M3 Junction 9 Improvement

Scheme Number: TR010055

6.3 Environmental Statement Appendix 7.6 - Outline Landscape and Ecological Management Plan

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6.3 ENVIRONMENTAL STATEMENT – APPENDIX 7.6: OUTLINE LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

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1 Outline Landscape and Ecological Management Plan

1.1 Introduction

1.1.1 This Outline Landscape and Ecological Management and Monitoring Plan (OLEMP) describes the proposed management and monitoring of the landscape and ecological mitigation and compensation features of the M3 Junction 9 Improvement Scheme (the Scheme).

1.1.2 The Scheme is a Nationally Significant Infrastructure Project (NSIP) and this OLEMP has been developed in support of National Highways' application for a Development Consent Order (DCO) to authorise construction, operation and maintenance of the Scheme. An Environmental Impact Assessment (EIA) has been carried out for the Scheme and is reported in the **Environmental Statement (ES) (Document Reference 6.1)**.

1.1.3 Mitigation and compensation measures are provided in the ES to reduce and alleviate significant effects of the Scheme. These include creation of new habitats and natural features such as woodland and grassland, and improvements to existing habitats, such as the river corridors.

1.1.4 This is a preliminary document and is based on the preliminary design carried out to date and accompanying the application. All details are subject to further work and stakeholder engagement. A final version of the LEMP would be created by the Principal Contractor for implementation during the establishment period. The LEMP would be substantially in accordance with this OLEMP, including the habitat management objectives, targets and prescriptions set out. The preparation of a LEMP would be secured by Requirement 5 of the DCO and submitted to the Secretary of State (SoS) for their approval in writing, following consultation with the relevant planning authority. The LEMP would be attached as an appendix to the second iteration Environmental Management Plan (siEMP).

1.1.5 This OLEMP sets out the objectives for creation and management of new landscape and ecology elements within the Scheme and targets for the desired long-term condition of new features to implement the mitigation and compensation measures as set out in **Chapter 7 (Landscape and Visual)** and **Chapter 8 (Biodiversity)** of the **ES (Document Reference 6.1)**. Management prescriptions are provided for new features that require management beyond the completion of construction including the landscape establishment period of the Scheme in order to meet the target condition.

1.1.6 This OLEMP has been produced to ensure that new features meet the following broad objectives:

- Visual screening – wherever possible retain existing screening vegetation; to screen views of new elements of the Scheme from the South Downs National Park and Winchester; and provide additional visual screening of

views of the existing road and new infrastructure which have been opened up due to construction works

- Landscape integration – to reflect the local rural grassland, wooded and riparian landscape character and planting style; and incorporate elements of a scale redolent of the existing landscape elements

- Nature conservation and biodiversity – to provide biodiverse, connected habitats, following the guidance of the Lawton Report, 'Making Space for Nature', by Professor John Lawton- 2010, for 'more, bigger, better and joined up' wildlife sites and ecological networks; and control and eradication of non-native invasive species

1.1.7 The siEMP would be produced by the Principal Contractor to mitigate the impacts during the construction phase of the Scheme. This would be in accordance with **the first iteration Environmental Management Plan (fiEMP) (Document Reference 7.3)** and would reflect the mitigation measures set out.

1.1.8 This OLEMP does not include routine vegetation management activities required for safety, such as maintaining visibility splays; or routine maintenance tasks such as rubbish removal, repair to fences, or reinstatement of habitat following incidents or incursions to the verge.

1.1.9 The management and maintenance of the Scheme, including all landscape, habitat areas and associated features included in this OLEMP, would remain the responsibility of National Highways following completion of the construction and 5-year landscape establishment period.

1.1.10 The protected species licences and the fiEMP / siEMP would be taken into consideration during the development of the LEMP.

1.1.11 The OLEMP and subsequent LEMP would be reviewed periodically (at least annually) to determine whether the management activities are meeting the objectives.

1.1.12 The duration of management and monitoring for each landscape/ecology element created or enhanced is 25 years from completion of the authorised development.

1.1.13 The OLEMP covers the following:

- An overview of how the OLEMP would be implemented, including roles and responsibilities of individual parties

- A brief summary of the environmental context of the Scheme and the potential effects on landscape and visual receptors or biodiversity resources to support the development of this OLEMP

- The approach to mitigation and compensation design including specific design constraints and assumptions

- The objectives for creation and management of new landscape and ecology features, targets for function/condition, and outline prescriptions for management activities
- An outline management plan which includes timescale periods for management requirements
- Outline specifications for management activities and monitoring

1.2 Definitions

1.2.1 The following provides a list of typical definitions used throughout this document:

- Biodiversity resources – biodiversity elements such as designated sites, habitats and populations of species considered during the environmental impact assessment that may incur impacts from the Scheme
- Ecological mitigation area – land acquired for mitigation or compensation in relation to effects of the Scheme on biodiversity resources
- Ecology features – new or retained elements included within the design of the Scheme that provide mitigation or compensation for effects on biodiversity resources
- Highway verge and associated land – this refers to land within National Highways ownership that forms part of the operational estate required for the function of the motorway. This includes embankments, cuttings, land within junctions and attenuation ponds, etc. It does not include land used for mitigation or compensation that is not required for the function of the motorway
- Landscape and visual receptors – landscape and visual elements considered during the environmental impact assessment that may incur impacts from the Scheme
- Landscape elements – new elements included within the design of the Scheme to mitigate or compensate for effects on landscape and visual receptors
- Landscape features – retained features, included within the design of the Scheme
- Management activities – management activities that are required to facilitate establishment and desired condition of new elements or retained features
- Management plots – areas of land where management is to be carried out

1.3 Implementation

1.3.1 To align with best practice the development of the landscape scheme and management prescriptions are informed by Design Manual for Roads and Bridges (DMRB) LD 117 Landscape Design and LA 118 Biodiversity Design and are to be carried out according to current British Standards.

Roles and responsibilities

National Highways

1.3.2 National Highways has committed to make resources available for the works described within this OLEMP for the duration outlined below. These durations are dependent on habitat type and/or management activities.

1.3.3 National Highways would continue to be responsible for carrying out routine maintenance of any highways assets such as road verges and drainage systems as part of their routine asset management programme.

Principal Contractor

1.3.4 The appointed Principal Contractor would be responsible for carrying out the detailed design and construction works detailed in the DCO; they would have the overall control of delivering the Scheme.

1.3.5 The Principal Contractor would be responsible for restoration and reinstatement of existing habitats and features and for constructing any new structures, landscape element and habitats in accordance with **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**, in any temporary or permanent land take areas.

1.3.6 The Principal Contractor would be responsible for monitoring the establishment of new planting and seeding as set out below and in line with the detailed landscape scheme specification. They would also be responsible for replacing planting defects during the contracted 5-year establishment period, and any other management prescriptions that are scheduled to be undertaken during the establishment period.

1.3.7 The Principal Contractor would appoint an appropriately experienced and qualified landscaping contractor. The contractor is to be competent at identifying plant species, including those proposed as part of seeded and planted mixes, as well as any undesirable species, and experienced in the various habitat creation and enhancement works required on this Scheme. Specialist work (such as pond creation) may be carried out by specialist sub-contractors appointed by the Principal Contractor where particular specific skills, equipment and/or experience are required.

National Highways maintenance agent

1.3.8 Beyond the establishment period, it is expected that the long-term management of the plots would be undertaken by National Highways or their appointed maintenance agent.

Monitoring party

1.3.9 Monitoring the progress towards the targets is critical to meeting the objectives. National Highways Operations Directorate or their appointed monitoring agent would monitor the outcomes of the works carried out at set intervals during the agreed management/monitoring period following completion of construction activity. The monitoring shall be undertaken by suitably qualified and experienced ecologists and landscape architects.

1.3.10 The monitoring would record details of management works carried out, targets met, and/or remedial actions required. Records of monitoring would be retained for reference. Monitoring would continue for the duration that management activities are undertaken.

1.3.11 Monitoring would be carried out to determine:

- Whether measures have been implemented as agreed
- The relative success / effectiveness of the measures
- How to remedy the situation if any of the measures fail
- If further consultation / approvals are required in the instance that the proposed measures are not proving effective

1.4 Environmental context

1.4.1 The ES describes the environmental resources, including landscape and visual receptors, and biodiversity resources present within the zone of influence of the Scheme.

