



NAVIGATOR QUARTER, LAND ADJACENT TO SOUTHAMPTON AIRPORT

LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

HYBRID PLANNING APPLICATION

MAY 2025

**blocwork (Eastleigh) LLP
&
Southampton International Airport Ltd**





STEPHENSON
HALLIDAY

Planning, Landscape & Environment
an **RSK** company

NAVIGATION QUARTER, SOUTHAMPTON AIRPORT

Landscape and Ecological Management Plan

(Including Specification for
Soft Landscape Establishment)

Blocwork (Eastleigh) LLP
May 25

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0940-05-04-1000 Illustrative Masterplan Landscape Proposals

Document history

Revision		Name	Date
00	Author	Joanne Mayneord	22-05-2025
00	Technical Reviewer/Approved	Craig Scott	25-05-2025

1 INTRODUCTION

- 1.1.1 This Landscape and Ecological Management Plan (LEMP) has been prepared on behalf of Blocwork (Eastleigh) LLP by Stephenson Halliday in support of the Planning Application at Navigation Quarter, Southampton.
- 1.1.2 The specification and maintenance schedule presented in this LEMP is provided for planning purposes only to indicate the level of workmanship required. It has not been prepared for contractual purposes and should not be relied upon as the basis for any contractual agreement.
- 1.1.3 The LEMP refers to, and should be read in conjunction with, the extent of landscape works illustrated on the following drawings:
- 0940-05-04-1000 Illustrative Masterplan Landscape Proposal
- 1.1.4 The LEMP should be read in conjunction with the Ecological Reports produced by EPR that form part of this outline application following documents:
- 1.1.5 This 30-year Landscape and Ecological Management Plan (LEMP) provides the documented basis for successful establishment, after-care, and long-term management and maintenance of the proposed landscape scheme. The LEMP objectives are driven by the overall vision of the design intentions for the scheme and to ensure that the report is in accordance *with BS 42020:2013 Section 11.1.1*. Planned maintenance and management operations are described for the site's various landscape treatments/habitat types.

2 OVERALL LANDSCAPE STRATEGY

- 2.1.1 The landscape strategy is to provide an aesthetically pleasing and usable space, ensuring that the landscape is maintained for users and visitors to the site as well as enhance biodiversity and habitat value, whilst allowing for minimal maintenance regimes.
- 2.1.2 The landscape scheme aims to achieve the following:
- To maintain and enhance the existing infrastructure vegetation, strengthening the where required;
 - To ensure that the proposed planting scheme maximises the opportunities and potential for onsite biodiversity;
 - To provide visual amenity and structure to the proposed development.
 - To ensure ongoing compliance with airport safeguarding in relation to bird strike management

3 SUMMARY OF BASELINE CONDITIONS

- 3.1.1 The site is not covered by any landscape or ecological designations. However its sits directly adjacent to the River Itchen Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) and as such sits within the SSSI Impact Risk Zone.
- 3.1.2 The Proposed Development comprises of two plots that abut the north east of Southampton Airport along with the proposed access road to them. The plots sit wholly within existing areas of grassland that are bound by vegetation except along the western edge of the southern plot which opens out onto the airport. The proposed access route will require some limited vegetation removal to provide access to the northern plot and to route around the northern end of the airport runway.

4 LANDSCAPE PROPOSALS

- 4.1.1 The landscape proposals will focus on the retention, enhancement and/or creation of the following habitat types and features:

Landscape Typology	Area/ Length/ No.	BNG Habitat (UKHab Code and Habitat Type)	Description, Objective and Target Condition
Proposed Tree, Woodland, Scrub and Hedgerow Planting			
Individual Trees (within soft and hard landscape)	334no.	Individual trees - Urban Tree/ Rural Tree (N/A)	Objective: To provide opportunity for wildlife foraging and cover, interest and height that will also provide softening and screening to the development.
Mixed Native Scrub	10,649m ²	Heathland and Shrub – Mixed scrub (h3h Mixed scrub)	Scrub located alongside woodland areas as a transitional zone and in areas internally within the Site which are too small to establish woodland. Comprises of a mixture of species without a single species dominant. Objective: To provide transitional zone between existing vegetation and the proposed development.
Species Rich Native Hedgerow	2,498lin/m	Hedgerows – Species-rich native hedgerow/ Species-rich native hedgerow with trees (h2a5 Species-rich native hedgerow)	Native hedgerows with ≥ 5 UK native woody species. Note: Assumes hedgerow is not alongside a ditch or bank. Objective: To provide ecological corridors throughout the site, providing habitat and foraging opportunities for birds, bats, invertebrates, amphibians, reptiles and mammals.

Landscape Typology	Area/ Length/ No.	BNG Habitat (UKHab Code and Habitat Type)	Description, Objective and Target Condition
Single Species Native Hedgerow	122lin/m	Hedgerows - Native hedgerow/ Native hedgerow with trees (h2a6 Other native hedgerow)	Native hedgerow of a singular native woody species. Objective: To provide ecological corridors throughout the site with uniformity of aesthetic, providing habitat and foraging opportunities for birds, bats, invertebrates, amphibians, reptiles and mammals.
Proposed Ornamental Planting			
Ornamental Shrub and Herbaceous Planting	6,063m ²	Urban – Introduced shrub (847 Introduced shrub)	Includes low maintenance shrub, grass and herbaceous planting. Generally non-native. Objective: To provide structure and aesthetic interest to the development, in addition to providing foraging opportunities for invertebrates, birds and mammals.
Proposed Grassland			
Amenity Grassland with Floristic Diversity	7,908m ²	Grassland – Modified grassland (g4 Modified grassland)	An amenity grassland which includes wildflower species (usually 20%) and slower-growing grass species which are tolerant of mowing. Objective: To maintain a neat, healthy, uniform sward with the addition of wildflowers to increase the species diversity (subject to management operations).
Species Rich Neutral Grassland	35,795m ²	Grassland – Other Neutral Grassland (g3c Other neutral grassland)	Grassland <u>located on neutral soils</u> which does not meet the criteria of UKHab Lowland Meadows habitat type, but does meet the criteria of Other Neutral Grassland, as set out in UK Habitat Classification Version 2.0. Meets a minimum of 3 of the criteria: • >30% cover of broadleaved herbs and sedges • >8 species per m² (including grasses, forbs, sedges and rushes) • ≥1 grass species that is not generally sown for intensive agricultural production • Cover of Rye-grasses <i>Lolium</i> spp. and White Clover (<i>Trifolium repens</i>), where present is <30%.

Landscape Typology	Area/ Length/ No.	BNG Habitat (UKHab Code and Habitat Type)	Description, Objective and Target Condition
			Objective: To provide habitat for birds, bats, invertebrates and reptiles and provide aesthetic interest.
Species Rich Wet Grassland	621m ²	Grassland – Other neutral grassland (g3c Other neutral grassland)	Grassland <u>located on seasonally wet soils</u> which does not meet the criteria of UKHab Lowland Meadows, Purple-moor grass or rush pasture habitat types, but does meet the criteria of Other Neutral Grassland, as set out in UK Habitat Classification Version 2.0. Meets a minimum of 3 of the criteria: • >30% cover of broadleaved herbs and sedges • >8 species per m² (including grasses, forbs, sedges and rushes) • ≥1 grass species that is not generally sown for intensive agricultural production • Cover of Rye-grasses <i>Lolium</i> spp. and White Clover (<i>Trifolium repens</i>), where present is <30%. Objective: To provide habitat for invertebrates, small mammals, amphibians, reptiles and birds. To be located in areas that are often or seasonally wet due to flooding, land form or soil type.

5 LANDSCAPE IMPLEMENTATION AND MANAGEMENT

5.1 British Standards and Published Guidance

- 5.1.1 All tree planting operations to be in accordance with BS 8545: 2014 Trees: 'From Nursery to Independence in the Landscape - recommendations'.
- 5.1.2 All planting material is to conform to BS 3936-1:1992 Specification for Nursery stock.
- 5.1.3 All landscape operations to be in accordance with BS 4428: 1989 Recommendations for general landscape operations.
- 5.1.4 All native species will be of local provenance.
- 5.1.5 Existing trees and hedgerows (including root protection zones / areas) either within, or along the boundary of, the site will be protected during construction in accordance with 'BS

5837:2012 Trees in relation to design, demolition and construction – Recommendations’. Detailed tree protection measures are set out under Condition 22 of the permission and are not covered in this document.

