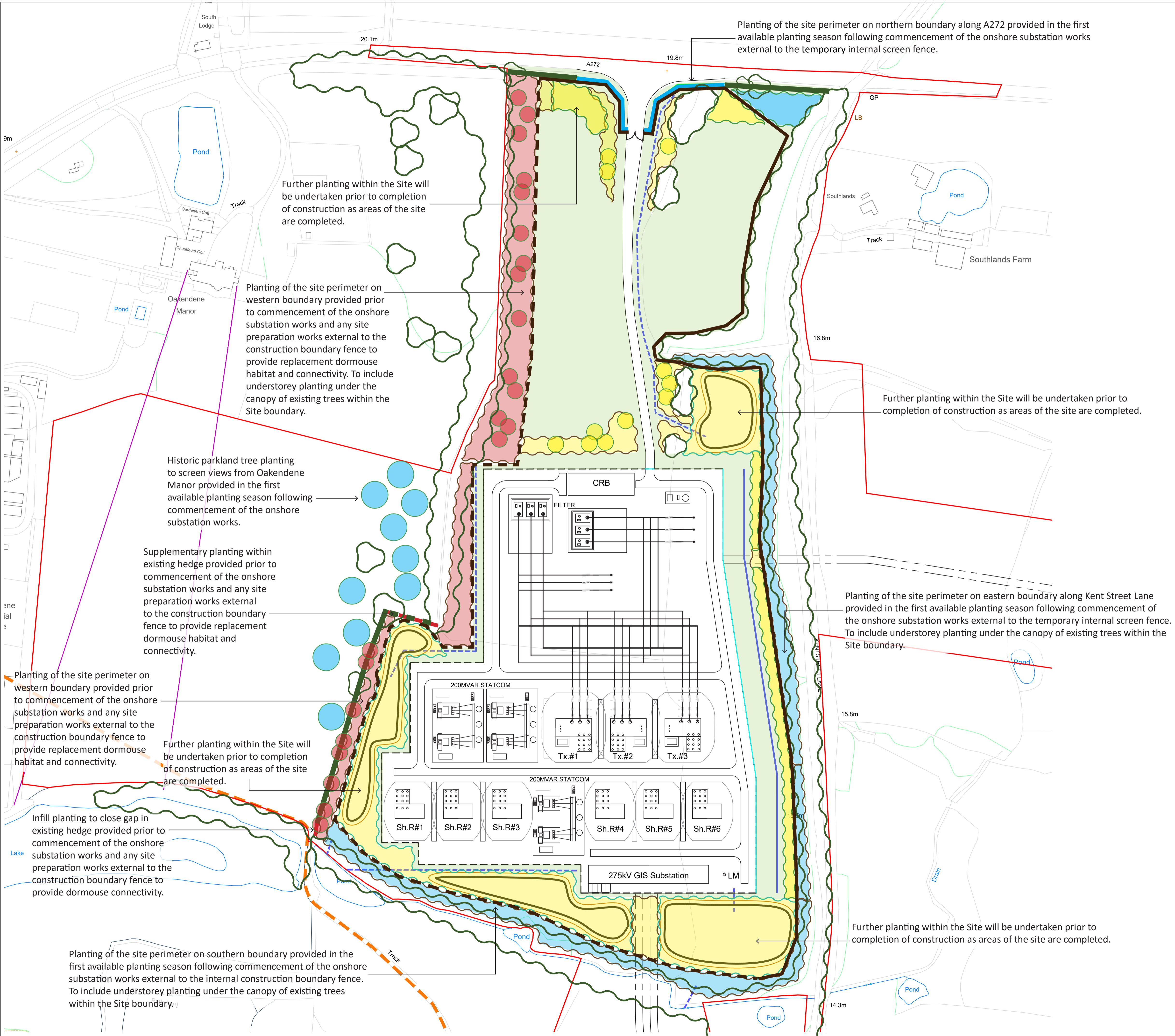
Rampion Extension Development Limited



Rampion 2 Offshore Wind Farm

**OAKENDENE SUBSTATION
INDICATIVE LANDSCAPE PLAN**

System Identifier: 42285-WSPE-EX-ON-FG-OL-7754				Version: 0
Company: WSP	Drawn By: N.Bunn	Chk/Apvd R.Ryloc	Drawn Date: 25/04/24	Status: FINAL



Planting of the site perimeter on northern boundary along A272 provided in the first available planting season following commencement of the onshore substation works external to the temporary internal screen fence.