1.4.2 The Scheme is located within the South Downs National Park. This is a designated landscape with a series of defined Special Qualities. With reference to landscape character the Scheme lies within two principal Landscape Character Areas, the East Winchester Downs, and the Itchen Valley. Within the South Downs National Park, the Itchen Valley is subdivided into the Itchen Valley Floor and Itchen Valley Sides. Further detail on key characteristics is set out in **Chapter 7 (Landscape and Visual)** of the **ES (Document Reference 6.1)**.

1.4.3 The Environmental Statement identifies residual effects on landscape receptors, including the South Downs National Park (and its dark sky nature reserve), landscape features (including existing vegetation, agricultural land

and topography), and visual receptors including residents, recreational users, and people travelling through the area.

1.4.4 There are potential residual effects on biodiversity resources that are expected to be temporary until new habitats created as mitigation and compensation become established. Following establishment of mitigation, the overall effects on biodiversity resources would not be significant.

1.4.5 The **Design and Access Statement (Document Reference 7.9)** sets out the Schemes design response and principles which have informed the definition of the landscape and ecological mitigation measures. The principles have been developed with reference to the Special Qualities of the South Downs National Park and the identified landscape character areas.

1.4.6 In addition, full details of mitigation and compensation measures for the effects of the Scheme on landscape and visual receptors and biodiversity resources are found in **Chapter 7 (Landscape and Visual)** and **Chapter 8 (Biodiversity)** of the **ES (Document Reference 6.1)**.

1.4.7 As mitigation for damage during the construction phase, temporary construction areas (contractor's compounds and haul routes) would be restored to former habitats in a form more beneficial to wildlife compared to the existing conditions prior to construction, where possible.

1.4.8 The ES takes into account the effects on protected species from the Scheme and describes the mitigation and compensation required. Certain species (e.g. dormice and badgers) would require appropriate licences to allow construction and management operations to be undertaken in line with protected species legislation.

1.4.9 The conditions to be attached to protected species licences (obtained from Natural England) would need to be considered in conjunction with this OLEMP.

1.4.10 Throughout the development of the design proposals consultation has been undertaken with Natural England, Winchester City Council and South Downs National Park Authority. Consultation would continue through the next stage of design (detail design) which would include the development of the detailed LEMP. This would set out the terms of reference for interested parties and their responsibilities.

Invasive species, pests and diseases

1.4.11 A list of invasive non-native species has been identified within the Application Boundary and are listed in **Table 7.6.1**.

Table 7.6.1: Identified site invasive non-native species

Invasive Non-native species identified on site		
Latin Name	**Common Name**	**Classification**
Fallopia japonica	Japanese Knotweed	Listed in schedule 9 of the Wildlife & Countryside Act Invasive Non-native
Cotoneaster simonsii	Himalayan Cotoneaster	
Cotoneaster horizontalis	Wall Cotoneaster	
Rubus armeniacus	Giant Bramble	Invasive Non-native
Galega officinalis	Goat's-rue	
Aster sp	Michaelmas Daisy	
Cornus sericea	Red-osier Dogwood	
Symphoricarpos albus	Snowberry	

1.4.12 *Fraxinus excelsior* (Ash) is not specified for use in planting due to the risk of importing *Hymenoscyphus fraxineus* (ash dieback) disease and the ability of the species to readily colonise.

1.4.13 In areas of retained woodland within the Application Boundary between the A33 and A34 (**Figure 2.3 Environmental Masterplan** (Sheet 2) of the **ES (Document Reference 6.2)**) removal of invasive species such as snowberry will be undertaken to provide improvements to this existing habitat.

1.5 Design approach

1.5.1 The design development of the Scheme included multi-disciplinary collaboration by considering the environment, sustainability, community, and external stakeholders as well as constructability, technical performance, cost, programme, and resources.

1.5.2 The following are the key landscape and ecology design principles which have informed the design:

- Retention of existing vegetation were reasonably practicable
- Minimising permanent land take and returning land to agricultural following temporary use
- The use of native species of local provenance where practicable to reflect the character of the local landscape. The species mix would be as diverse

as reasonably practicable to ensure resilience against potential future diseases including ash die-back and climate change and provide for wildlife present in the local area

- Maximising use of deposition materials to aid screening adjacent to the highway corridor. Sympathetically designed earthworks to reflect the existing landform wherever possible to support visual screening and integration of the highway corridor into its landscape context

- Reinforce and enhance (where appropriate) existing defined key characteristics of the receiving South Downs National Park landscape and its setting with reference to the defined Landscape Character Areas (LCA):

  - Opportunity to utilise site gained chalk material / cut chalk slopes as the basis for creation of chalk grassland on the eastern side of M3 corridor the Application Boundary as appropriate

  - Planting woodland / scrub woodland on the steep / lower slopes of the proposed earthworks, creating a strong woodland edge to M3 corridor which is reflective of Itchen valley sides and Open Downland characteristics

  - Promote the large open skies and distant panoramic views through retaining the open characteristics of the Open Downland, through careful placement of landscape screening woodland features on steep and lower slopes and with sympathetic landform reprofiling

  - Promoting excellent views considering placement of site gained materials and location of the proposed recreational Walking Cycling and Horse-riding Routes within the South Downs National Park

  - Promote good access opportunities

1.6 Management activities

Introduction

1.6.1 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. The design has considered the requirements of DMRB LD 117 ‘Landscape Design’ and DMRB LD 118 Biodiversity Design.

Landscape and ecological element codes

1.6.2 **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)** uses landscape and ecological element codes. For each element the principal function is defined. These are summarised in **Table 7.6.2**.

1.6.3 The landscape and ecology element codes set out for the Scheme would be managed to achieve their primary function.

Table 7.6.2: Identified landscape element and environmental codes

Element	Landscape Element Code	Description	Environmental Function	
Amenity grass	LE 1.1	To provide practical and low maintenance soft landscape treatment to amenity areas	EFE	Visual amenity
Chalk grassland	LE 1.3	Creation and restoration of attractive, biodiverse habitat with low maintenance requirements.	EFD	Nature conservation & biodiversity
Species Rich Grassland	LE 1.3		EFB EFE	Landscape integration Visual amenity
Woodland (Broadleaf)	LE 2.1	Replace lost features, strengthen green infrastructure, habitat connectivity, landscape character and provide visual screening of infrastructure connectivity, landscape character and provide visual screening of infrastructure	EFA	Visual screening
Linear Belts of shrubs and trees	LE 2.4		EFD	Nature conservation and biodiversity
Native scrub planting	LE 2.8		EFE	Visual amenity
Native species hedgerows	LE 4.3			
Individual trees	LE 5.1			
Waterbodies and associated plants	LE 6.1	Creation and restoration of riparian habitats to integrate attenuation features that respond sensitively to the existing river corridor	EFB	Landscape integration
Banks and ditches	LE 6.2		EFD	Nature conservation and biodiversity
Marsh and wet grassland	LE 6.4		EFH	Water quality
Bat box Bird box	E 3.2	Creation / relocation of habitats	EFD	Nature conservation and biodiversity

Element	Landscape Element Code	Description	Environmental Function	
Dormice nest box Reptile hibernacula				
*__Figure 2.3 (Environmental Masterplan)__ of the __ES (Document Reference 6.2)__ identifies the specific environmental function of each Landscape Element				

1.6.4 The following sections provide an overview for each landscape element. This includes the mitigation context, proposed locations of the element, its objective, management approach and target along with any prescriptions to achieve this.

1.7 Amenity Grass (LE1.1)

Mitigation context

1.7.1 Amenity grass has been provided in areas requiring maintenance access. These inclusions would aid integrating the new infrastructure into its surroundings with a soft landscape treatment that without affecting sightlines. An amenity mix (Emorsgate EL1) has been chosen that includes some flowering species known to be beneficial to pollinators.

Locations

1.7.2 Amenity grass has been used in locations where maintenance access is required.

1.7.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. Please see Sheet 7 for location of LE1.1 Amenity Grass.

Objectives

- Provide a soft landscape treatment to areas that require periodic access for maintenance operations
- Create transitional habitat grading from grassland to more dense scrub habitats were adjacent to dense scrub or woodland
- Control of invasive plant species

Targets

1.7.4 Targets for amenity grass are to achieve an effective covering of at least 95% of the seeded area within the first growing season to achieve required visual amenity.