- 5.1.6 In line with recommendations from the UK Government’s Tree Health and Plant Biosecurity Expert Taskforce all planting material is to be sourced from reputable nurseries (registered under the HTA Nursery Certification Scheme) in order to avoid the spread of any pest and plant disease which may threaten the health of any proposed or existing planting material. All necessary information with regards to the identity and source of the planting material, from original source, will be obtained from the nursery and made available for inspection on request. Reasonable care has been taken at time of preparation of the planting design to specify plants which are currently disease free. For further details on notifiable, and non-notifiable, pests and diseases refer to the Department for Environment, Food & Rural Affairs (DEFRA) UK Plant Health Risk Register.
- 5.1.7 Soil management and storage should follow best practice guidelines; refer to DEFRA; Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
- 5.1.8 Any imported subsoil to be in accordance with BS 8601:2013 ‘Specification for subsoil and requirements for use’; With debris and contamination removed; stone to be a maximum ring size of 100mm in any dimension.
- 5.1.9 Any imported topsoil to be in accordance with BS 3882:2015 ‘Specification for topsoil’; weed free, fertile medium loam with maximum 20% stone content. Stones to be a maximum ring size of 50mm in any dimension for general tree, shrub and hedge planting and 38mm maximum ring size for grass seed areas.
- 5.1.10 Planting shall not be undertaken when the ground is waterlogged or frost bound but otherwise shall be undertaken between November and March.

5.2 Landscape Management Overview

- 5.2.1 Management objectives are focused on achieving objectives described in the overall vision and facilitated by the maintenance operations.
- 5.2.2 Maintenance operations are defined as long term cyclical operations over several years to allow successful establishment of the soft landscape areas.
- 5.2.3 The management plan sets out operations for a 30-year period following practical completion of the works to comply with biodiversity net gain guidance.

Responsibility for Delivery of the LMP

- 5.2.4 It is intended that the soft landscape for the initial 1 year after Practical Completion will be maintained by the landscape contractor implementing the soft landscape works. The contract will include a defects liability clause to ensure that replacement planting is carried out and successful establishment achieved.
- 5.2.5 Following this, the ongoing maintenance and management of the landscape will be overseen by facilities management and their appointed landscape contractor. Once a landscape contractor to undertake the management has been appointed the LEMP shall be updated (within

4 weeks of appointment) with contact details for the Landscape Contractor/Management Company, and suitably qualified contractors including Arboriculturist.

- 5.2.6 The work undertaken, and scheme progress will need to be assessed annually, with a major assessment after the fourth year to allow revision to the existing maintenance and management regime to reflect findings. This assessment will be carried out in conjunction with the Ecological Consultant to ensure that the requirements for habitat creation and the successful establishment of the landscape are met; and to identify and mitigate any previously unforeseen impacts. Maintenance for the following years is to be reviewed at 3-year intervals using the same method to ensure appropriateness of regime. The matrix in Appendix 1 at the end of this report identifies the anticipated work over an extended 30-year period.
- 5.2.7 This approach will ensure that the quality of the landscape infrastructure created in the early years can be maintained for the benefit of persons who live near to the site who interact with it. In addition, it will ensure that the landscape develops to maximise the ecological potential of the proposals.

General Landscape Management

- 5.2.8 Maintenance operations will be undertaken in accordance with the prescriptions outlined below and the schedule presented in Appendix 1.
- 5.2.9 All pesticides and herbicides shall be applied according to manufacturer's recommendations and current legislation, including:
- The Food and Environment Protection Act (1985)
 - The Control of Pesticides Regulations (1986)
 - The Control of Substances Hazardous to Health Regulations (2002)
 - The Environment Protection Act (1990)
- 5.2.10 No pesticides or fertilisers will be used at any time in the species rich grassland area or wildflower buffer zone. Usage on other parts of the site, where not already specified in this LMP, will not be permitted.
- 5.2.11 It is the Contractor's responsibility to ensure that all works are carried out strictly in accordance with the requirements of the foregoing legislation and other relevant Codes of Practice, British Standards, rules, guidelines or directives that relate to the use of hazardous materials. The Contractor will make such notifications as are required under the terms of The Food and Environment Protection Act (1985) and will be responsible for replacing plants killed by inappropriate use of herbicides.
- 5.2.12 Arisings from management and maintenance operations should be removed from site and deposited at a legal tip or green compost facility. The exception to this is that any large felled branches/logs may be retained on site at field boundaries as habitat piles.
- 5.2.13 Whilst the aim and objectives of this management plan are set out in some detail with respect to habitat management, opportunities for the creation of additional microhabitats

should be taken wherever possible. Deadwood, water-filled cavities, jagged stumps, splits, fungal growths and holes in tree trunks will be retained unless they are creating a safety hazard.

- 5.2.14 Where necessary, the Contractor is to water plants at appropriate times of the day to ensure minimum water evaporation.
- 5.2.15 Care will be taken to avoid interference with the established levels and contours of the ground, and to avoid damage to footpaths, roads, drains, manholes and existing structures and vegetation. Damage so occasioned will be made good at the earliest opportunity.
- 5.2.16 It will be the Contractor's responsibility to ensure that all works and operations are carried out in accordance with the Construction Design and Management Regulations 2015. All work shall be carried out by experienced operatives holding relevant horticultural qualifications and training certificates, or under the supervision on site of such a person. All works detailed in the following specifications shall be carried out in accordance with good horticultural practice, using materials, plant and machinery appropriate to the task, undertaken in such a manner that avoids damage and/or nuisance to the site and its surroundings.

Litter Removal

- 5.2.17 Litter that may collect in tree and hedgerow guards/shelters and should be removed at each visit.
- 5.2.18 Litter should also be removed from the new grassland areas.
- 5.2.19 All litter and debris shall be removed off site to an authorised tip.
- 5.2.20 This shall be carried out in accordance with the Code of Practice on Litter and Refuse (2006) issued under Section 89 of the Environment Protection Act (1990).

Invasive Weeds

- 5.2.21 Should invasive weeds (those species registered on the Schedule 9 of the Wildlife and Countryside Act, 1981 or the Invasive Alien Species Order, 2019) be found on Site works within the contaminated area must cease immediately, appropriate biosecurity measures implemented to restrict unauthorised access and specialist advice sought to allow for implementation of an invasive weeds management plan. It is not an offence to have invasive species on your land, however it is considered best practice to responsibly manage all areas affected by non-native plants so to avoid their spread into the wild and to avoid detrimental impacts on biodiversity and the environment as well as creating potential constraints to future development.

6 RETAINED LANDSCAPE

6.1 Retained Vegetation

Maintenance Operations

Retained Trees and Hedgerows	
Maintenance Operation	Method
Visual inspection of all retained trees and hedgerows and recommendations for any remedial works.	A visual inspection of retained trees shall be carried out in the first year and thereafter every 5 years unless advised otherwise by a suitably qualified Arborist. Remedial actions will be implemented as required to remove unacceptable hazards as determined through an on-site risk assessment.
Trees works as directed to BS.3998	All tree works and their management are to be agreed with the Local Authority. Any specified tree surgery works will be carried out in accordance with BS 3998: 2010 'Recommendations for tree work', Health & Safety legislation and relevant best practice. Prior to the commencement of works, the Contractor shall provide valid proof of the required Public Liability Insurance and a full working method statement and risk assessment. Prior to commencement of works all trees are to be inspected for nesting birds and potential for roosting bats by an approved Ecologist. Where works are to take place during the birds nesting season (March to September) all trees are to be inspected for nesting birds by the Ecologist. Tree Work is to be carried out by an approved member of the Arboricultural Association. Chainsaw work; operatives must hold a Certificate of Competence. Cutting: Make no cuts of more than 75mm diameter. Cut portions of branches back to lateral or sub lateral buds or branches without leaving stumps. Remove whole branches back to the stem or cut lower portions of branches back to lateral or sub lateral buds or branches. Do not leave stumps. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
Crown Reduction and Shaping	Cut back selectively to lateral or sub lateral buds or branches to retain flowering branch lines without leaving stumps. Leave trees with a well-balanced natural appearance.