Further planting within the Site will be undertaken prior to completion of construction as areas of the site are completed.

Planting of the site perimeter on western boundary provided prior to commencement of the onshore substation works and any site preparation works external to the construction boundary fence to provide replacement dormouse habitat and connectivity. To include understorey planting under the canopy of existing trees within the Site boundary.

Historic parkland tree planting to screen views from Oakendene Manor provided in the first available planting season following commencement of the onshore substation works.

Supplementary planting within existing hedge provided prior to commencement of the onshore substation works and any site preparation works external to the construction boundary fence to provide replacement dormouse habitat and connectivity.

Planting of the site perimeter on western boundary provided prior to commencement of the onshore substation works and any site preparation works external to the construction boundary fence to provide replacement dormouse habitat and connectivity.

Further planting within the Site will be undertaken prior to completion of construction as areas of the site are completed.

Infill planting to close gap in existing hedge provided prior to commencement of the onshore substation works and any site preparation works external to the construction boundary fence to provide dormouse connectivity.

Planting of the site perimeter on southern boundary provided in the first available planting season following commencement of the onshore substation works external to the internal construction boundary fence. To include understorey planting under the canopy of existing trees within the Site boundary.

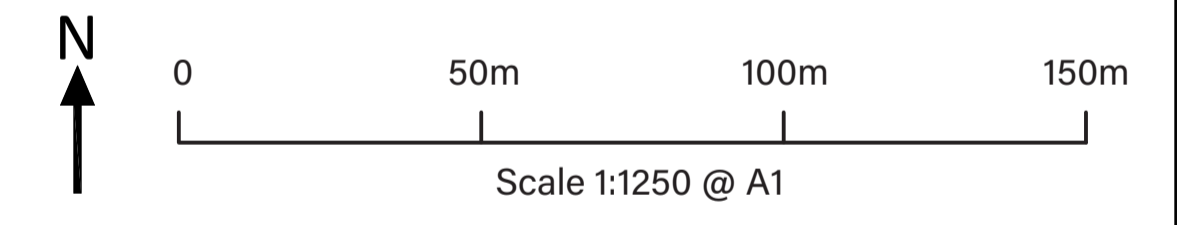
Further planting within the Site will be undertaken prior to completion of construction as areas of the site are completed.

Planting of the site perimeter on eastern boundary along Kent Street Lane provided in the first available planting season following commencement of the onshore substation works external to the temporary internal screen fence. To include understorey planting under the canopy of existing trees within the Site boundary.

Further planting within the Site will be undertaken prior to completion of construction as areas of the site are completed.

Key to Phasing of Planting

- Pre-commencement of the onshore substation works and site preparation works.
- First available planting season following commencement of the onshore substation works.
- Prior to completion of construction as areas of the site are completed.
- Grass areas existing retained or re-seeded as required.
- Temporary close boarded screen fence around perimeter of Site to north and east.
- Construction boundary fence (Heras or similar) around perimeter of Site to west and south.