Prescriptions

1.7.5 The following management prescriptions are proposed for amenity grass:

- Amenity grass shall be seeding using a flowering mixture (Emorsgate EL1) of species. This mix is a selection of slow growing grasses and a selection of wildflowers that respond well to regular short mowing
- Sowing shall take place in the autumn or spring and when the weather conditions provide warmth and moisture. Surface sow in overlapping sections. Do not cover seed but firm in using a roll to ensure good seed to soil contact
- During the 1st year it is recommended meadow areas shall be mown every 7-10 days to a height of 40-60mm (during growing season). This establishment regime would control annual weeds
- Following the 1st year, mow regularly (to an ideal height of 40mm). Establishment period management for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years
- To permit flowering, mowing can be relaxed from late June. Cut again when the sward gets untidy (after 4-8 weeks)
- Mowing may be suspended earlier in the year to allow cowslips to flower
- All arisings to be removed from site
- An illustrative species list for amenity grass is provided in **Table 7.6.3**

Table 7.6.3: Amenity Grass (EL1 Flowering Lawn)

Latin name	Common name
Wildflower species	
Galium verum	Lady's Bedstraw
Leontodon hispidus	Rough Hawkbit
Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)
Lotus corniculatus	Birdsfoot Trefoil
Primula veris	Cowslip

Latin name	Common name
Prunella vulgaris	Selfheal
Ranunculus acris	Meadow Buttercup
Trifolium pratense	Wild Red Clover
Grass species	
Agrostis capillaris	Common Bent
Alopecurus pratensis	Meadow Foxtail
Festuca rubra	Red-fescue
Phleum bertolonii	Smaller Cat's-tail

Management approach

1.7.6 Amenity grass has been used in locations where periodic maintenance access is required to specific highway features and infrastructure. Its inclusion improves visual amenity for users by reducing the amount hard landscaping included as part of the Scheme. Its management should consider the requirement of National Highways MPI-85-102020 with regard to being low nutrient.

1.8 Chalk Grassland (LE1.3)

Mitigation context

1.8.1 New areas of chalk wildflower grassland would be created to provide mitigation and compensation for effects on biodiversity and landscape resources, in particular:

- Mitigation for earthworks by seeding (and natural colonisation) the embankment and cutting slopes adjacent to the road network which would include placement of site gained chalk or cutting into chalk bedrock
- Mitigation/compensation for loss of habitat for reptiles (in margins), bats and priority invertebrates
- Enhancement for loss of habitat from the wider landscape of the South Downs National Park

Locations

1.8.2 Chalk grassland has been created in locations of proposed earthworks on the eastern slopes of the Scheme within the South Downs National Park. It also includes areas of cutting slopes located on the eastern side of the M3 corridor, including highway verges.

1.8.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. Please see Sheets 2, 7 and 8 for location of LE1.3 Chalk Grassland.

Objectives

- Provide a chalk grassland habitat of native grasses and wildflowers, with a mosaic structure
- Create transitional habitat grading from grassland to more dense scrub habitats where adjacent to dense scrub or woodland
- Improve biodiversity, through providing a diversity of species and structure, which would enhance feeding and shelter opportunities of invertebrates and in turn for other species such as reptiles, birds, bats, and small mammals
- To integrate the new chalk earthworks into the surrounding landscape
- Control of invasive plant species

Targets

1.8.4 The targets for Chalk grassland are:

- To create open diverse grassland habitat over at least 80% of the identified area, supporting a range of native species within the establishment period
- Primary target species to be present by the end of the establishment period include *Verbascum nigrum* (Dark Mullein), *Anthyllis vulneraria* (Kidney Vetch), *Hippocrepis comosa* (Horseshoe Vetch) to provide food plants for locally important butterflies and moths

Prescriptions

1.8.5 The following management prescriptions are proposed for chalk grassland creation:

- Chalk grassland shall be created through seeding using a mixture of suitable native species. An illustrative species mix for Chalk grassland is provided in **Table 7.6.4**. Where possible seed should be sourced with a local provenance, and if generic seed mixes are used due to availability of local seeds, generic mixes should be supplemented with locally collected seeds of species of value to local invertebrates

Table 7.6.4: Typical chalk grassland mix

Latin name	Common name
Wildflower species (20%)	
Achillea millefolium	Yarrow
Agrimonia eupatoria	Agrimony
Anthyllis vulneraria	Kidney Vetch
Betonica officinalis - (Stachys officinalis)	Betony
Centaurea nigra	Common knapweed
Centaurea scabiosa	Greater Knapweed
Cruciata laevipes	Crosswort
Echium vulgare	Viper's bugloss
Filipendula ulmaria	Meadowsweet
Filipendula vulgaris	Dropwort
Galium album - (Galium mollugo)	Hedge Bedstraw
Galium verum	Lady's Bedstraw
Hippocrepis comosa	Horseshoe Vetch
Leontodon hispidus	Rough Hawkbit
Leucanthemum vulgare	Oxeye Daisy
Lotus corniculatus	Bird's-foot trefoil
Malva moschata	Musk Mallow
Origanum vulgare	Wild Marjoram
Plantago lanceolata	Ribwort Plantain
Poterium sanguisorba - (Sanguisorba minor)	Salad Burnet
Ranunculus acris	Meadow Buttercup
Rhinanthus minor	Yellow Rattle
Silaum silaus	Pepper Saxifrage
Silene vulgaris	Bladder Campion
Verbascum nigrum	Dark Mullein
Grass species (80%)	
Briza media	Quaking Grass (w)

Latin name	Common name
Carex flacca	Glaucous Sedge
Cynosurus cristatus	Crested Dogstail
Festuca ovina	Sheep's Fescue
Festuca rubra	Red Fescue
Koeleria macrantha	Crested Hair-grass
Phleum bertolonii	Smaller Cat's-tail
Trisetum flavescens	Yellow Oat-grass

- Chalk grassland habitat shall be created on new earthworks where chalk spoil has been re-used to create the Scheme earthworks (on the eastern downland slopes within the South Downs National Park) and in areas where earthworks result in cutting into chalk bedrock (east of the M3 corridor). It shall be created predominately through seeding using a mixture of suitable native species. Sowing directly onto exposed chalk or limestone with little or no topsoil can produce some of the most interesting results, however grassland habitat may be slow to establish.

- Sowing shall take place in the autumn or spring and when the weather conditions provide warmth and moisture. Surface sow in overlapping sections. Do not cover seed but firm in using a roll (where practical) to ensure good seed to soil contact

- During the 1st year it is recommended meadow areas are monitored for growth of vigorous annual weeds twice. If necessary, add-hoc mowing to be undertaken to control annual weeds and manage the balance of grass establishment between the slower growing wildflowers

- In subsequent years, one or two cuts may be required at the end of the summer which would maintain diversity and interest. The establishment period management would last for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the LEMP (to be produced during detail design) for a duration of 20 years

Management approach

- Management should consider the principles of National Highways MPI-85-102020 with regard to being low nutrient, however due to the lack of topsoil and associated nutrients (and subsoil), chalk grassland should by default require minimal maintenance as demonstrated on other mitigation schemes designed for highways in the local area

- To ensure the ongoing success of the habitat it would be monitored biennially through the establishment period. The purpose of these monitoring visits would be to identify and cut any areas supressed by invasive plants and any shrub saplings. Consultation with the South Downs National Park has identified that common ragwort (*Senecio jacobaea*), creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgar*e) and broad-leaved dock (*Rumex obtusifolius*) seed readily into bare ground, including chalk and are found locally. Should these species become present and result in an overdominance which results in failure to meet the targets for this habitat types, remedial action would be required to remove the species from the areas of chalk grassland

- When required it is anticipated that the chalk grassland will be mechanically cut. All mowing operations shall be undertaken between late August and early October during dry weather:

  - Meadow (mown annually in late summer) if required. Arisings removed from site

  - Margin (bi-annually in late summer). Arisings removed from site

- Where possible, cuttings shall be left lying for 1-7 days to allow seeds to ripen and drop. Cuttings shall be removed from the plot for composting off-site

- The margin would be left where grassland is adjacent to other habitats and would be mown less frequently than the main grassland area. Margins would remain undisturbed other than when mown to allow a refuge for invertebrates and other animals