Crown Lifting	Remove branch systems to give clearances as follows – 2400mm above ground level.
Crown Thinning	Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches. Thinning: Selectively remove approximately 15% of secondary and small live branch growth evenly throughout the crown.
Management of dead/dying trees	Dead or dying trees and felled timber may be used to create habitat log piles to allow them to decay naturally within the woodland providing habitats for insects, newts, and other species.
Management of diseased trees	Diseased trees are to be taken from site and disposed of. Diseased trees will not be burnt, chipped, or used for ecological purposes on site.

7 PROPOSED TREE PLANTING

7.1 Individual Tree Planting

7.1.1 The trees outlined in the table below will be planted in locations as defined on drawings listed in Section 1.1.

Ornamental Feature Trees

(i.e. within vicinity of buildings and facilities)

Botanical name	Common name	Girth (cm)	Height
<i>Acer freemanii</i> 'Autumn Blaze'	Maple clvr.	18-20cm	4.5-5.0m
<i>Ginkgo biloba</i>	Mainenhair Tree	18-20cm	4.5-5.0m
<i>Liquidambar styraciflua</i>	Sweet Gum	18-20cm	4.5-5.0m
<i>Prunus serrula</i> #	Tibetan Cherry	18-20cm	4.5-5.0m

Formal Semi-Native and Ornamental Trees

(i.e. Highway Corridor/Estate Roads etc)

Botanical name	Common name	Girth (cm)	Height
<i>Acer campestre</i> 'Elsrijk'	Field Maple clvr.	14-16cm	4.0-4.5m
<i>Acer platanoides</i> 'Deborah'	Norway Maple clvr.	14-16cm	4.0-4.5m
<i>Corylus colurna</i>	Turkish Hazel	14-16cm	4.0-4.5m
<i>Quercus ilex</i>	Holm Oak	14-16cm	4.0-4.5m
<i>Tilia cordata</i> 'Greenspire'	Small Leaved Lime clvr.	14-16cm	4.0-4.5m

Native Trees

(i.e. Boundary Planting)

Botanical name	Common name	Girth (cm)	Height
<i>Acer campestre</i>	Field Maple	12-14cm	3.0-3.5m
<i>Alnus glutinosa</i>	Alder	12-14cm	3.0-3.5m
<i>Betula pendula</i>	Silver Birch	12-14cm	3.0-3.5m
<i>Betula pubescens</i>	Downy Birch	12-14cm	3.0-3.5m
<i>Carpinus betulus</i>	Hornbeam	12-14cm	3.0-3.5m
<i>Populus tremula</i>	Aspen	12-14cm	3.0-3.5m
<i>Quercus robur</i> #	English Oak	12-14cm	3.0-3.5m
<i>Tilia cordata</i>	Small Leaved Lime	12-14cm	3.0-3.5m

7.1.2 Species marked # to be used in limited quantity as these have some potential to attract birds.

7.2 Implementation of Individual Tree Planting

Implementation	Method
Site visit and Walkover	The Contractor is advised to undertake a site visit and walkover prior to commencing the work to appraise the site. This should assist with, amongst other things, determining the feasibility of gapping up, planting new trees in existing hedgerows and identifying damp areas.
Tree pits	All trees are to be rootballed stock. Trees which have a girth of 16-18cm and above are to be planted in pits of a minimum size of 1500 x 1500 x 900mm depth. Trees which have a girth of 14-16cm and below are to be planted in pits of a minimum size of 1000 x 1000 x 750mm depth. The bottom of pits will be loosened to allow root penetration.
Tree staking and support	Trees which have a girth of 14-16cm and above will be supported by two no. 900mm long 50mm diameter softwood stakes, machine round pointed with a chamfered top, driven 600mm depth with cross bar finished 300mm above ground. Tree will be secured to centre of cross bar using Flat Back Unslotted Block and T260 Buckle Tree Tie by Rubberloc (or equivalent). Trees which have a girth of 12-14cm and below will be supported by one no. 900mm long 50mm diameter softwood stake, machine round pointed with a chamfered top, driven 600mm depth. Tree will be secured to the stake using Flat Back Unslotted Block and T260 Buckle Tree Tie by Rubberloc (or equivalent).
Fertiliser and mulch	Each planting station shall incorporate x2 15g 'Sierrablend Flora' slow release fertiliser tablets (15+9+9 NPK). Rootballed trees will be topped with 75mm of bark mulch.
Watering	All newly planted trees must be watered. A newly planted tree should ideally receive approximately 50 litres of water each week during dry periods throughout May, June, July and August. Ideally carried out in the morning or evening. If a watering pipe is present, then approximately half of the water

Implementation	Method
	should be poured down the pipe and half added to the ground surface around the tree.

7.3 Maintenance Operations for Individual Tree Planting

Individual Tree Planting

New tree planting will be attended to three times during the growing season (April- September) and once during the dormant season (October-March inclusive). At each visit the following operations are to be carried out:

Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.
Monitor and treat pests and diseases including removal of dead, dying and diseased material	Trees will be pruned as necessary to remove dead, dying or diseased wood and suckers and to promote healthy growth and natural shape. Pruning will be carried out in accordance with BS 8545:2014 Trees from nursery to independence in the landscape and good horticultural and arboricultural practice. Dead, diseased, or dangerous plants should be treated, lopped and/or felled as necessary. The resultant timber and debris should be made available to create log piles for vertebrates or habitat piles for other species. (Please note any diseased wood should be removed from site).
Monitoring and pruning/ remedial surgery (Remove any branches that overhang footpaths, obscure visibility splays, or prevent access for grass cutting)	Any damaged shoots or branches shall be pruned off plants using secateurs, cutting back to above a live, outward-facing bud or shoot.
Monitor, adjust and replace stakes, ties, guards/fence	All staked trees shall be inspected on each maintenance visit and all stakes and ties shall be inspected. Any looseness, constriction or abrasion shall be corrected by adjustment or replacement as required.
Check plant material is firmly planted and firm in as required	All plants shall be checked and firmed up in the ground as necessary.
Water to maintain healthy growth and successful establishment	During the period May to September in the first year after planting, all new staked native trees will be watered on a monthly basis unless the ground is evidently already saturated.

1m diameter weed free area to be maintained around each tree	A 0.5m diameter weed free area (centred on the tree) shall be maintained around each tree during the first 3 years. Around the new trees, thistle, dock and ragweed will be spot treated with glyphosate during the growing season. Strimmers shall not be used around the base of trees.
Remove any weed growth from shelter guards	Tree guards/shelters shall be lifted as necessary to achieve weed control, and re-firmed in the ground after completion of the work.
Replacement tree planting	Any dead/ <u>dying/diseased</u> trees shall be removed and replaced within the first 5 years. Replacement planting to be carried out during the next winter visit.
Remove stakes/guys when ready	All stakes, guards and ties shall be removed after 5 years unless required for ongoing protection. On removal of stakes, hole to be backfilled with lightly compacted soil.
Tree works including crown reducing, crown lifting, crown thinning	A tree condition and safety survey will be undertaken every 3 years by a suitably qualified Arboricultural consultant. Any remedial works (e.g. pruning or felling) as recommended by the tree condition and safety survey shall be carried out within the timescales recommended by the consultant.