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Rampion Extension Development Limited



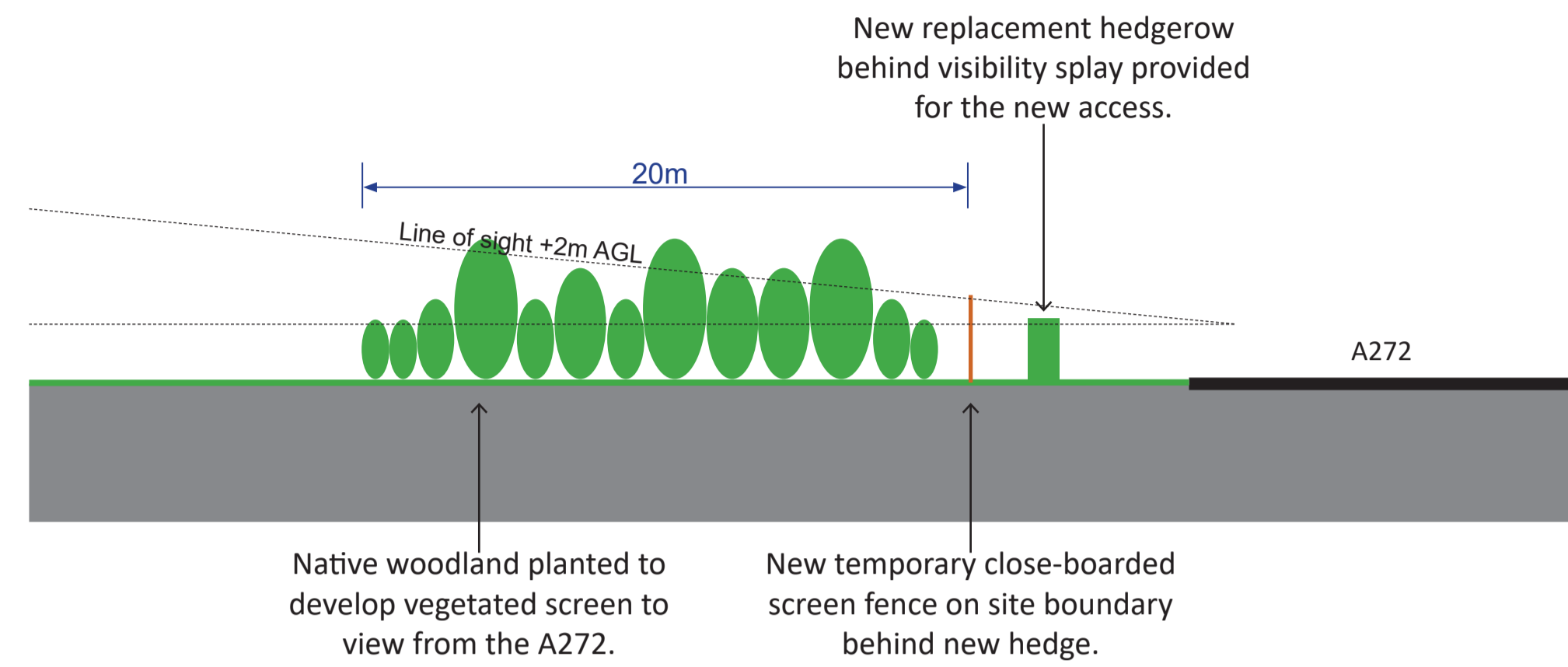
Rampion 2 Offshore Wind Farm