- Following establishment, annual monitoring should be undertaken by an ecologist to check for signs of soil enrichment caused by annual leaf fall resulting in growth of vigorous weeds. The potential impacts would be a reduction in species diversity or loss areas of chalk grassland if this occurs. If these effects are identified during monitoring, then an annual hay cut and collect may be required to reduce nutrient inputs

- Invasive plants non-native species shall be removed where identified. With the aim of eradicating non-native Species from grassland areas as much as possible

1.9 Species Rich Grass (including areas with chalk grassland characteristics) (LE1.3)

Mitigation context

1.9.1 In areas where environmental conditions are less suitable for establishment of chalk grassland, a Species Rich Grassland habitat will be provided. This habitat will be created on low nutrient substrate with little or no topsoil. Given the underlying geology of the area, these grasslands are likely to contain

characteristics of chalk grassland, for example they may be suitable for some foodplants of locally important moths and butterflies. This habitat will:

- Mitigate any impacts to biodiversity by creating a diverse and healthy sward of locally occurring grass species that can support local wildlife
- Provide mitigation for earthworks by seeding the cuttings and embankments adjacent to the road network
- Provide mitigation/compensation for loss of habitat from the roadside verge and elsewhere
- Provide mitigation for temporary damage during the construction phase

Locations

1.9.2 Species rich grassland has been proposed in lower-lying areas of the Scheme, generally to the west of the M3. In these locations underlying substrates are likely to support more neutral grassland habitats, although these habitats are likely to exhibit varying chalk grassland characteristics.

1.9.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. LE1.3 Species Rich Grassland is located throughout the Scheme Application Boundary.

Objectives

- Provide a species rich habitat of locally occurring native grasses and wildflowers (including locally found chalk grassland species)
- Create transitional habitat grading from grassland to more dense scrub habitats were adjacent to dense scrub or woodland
- To enhance biodiversity in areas surrounding Sustainable Drainage Systems (SuDS) and attenuations, existing and proposed broadleaf woodland
- Improve biodiversity, through providing a diversity of species and structure, which would enhance feeding and shelter opportunities of invertebrates and in turn for other species such as reptiles, birds, bats, and small mammals
- Control of invasive plant species

Targets

1.9.4 The targets for species rich grassland are:

- To create species rich grassland habitat supporting a range of native species within the establishment period (including chalk grassland species)

- Primary target species to be present by the end of the establishment period include Anthyllis vulneraria (Kidney Vetch) and *Knautia arvensis* (field scabious) to provide food plants for locally important butterflies and moths

Prescriptions

1.9.5 The following management prescriptions are proposed for species rich grassland creation:

- Species rich grassland shall be created through a combination of reinstatement of locally occurring species and seeding using a mixture (Emorsgate EM6F) suitable native species, set out in **Table 7.6.5.** Where possible generic seed mixes should be supplemented with locally collected seeds of species of value to local invertebrates

Table 7.6.5: Species rich mix (EM6F Wildflowers for chalk and limestone soils)

Latin Name	Common Name
Wildflower species	
Agrimonia eupatoria	Agrimony
Anthyllis vulneraria	Kidney Vetch
Betonica officinalis - (Stachys officinalis)	Betony
Centaurea nigra	Common Knapweed
Centaurea scabiosa	Greater Knapweed
Filipendula vulgaris	Dropwort
Geranium pratense	Meadow Crane's-bill
Knautia arvensis	Field Scabious
Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)
Lotus corniculatus	Birdsfoot Trefoil
Medicago lupulina	Black Medick
Origanum vulgare	Wild Marjoram
Pastinaca sativa	Wild Parsnip
Plantago lanceolata	Ribwort Plantain
Plantago media	Hoary Plantain
Poterium sanguisorba - (Sanguisorba minor)	Salad Burnet
Primula veris	Cowslip

Latin Name	Common Name
Prunella vulgaris	Selfheal
Ranunculus acris	Meadow Buttercup
Ranunculus bulbosus	Bulbous Buttercup
Rhinanthus minor	Yellow Rattle
Rumex acetosa	Common Sorrel
Silene vulgaris	Bladder Campion

- Species rich grassland habitat shall be created within the permanent highway estate, including land surrounding SuDS, adjacent to existing and proposed broadleaf woodland and on highway verges to the westward side of the M3 corridor. This would be undertaken within the highway estate where a combination of chalk spoil and other subsoil has been re-used to create the Scheme earthworks, and on areas where agricultural land is being converted to species rich grassland using a mixture of suitable native species.

- Sowing shall take place in the autumn or spring and when the weather conditions provide warmth and moisture. Surface sow in overlapping sections. Do not cover seed but firm in using a roll to ensure good seed to soil contact

- During the 1st year it is recommended meadow areas shall be mown every two months to a height of 40-60mm. This establishment regime would control annual weeds whilst managing the balance between faster growing grasses with the wildflower species that take longer to establish. In subsequent years one or two cuts at the end of the summer would maintain diversity and interest

- New grassland would undergo establishment period management for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years

Management approach

- Species rich grassland would be created along the highway verge, in areas adjacent to the SuDS and attenuation features.

- If the existing grassland has suitably low fertility soil, then it may be possible to overseed existing grassland, however soil testing will identify measures for reducing soil fertility if required

- Seeding of species rich grassland should in the first instance be undertaken with locally collected seed or where this is unavailable a proprietary mix. This grassland habitat may be slow to establish
- Dig out unwanted perennial weeds such as docks and thistles
- Mow newly sown meadows annually to 40-60mm throughout the first year of establishment. Remove cuttings from site
- Following establishment, species rich grassland should require annual mowing in late summer. Arisings should be removed from site to avoid nutrient enrichment of the soil, however where possible, cuttings shall be left lying for 1-7 days to allow seeds to ripen and drop. Cuttings shall be removed from the plot for composting off-site
- Monitor for signs of succession, if necessary to control scrub and bramble growth, cut every 2-3 years, between October and February, on a rotational basis of no more than 50% in any one year

1.10 Woodland (Broadleaf) (LE2.1)

Mitigation context

1.10.1 Native woodland (broadleaf) creation is required for replacement of vegetation lost through construction of the Scheme and for providing visual screening from sensitive receptors. New woodland areas would also aid with integration of the Scheme into the wider landscape context.

1.10.2 In the context of the Scheme, new woodland would provide:

- Mitigation through visual screening of new section of carriageway
- Mitigation by enhancing habitat connectivity with the adjacent River Itchen Site of Special Scientific Interest (SSSI)
- Mitigation would enhance green infrastructure links along the road corridor

Locations

1.10.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. For each landscape element a plot reference is provided. Relevant plot reference for LE2.1 Woodland (Broadleaf) comprise:

- 003-06
- 003-08
- 003-15
- 008-14
- 008-23
- 008-25
- 008-27
- 008-30
- 009-01
- 009-13
- 009-14
- 009-20

- 009-25
- 009-41
- 009-46

Objectives

1.10.4 The following broad objectives are applicable to the creation of new elements, throughout the Scheme:

- Create a strong woodland edge along the M3 corridor to reflect the local landscape characters of Itchen valley sides and edge of the Open Downland
- Screen views of infrastructure from sensitive receptors of the South Downs National Park and Winchester
- Replace lost features and strengthen the green infrastructure network
- Integrate with retained woodland and mature vegetation and riparian habitats
- Improve biodiversity, through providing a diversity of species and structure, which would enhance feeding and shelter opportunities of invertebrates and in turn for other species such as birds and bats

Targets

1.10.5 The targets for woodland are:

- To provide effective visual screening within 15 years
- To create a diverse woodland with a range of native woody species that provide a structure with affinities to local woodlands and are resilient against disease and climate change within 15 years
- The landscape element shall be managed so that it achieves the plot coverage of a minimum of 80% by the end of the establishment period
- All of the following target 'Lowland Mixed Deciduous Woodland' species should be present at the end of the establishment period (although it is noted that local microclimatic conditions could result in specific species missing from the woodland block): *Quercus robur* (Oak), *Ilex aquilfolium* (Holly), *Sorbus aucuparia* (Rowan), *Corylus avellana* (Hazel). Primary target species in keeping with local woodland which should be present 15 years following implementation include *Quercus robur* (Oak), *Acer campestre* (Field Maple), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn) and *Tilia cordata* (Common Lime)

