



**East Leake Parish Council**

**Proposed New Car Park, Costock Road, East Leake**  
**LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN**

October 2023

**Robinson Chartered Landscape Architecture**

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Table 1: 30 Year Management Works Programme

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Appendix A: Drawing 9312-SL-01A Soft Landscape Proposals

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## **1.0 INTRODUCTION**

- 1.1 The following Landscape & Ecological Management Plan has been prepared by Robinson CLA on behalf of the client, East Leake Parish Council. This document sets out the habitat protection, creation and management approaches for the landscape proposals within the proposed car park development off Costock Road, East Leake.
- 1.2 This document should be read in conjunction with the Phase 1 Survey and Biodiversity Enhancement Reports prepared by Wildlife Consultants Ltd, and the landscape proposals designed by Robinson CLA.
- 1.3 For reference, the soft landscape proposals are shown in **Appendix A**.

### **Background**

- 1.4 This document has been prepared to discharge planning condition 7 in respect of planning application 23/00044/VAR.
- 1.5 This states:  
*“Prior to the car park progressing above sub-base level a Landscape and Ecological Management Plan (LEMP) shall be submitted to and approved in writing by the Borough Council. The Plan shall include details of how the development will deliver the enhancements having regard to Parts D and E of the Supplementary Reports submitted under planning reference 21/01583/FUL- Biodiversity Enhancement (Wildlife Consultants Limited- 5 July 2021) and Section H of the Protected Species Survey (Wildlife Consultants Limited- 25 February 2021). The approved biodiversity enhancements shall be implemented prior to the car park being brought into use and retained for the lifetime of the development.”*

### **Legislation & Policy**

- 1.6 All relevant EU and UK nature conservation law will be adhered to in relation to the protection of ecological features and ecological enhancement. This includes the protection afforded to nesting birds under the Wildlife and Countryside Act 1981 (as amended) and with reference to the protection of great crested newts and bats and their roosts under the Conservation of Habitats and Species Regulations 2010 (as amended). Regard has also been given to the Local Biodiversity Action Plan (LBAP) and Habitats of Principle Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

### **Health & Safety**

- 1.7 Care will be undertaken throughout the design process and during construction at all stages to consider the health and safety aspects of the proposals.
- 1.8 The site may contain some potentially hazardous features such as steep embankments, overhanging trees and also potentially hazardous operations, including tree works, maintenance works near or on highways, works involving the use of cutting machinery and potentially hazardous chemical agents, works to steep slopes, works near buried services and overhead services and frequently a combination of these.
- 1.9 The Landscape Management Company will check for below and above ground services, including land drainage, in the vicinity, and give notice if they may be affected and obtain

instructions before proceeding. The Landscape Management Company will comply with Arboriculture and Forestry Advisory Group Safety leaflets.

- 1.10 The scheme should be implemented by competent landscape managers and operatives, who are responsible for the application of best practice standards and all relevant health and safety procedures, protection of the environment, avoidance of pollution and protection of protected species and habitats. The management items set out in this document in no way remove their responsibilities to current, or any future, statutory and best practice procedures or obligations.
- 1.11 Care must be taken during the management and the design of that management to assess, and where practicable reduce or eliminate risks. To this end the Management Company will periodically carry out a Health and Safety Audit for any public open space. This audit will review health and safety considerations and make recommendations on works necessary to maintain the public open space in a safe condition. Consideration in particular should be given to the growth of newly planted trees with a future potential to overhang adjacent public highways, which will require arboricultural assessments as and when appropriate. These will be worked into the landscape management as it evolves.

## **2.0 VISION, AIMS & OBJECTIVES**

### **Vision**

- 2.1 The landscape design strategy has been prepared in the context of a thorough understanding of the site landscape and its context within the framework of relevant policy and design guidance. The landscape design embraces broader Green Infrastructure (GI) and sustainable development principles and seeks to maximise biodiversity wherever practicable. Green infrastructure has been devised to integrate the parking facility with the wider landscape and ecological context.