**OAKENDENE SUBSTATION
INDICATIVE PLANTING PHASING PLAN**

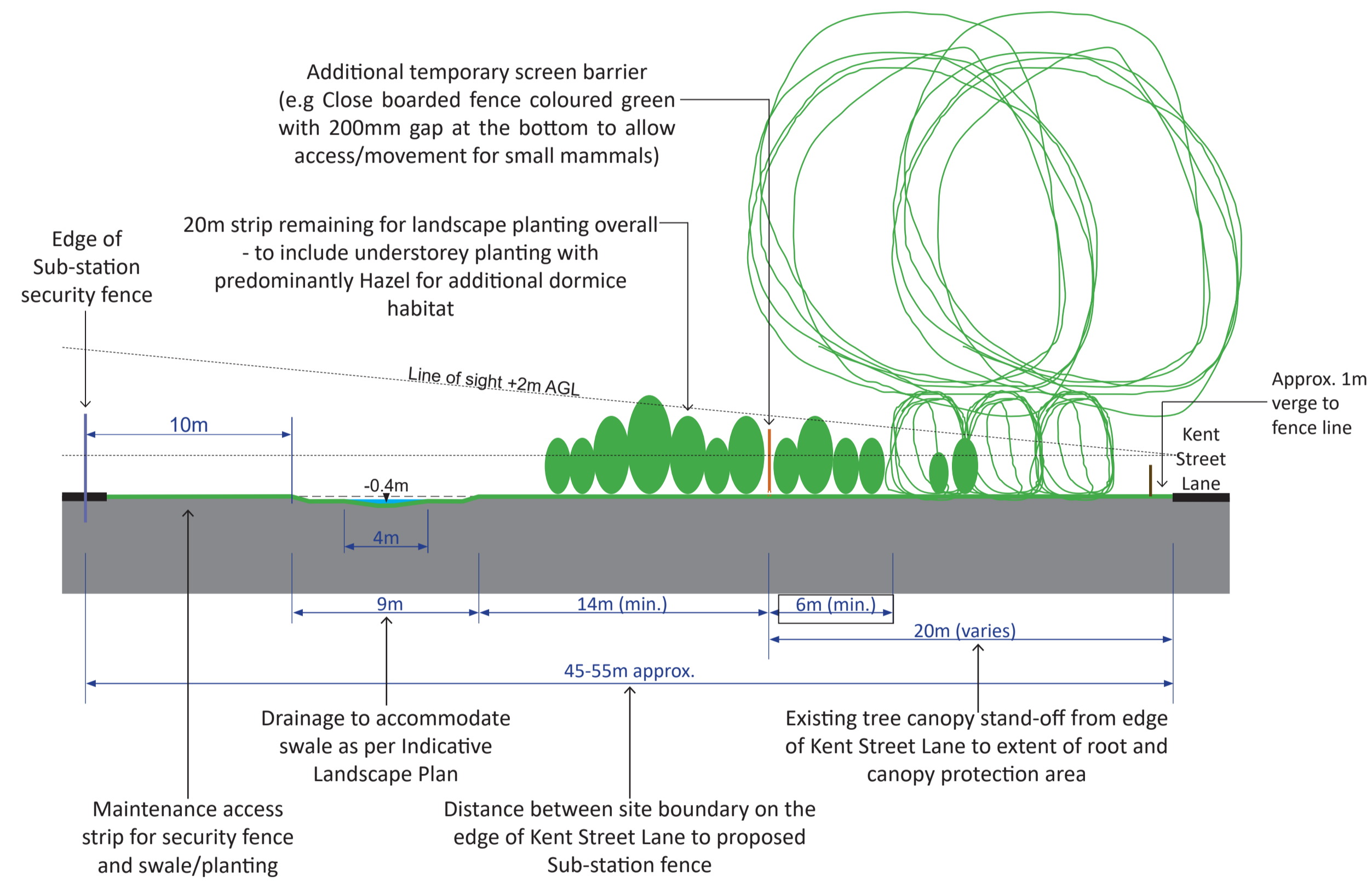
System Identifier: 42285-WSPE-EX-ON-FG-OL-3902 Version: 0