Prescriptions

1.10.6 The following management prescriptions are proposed for woodland creation:

- New woodland would be created using a mixture of suitable native species

- Typically new woodland would be planted at a density of 1 plant per 2.5m2 (a reduced density may be used for land locked areas (i.e. between link roads), to minimise maintenance requirements)
- Planting plot mixes to be typically, 60% Trees, 40% Shrubs
- Nursery stock to be used: For Trees typically - 3% Heavy Standard, 5% Standard, 12% Feathered and 80% transplants (typically Bare Root (BRT) stock 40-60cm height). For shrubs 100% transplants typically BRT stock 40-60cm height
- All new woodland shall be watered and protected from rabbit / deer browsing by appropriate exclusion fencing
- New woodland would undergo establishment period management for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years. This would include thinning, with selected areas coppiced or pollarded on rotation, typically this would require removal of ~15% of trees in the years 5-10
- Where coppicing is used, trees shall be cut on first occasion to a 20cm height above ground, and thereafter any regrowth shall be cut back to the same point. Pollarding shall be used where there is a means to prevent browsing of the regrowth by deer
- Planting plots have been appropriately offset from the highway to avoid overhang with the carriageway or conflict with sight lines. However regular monitoring should be undertaken to ensure appropriate clearance is maintained. As required maintain planting through pruning
- Pile dead and felled wood in habitat piles in a location to be agreed with the Ecological Clerk of Works (ECoW)
- An illustrative species list for woodland planting is provided in **Table 7.6.6**

Table 7.6.6: Woodland illustrative species

Latin name	Common name
Quercus pubescens	Downy Oak
Quercus petraea	Sessile Oak
Tilia cordata	Common Lime
Salix caprea	Goat Willow
Taxus bacatta	Yew
Pinus sylvestris	Scots Pine

Latin name	Common name
Carpinus betulus	Hornbeam
Castanea sativa	Sweet Chestnut
Woodland Understorey (shrubs)	
Corylus avellana	Hazel
Ilex aquifolium	Holly
Prunus spinosa	Blackthorn
Rosa canina	Dog Rose
Lonicera periclymenum	Honey Suckle

Management approach

- During the establishment period, monitor tree and shrub planting in August, when trees are in leaf for signs of stress or failure
- New woodland would be managed to maintain a dense low canopy that would provide effective visual screening to sensitive receptors. A scrub / shrub layer within the woodland would be encouraged through inclusion of scrub / shrub species
- Woodland shall be created through a mixture of new planting and natural generation. To provide new woodland, trees would be planted in random formation, to support natural colonisation. Woodland plots would have scalloped edges where possible
- All new woodland would undergo thinning as required, with selected areas coppiced or pollarded on rotation. Typically this would require removal of ~15% of trees in the years 5-10. Thinning shall be carried out in winter by hand using chainsaws. Weak, damaged, or irregular growth trees shall be selected for removal. Any retained mature or veteran trees within these plots shall be protected and retained
- Thinning, pollarding, or coppicing operations would aim to maintain visual screening or continuity of habitat corridors as much as possible while balancing the objective to provide light to ground flora and bushy re-growth
- Following thinning, woodland on the highways verge or associated land would have minimal intervention except removal of non-native invasive plants as required. Fallen and standing dead wood within woodland shall be left in situ, if safe to do so
- Dead wood within woodland would be left in situ and not disturbed as much as possible to provide habitat for invertebrates New woodland would be protected from browsing deer by means of appropriate fencing until

established. Areas required for dense visual screening would be permanently protected from deer browsing to maintain a low canopy and shrub layer

1.11 Linear Belts of Trees and Shrubs (LE 2.4)

Mitigation context

1.11.1 The linear belts of trees and shrubs are proposed to provide:

- Compensation for loss of tree and woodland habitat required to facilitate the Scheme
- Screening of the infrastructure from the South Downs National Park and Winchester
- Integration of the new road alignment into the wider landscape

Locations

1.11.2 This landscape planting treatment is used within internal islands and at the outer edges of the highway corridor (where the placement of larger trees is restricted), to the edge of proposed broadleaf woodland planting, or where woodland creation would not be achievable due to the limited available space. It occurs:

- As edging of broadleaf woodland and attenuation ponds along A33 northbound slip road extending east to areas adjacent to A34 northbound and A33
- Internal embankment flanked by A272, A34 and M3

1.11.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. For each landscape element a plot reference is provided. Relevant plot reference for LE2.4 Linear Belts of Trees and Shrubs comprise:

- 002-07
- 002-08
- 002-09
- 003-11
- 003-14
- 003-19
- 003-29
- 008-05
- 008-06
- 008-08
- 008-15
- 008-20
- 008-21
- 008-35
- 009-31
- 009-40
- 011-01
- 012-01

Objectives

1.11.4 The objectives set out below would be used for the creation, and management of these landscape and biodiversity elements throughout the Scheme:

- To supplement woodland planting, providing additional tree and shrub planting as screening along the M3 corridor
- Create and establish healthy shrub and tree belts that would provide a screening function for views of infrastructure from receptors within the South Downs National Park and Winchester whilst fitting with the local landscape character
- Replace lost features and strengthen the green infrastructure network
- Improve biodiversity, through providing a diversity of species and structure, which would enhance feeding and shelter opportunities of invertebrates and in turn for other species such as birds and bats

1.11.5 The targets for linear tree and shrub belts are:

- To provide effective visual screening within 15 years
- The landscape element shall be managed so that it achieves the plot coverage of a minimum of 80% by the end of the establishment period
- To provide suitable habitat for dormice, new woodland should contain a range of foodplants including Corylus avellana (Hazel), *Crataegus monogyna* (Hawthorn), and Honeysuckle (Honeysuckle) by the end of the establishment period
- Primary target species (small trees) in keeping with local woodland to be present 15 years following implementation include *Acer campestre* (Field Maple), and *Crataegus monogyna* (Hawthorn)

Prescriptions

- Typically new linear planting would be planted at a density of 1 plant per 2.25m2 (a reduced density may be used for land locked areas (i.e. between link roads), to minimise maintenance requirements)
- Planting plot mixes to be typically, 40% Trees, 60% Shrubs
- Nursery stock to be used: For Trees typically - 10% Heavy Standard, 10% Standard, 10% Feathered and 70% Transplants (typically BRT stock 40-60cm height). For shrubs 100% Transplants typically BRT stock 40-60cm height
- **Table 7.6.7** sets out the illustrative species list for linear belts of trees and shrubs

Table 7.6.7: Linear belts of trees and shrubs, illustrative species

Latin name	Common name
Acer campestre	Field Maple
Crataegus monogyna	Hawthorn
Corylus avellana	Hazel
Ilex aquifolium	Holly
Rosa canina	Dog Rose
Lonicera periclymenum	Honeysuckle
Sorbus aucuparia	Rowan
Tilia tomentosa	Silver Lime
Betula nigra	Black birch
Viburnum opulus	Guelder rose
Amelanchier arborea	Downy serviceberry
Euonymus europaeus	Spindle
Prunus cerasifera	Cherry plum

- New linear planting would undergo establishment period management for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years
- Formative pruning and shaping may be required to encourage balanced growth
- Planting plots have been appropriately offset from the highway to avoid overhang with the carriageway or conflict with sight lines. However regular monitoring should be undertaken to ensure appropriate clearance is maintained. As required maintain planting through pruning
- At year 5 thinning may be required to remove selected trees and shrubs to reduce competition, whilst maintaining screening function
- All new planting shall be protected from rabbit / deer browsing by appropriate exclusion fencing
- Pile dead and felled wood in habitat piles in a location to be agreed with the ECoW

Management approach

1.11.6 Typical management requirements are set out below for linear tree and shrub belts:

- During the establishment period, monitor tree and shrub planting in August, when trees are in leaf for signs of stress or failure
- Following establishment thinning may be required, by selective tree/shrub removal, as necessary in line with good horticultural practice to allow plants to reach maturity, whilst maintaining effective visual screen
- Maintain appearance and species diversity of tree and shrub belts in line with best horticultural practice to ensure environmental functions are maintained
- Planting within land locked areas (i.e. between link roads) shall have minimal intervention. Minimal-intervention plots shall only require removal of non-native invasive plants as required

1.12 Native Scrub Planting (LE2.8)

Mitigation context

1.12.1 To create and establish healthy areas of native scrub / shrub planting to buffer and link to areas of existing and retained woodland, vegetation and watercourses. To strengthen the green corridors and improving biodiversity opportunities along the Scheme, whilst offering a degree of visual screening.