8 PROPOSED SCRUB PLANTING

8.1 Mixed Native Scrub

8.1.1 The species outlined in the table below will be planted in locations as defined on drawings listed in Section 1.1.

Trees				
%	Botanical name	Common name	Root Condition	Height
15	<i>Acer campestre</i>	Field Maple	Bare Root	1.25-1.5m Feathered
10	<i>Alnus glutinosa</i>	Alder	Bare Root	1.25-1.5m Feathered
Shrubs				
%	Botanical name	Common name	Root Condition	Height
2	<i>Cornus sanguinea</i> #	Dogwood	Bare Root 1+1	600-800mm
25	<i>Corylus avellana</i>	Hazel	Bare Root 1+2	600-800mm
10	<i>Crataegus monogyna</i> #	Hawthorn	Bare Root 1+1	600-800mm
5	<i>Cytisus scoparius</i>	Broom	3L Pot	400-600mm
2	<i>Euonymus europaeus</i> #	Spindle	Bare Root 1+1	400-600mm
3	<i>Ilex aquifolium</i> #	Holly	3L Pot	600-800mm
10	<i>Salix caprea</i>	Goat Willow	Bare Root 0/1	600-800mm
10	<i>Salix cinerea</i>	Grey Willow	Bare Root 0/1	600-800mm

3	<i>Sambucus nigra</i> #	Elder	Bare Root 1+1	600-800mm
5	<i>Ulex europaeus</i>	Gorse	3L Pot	600-800mm

8.1.2 Species marked # to be used in limited quantity as these have some potential to attract birds.

8.2 Implementation of Scrub Planting

Implementation	Method
Vegetation Clearance	New areas of scrub planting will be cleared of any competing vegetation as necessary before planting.
Planting	All bareroot plants are to be root dipped in Broadleaf P4 immediately after lifting at nursery, and retained in polythene bags, secured at the stems until they are ready for planting. Where scrub is planted next to a hard surface/kerb/fence, it should be positioned 1m from the edge. Scrub planting is to be notch planted with native shrubs planted on a 2m grid in single species groups of 3 to 9 with native tree species planted on a 4m grid in single species groups of 3 to 7 within this. Planting should be into a moist, friable and not waterlogged soil. Due to the majority of the stock being bare root, planting should be carried out between the months of November and March. On no account are any roots to be left exposed or bent. Care will be taken to ensure that the plant is upright, planted at the original nursery depth and left windfirm on completion.
Protection and staking	Bareroot transplants and small container grown stock will be protected with a 600mm high 'Tubex' tree shelter with a 75mm – 100mm diameter (colour: Green). Supported with a previously treated softwood stake 900 x 32 x 32mm treated with water based preservative to BS 1282: 1999; driven a minimum of 300mm below ground level.

8.3 Maintenance Operations for Scrub Planting

Scrub Planting	
New scrub planting will be attended to three times during the growing season (April-September) and once during the dormant season (October-March inclusive). At each visit the following operations are to be carried out::	
Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.

Monitor and treat pests and diseases including removal of dead, dying and diseased material/pruning remedial surgery	Trees and shrubs will be pruned as necessary to remove dead, dying or diseased wood and suckers and to promote healthy growth and natural shape. Pruning will be carried out in accordance with BS 8545:2014 Trees from nursery to independence in the landscape and good horticultural and arboricultural practice. <i>Pruning Generally</i> • Timing: Do not prune during the late winter / early spring sap flow period. • Do not prune whips or feathered trees. • Do not damage or tear the stem of branches to be removed. • Keep wounds as small as possible and cut cleanly back to sound wood. • Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on the cut area. • Prune larger branches using the branch bark ridge as a pruning guide. • Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well-balanced natural appearance. • Use clean, sharp secateurs, hand saws or other appropriate tools. Ragged edges of bark or wood to be trimmed with a sharp knife. • Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines, and road lighting luminaries. • Dead, diseased, or dangerous plants should be treated, lopped and/or felled as necessary. The resultant timber and debris should be made available to create log piles for vertebrates or habitat piles for other species. (Please note any diseased wood should be removed from site). • General light pruning shall include removal of the oldest, longest, most branched shoots to the base of the plant with secateurs or loppers. Activity should be phased year by year to incrementally achieve the overall effect. Apply this approach to the more vigorous planting at most times of the year to reduce spring pruning load.
Monitor, adjust and replace stakes, ties, guards/fence	Stakes, tubes and ties will be straightened/refixed as necessary.
Check plant material is firmly planted and firm in as required	All plants shall be checked and firmed up in the ground as necessary.

Water to maintain healthy growth and successful establishment	During the period May to September in the first year after planting, all new planting will be watered on a monthly basis unless the ground is evidently already saturated. In subsequent years watering may need to be carried out during periods of drought.
1m diameter weed free area to be maintained around each tree	A 0.5m diameter weed free area (centred on the tree) shall be maintained around each tree during the first 3 years. Strimmers shall not be used around the base of plants.
Spot treat undesirable weed species as necessary	Creeping Thistle, Spear Thistle, Curled Dock, Broadleaved Dock and Common Ragwort will be spot treated with glyphosate during the growing season.
Remove any weed growth from shelter guards	Tree guards/shelters shall be lifted as necessary to achieve weed control, and re-firmed in the ground after completion of the work.
Replacement whip/transplant/tree planting	Scrub planting shall achieve 90% successful establishment. Any dead/dying/diseased trees shall be removed and replaced within the first 5 years. Replacement planting to be carried out during the next winter visit.
Remove stakes/guys when ready	All stakes, guards and ties shall be removed after 5 years unless required for ongoing protection. On removal of stakes, hole to be backfilled with lightly compacted soil.
Tree works including crown reducing, crown lifting, crown thinning	A tree condition and safety survey will be undertaken in year 4 by a suitably qualified arboricultural consultant. Any remedial works (e.g., pruning or felling) as recommended by the tree condition and safety survey shall be carried out within the timescales recommended by the consultant and before the end of the 5-year establishment period.

9 PROPOSED NATIVE HEDGEROW PLANTING

9.1 Species Rich Native Hedgerow

9.1.1 The species mix outlined in the table below will be planted in locations as defined on drawings listed in Section 1.1. The mix is for new hedgerows

%	Botanical name	Common name	Root Condition	Height
25	<i>Acer campestre</i>	Field Maple	Bare rooted 1+1	600-800mm
20	<i>Carpinus betulus</i>	Hornbeam	Bare rooted 1+1	600-800mm
5	<i>Cornus sanguinea</i> #	Dogwood	Bare rooted 1+1	600-800mm
25	<i>Corylus avellana</i>	Hazel	Bare rooted 1+2	600-800mm
5	<i>Crataegus monogyna</i> #	Hawthorn	Bare rooted 1+1	600-800mm
5	<i>Cytisus scoparius</i>	Broom	Bare rooted 1+1	600-800mm

5	<i>Ilex aquifolium</i> #	Holly	3L Pot	600-800mm
5	<i>Prunus spinosa</i> #	Blackthorn	Bare rooted 1+1	600-800mm
5	<i>Viburnum opulus</i>	Guelder Rose	Bare rooted 1+2	600-800mm

9.1.2 Species marked # to be used in limited quantity as these have some potential to attract birds.

9.2 Single Species Native Hedgerow

9.2.1 The species mix outlined in the table below will be planted in locations as defined on drawings listed in Section 1.1.

Botanical name	Common name	Root Condition	Height
<i>Carpinus betulus</i>	Hornbeam	Bare rooted	1.0-1.2m

9.3 Implementation of Native Hedgerow Planting

Implementation	Method
Vegetation Clearance	Before planting, ensure that the ground is free of vegetation and weeds; vegetation should be hand-cut if possible, this is generally the least damaging to wildlife, however, herbicides are usually more effective at reducing competition. Their use should be the minimum necessary for effective control.
Planting	All bareroot plants are to be root dipped in Broadleaf P4 immediately after lifting at nursery, and retained in polythene bags, secured at the stems until they are ready for planting. Where scrub is planted next to a hard surface/kerb/fence, it should be positioned 1m from the edge. Hedgerow shrubs are to be notch planted in double staggered rows 0.5m apart with 5 plants per linear metre with 0.45m centres in single species groups of 5 to 11. Planting should be into a moist, friable and not waterlogged soil. Due to the majority of the stock being bare root, planting should be carried out between the months of November and March. In open areas the new hedge line is to be broken up by a single pass of a tyne or rotovator to break up the ground to 500mm depth. A trench should then be dug 500mm deep x 500mm wide or shallower and wider if ground water is encountered. On no account are any roots to be left exposed or bent within the trench. Care will be taken to ensure that the plant is upright, planted at the original nursery depth and left windfirm on completion.
Protection and staking	Bareroot transplants and small container grown stock will be protected with a 600mm high 'Tubex' tree shelter with a 75mm – 100mm diameter (colour: Green).

Implementation	Method
	Supported with a previously treated softwood stake 900 x 32 x 32mm treated with water based preservative to BS 1282: 1999; driven a minimum of 300mm below ground level.