The **Vision** for the landscape design strategy is to:

**Increase the biodiversity and landscape value of the site over the long-term**

### **Aims & Objectives**

- 2.2 The Vision consists of four main Aims, with each Aim being sub-divided into its Objectives. The **Aims** are outlined below, with **Objectives** described in detail on the following pages.

#### **Aim 1: Maintain and enhance the biodiversity value of the site**

Objective 1: Protect and maintain retained habitats and protected species within the site;

Objective 2: Create a matrix of complimentary new habitats within a GI framework. To maximise the provision and establishment of native species and species of local provenance that are appropriate to the immediate surrounds and local area.

#### **Aim 2: Balance development amenity with wildlife**

Objective 3: Provide a safe and pleasant landscape setting for adjacent recreational facility visitors and to provide a high quality landscape structure that enhances the appearance and character of the site and its environs. To create new habitat structures and foraging/sheltering opportunities for invertebrates, birds and small mammals through new native planting.

#### **Aim 3: Manage the site for biodiversity in the long-term**

Objective 4: Ensure the matrix of new and existing habitats establish and are suitably maintained to ensure long-term biodiversity gain. To provide new roosting/nesting opportunities for bat and bird species.

#### **Aim 4: Monitor the site and review the Plan**

Objective 5: Provide a framework of monitoring and review periods.

### **3.0 HABITATS & PROTECTED SPECIES TO BE RETAINED & PROTECTED**

#### **Objective 1: Protect and maintain retained habitats and protected species within the site.**

- 3.1 Existing habitats will be retained where feasible within the development, and will be protected through the enabling and construction phases.

#### **Pre-construction Mitigation Measures**

- 3.2 The following outlines the ecological mitigation measures to be undertaken ahead of commencing on site in order to minimise impact from construction works.

#### Existing Vegetation

- 3.3 Scattered trees and sections of scrub along embankments to the periphery of the site are to be retained within the proposed scheme. Retained trees will be left unmanaged unless otherwise dictated for reasons of public safety or to benefit the woodland structure or other adjacent or associated habitats or species.
- 3.4 During construction, any sections of retained hedgerows will be protected in accordance with BS5837:2012 and trees will be protected by fencing erected according to their calculated root protection area (RPA). No removal of woody vegetation will take place during the bird nesting season (**March to September** inclusive) unless a thorough survey by an appropriately experienced ecologist first confirms that no active nests are present. Any work will accord with the Wildlife and Countryside Act 1981 (as amended).
- 3.5 Trees will be inspected for signs of stress, disease or damage and appropriate remedial action taken. Arisings from any tree management activity will, where appropriate, be retained on site in piles to create wood habitat to maximise invertebrate and bryophyte biodiversity. Where it accords with health and safety inspection, standing dead wood will be left in-situ to provide additional dead wood habitats.

#### **Mitigation Measures during Construction**

#### Existing Hedgerows and Trees

- 3.6 Protective fencing will be maintained around the retained trees and hedgerows throughout the site. Regular checks will be undertaken throughout the enabling and construction phase to ensure these are maintained.
- 3.7 Any trees that require felling will be in accordance with an Arboricultural Method Statement if available or under the supervision of a qualified arborist/ tree surgeon and shall be assessed for bat roosts by a suitably qualified Ecologist.
- 3.8 Any hedgerow removal should be checked and overseen by a suitably qualified Ecologist, and will be undertaken with care in stages using hand tools.
- 3.9 It is recommended that any removal of woody vegetation including hedgerow sections and trees should occur outside of the bird breeding season to minimise the risk of disturbance to breeding birds.

- 3.10 If this is not possible, such vegetation must be checked prior to removal by a suitably experienced ecologist to confirm the absence of active nests.
- 3.11 If any nesting birds are present, the nest and a 5m buffer surrounding it must be retained undisturbed until the birds have fledged. If works are undertaken outside of the bird breeding period, such restrictions do not apply.