Locations

1.12.2 Native scrub planting is proposed throughout the Scheme as follows:

- To the periphery of proposed woodland
- To the periphery of retained vegetation

1.12.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. For each landscape element a plot reference is provided. Relevant plot reference for LE2.8 Scrub planting comprise:

- 003-02
- 003-03
- 003-04
- 003-05
- 003-09
- 003-16
- 003-25
- 003-26
- 008-26
- 009-02
- 009-03
- 009-24
- 009-28
- 009-33
- 009-34

- 009-35
- 009-39
- 010-01

Objectives

1.12.4 Areas of native scrub would be created through the Scheme to deliver the following objectives:

- Provide a landscape buffer to existing and proposed green and blue infrastructure elements throughout the Scheme.
- Improve biodiversity through creation of diverse native species habitat and planting structures that link to existing wildlife corridors and provide a variety of native flowering and fruiting shrubs to support local wildlife
- Control non-native invasive species

Targets

1.12.5 The targets for native shrub planting are:

- Create blocks and edges of mixed native scrub / shrub planting that include target species of *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), and Honeysuckle (Honeysuckle) by the end of the establishment period
- The landscape element shall be managed so that it achieves the plot coverage of a minimum of 75% by the end of the establishment period

Prescriptions

1.12.6 The following management prescriptions are proposed for native shrub creation:

- New scrub planting would be planted at a density of 1 plant per $2m^2$
- Planting plot mixes to be typically, 100% shrubs
- Nursery stock to be used: 100% transplants typically BRT stock 40-60cm height
- **Table 7.6.8** sets out the illustrative species list for native scrub planting

Table 7.6.8: Native scrub illustrative species

Latin name	Common name
Acer campestre	Field Maple
Crataegus monogyna	Hawthorn

Latin name	Common name
Corylus avellana	Hazel
Viburnum opulus	Guelder rose
Prunus spinosa	Blackthorn
Rosa canina	Dog Rose
Lonicera periclymenum	Honeysuckle
Malus sylvestris	Crab apple

- New scrub planting would undergo establishment period management for a duration of 5 years (see section 7.20 of this document for outline specification). Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years
- If required coppicing would commence 5 years after the scrub planting has established and matured to ensure succession to woodland is controlled and managed
- A maximum of 30% of the total planted plot would be cut in any one year to ensure dense growth is always present with some shrubs able to produce berries
- If pruning is required it should encourage basal growth, rejuvenate plants, and promote good flowering

Management approach

1.12.7 Native scrub planting should not require regular management; however, some maintenance may be necessary, and these are listed below:

- Prune plants to remove any dead, dying or diseased wood in accordance with best horticultural practice
- Monitor every 5 years for signs of succession to woodland and carry out pruning or coppicing should it be required to prevent this
- Native shrub on woodland edge shall be coppiced on rotation, with a section cut every winter to maintain graduation of structure

1.13 Native Species Hedgerow (LE4.3)

Mitigation context

1.13.1 New native hedgerows would provide mitigation and compensate for the effects on biodiversity resources, in particular:

- Mitigation/ compensation for loss of habitat along the new route
- Mitigate for temporary damage during construction
- Mitigate for loss of wildlife corridors

Locations

1.13.2 Native species hedgerows are proposed in the following locations:

- At the attenuation pond/ bridleway by Easton Lane
- Adjacent to Winnall Industrial Estate and the proposed Walking Cycling and Horse-riding (WCH) Route

1.13.3 The landscape design proposals are shown on **Figure 2.3 Environmental Masterplan (Document Reference 6.2)**. For each landscape element a plot reference is provided. Relevant plot reference for LE4.3 Native Species Hedgerow comprise:

- 003-33
- 008-36
- 008-38
- 008-41
- 008-42
- 009-45
- 009-50
- 009-51

Objectives

- Provide connections between new and existing woodland, linear belts, and native shrub planting
- Provide additional visual screening of the Scheme
- Improve biodiversity, through providing a diversity of species and structure, which would enhance feeding and shelter opportunities of invertebrates and in turn for other species such as dormice, birds, and bats

Targets

- The target for hedgerow creation is to establish hedgerow with a range of native woody species with affinities to local hedgerows, by the end of the establishment period. Primary target species include *Crataegus monogyna* (hawthorn), *Euonymus europaeus* (spindle), *Corylus avellana* (hazel) and *Acer campestre* (field maple)
- The landscape element shall be managed so that it achieves the plot coverage of a minimum of 85% by the end of the establishment period, and that it has no gaps and provides an intact linear feature

Prescriptions

1.13.4 The following management prescriptions are proposed for hedgerows:

- New hedgerows would be created using a mixture of suitable native species
- **Table 7.6.9** sets out the illustrative species list for hedgerows

Table 7.6.9: Hedgerow illustrative species

Latin name	Common name
Acer campestre	Field Maple
Crataegus monogyna	Hawthorn
Corylus avellana	Hazel
Ilex aquifolium	Holly
Prunus spinosa	Blackthorn
Rosa canina	Dog Rose
Lonicera periclymenum	Honeysuckle
Euonymus europaeus	Spindle

- New hedgerows would be planted at a density of 5 plants per linear metre
- New hedgerows would undergo establishment period management for a duration of 5 years, including suppressing grass growth and topping hedgerow to control growth. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years
- Hedgerow plants would be protected from rabbits / deer browsing

Management approach

- New hedgerow shall be created to replace existing hedgerows / linear features that were lost as part of the Scheme
- Following establishment, hedgerows would undergo initial thinning as required, then trimmed on rotation, with a section cut every winter, to promote bushy regrowth. In relation to hedgerow management, existing mature trees, or trees with features suitable for roosting bats, or with deadwood suitable for invertebrates, shall be retained and not removed, pollarded or coppiced
- New hedgerow plants shall be protected from rabbits / browsing deer until established

1.14 Individual Trees (LE5.1)

Mitigation/compensation context

1.14.1 To compensate for tree loss and provide replacement tree planting to reflect the species identified for removal where applicable. It is not recommended to plant ash trees, due to ash dieback disease.

Locations

1.14.2 Naturally arranged groups of individual trees have been proposed in the island south of the National Highways Depot, and adjacent to the proposed new footway and cycling route.

1.14.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. Please see Sheets 7 and 8 for locations of LE5.1 Individual Trees.

Objectives

1.14.4 The individual trees to be planted and maintained in a manner which allows them space to mature and develop an open crown.

Targets

1.14.5 The landscape element shall be maintained so that it achieves a 95% success rate for planted stock by the end of the establishment period.

Prescriptions

1.14.6 The following management prescriptions are proposed for planting of individual specimen trees:

- Location of individual tree planting shall be determined based on accessibility and reducing risk of unsympathetic management
- Nursery stock to be used: For Trees typically - 100% Heavy Standard
- Individual specimen tree would undergo establishment period management for a duration of 5 years. Beyond this period maintenance would be undertaken as detailed in the subsequent LEMP (to be produced during detail design) for a duration of 20 years
- Individual specimen trees shall be watered and protected from browsing deer by means of appropriate fencing or guards until established
- Following establishment period, individual trees shall be assessed every five years by an arboricultural specialist, and any required pruning or maintenance of individual trees (such as removal of guards) shall be carried out as necessary

- Management of adjacent trees shall be carried out to maintain sufficient space for individual specimen tree growth

Management approach

1.14.7 The management requirements for individual trees are set out:

- The individual tree planting would be protected from browsing deer by means of appropriate fencing or guard until established
- Regular checks and formative pruning would be carried out as necessary by an arboricultural specialist during establishment and throughout the management period
- Adjacent trees would be managed to prove sufficient space for individual specimen trees to growth and develop

1.15 Wetland Habitat (LE6.1, 6.2 and 6.4)

Mitigation context

1.15.1 New SuDS, attenuation, and infiltration features provide ecological and landscape mitigation by:

- Mitigate flood risks from surface water runoff generated from the Scheme
- Incorporating ecological enhancements within the design, where possible

1.15.2 In addition, **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)** identifies areas of the River Itchen where enhancement measures will be provided. Measures will align with the Environment Agency River Itchen Restoration Strategy. These areas are likely to include riparian planting and / or channel narrowing by marginal planting and a commitment to delivering this is set out in the Record of Environmental Actions and Commitments within the **first iteration Environmental Management Plan (fiEMP)** (**Document Reference 7.3)**. Further details will be developed and agreed with the Environment Agency prior to construction.