9.4 Maintenance Operations for Native Hedgerow Planting

Native Hedgerow Planting

New hedgerow planting will be attended to three times during the growing season (April-September) and once during the dormant season (October-March inclusive). At each visit the following operations are to be carried out:

Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.
Monitor and treat pests and diseases including removal of dead, dying and diseased material/pruning remedial surgery	Any damaged shoots or branches shall be pruned off plants using secateurs, cutting back to above a live, outward-facing bud or shoot. Generally, the tips of the branches of young plants should be snipped back, by no more than 1cm, in June for the first 5 years to encourage bushy growth.
Monitor, adjust and replace stakes, ties, guards/fence	Stakes, tubes and ties will be straightened/refixed as necessary.
Check plant material is firmly planted and firm in as required	All plants shall be checked and firmed up in the ground as necessary.
Water to maintain healthy growth and successful establishment	During the period May to September in the first year after planting, all new planting will be watered on a monthly basis unless the ground is evidently already saturated. In subsequent years watering may need to be carried out during periods of drought.
1m diameter weed free area to be maintained around each tree	A 0.5m diameter weed free area (centred on the tree) shall be maintained around each tree during the first 3 years. Strimmers shall not be used around the base of plants.
Spot treat undesirable weed species as necessary	Creeping Thistle, Spear Thistle, Curled Dock, Broadleaved Dock and Common Ragwort will be spot treated with glyphosate during the growing season.
Remove any weed growth from shelter guards	Guards/shelters shall be lifted as necessary to achieve weed control, and re-firmed in the ground after completion of the work.
Replacement whip/transplant/tree planting	Scrub planting shall achieve 90% successful establishment. Any dead/dying/diseased trees shall be removed and replaced within the first 5 years. Replacement planting to be carried out during the next winter visit.

Remove stakes/guys when ready	All stakes, guards and ties shall be removed after 5 years unless required for ongoing protection. On removal of stakes, hole to be backfilled with lightly compacted soil.
Clipping of hedgerow	The hedgerow should be clipped to the required profile; a trapezium shape broader at the base than at the top. This will allow light to all parts of the plant and avoid a bare base developing and should be done each September. Following year 5 hedgerows are considered established. A cutting regime for established hedgerows is to consist of a cut to one side annually (e.g. front, back or top) on a 3-year cycle. This will maintain vigour and structure as well as provide diverse habitat for wildlife. Cuts shall typically be undertaken as late into the autumn / winter period as possible, in order to ensure that these features provide as much of a food resource as possible for birds. The established the hedge is to be maintained at 2m high and 1.5m wide.

10 PROPOSED ORNAMENTAL PLANTING

10.1 Ornamental Shrub and Herbaceous Planting

- 10.1.1 The species outlined in the table below will be planted in locations as defined on drawings listed in Section 1.1.

Specimen Shrub Species

Botanical name	Common name
<i>Calamagrostis acutifolia</i> 'Karl Foerster'	Feather Reed Grass clvr.
<i>Cornus alba</i> 'Sibirica' #	Siberian Dogwood
<i>Hamamelis x intermedia</i> 'Pallida'	Witch Hazel clvr.
<i>Philadelphus</i> 'Belle Etoile'	Mock Orange clvr.
<i>Viburnum x bodnantense</i> 'Dawn' #	Viburnum clvr.

Species marked # to be used in limited quantity as these have some potential to attract birds.

Low Ornamental Shrub/Herbaceous Species

Ultimate Height 0-0.25m	
Botanical name	Common name
<i>Carex morrowii</i> 'Ice Dance'	Japanese Sedge clvr.
<i>Hebe pinguifolia</i> 'Pagei'	Hebe clvr.
<i>Helleborus niger</i>	Christmas Rose
<i>Pachysandra terminalis</i>	Japanese Spurge

<i>Persicaria 'Darjeeling Red'</i>	Knotweed clvr.
<i>Vinca minor. F alba</i>	Lesser periwinkle
Ultimate Height 0.25m-0.5m	
Botanical name	Common name
<i>Bergenia 'Silberlicht'</i>	Elephant's Ears
<i>Cistus × pulverulentus 'Sunset'</i>	Rock Rose clvr.
<i>Euonymus fortunei 'Dart's Blanket'</i>	Wintercreeper clvr.
<i>Hebe 'Red Edge'</i>	Hebe clvr.
<i>Geranium macrorrhizum 'Album'</i>	White-Flowered Rock Cranesbill
<i>Rosa 'Suffolk'</i>	Rose clvr.
Ultimate Height 0.50-0.75m	
Botanical name	Common name
<i>Berberis buxifolia 'Nana' #</i>	Barberry clvr.
<i>Cornus stolonifera 'Kelseyi' #</i>	Dogwood clvr.
<i>Hypericum calycinum</i>	Rose of Sharon
<i>Prunus laurocerasus 'Otto Luyken' #</i>	Cherry Laurel clvr.
<i>Rosa 'Kent'</i>	Rose clvr.
<i>Luzula sylvatica</i>	Great Wood-rush
<i>Sarcococca hookeriana var. humilis</i>	Dwarf Sweet Box
<i>Sesleria autumnalis</i>	Autumn Moor Grass
<i>Stephanandra incisa 'Crispa'</i>	Lace Shrub 'Crispa'
Ultimate Height 0.75m-1m	
Botanical name	Common name
<i>Anemanthele lessoniana</i>	Pheasant's Tail Grass
<i>Chaenomeles × superba 'Jet Trail' #</i>	Japanese Quince clvr.
<i>Cistus × corbariensis</i>	Hybrid Rock Rose
<i>Mahonia aquifolium 'Apollo' #</i>	Oregon Grape clvr.

Species marked # to be used in limited quantity as these have some potential to attract birds.

Tall Ornamental Shrub/Herbaceous Species

Ultimate Height 1.0-1.5m	
Botanical name	Common name
<i>Deschampsia cespitosa</i>	Tufted Hair Grass clvr.

<i>Hypericum × hidcoteense</i> 'Hidcote'	St John's Wort clvr.
<i>Ilex crenata</i> 'Green Hedger' #	Japanese Holly clvr.
<i>Pittosporum tenuifolium</i> 'Golf Ball'	Tawhiwhi clvr.
<i>Viburnum opulus</i> 'Compactum' #	Compact Guelder Rose

Species marked # to be used in limited quantity as these have some potential to attract birds.

10.2 Implementation for Ornamental Planting

Implementation	Method
Vegetation Clearance	Before planting, ensure that the ground is free of vegetation and weeds; vegetation should be hand-cut if possible, this is generally the least damaging to wildlife, however, herbicides are usually more effective at reducing competition. Their use should be the minimum necessary for effective control.
Apply soil ameliorant/conditioner	Apply a 25-50mm layer soil ameliorant/conditioner (e.g. mushroom compost or similar), spreading evenly prior to cultivation
Planting	Shrub planting pits are to be wide enough to accommodate roots when fully spread and 75 mm deeper than root system with pit bottom broken up to a depth of 150mm. Before planting remove non-perishable containers and carefully prune any damaged roots. Plant shall be planted upright with best side to the front. Topsoil shall be returned to the planting pit, packing around evenly spread roots or rootball and heeled in. The soil mark should be as the original soil level of the shrub but 30mm above the surrounding levels to allow for settlement.
Apply mulch	Apply loose bark mulch to ornamental areas immediately after planting to depth of 50mm. Mulch depth to be reduced as appropriate to accommodate areas of low groundcover / herbaceous planting so that plants are not covered in mulch

10.3 Maintenance Operations for Ornamental Planting

Ornamental Planting

General maintenance regime of pruning, weeding and tidying required regularly to maintain health and vigour and pleasing amenity value.

Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.
Check plant material is firmly planted and firm in as required	All plants shall be checked and firmed up in the ground as necessary.
Monitoring and pruning dependent on species	All pruning shall be done in accordance with good horticultural practice.

	Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour. Prune shrubs/grasses/herbaceous plants as necessary to maintain planting bed structure and to prevent overhang onto footpaths or other hard landscaped areas. Pruning of flowering shrubs: • Winter flowering shrubs: Spring. • Shrubs flowering between March and July: Immediately after the flowering period. • Shrubs flowering between July and October: Back to old wood in winter.
Apply fertiliser	Apply a slow release fertilizer in March / April, spreading evenly
Top up bark mulch	Top up bark mulch to achieve a 50mm depth
Water to maintain healthy growth and successful establishment	During the period May to September in the first year after planting, all new planting will be watered on a monthly basis unless the ground is evidently already saturated. In subsequent years watering may need to be carried out during periods of drought.
Spot treat undesirable weed species as necessary	Creeping Thistle, Spear Thistle, Curled Dock, Broadleaved Dock and Common Ragwort will be spot treated with glyphosate during the growing season.
Monitor, gap-up, remove dead or diseased plants and replace failed plants	Ornamental planting shall achieve 90% successful establishment. Any dead/<u>dying/diseased</u> plants shall be removed and replaced within the first 5 years. Replacement planting to be carried out during the visit At the end of the growing season, check all ornamental plants and remove all dead foliage, dead wood, and broken or damaged branches and stems.
Remove any weed growth by spot treat or by hand	Encourage full coverage of ornamental planting area to minimise future maintenance operations by suppressing weed growth.

11 PROPOSED GRASSLAND

11.1 Amenity Grassland with Floristic Diversity

- 11.1.1 The grassland mixture outlined in the table below will be sown in locations as defined on drawings listed in Section 1.1.

Emorsgate EL1 Flowering Lawn Mixture (or equivalent) – Sown at 4g/m²

Wildflowers (20% of mix)		
%	Botanical name	Common name
1	Achillea millefolium	Yarrow
1	Anthyllis vulneraria	Kidney Vetch
0.4	Betonica officinalis	Betony
1.5	Centurea nigra	Common Knapweed
0.4	Galium album	Hedge Bedstraw
1.5	Galium verum	Lady's Bedstraw
0.4	Knautia arvensis	Field Scabious
0.5	Leontodon hispidus	Rough Hawkbit
1	Leucanthemum vulgare	Oxeye Daisy
1	Medicago lupulina	Black Medick
0.4	Plantago lanceolata	Ribwort Plantain
2	Plantago media	Hoary Plantain
2	Primula veris	Cowslip
0.4	Prunella vulgaris	Selfheal
0.4	Ranunculus acris	Meadow Buttercup
1.6	Ranunculus bulbosus	Bulbous Buttercup
0.4	Trifolium repens	White Clover
Grasses (80 % of mix)		
%	Botanical name	Common name
8	Agrostis capillaris	Common Bent
28	Cynosurus cristatus	Crested Dogstail
24	Festuca rubra	Red Fescue
4	Phleum bertolonii	Smaller Cat's-tail
16	Poa pratensis	Smooth-stalked Meadow-grass

11.2 Implementation of Amenity Grassland with Floristic Diversity

Implementation	Method
Good preparation for the seed mixes is essential to successful establishment.	
Vegetation Clearance	Before planting, ensure that the ground is free of vegetation and weeds; vegetation should be hand-cut if possible, this is generally the least damaging

Implementation	Method
	to wildlife, however, herbicides are usually more effective at reducing competition. Their use should be the minimum necessary for effective control.
Ground Preparation	Ground preparation will take place in September-October or March-April when ground temperature is above 14°C. Topsoil shall be cultivated to 150mm depth with a rotovator and then harrowed or raked to produce a medium tilth and rolled to leave a firm level surface.
Seeding	Seeding will take place in September-October or March-June when ground temperature is above 14°C. Sowing to be in accordance with suppliers recommendations. After sowing the surface will be lightly raked or harrowed to settle the seed in and rolled. People and livestock should be kept of the seeded areas until it has germinated.

11.3 Maintenance Operations for Amenity Grassland with Floristic Diversity

Amenity Grassland with Floristic Diversity	
Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.
Regular establishment cut (at least 3 times in the first year)	Cut regularly during the first two years to minimise annual weed growth, removing cuttings.
Regular maintenance cuts (Frequency determined by visual importance of area)	Exact number of subsequent maintenance visits for grass cutting to be determined by visual importance of area.
Spot treat undesirable weed species as necessary	Creeping Thistle, Spear Thistle, Curled Dock, Broadleaved Dock and Common Ragwort will be spot treated with glyphosate during the growing season.
Edge grass to define edge	Edge grass areas to leave neat and well defined at each grass cut
Water to maintain healthy growth and successful establishment	Newly seeded areas will be watered as necessary during the first 2-3 months to ensure germination and establishment. Once established watering may need to be carried out during periods of drought.
Resow Failed Areas	Reinstate grass areas as required ensuring seed matches existing in appearance and quality

11.4 Species Rich Neutral Grassland

11.4.1 The grassland mixture outlined in the table below will be sown in locations as defined on drawings listed in Section 1.1. The species chosen are suitable for a wide variety of soil types, perfect for pollinators, and grows year after year.

Emorsgate EM3 Special General Purpose Meadow Mixture (or equivalent) - Sown at 4g/m²

Wildflowers (20% of mix)		
%	Botanical name	Common name
0.4	<i>Agrimonia eupatoria</i>	Agrimony
0.4	<i>Anthyllis vulneraria</i>	Kidney Vetch
1.6	<i>Centaurea nigra</i>	Common Knapweed
0.6	<i>Centaurea scabiosa</i>	Greater Knapweed
0.1	<i>Chaerophyllum temulum</i>	Rough Chervil
0.4	<i>Cruciata laevipes</i>	Crosswort
1.2	<i>Daucus carota</i>	Wild Carrot
0.2	<i>Echium vulgare</i>	Viper's-bugloss
1.0	<i>Galium album</i>	Hedge Bedstraw
0.8	<i>Galium verum</i>	Lady's Bedstraw
0.1	<i>Geranium pratense</i>	Meadow Crane's-bill
1.0	<i>Knautia arvensis</i>	Field Scabious
0.2	<i>Lathyrus pratensis</i>	Meadow Vetchling
0.8	<i>Leucanthemum vulgare</i>	Oxeye Daisy
2.2	<i>Malva moschata</i>	Musk Mallow
0.6	<i>Medicago lupulina</i>	Black Medick
0.2	<i>Onobrychis viciifolia</i>	Sainfoin
0.2	<i>Origanum vulgare</i>	Wild Marjoram
2.2	<i>Plantago lanceolata</i>	Ribwort Plantain
0.4	<i>Plantago media</i>	Hoary Plantain
1.8	<i>Poterium sanguisorba</i> ssp <i>sanguisorba</i>	Salad Burnet
0.4	<i>Primula veris</i>	Cowslip
0.2	<i>Prunella vulgaris</i>	Selfheal
0.4	<i>Ranunculus acris</i>	Meadow Buttercup
1.0	<i>Rhinanthus minor</i>	Yellow Rattle
0.1	<i>Sanguisorba officinalis</i>	Great Burnet
1.0	<i>Silene dioica</i>	Red Campion

0.2	<i>Silene vulgaris</i>	Bladder Campion
0.1	<i>Taraxacum officinale</i>	Dandelion
0.2	<i>Vicia sativa</i> ssp. <i>segetalis</i>	Common Vetch
Grasses (80% of mix)		
%	Botanical name	Common name
8.0	<i>Agrostis capillaris</i>	Common Bent
28.0	<i>Cynosurus cristatus</i>	Crested Dogstail
24.0	<i>Festuca rubra</i>	Red Fescue
4.0	<i>Phleum bertolonii</i>	Smaller Cat's-tail
16.0	<i>Poa pratensis</i>	Smooth-stalked Meadow-grass

11.5 Implementation of Species Rich Grasslands

Implementation	Method
Good preparation for the seed mixes is essential to successful establishment.	
Vegetation Clearance	Before planting, ensure that the ground is free of vegetation and weeds; vegetation should be hand-cut if possible, this is generally the least damaging to wildlife, however, herbicides are usually more effective at reducing competition. Their use should be the minimum necessary for effective control.
Ground Preparation	Ground preparation will take place in September-October or March-April when ground temperature is above 14°C. Topsoil shall be cultivated to 300mm depth with a rotovator and then harrowed or raked to produce a medium tilth and rolled to leave a firm level surface.
Seeding	Seeding will take place in September-October or March-June when ground temperature is above 14°C. Sowing to be in accordance with suppliers recommendations. For species rich wet grassland in frequently/seasonably wet soils, sow when ground is at its driest to allow plants to mature enough to withstand flooding. After sowing the surface will be lightly raked or harrowed to settle the seed in and rolled. People and livestock should be kept of the seeded areas until it has germinated.