#### Existing Grassland

- 3.12 During the construction phase, existing retained grassland will be kept short through mowing or grazing to prevent it becoming colonised by reptiles.
- 3.13 Appropriate working methods comprise directional strimming of tall ruderal and grassland habitats prior to site clearance works, and the subsequent maintenance of on-site habitats with a short sward throughout works to minimise the potential for terrestrial fauna being harmed.

#### Site Storage

- 3.14 Care should be taken to store building materials off the ground, for example on pallets, to avoid creating temporary refugia.

#### Lighting

- 3.15 No construction lighting will be permitted on retained hedgerows to protect nocturnal animals such as bats. Alternatively, construction will be restricted to daylight hours, finishing at least 30 minutes before sunset and commencing at least 30 minutes after sunrise during the main bat activity season (**April to October** inclusive).

#### Excavations

- 3.16 Trenches or large excavations will be covered overnight to prevent wildlife falling in and failing to escape, or a strategically placed plank will provide a means of escape. Any large bore pipes will be capped at the end of the day to reduce the potential for wildlife to enter and become trapped.

#### General Ecological Recommendations

- 3.17 All works to cease immediately if the presence of protected species is identified at any time during the works and further advice sought from Natural England or a licensed ecologist.
- 3.18 All vegetation management / clearance works to be undertaken outside the bird nesting season – current advice: September – March.
- 3.19 If works are to be undertaken in the bird nesting season (April – August) a further survey should be undertaken immediately prior to works commencing.



## **4.0 LANDSCAPE & ECOLOGICAL SPECIFICATION**

### **Objective 2: Create a matrix of complimentary new habitats within a GI Framework.**

- 4.1 The Plan will create a matrix of new and existing habitats to encourage the establishment and movement of wildlife.
- 4.2 The following section outlines the specification and implementation, with **Section 5** outlining the works programme and management regime.

#### **General**

- 4.3 Tree and hedgerow planting are to be delivered and planted in accordance with HTA Standard 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part III, paragraphs 6.2 to 6.6 and should also accord with the planting plans. All plants should be stored only when necessary in accordance with the HTA's 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part I, Part II and Part III, paragraphs 1.3.3 to 1.3.6, 3.0, and 4.0.
- 4.4 Planting is to remain materially undamaged, sturdy, healthy and vigorous, planted upright or well balanced with best side to front. Trees are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site. All planting is to be true to name, of UK provenance and free from pests, diseases, discoloration, weeds, fungus and physiological disorders.
- 4.5 All trees should take into consideration the recommended minimum distances to foundations as set out in Chapter 4.2 of the NHBC Standards. Planting should accord with these standards unless checked and verified by the project engineer. For further species calculations refer to Chapter 4.2 of the NHBC Standards, and for species not included use a mature height of 2/3 the specified height in A. Mitchell's 'Trees of Britain and Northern Europe'.
- 4.6 All works are to be undertaken with due diligence being sure to leave the works in a clean and tidy condition at completion and after any maintenance operations. Protect areas affected by planting operations using boards/ tarpaulins and do not place excavated or imported material directly on adjacent grassed areas.
- 4.7 Bare root deciduous planting shall be carried out from late October to late March; conifers and evergreens either September/October or April/May, herbaceous plants [including aquatic and marginal] September/October or March/April. Container grown plants at any time of year if ground and weather conditions are favourable. Bare root deciduous planting to be carried out only during suitable ground and weather conditions. Planting shall not be carried out in waterlogged or frozen ground.
- 4.8 All plants to be protected from wind exposure at all times. All plants to be soaked in water for several hours prior to planting and to be well watered in.
- 4.9 After planting water plants to ensure that the full depth of topsoil is wetted. Apply water evenly and without damaging or displacing plants or soil. Continue to water as necessary to ensure the successful establishment and continued thriving of planting. All new plant material to receive enough water to ensure healthy establishment.