Locations

1.15.3 The landscape design proposals are shown on **Figure 2.3 (Environmental Masterplan)** of the **ES (Document Reference 6.2)**. Please see Sheet 2 and 7 for location of LE6.1, LE6.2 and LE6.4.

Objectives

1.15.4 New features would be created to provide the following ecological and landscape enhancements:

- Provide a series of features designed to support a range of local wetland plants, wetland grasses and wildlife
- To link and contribute to the existing riparian corridor associated with the River Itchen and its tributaries
- To improve water quality and control surface water runoff from the Scheme

Targets

1.15.5 The targets for SuDS and attenuation features are:

- Create a permanent series of features with a range of native marginal vegetation species by the end of the establishment period. At least one of the following target habitat types, including permanently wet and seasonably wet should be present to provide habitats of value to local wildlife. Target species include: Meadow foxtail burnet, *Caltha palustris* (marsh marigold), *Deschampsia cespitosa* (tufted hair grass), and *Juncus effusus* (soft rush). Target extent of emergent vegetation (reeds, etc.): maximum 20%

Prescriptions

1.15.6 The following management prescriptions are proposed for pond creation and management:

- Pond margins shall by planted using a mixture of suitable native species. An illustrative species list for wildlife pond margins is provided in **Table 7.6.10**

Table 7.6.10: Species list for wildlife pond margins

Latin name	Common name
Juncus acutiflorus	Sharp-flowered rush
Juncus effusus	Soft rush
Deschampsia cespitosa	Tufted hair-grass
Holcus lanatus	Yorkshire fog
Carex otrubae	False fox-sedge
Carex acutiflorus	Lesser pond-sedge
Caltha palustris	Marsh marigold
Serratula tinctoria	Saw-wort
Filipendula ulmaria	Meadowsweet
Angelica sylvestris	Wild angelica

1.15.7 Target wetland grass mix Emorsgate Meadow mixture for wetlands EM8 be planted in the seasonally wet swales and slopes on the attenuation features.

1.15.8 An illustrative species list for wetland grass mix is provided in **Table 7.6.11**.

Table 7.6.11: Wetland grass species list (Emorsgate EM8)

Latin name	Common name
Wildflowers	
Achillea millefolium	Yarrow
Agrimonia eupatoria	Agrimony
Angelica sylvestris	Wild Angelica
Betonica officinalis - (Stachys officinalis)	Betony
Centaurea nigra	Common Knapweed
Cruciata laevipes	Crosswort
Daucus carota	Wild Carrot
Filipendula ulmaria	Meadowsweet
Galium verum	Lady's Bedstraw
Leontodon hispidus	Rough Hawkbit
Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)
Malva moschata	Musk Mallow
Plantago lanceolata	Ribwort Plantain
Ranunculus acris	Meadow Buttercup
Rhinanthus minor	Yellow Rattle
Rumex acetosa	Common Sorrel
Silaum silaus	Pepper Saxifrage
Taraxacum officinale	Dandelion
Grasses	
Agrostis capillaris	Common Bent
Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum	Sweet Vernal-grass
Briza media	Quaking Grass
Cynosurus cristatus	Crested Dogstail

Latin name	Common name
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Red Fescue
Hordeum secalinum	Meadow Barley (w)

- Inundations of reeds shall be cleared every 5-10 years in winter (or more frequently as required)
- Invasive, non-native species (including aquatic species such as swamp stonecrop (Crassula helmsii), floating pennywort (Hydrocotyle ranunculoides) and water fern (Azolla filiculoides) would be controlled to prevent further spread and removed/eradicated as much as possible

Management approach

- Minimal management shall be undertaken other than periodic clearance of invasive, non-native species and / or invasive weeds or inundations of reeds or removal of silt build up
- Clearance of vegetation shall consider the presence of reptiles and amphibians and carried out sensitively for this species. No dredging of ponds shall be undertaken unless an assessment on the impact on reptiles and amphibians has been undertaken
- Wetland grass shall be mown annually, with arisings removed from site to provide a meadow grassland structure
- Self-sown scrub to be removed from wetland grass areas to avoid competition and loss of this grassland habitat

1.16 Existing Vegetation

1.16.1 **Appendix 7.5 (Preliminary Arboricultural Impact Assessment (AIA))** of the **ES (Document Reference 6.3)** identifies the existing tree resource within and adjacent to the Application Boundary. The AIA identifies a number of trees and tree groups which would be fully and partially removed as part of the Scheme. These trees are identified in Table 4.1b.

1.16.2 Overall, the Scheme would ensure the retention and incorporation of a large proportion of trees surveyed within the Application Boundary. Retained features would be set alongside new tree planting as part of the wider landscape mitigation proposals as set out above.

1.16.3 No management regimes are proposed as part of this OLEMP for the existing retained trees; however, construction works would need to consider the following to ensure protection of these features:

- Root Protection Areas (RPA) and canopies in which construction works, or related activities, would be avoided, and to minimise the potential for harm to the root systems and canopies of retained trees during development construction exclusion zones would be required throughout the Application Boundary. This would need to be detailed as part of a tree protection drawing (to be undertaken at detailed design)

- Trees which are to be retained may require remedial pruning. All tree pruning works should be detailed as part of an Arboricultural Method Statement (to be undertaken at detailed design) and completed in accordance with the current best practice guidance set out within BS3998:2010 “Tree Work – Recommendations” by suitably competent, qualified Arboricultural contractor

- In addition, works are proposed within the RPAs beneath the canopy spreads of retained trees. These works should also be detailed as part of an Arboricultural Method Statement

- Removing dead and dying ash trees (showing signs of Ash die-back) near to the existing carriageway or proposed works is encouraged as safety of the public and construction operatives is paramount. Any arisings should remain on site and as close to the felling site as possible, to reduce the spread of the disease. Dependant on the nature of removal replacement planting of an appropriate species may be required (for areas where visual screening is the predominant function), however typically areas felled should be allowed to self-regenerate to aid biodiversity and promote a diverse and resilient woodland structure

1.16.4 Further details are set out in **Appendix 7.5 (Preliminary Arboricultural Impact Assessment (AIA))** of the **ES (Application Document 6.3)**.

1.17 Outline Management Plan

1.17.1 **Table 7.6.12** identifies the outline management plan for the landscape elements set out previously. It summarises the requirements for the establishment period for each element, the target measures and the responsibility.

Table 7.6.12: Establishment period outline management

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
003-06, 003-08, 003-15, 008-14, 008-23, 008-25, 008-27, 008-30, 009-01, 009-13, 009-14, 009-20, 009-25, 009-41, 009-46	**LE 2.1 Woodland (Broadleaf)**	Number of species/target species Screening effectiveness	Establishment period maintenance; inc: Provide irrigation during the establishment period (year 1) and growing season (April-September)) Adjust any guy fixings, stakes and ties at the start / end of growing season. General pruning Replacement of dead or damaged plants Weeding	Generally annually (watering as required, weeding three times per year)	Principal Contractor (PC)
002-07, 002-08, 002-09, 003-11, 003-14, 003-19, 003-29, 008-05, 008-06, 008-08, 008-15, 008-20, 008-	**LE 2.4 Linear belts of trees and shrubs**	Number of species/target species	Establishment period maintenance; inc: Provide irrigation during the establishment period (year	Generally annually (watering as required, weeding	PC

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
21, 008-35, 009-31, 009-40, 011-01, 012-01		Screening effectiveness	1) and growing season (April-September)) Adjust any guy fixings, stakes and ties at the start / end of growing season. General pruning Replacement of dead or damaged plants Weeding	three times per year)	
003-02, 003-03, 003-04, 003-05, 003-09, 003-16, 003-25, 003-26, 008-26, 009-02, 009-03, 009-24, 009-28, 009-33, 009-34, 009-35, 009-39, 010-01	**LE 2.8 Native Scrub Planting**	Number of species Target species/habitat extent Function as woodland edge	Selected woodland edge managed to form graduated and scalloped edge. Coppicing on long rotation	Coppice one third of dense scrub within plots in winter every five years	PC during the establishment period / Operation & Maintenance Contractor following handover