11.6 Maintenance Operations for Species Rich Grasslands

Species Rich Grassland

All operations shall be carried out using machinery appropriate to the task, cylinder, rotary or mulch mowers and when weather and ground conditions are suitable. Operations shall be suspended where conditions prevent the use of machinery without damage to the ground surface. Where operations are suspended due to unsuitable conditions additional maintenance visits may be required in order to maintain the sward within acceptable growth limits.

Inspection every three months is advised to check the growth of dominant species and ruderal species. Management of these areas may have to be adapted to allow for less dominant species to predominate.

No fertilisers will be used as this enriches the soil nutrients, allowing grasses to easily outcompete wildflowers. Similarly, the use of chemical pesticides will be avoided as wildflowers are more susceptible than grasses and weeds. Spot-treatment of noxious weeds will be allowed due to its localised nature.

Maintenance Operation	Detail
Inspection for Litter	Before work commences, all areas shall be inspected for litter, and all debris removed in accordance with the section detailed above.
Regular establishment cut (at least 3 times in the first year)	Cut regularly during the first year to minimise annual weed growth, removing cuttings. Most of the sown meadow species are perennial and will be slow to germinate and grow and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath which can be controlled by topping or mowing. In the first year (post establishment) topping or mowing will help to control this weed growth. It is important to cut back any annuals before they die back, set seed and collapse. A minimum of 3 cuts are advised in this period.
Regular maintenance cuts (Frequency determined by visual importance of area)	From year 2 onwards the grassland can be managed by mowing. The grassland should not be cut from May to August to give the sown species an opportunity to flower. Exact number of subsequent maintenance visits for grass cutting to be determined by visual importance of area. Within year 2, after flowering in August take a 'hay cut': cut back to approx. 40-70mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site. Mow the re-growth through to late autumn/winter to approx. 50mm and again in spring if needed. In subsequent years, frequently/seasonably wet grassland is to be cut once every two years in rotation, mid to late

	summer to give the plants an opportunity to flower and seed. Avoid cutting areas of reeds and sedges if present.
Spot treat undesirable weed species as necessary	Creeping Thistle, Spear Thistle, Curled Dock, Broadleaved Dock and Common Ragwort will be spot treated with glyphosate during the growing season.
Water to maintain healthy growth and successful establishment	Newly seeded areas will be watered as necessary during the first 2-3 months to ensure germination and establishment. Once established watering may need to be carried out during periods of drought.
Resow Failed Areas	Any patches of grassland which have not successfully germinated 6-8 weeks after sowing will be resown. This may by necessity be in the subsequent seeding season. Reinstate species rich grassland areas as required ensuring seed matches existing in species composition and quality. Establishment on sites prone to flooding may be patchy and take several years to become fully colonised, re-seed when and where appropriate.

12 MONITORING AND MANAGEMENT PLAN REVIEW

Monitoring

- 12.1.1 Monitoring will take place to ensure reasonable establishment of the newly planted areas and to validate the BNG, checking the anticipated biodiversity net gain is achieved. Walkover surveys of the Site will be undertaken between April and June annually in the first 5 years and then every 5 years thereafter post-construction until year 30. The surveys will involve an inspection of the grasslands, scrub, hedgerows, or individual trees to ensure that they are being managed accordingly and achieve their desired BNG outcomes.
- 12.1.2 Within the initial 5-year period any areas of newly seeded grasslands, scrub, hedgerows, or individual trees found to be damaged, diseased, or dying will be replaced with like for like planting/seeding within the next suitable planting period.
- 12.1.3 The replacement with like for like planting/seeding may be revised if the species of concern are regarded as unsuccessful or commercially unavailable. If such an instance does occur, the species will be replaced with more successful (consultation with a suitably qualified ecologist may be required to determine a suitable replacement species) or readily available species.

Management Plan Review

- 12.1.4 It is proposed that the Landscape works will be reviewed at the end of the first 12 months, annually in the first 5 years, then every 5 years thereafter post-construction ensuring it is still fit for purpose and ensuring the BNG commitments are delivered for the 30-year operational life of the Proposed Development.

- 12.1.5 It is anticipated that following the review, any problems or changes that are impacting on the landscape will be accommodated with the agreement of the Local Authority (Section 106) or Responsible Body (Conservation Covenant).

Appendix A: Annual Maintenance Schedule

Maintenance Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
General Maintenance												
Litter Removal												
Tidy up areas removing rubbish, litter etc. from planted, grass and hard surface areas	•	•	•	•	•	•	•	•	•	•	•	•
Review of Management Plan												
Monitoring and reporting by Landscape Manager	•	•	•	•	•	•	•	•	•	•	•	•
Annual review of Management Plan												•
Retained Landscape												
Retained Vegetation												
Visual inspection of all retained trees and hedgerows and recommendations for any remedial works.	Regular inspection by qualified Arborist to advise on any essential works such as limb reduction, removal or crown reduction. Arborist to advise on timing of inspection and frequency of subsequent inspections.											
Trees works as directed to BS.53998, including crown reduction, shaping, lifting and thinning	•	•								•	•	•
Existing hedgerow trimmed to desired height	•	•								•	•	•
Individual Tree Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material	•	•	•	•	•	•	•	•	•	•	•	•
Monitoring and pruning/remedial surgery (Remove any branches that overhang footpaths, obscure visibility splays, or prevent access for grass cutting)						•	•	•				
Monitor, adjust and replace stakes, ties, guards/fence		•		•		•		•		•		•
Check plant material is firmly planted and firm in as required	•	•	•	•	•	•	•	•	•	•	•	•
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
1m diameter weed free area to be maintained around each tree				•		•			•			•
Remove any weed growth from shelter guards				•		•			•			•

Maintenance Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Apply fertilizer				•								
Replacement tree planting	•	•									•	•
Remove stakes/guys when ready	•	•	•	•	•	•	•	•	•	•	•	•
Tree works including crown reducing, crown lifting, crown thinning	•	•									•	•
Woodland Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material	•	•	•	•	•	•	•	•	•	•	•	•
Monitoring and pruning/remedial surgery						•	•	•				
Monitor, adjust and replace stakes, ties, guards/fence		•		•		•		•		•		•
Check plant material is firmly planted and firm in as required	•	•	•	•	•	•	•	•	•	•	•	•
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
1m diameter weed free area to be maintained around each plant				•		•			•			•
Spot treat undesirable weed species as necessary				•		•		•				
Remove any weed growth from shelter guards				•		•			•			•
Replacement whip/transplant planting	•	•									•	•
Apply fertilizer				•								
Remove stakes/guys when ready	•	•	•	•	•	•	•	•	•	•	•	•
Tree works including crown reducing, crown lifting, crown thinning	•	•								•	•	•
Woodland coppicing/thinning	•	•									•	•
Maintain grass sward within woodland areas in accordance with species rich/wildflower grassland maintenance requirements	Refer to Species Rich Grassland Maintenance Activity											
Scrub Planting												

Maintenance Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monitor and treat pests and diseases including removal of dead, dying and diseased material	•	•	•	•	•	•	•	•	•	•	•	•
Monitoring and pruning/remedial surgery						•	•	•				
Monitor, adjust and replace stakes, ties, guards/fence		•		•		•		•		•		•
Check plant material is firmly planted and firm in as required	•	•	•	•	•	•	•	•	•	•	•	•
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
1m diameter weed free area to be maintained around each plant				•		•			•			•
Spot treat undesirable weed species as necessary				•		•		•				
Remove any weed growth from shelter guards				•		•			•			•
Replacement whip/transplant planting	•	•									•	•
Apply fertilizer				•								
Remove stakes/guys when ready	•	•	•	•	•	•	•	•	•	•	•	•
Tree works including crown reducing, crown lifting, crown thinning	•	•								•	•	•
Maintain grass sward within woodland areas in accordance with species rich/wildflower grassland maintenance requirements	Refer to Species Rich Grassland Maintenance Activity											
Native Hedge Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material	•	•	•	•	•	•	•	•	•	•	•	•
Monitoring and pruning/remedial surgery						•	•	•				
Monitor, adjust and replace stakes, ties, guards/fence		•		•		•		•		•		•
Check plant material is firmly planted and firm in as required	•	•	•	•	•	•	•	•	•	•	•	•