- 4.10 If water supplies are restricted or likely to become restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.
- 4.11 Contractor shall maintain existing levels around the base of existing trees and shall undertake all planting works occurring within tree protection zones in accordance with BS5837:2012.

**Native Tree Planting**

- 4.12 New trees should be planted between October and March, avoiding periods of inundation or prolonged ground frost. This will accord with BS 8545:2014. Trees are to be mulched using wood chippings or bark to establish a 1m diameter around the tree stem or use proprietary mulch matting.
- 4.13 Trees will also be planted to form ‘bat hop-overs’ linear vegetative features, i.e. where local landscape juxtaposition of hedgerows and tree boundaries, are punctured by roads and paths. These will promote habitat connectivity and specifically ensure that bat navigational features remain intact and that bats cross the road / path at a safe height. Trees will be planted either side of the road and / or path with overhanging branches that will try to create a continuous canopy over the gap as the planting matures.
- 4.14 Within the wider site, new native tree planting will comprise the following species:

<b>Native Tree Species</b>	<b>Stem</b>	<b>Size</b>	<b>Root</b>
<i>Alnus glutinosa (Common Alder)</i>	Clear-stem	10-12cm	RB
<i>Prunus padus (Bird Cherry)</i>	Clear-stem	10-12cm	RB
<i>Sorbus aucuparia (Rowan)</i>	Clear-stem	10-12cm	RB

- 4.15 New specimen street frontage trees will comprise the following species:

<b>Street Frontage Specimen Tree</b>	<b>Stem</b>	<b>Size</b>	<b>Root</b>
<i>Acer campestre ‘Elegant’ (Field Maple cultivar)</i>	Clear-stem	12-14cm	RB

- 4.16 The Field Maples (*Acer campestre ‘Elegant’*) will be planted within a meadow verge adjacent the Costock Road boundary, and will serve as a threshold element to the recreational ground’s parking facilities.
- 4.17 Field Maple is attractive to aphids and their predators, including many species of birds and insects. The flowers provide nectar and pollen sources for bees and birds, and its fruit provide food for small mammals.

**Native Species Rich Hedgerow Planting**

- 4.18 Hedgerows are identified as a Habitat of Principle Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- 4.19 New hedgerows will be created to provide site boundary enclosure and to be maintained at 1.8m in height.
- 4.20 New hedgerows will planted during the planting season (October to March inclusive) and will comprise mixed, native species planting at a density of 5 plants per linear metre, with plants

arranged in an off-set double staggered row (DSR) in species groups of 5 to 11. All new hedgerow planting will be provided with 75mm bark mulch. Individual spiral guards and bamboo canes will be required to prevent damage to saplings by browsing rabbits.

4.21 The standard hedgerow planting mix will comprise the following species:

Species	Density	Size	Root	%
<i>Acer campestre</i> (Field Maple)	5/Lm DSR	60-90cm	BR	10
<i>Cornus sanguinea</i> (Dogwood)	5/Lm DSR	40-60cm	BR	5
<i>Corylus avellana</i> (Hazel)	5/Lm DSR	60-90cm	BR	20
<i>Crataegus monogyna</i> (Hawthorn)	5/Lm DSR	60-90cm	BR	45
<i>Euonymus europaeus</i> (Spindle)	5/Lm DSR	40-60cm	BR	5
<i>Ilex aquifolium</i> (Holly)	5/Lm DSR	5L	C	5
<i>Rosa canina</i> (Dog Rose)	5/Lm DSR	40-60cm	BR	5
<i>Viburnum opulus</i> (Guelder Rose)	5/Lm DSR	40-60cm	BR	5

### Grassland

4.22 New short sward amenity grassland areas will be established using a suitable species-rich native flowering grassland mix such as **Emorsgate EL1 – Flowering Lawn Mixture**, sown at 4g/m<sup>2</sup> as per the manufacturer's instructions.