Company: WSP	Drawn By: N.Bunn	Chk/Apvd: R.Ryloc	Drawn Date: 25/04/24	Status: FINAL
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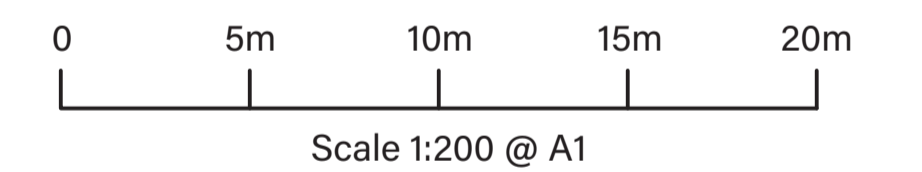
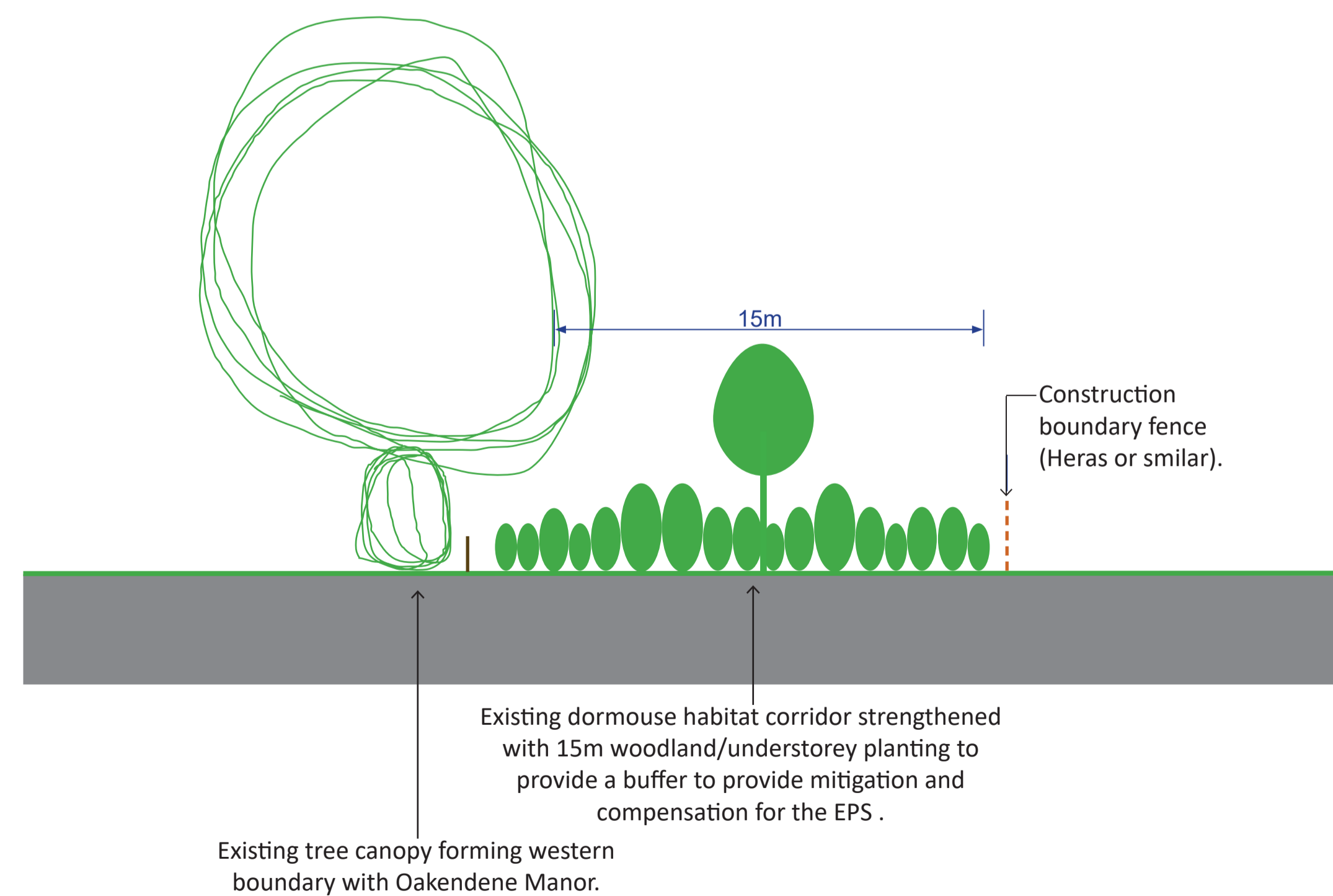
Northern boundary with A272 (A-A)



Eastern boundary with Kent Street Lane (C-C)



Western boundary with Oakendene Manor (C-C)



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Rampion 2 Offshore Wind Farm