Maintenance Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
1m diameter weed free area to be maintained around each plant				•		•			•			•
Spot treat undesirable weed species as necessary				•		•		•				
Remove any weed growth from shelter guards				•		•			•			•
Replacement whip/transplant planting	•	•									•	•
Remove stakes/guys when ready	•	•	•	•	•	•	•	•	•	•	•	•
Clipping of Hedgerow					•					•		
Ornamental Planting												
Check plant material is firmly planted and firm in as required		•		•		•		•		•		•
Monitoring and pruning dependent on species				•		•		•		•		
Apply fertilizer				•								
Top up bark mulch				•						•		
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
Spot treat undesirable weed species as necessary				•		•		•				
Monitor, gap-up, remove dead or diseased plants and replace failed plants		•		•		•		•		•		•
Remove any weed growth by spot treat or by hand		•		•		•		•		•		•
Prune ornamental hedgerow to ensure desired height is maintained					•				•			
Amenity Grassland with Floristic Diversity												
Regular establishment cut (at least 3 times in the first year)			•	•	•	•	•	•	•	•	•	
Regular maintenance cuts (Frequency determined by visual importance of area)			•	•	•	•	•	•	•			
Spot treat undesirable weed species as necessary			•	•	•	•	•	•	•			

Maintenance Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Shape grass edge as necessary with half-moon spade					•				•			
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
Resow Failed Areas			•	•					•			
Species Rich Neutral Grassland												
Regular establishment cut (at least 3 times in the first year)				•	•	•	•	•	•			
Regular maintenance cuts							•	•				
Quarterly inspection of dominant/ruderal species			•			•			•			•
Spot treat undesirable weed species as necessary				•	•	•	•	•	•			
Water to maintain healthy growth and successful establishment				•	•	•	•	•	•			
Resow Failed Areas			•	•					•			

Appendix B: 30 Year Landscape Maintenance Programme

Refer to Appendix A for timing/frequency of maintenance operations

Year 1 is Defects Rectification Period

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
General Maintenance												
Litter Removal												
Tidy up areas removing rubbish, litter etc. from planted, grass and hard surface areas	•	•	•	•	•	•	•	•	•	•	•	•
Review of Management												
Monitoring and reporting by Landscape Manager	•	•	•	•	•	•	•	•	•	•	•	•
Review of management plan	•	•	•	•	•					•	•	•
Retained Landscape												
Retained Vegetation												
Visual inspection of all retained trees and hedgerows and recommendations for any remedial works.	•	Regular inspection by qualified Arborist to advise on any essential works such as limb reduction, removal or crown reduction. Arborist to advise on timing of inspection and frequency of subsequent inspections.										
Trees works as directed to BS.53998, including crown reduction, shaping, lifting and thinning	•											
Existing hedgerow trimmed to desired height	•			•			•			•	Every 3 rd year	Every 3 rd year
Individual Tree Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material			•			•			•		Every 3 rd year	Every 3 rd year
Monitoring and pruning/ remedial surgery (Remove any branches that overhang footpaths, obscure visibility splays, or prevent access for grass cutting)			•			•			•		Every 3 rd year	Every 3 rd year

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
Monitor, adjust and replace stakes, ties, guards/fence	•	•	•	•								
Check plant material is firmly planted and firm in as required	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•	•	•	•	•							
1m diameter weed free area to be maintained around each tree	•	•	•	•	•							
Remove any weed growth from shelter guards	•	•	•	•	•							
Apply fertilizer	•	•	•									
Replacement tree planting	•	•	•	•	•							
Remove stakes/guys/guards					•							
Tree works including crown reducing, crown lifting, crown thinning					•					•	Every 5 th year	Every 5 th year
Woodland Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material			•			•			•		Every 3 rd year	Every 3 rd year
Monitoring and pruning/ remedial surgery (Remove any branches that overhang footpaths, obscure visibility splays, or prevent access for grass cutting)			•			•			•		Every 3 rd year	Every 3 rd year
Monitor, adjust and replace stakes, ties, guards/fence	•	•	•	•								
Check plant material is firmly planted and firm in as required	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•	•	•	•	•							
1m diameter weed free area to be maintained around each plant	•	•	•	•	•							
Spot treat undesirable weed species as necessary	•	•	•	•	•	•	•	•	•	•	•	•

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
Remove any weed growth from shelter guards	•	•	•	•	•							
Replacement whip/transplant planting	•	•	•	•	•							
Apply fertilizer	•	•	•									
Remove stakes/guards					•							
Woodland coppicing/thinning					•					•	Every 5 th year	Every 5 th year
Maintain grass sward within thicket/woodland areas in accordance with species rich/wildflower grassland maintenance requirements	•	•	•	•	•	•	•	•	•	•	•	•
Scrub Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material			•			•			•		Every 3 rd year	Every 3 rd year
Monitoring and pruning/ remedial surgery (Remove any branches that overhang footpaths, obscure visibility splays, or prevent access for grass cutting)			•			•			•		Every 3 rd year	Every 3 rd year
Monitor, adjust and replace stakes, ties, guards/fence	•	•	•	•								
Check plant material is firmly planted and firm in as required	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•	•	•	•	•							
1m diameter weed free area to be maintained around each plant	•	•	•	•	•							
Spot treat undesirable weed species as necessary	•	•	•	•	•	•	•	•	•	•	•	•
Remove any weed growth from shelter guards	•	•	•	•	•							
Replacement whip/transplant planting	•	•	•	•	•							
Apply fertilizer	•	•	•									

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
Remove stakes/guards					•							
Maintain grass sward within thicket/woodland areas in accordance with species rich/wildflower grassland maintenance requirements	•	•	•	•	•	•	•	•	•	•	•	•
Native Hedge Planting												
Monitor and treat pests and diseases including removal of dead, dying and diseased material			•			•			•		Every 3 rd year	Every 3 rd year
Monitoring and pruning/ remedial surgery			•			•			•		Every 3 rd year	Every 3 rd year
Monitor, adjust and replace stakes, ties, guards/fence	•	•	•	•								
Check plant material is firmly planted and firm in as required	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•	•	•	•	•							
1m diameter weed free area to be maintained around each plant	•	•	•	•	•							
Spot treat undesirable weed species as necessary	•	•	•	•	•	•	•	•	•	•	•	•
Remove any weed growth from shelter guards	•	•	•	•	•							
Replacement whip/transplant planting	•	•	•	•	•							
Remove stakes/guys when ready					•							
Cut hedgerow alternating between two sides and top to desired height and width					•	•	•	•	•	•	•	•
Ornamental Planting												
Check plant material is firmly planted and firm in as required	•	•	•									

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
Monitoring and pruning dependent on species	•	•	•	•	•	•	•	•	•	•	•	•
Apply fertilizer	•	•	•									
Top up bark mulch	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•	•	•	•	•							
Spot treat undesirable weed species as necessary	•	•	•	•	•	•	•	•	•	•	•	•
Monitor, gap-up, remove dead or diseased plants and replace failed plants	•	•	•	•	•							
Remove any weed growth by spot treat or by hand	•	•	•	•	•	•	•	•	•	•	•	•
Prune ornamental hedgerow to ensure desired height is maintained	•	•	•	•	•	•	•	•	•	•	•	•
Amenity Grassland with Floristic Diversity												
Regular establishment cut (at least 3 times in the first year)	•											
Regular maintenance cuts (Frequency determined by visual importance of area)		•	•	•	•	•	•	•	•	•	•	•
Spot treat undesirable weed species as necessary		•	•	•	•	•	•	•	•	•	•	•
Shape grass edge as necessary with half-moon spade	•	•	•	•	•							
Water to maintain healthy growth and successful establishment	•											
Resow Failed Areas	•	•	•	•	•							
Species Rich Neutral Grassland												
Regular establishment cut (at least 3 times in the first year)	•											
Regular maintenance cuts (Frequency determined by visual importance of area)		•	•	•	•	•	•	•	•	•	•	•

Maintenance Operation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-20	Year 21-30
Quarterly inspection of dominant/ruderal species	•	•	•	•	•	•	•	•	•	•	•	•
Spot treat undesirable weed species as necessary	•	•	•	•	•	•	•	•	•	•	•	•
Water to maintain healthy growth and successful establishment	•											
Resow Failed Areas	•	•	•	•	•							