%	Latin name	Common name
4	<i>Galium verum</i>	(Lady's Bedstraw)
0.5	<i>Leontodon hispidus</i>	(Rough Hawkbit)
1	<i>Leucanthemum vulgare</i>	(Oxeye Daisy - (Moon Daisy))
3.7	<i>Lotus corniculatus</i>	(Birdsfoot Trefoil)
3	<i>Primula veris</i>	(Cowslip)
4	<i>Prunella vulgaris</i>	(Selfheal)
3.5	<i>Ranunculus acris</i>	(Meadow Buttercup)
0.3	<i>Trifolium pratense</i>	(Wild Red Clover)
8	<i>Agrostis capillaris</i>	(Common Bent)
40	<i>Cynosurus cristatus</i>	(Crested Dogtail)
28	<i>Festuca rubra</i>	(Red Fescue)
4	<i>Phleum bertolonii</i>	(Smaller Cat's-tail)

4.23 Only areas disturbed through landscape works will be seeded. This will include areas within incidental greenspaces and verges.

4.24 Areas to be sown will be first rotovated and raked or harrowed to produce a medium fine, firm tilth. Seed will be sown in the autumn or spring, selecting a time when the soil is moist and can be worked.

4.25 The above seed mix includes many perennial species that can be slow to germinate and grow. Ground cover will therefore likely take longer to develop than conventional lawn sowings and may take 12-18 months to knit together as turf. Newly seeded areas will therefore be protected to prevent seedling destruction by pedestrians.

### **Existing Grassland Undisturbed During the Construction Process**

- 4.26 Areas undisturbed during the construction process (and hence will not be seeded) will be created through the cutting management regime.

### **Bulb Planting**

- 4.27 Areas of bulb planting are to be included within areas of amenity grassland. Planting will take place from late summer through to autumn. Topsize bulbs should be planted 300mm apart, planted in random swathes in the areas shown, at three times their depth.
- 4.28 Planting will comprise the following species:

#### **Species**

*Narcissus obvallaris*

To be grade 12/+ and planted at 30/m<sup>2</sup> densities.

### **Bird and Bat Boxes**

- 4.29 Bird and bat boxes will be installed within existing mature vegetation located both within the site boundaries and within land under the applicant's ownership directly north of the site.
- 4.30 The bat boxes will be installed in accordance with standard best practice, such that the boxes are positioned at least 4m above the ground, with the entrances to the boxes facing south-west to south-east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential roost sites. This measure will provide increased roosting opportunities across the site over the existing situation.
- 4.31 Bird boxes will also be erected using a variety of nest box types to provide new suitable nesting opportunities for a range of birds and potentially encourage new bird species into the site. The bird boxes will be installed in accordance with standard best practice, such that the boxes are positioned generally around 1-3m above the ground, with the entrances to the boxes facing between north and east. The entrances to the boxes are to be free of obstacles such that there is a clean and clear flight path to the new potential nesting sites.
- 4.32 The following boxes will be erected as shown within Appendix B;
- 6 x Bat Boxes suitable for trees using a mix of the following types;
- 2F Schwegler Bat Box (General Purpose)
  - Double chamber bat box
  - 1FD Schwegler Bat Box
  - Improved Cavity Bat Box

<https://www.nhbs.com/4/bat-boxes-for-trees>

6 x Bird Boxes adapted for tree installation using a mix of the following types;

- Lodge nest box open-front
- Brushwood tree nester
- Apex starling nestbox
- Artisan Bird Nester