**OAKENDENE SUBSTATION
INDICATIVE LANDSCAPING SECTIONS**

System Identifier: 42285-WSPE-EX-ON-FG-OL-4762 Version: 0

Company: WSP	Drawn By: N.Bunn	Chk/Apvd: R.Ryloc	Drawn Date: 25/04/24	Status: FINAL
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-  Maximum extension works footprint (indicative Gas Insulated System layout)
-  Retained woodland/vegetation
-  Retained existing trees
-  New trees
-  Onshore cable route (indicative)



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Scale 1:4000 @ A3

Rampion 2 Offshore Wind Farm
 Figure 2: National Grid Bolney Substation Extension Works
 Indicative Landscape Plan: GIS Option
 Sheet 1 of 2

System Identifier: 42285-WSP-CE-CO-CC-FG-O-9080	Version: 1.1
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Company: WSP	Drawn By: S. VIAN	Chk/Aprvd: R. RYLO	Drawn Date: 16-06-23	Status: FINAL
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-  Maximum extension works footprint (indicative Air Insulated System layout)
-  Retained woodland/vegetation
-  Existing vegetation to be retained where possible, subject to detailed design
-  Retained existing trees
-  New trees
-  Onshore cable route (indicative)



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0 m 200 m

Scale 1:4000 @ A3

Rampion 2 Offshore Wind Farm

Figure 2: National Grid Bolney Substation Extension Works Indicative Landscape Plan: AIS Option Sheet 2 of 2

System Identifier: 42285-WSPE-CO-CC-FG-O-9080				Version: 1.1
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Company: WSP	Drawn By: S. VIAN	Chk/Aprvd: R. RYLO	Drawn Date: 16-06-23	Status: FINAL
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Annex A

Planting and Management Wayleaves for Underground Electrical Cables

Vegetation to be retained, including trees, treelines, hedges, areas of scrub, woodland and grassland within the cable corridor and elsewhere within the DCO order limit are indicated in the Vegetation Retention Plans included in [Appendix B](#) of the [Outline Code of Construction Practice \[PEPD-033\]](#).

In order to achieve this account has been taken of industry guidance on wayleaves or buffers required between vegetation and underground electrical cable ducts.

Retaining Vegetation

The minimum distance for retaining mature trees close to the underground cable corridor is 6m as indicated in the Vegetation Retention Plans and illustrated in **Graphic A-1** which is based on industry guidance comprising National Grid's Notes for Guidance – Tree Planting Restrictions on Pipelines (NJUG 10) and GTC-UK's Tree Planting Guidelines Notes for Guidance – Tree Planting Restrictions on or near Utility Apparatus (BK-ENV-IG-0018 Rev 4).

Reinstatement of Vegetation

The industry guidance advises that only hedge plants may be planted over the cables and that within 6m of the cable only shallow rooted, native species such as Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Broom (*Cytisus scoparius*), Elder (*Sambucus nigra*), and Hawthorn (*Crataegus monogyna*) may be planted. Planting these species, it is possible to create a mature hedge up to 5m wide and 5m tall. Where required a root barrier will be placed in the cable trench prior to backfilling.