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
003-33, 008-41, 009-50, 008-36, 008-42, 009-51, 008-38, 009-45	**LE 4.3 Native Species Hedgerow**	Number of species Target species Connectivity Screening effectiveness	Establishment period maintenance Trimming on rotation	Maintenance tasks Cut / trim one fifth each year on rotation in winter annually following establishment	PC / Operation & Maintenance Contractor following handover
Sheets 7 & 8 for location of LE5.1 Individual Trees	**LE 5.1 Individual Trees**	Protection against browsing Crown spread	Establishment period maintenance	Maintenance tasks	PC

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
Sheet 2 and 7 for location of LE6.1, LE6.2 and LE6.4	**LE 6.1 Waterbodies and associated plants**	Number of species Target species Presence of suitable features for kingfishers, water voles and otters Presence of invasive weeds Depth of silt in backwaters	Establishment period maintenance	Maintenance tasks	PC
			Cut back marginal plants on a rotational basis	Cut back no more than one third of entire marginal habitat – in winter annually following establishment	PC & Maintenance Contractor following handover
			Establishment period maintenance	Maintenance tasks	PC

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
Sheet 2 and 7 for location of LE6.1, LE6.2 and LE6.4	**LE 6.2 Banks & Ditches**		Mowing	Cut and collect late Aug-early Oct annually following establishment	PC & Maintenance Contractor following handover
Sheet 2 and 7 for location of LE6.1, LE6.2 and LE6.4	**LE 6.4 Marsh & Wetland grass**	Number of species Target species/habitat Hydrology	Establishment period maintenance	Maintenance tasks	PC
			Mowing	Cut and collect late Aug-early Oct annually following establishment	PC & Maintenance Contractor following handover
Amenity grass has been used in locations where maintenance access is required.	**LE 1.1 Amenity Grass**	Visual amenity	Establishment period maintenance	Maintenance tasks	PC
			Mowing	Cut between April and October Annually during establishment	PC & Maintenance Contractor

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
				period, and as required to allow for maintenance access.	
Species rich grassland has been proposed in lower-lying areas of the Scheme, generally to the west of the M3. In these locations underlying substrates are likely to support more neutral grassland habitats, although these habitats are likely to exhibit varying chalk grassland characteristics.	**LE1.3 Species Rich Grassland**	Number of species Target species/habitat	Establishment period maintenance	Maintenance tasks	PC
			Mowing	Cut and collect late summer August-Sept, annually following establishment	PC & Maintenance Contractor following handover
			Monitoring	Inspect sward diversity and Seed mix representation Twice in the first year and then reducing to	

Location / Plot References (Figure 2.3 (Environmental Masterplan) of the ES (Document Reference 6.2))	Management feature	Attributes to measures against targets	Management prescriptions	Detail	Responsibility
				annually following establishment	
Chalk Grassland has been created in locations of proposed earthworks on the eastern slopes of the Scheme within the South Downs National Park. It also includes areas of cutting slopes located on the eastern side of the M3 corridor, including highway verges.	**LE1.3 Chalk Grassland**	Number of species Target species/habitat	Establishment period maintenance Monitoring	Maintenance tasks Twice in the first year, reducing too Annually following establishment. Inspect sward diversity and Seed mix representation. Look for signs of nutrient enrichment through leaf fall and impact to the grassland areas	PC PC & Maintenance Contractor following handover

1.18 Outline Monitoring Specifications

Habitat (landscape elements) monitoring approach

1.18.1 Monitoring would be undertaken during the construction and operational phases to assess the progress towards the targets of the management features - outlined in **Table 7.6.12**. Monitoring shall provide information to determine whether certain targets have been met or missed, and whether maintenance operations or remedial actions are required. **Table 7.6.12** provides a list of attributes against each management element that would be measured against the targets during monitoring.

1.18.2 During construction, monitoring would include that detailed in the **fiEMP (Document Reference 7.3)**.

1.18.3 Monitoring for establishment of newly created landscape elements would follow the establishment maintenance specifications produced during detailed design and would take the form of quarterly inspection in the first two years, followed by annual inspections in the following three years after seeding/planting.

1.18.4 Monitoring of landscape elements following establishment would take the form of annual monitoring where required.

1.18.5 **Table 7.6.13** gives a draft monitoring schedule for all landscape and ecology features during the establishment period and ongoing operation phase of the Scheme.

Table 7.6.13: Outline monitoring schedule

Monitoring method	Timescale	Responsibility
Establishment inspections following completion of mitigation works	Quarterly first 2 years Annually next 3 years	Principal Contractor
Walkover survey	Annually	PC (establishment period) & Maintenance Contractor (following handover)

1.18.6 The Principal Contractor and Maintenance Contractor would appoint suitably qualified persons (i.e., an appropriately qualified landscape management consultant) to undertake monitoring and report on progress towards the targets. Monitoring activities will document failures and any replacement requirements in accordance with the target for the landscape element. Replacement for failed planting required during the establishment period will be undertaken in accordance with Requirement 5 of the **Development Consent Order**

(Document Reference 3.1), i.e. planting to occur at the next available planting season after the failure has occurred.

1.18.7 If necessary, the findings of monitoring may result in corrective actions being required or the prescriptions for a management feature or the targets themselves may need to be modified.

Species monitoring approach

1.18.8 Species monitoring requirements shall take into account the conditions of protected species licences. The monitoring approach would be agreed with Natural England. Detail of this would be set out in the LEMP.

1.19 Outline Management Specifications

Establishment period maintenance for new planting

1.19.1 During the initial five-year establishment period the newly created landscape elements would be maintained by the Principal Contractor. This would include carrying out the following maintenance operations:

- A 1m diameter weed-free ring shall be maintained around each planting station
- Trees and shrub planting which has failed to establish shall be replaced in the next suitable planting season
- Grow cones or spiral guards shall be checked during annual inspections
- Grow cones or spiral guards shall be removed once planting has grown out of cones and threat from deer browsing or rabbit grazing is reduced
- Where necessary, suitable fencing would be used to protect planting from deer browsing
- Grass and low vegetation within planting plots shall be mown/trimmed twice annually or as per establishment requirements for that type of grassland

Treatment of invasive non-native species

1.19.2 Chemical or mechanical treatment and removal of invasive non-native plant species shall be carried out were found within all areas. If the plants are listed on schedule 9 of the 'Wildlife and Countryside Act', they should be removed and disposed of in accordance with current legislation, Environment Agency codes of practice and relevant British Standards. For non-listed plant species, chemical treatment shall include selective application of herbicides. Mechanical treatment shall include digging up or scraping of topsoil where the plant(s) is present.

1.19.3 The following species found within the Application Boundary are considered to be invasive non-native plants and will require treatment and / or removal during the construction phase of the Scheme. Species include:

- *Fallopia japonica* (Japanese Knotweed) - **Schedule 9**
- *Cotoneaster simonsii* (Himalayan Cotoneaster) - **Schedule 9**
- *Cotoneaster hoizontalis* (Wall Cotoneaster) - **Schedule 9**
- *Rubus armeniacus* (Giant Bramble)
- *Galega officin*alis (Goat's-rue)
- *Aster sp* (Michaelmas Daisy)
- *Cornus sericea* (Red-osier Dogwood)
- *Symphoricarpos albus* (Snowberry)

1.19.4 No aquatic / riparian invasive non-native species have been identified within the Application Boundary, as part of the baseline surveys.

1.19.5 In accordance with relevant legislation should any invasive non-native species be identified as part of the regular monitoring (including wetland habitats) during the operational phase of the Scheme, control measures will be required to ensure eradication. This will be the responsibility of the landowner and appropriate control plans and measures would require developing by the landowner or their appointed agent should these invasive non-native species be identified.

Biosecurity

1.19.6 To avoid risk to white-clawed crayfish and other aquatic species from introduction of non-native species or pathogens during management operations, biosecurity measures will be implemented when carrying out any works within the watercourses. This will include disinfecting all equipment, personal protective equipment (PPE), and machinery with a broad-spectrum disinfectant. This treatment will be repeated whenever machinery, equipment or PPE is transferred to another site or watercourse.