<https://www.rspb.org.uk/>

1 x Barn Owl Box; eg specification as Barn Owl Trust website

<https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-nestboxes/>

### **Barn Owl Box**

- 4.33 A free-standing pole-mounted barn owl box will be erected in a location as shown within Appendix B (*denoted by blue circle with the number 1 coloured red*) in accordance with the guidelines provided by the Barn Owl Trust. The installation is intended to create a suitable habitat for barn owls, facilitating their nesting and conservation efforts.
- 4.34 The barn owl box shall be erected on a free-standing pole with a minimum height of 4 meters above ground level. The pole should be sturdy and securely anchored to ensure stability and safety.
- 4.35 The barn owl box shall be east-facing, with the box opening oriented towards the permanent grassland. This specific orientation is crucial to provide the optimal environmental conditions for barn owls, enhancing their hunting and nesting capabilities.
- 4.36 The design of the barn owl box shall adhere to the specifications provided by the Barn Owl Trust. The design is essential to ensure that the box is suitable for barn owls, taking into consideration their size, nesting habits, and conservation requirements. The relevant authority or expert in barn owl conservation must approve any deviation from the approved design.
- 4.37 The box shall be constructed from durable and weather-resistant materials, capable of withstanding the elements and providing a safe and comfortable environment for barn owls.
- 4.38 Qualified and experienced professionals who are familiar with the Barn Owl Trust guidelines and best practices shall carry out the installation of the barn owl box. It is essential to ensure that the box is securely mounted, allowing for long-term use by barn owls.
- 4.39 Regular maintenance of the box shall be conducted to ensure it remains in good condition and remains attractive to barn owls. Maintenance activities may include cleaning, repairing, and inspecting the box as recommended by the Barn Owl Trust.
- 4.40 Adherence to the Barn Owl Trust's maintenance guidelines is essential to ensure the box remains in good condition for its intended purpose.
- 4.41 No artificial lighting is to be used near or directed towards the bird, owl and bat boxes.

### **Objective 3: Provide a safe and pleasant landscape setting for adjacent recreational facility visitors**

- 4.42 Objective 3 focuses on establishing a landscape environment that prioritises the safety and visual appeal of car park users while complementing the adjacent recreational and leisure facilities. This entails the integration of visually appealing meadow grassland areas, the placement of seasonal specimen trees along the roadside verge, the incorporation of hedgerow boundary features with tree plantings, and the introduction of drifts of spring bulbs.
- 4.43 These elements collectively enhance the site's aesthetics, contribute to ecological diversity, provide visual interest through varying seasons, while fostering biodiversity and providing a high quality landscape structure that enhances the appearance and character of the site and its environs. The future management of the scheme should seek to maintain a secure and

aesthetically pleasing environment for car park users, enhancing their experience and integration with the adjacent recreational and leisure amenities.

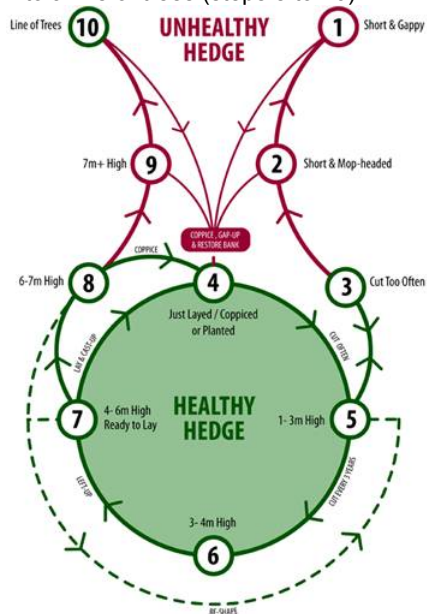
### **Fencing and Gates**

- 4.44 Fencing to the site boundaries will take the form of post and wire mesh fencing which will serve as the supporting central fenceline to new native hedgerow planting.
- 4.45 Lockable steel gates will be provided at the pedestrian and vehicular access points from off Costock Road, as well as for maintenance access to the field north of the site.
- 4.46 Set out and erect fencing following straight lines or smoothly flowing curves. The tops of posts are to follow the profile of the ground. Posts are to be erected and set rigid, plumb and to specified depth, or greater where necessary to ensure adequate support. All components are to be securely fixed.
- 4.47 Ensure all fencing and gates are secure, undamaged and in a good state of repair. Should any part of a fence or gate be deemed below standard obtain guidance and/ or repair or replace as required.
- 4.48 Set out and erect gates to ensure that they are erected and set rigid, plumb and to specified depth, or greater where necessary to ensure adequate support. Tighten all fixings before handover and ensure that all hinges, latches and closers are suitably adjusted so as to provide smooth operation. Lubricate where necessary.



base. Hedgerows will be cut along one side annually, alternating between the two sides of the hedgerow each year.