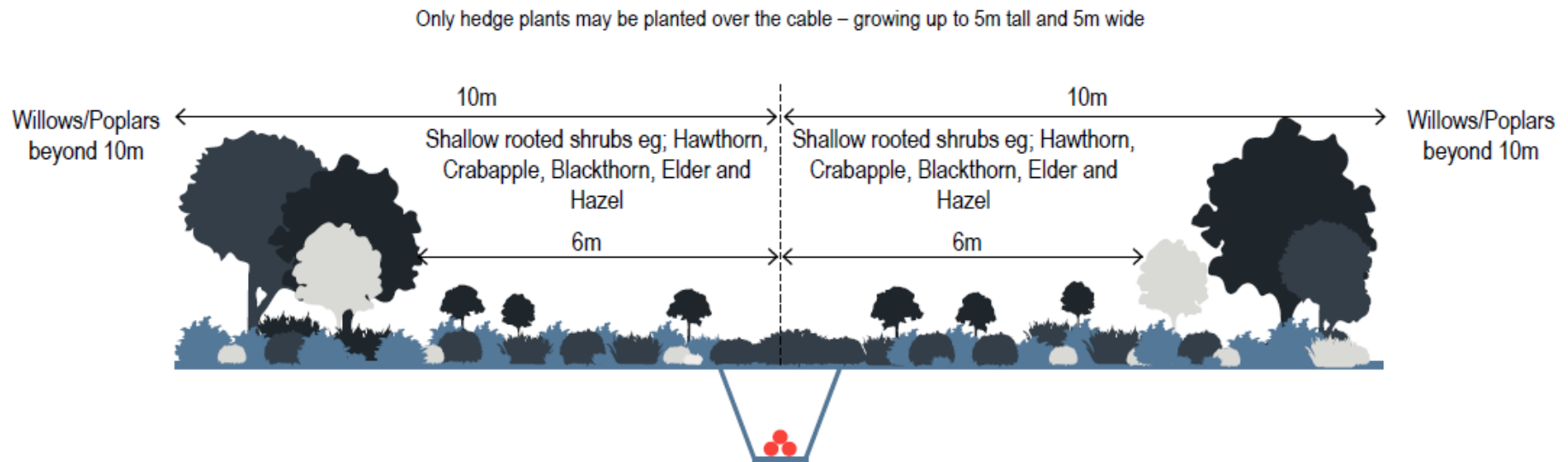
Beyond the 6m buffer, most native trees and shrubs can be allowed except for willows (*Salix* sp.) and poplars (*Populus* sp.) which are not to be planted within 10m of the cables, due to their invasive roots. **Graphic A-1** illustrates indicative reinstatement of a hedgerow crossed by a single cable corridor, where the existing vegetation has been removed. The following graphics provide an indicative illustration of vegetation crossed by the onshore cable corridor and the extent of new planting in each case:

- **Graphic A-2:** Indicative illustration of vegetation notched to 6m and showing new planting;
- **Graphic A-3:** Indicative illustration of vegetation notched to 14m and showing new planting; and
- **Graphic A-4:** Indicative illustration of vegetation cleared to 20m and showing new planting.

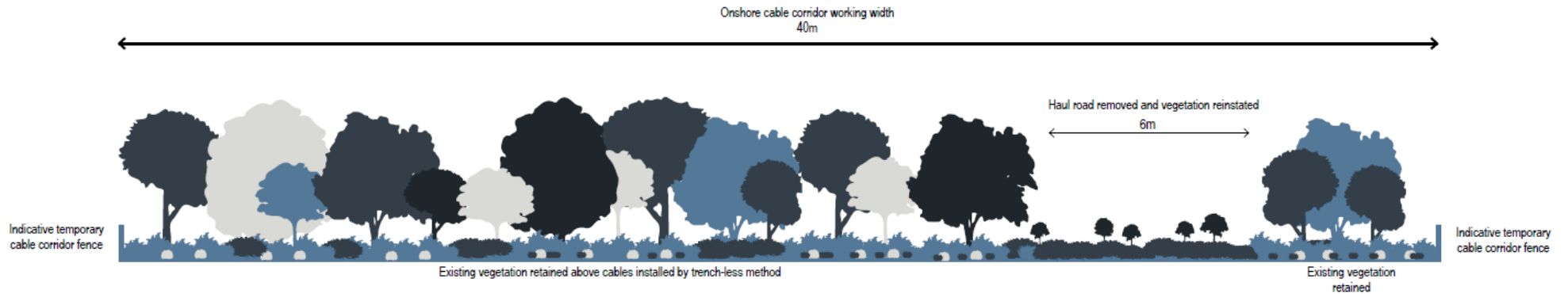
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Graphic A-1 Principles of tree planting restrictions above electrical cables