In the long term, hedgerows will be taken through a Hedgerow Management Cycle (HMC)<sup>1</sup>. The ten steps of the HMC are shown below. The cycle shows a healthy green core and two unhealthy red offshoots. The aim should be to keep the hedge in the green part (steps 3 to 8), periodically laying or coppicing it, with trimming at appropriate intervals in between. If the hedge is not permitted to go through this cycle, it will either, if cut too often, become short and gappy (steps 1 – 3) or, if neglected, develop into a line of trees (steps 8 to 10).



As required

### Tree Planting

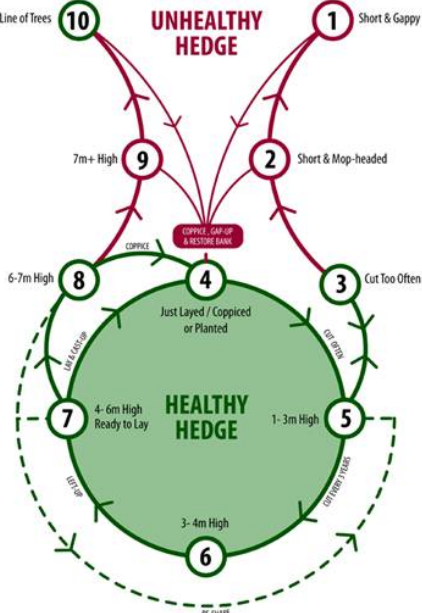
A weed-free mulched 1m diameter circle around the tree stem to a minimum depth of 75mm. When trees have reached independence, the sward can be allowed to grow up to the trunk, although tall weeds, bramble and ivy will be removed from around the trees. Care will be taken when using strimmers or mowers to avoid damaging trees. Weeds and grass within 100mm of the trunks will be removed by hand.

✓	✓	✓	✓	✓						
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<sup>1</sup> The Hedge Management Cycle (HMC). Art work by Will Field. Management Cycle concept developed by Nigel Adams. Hedgelink UK



Examine all tree stakes and ties, replace or adjust as appropriate. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed – filling any holes with suitable topsoil. Top up mulch to a depth of 75mm where necessary.	✓	✓	✓	✓	✓					
Examine condition of trees and replace failed specimens on a like-for-like basis & maintain replacement planting as noted above. Weeds and grass within 100mm of specimen tree trunks will be removed by hand. Top up mulch to a depth of 75mm where necessary.	✓	✓	✓	✓	✓					
Where periods of extreme drought occur, trees that have not yet established (not healthy, not in full leaf, suppressed growth) need to be watered where their tolerance to drought is deemed to be insufficient.	✓	✓	✓	✓	✓					
Throughout the management period there will be a continual process of formative pruning as appropriate to encourage good growth and shape, if required. Once trees have reached 150mm diameter at breast height (DBH) a formal process of tree inspection, for the discharge of a tree owner's duty of care.			✓		✓	✓	✓	✓	✓	✓
Any trees that are overhanging highways, footways or obstructing signs / lighting columns will be pruned back for safety reasons.					✓	✓	✓	✓	✓	✓
<b>Native Hedgerow Planting</b>										
Following planting, water hedgerows in periods of extreme drought (2 or more weeks without substantial rainfall) (new and translocated hedgerow planting).	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓	✓	✓					
Examine all guards and replace or adjust as appropriate. Remove guards once hedgerows established	✓	✓	✓	✓	✓					
Spraying or strimming of weeds to reduce competition and aid establishment. Not required if weed suppression matting used.	✓	✓	✓	✓	✓					
Side trimming of hedgerows in an 'A'				✓	✓	✓	✓	✓	✓	✓