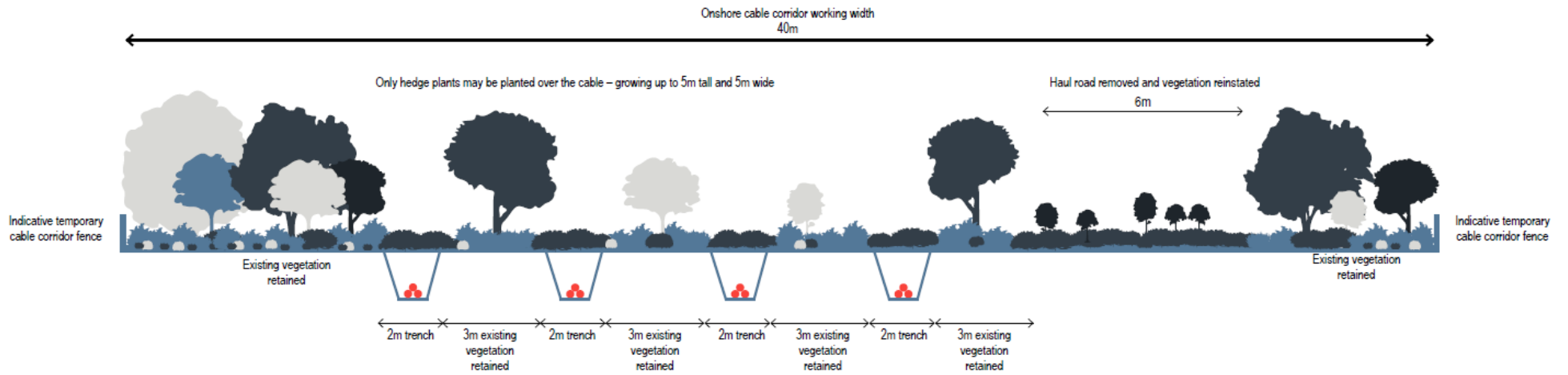
(Source: National Grid's Notes for Guidance – Tree Planting Restrictions on Pipelines (NJUG 10) and GTC-UK's Tree Planting Guidelines Notes for Guidance – Tree Planting Restrictions on or near Utility Apparatus (BK-ENV-IG-0018 Rev 4))



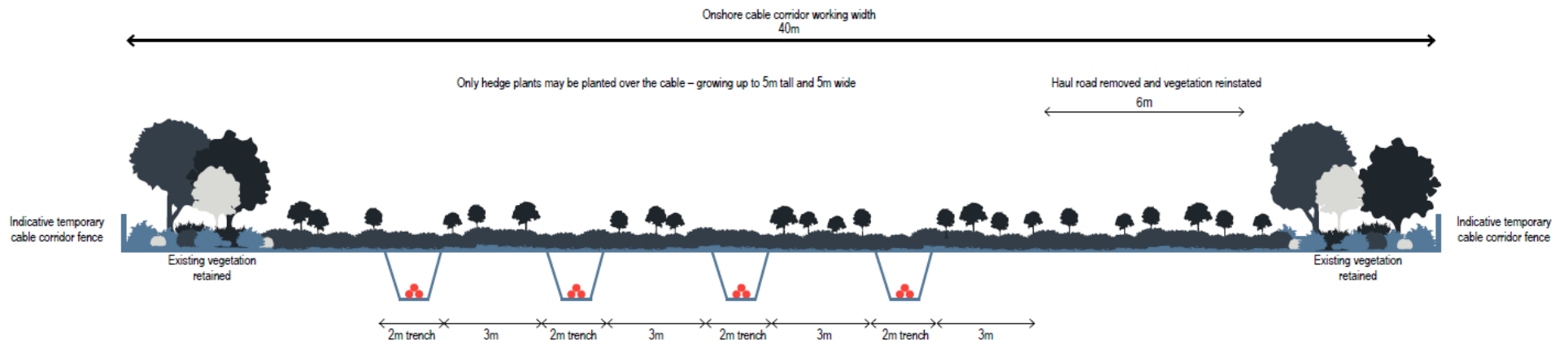
Graphic A-2 Indicative illustration of vegetation notched to 6m and showing new planting



Graphic A-3 Indicative illustration of vegetation notched to 14m and showing new planting



Graphic A-4 Indicative illustration of vegetation cleared to 20m and showing new planting



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