<p>profile to promote healthy hedgerow base. Starting in year 4 after planting new hedgerows will be cut along one side annually, alternating between the two sides of the hedgerow each year. Top up mulch as required.</p>															
<p>Prune any diseased or rotten wood back to sound wood. Remove all cut material from site.</p>			As required												
<p>In the long term, hedgerows will be taken through a Hedgerow Management Cycle (HMC)<sup>2</sup>. The ten steps of the HMC are shown below. The cycle shows a healthy green core and two unhealthy red offshoots. The aim should be to keep the hedge in the green part (steps 3 to 8), periodically laying or coppicing it, with trimming at appropriate intervals in between. If the hedge is not permitted to go through this cycle, it will either, if cut too often, become short and gappy (steps 1 – 3) or, if neglected, develop into a line of trees (steps 8 to 10).</p>  <p>The diagram illustrates the Hedgerow Management Cycle (HMC) with 10 numbered steps arranged in a circular path. At the center is a green circle labeled 'HEALTHY HEDGE' with '4-6m High Ready to Lay' and '1-3m High'. Step 4 is 'Just Layed / Coppiced or Planted'. Step 5 is '1-3m High'. Step 6 is '3-4m High'. Step 7 is '4-6m High Ready to Lay'. Step 8 is '6-7m High'. Step 9 is '7m+ High'. Step 10 is 'Line of Trees'. From step 10, the cycle goes to step 1 'Short &amp; Gappy', then step 2 'Short &amp; Mop-headed', then step 3 'Cut Too Often', then back to step 4. A red dashed line connects steps 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, forming an outer ring. A central red box says 'COPPICE, GAP-UP &amp; RESTORE BANK'. Arrows indicate the flow between steps.</p>			As required												

<b>Amenity Grassland: Flowering Lawn Mix</b>														
<p>During initial establishment of new grassland, mow regularly (every 7 -10 days during growing season) throughout the first year of establishment. Cut to a height of 40-60mm. Dig out any residual perennial</p>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

<sup>2</sup> The Hedge Management Cycle (HMC). Art work by Will Field. Management Cycle concept developed by Nigel Adams. Hedgelink UK



<b>Fences and Gates</b>										
Fencing and gates shall have a twice annual inspection in spring and autumn.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>General</b>										
Check for, and control of INNS (Invasive Non-Native Species)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Litter will be removed from the site as part of the general management and maintenance visits. All litter, stones or other debris will be collected and removed by the Contractor immediately prior to grass cutting operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ecological visual inspection by a qualified ecologist for the first year to provide baseline data for future surveys to be monitored against.	✓				✓					✓
Arboricultural visual inspection, as part of a tree safety risk assessment for the development.						✓	✓	✓	✓	✓
Work programme review by those members of staff involved in site management.					✓					✓

### General Notes

- 5.2 In general the objectives relating to the soft landscape are to allow for potential periodic thinning of planting to avoid excessive overcrowding, to remove dead or damaged plants and undertake further replacement planting where necessary and reinstate any grassed areas subject to erosion or damage.
- 5.3 Hedgerow trimming will be carried out in January / February to avoid the bird nesting season and to allow birds to eat any berries.
- 5.4 All hedgerow and tree works will be carried out with consideration of the potential presence of legally protected and priority species. Prior to commencement of any arboricultural or pruning works any trees with the potential to support roosting bats will be inspected by a qualified ecologist. Works will be scheduled to avoid the bird nesting season (March to August). Some deadwood will be retained to create additional log/brush piles and potential hibernation sites for fauna.
- 5.5 Amphibians and reptiles are typically active from March to October so care is to be taken when cutting grass during these months. Short, heavily managed grassland will be short sward (exposed) therefore of very low risk, however medium to tall sward have a higher risk of amphibians and reptiles being present and therefore the grassed areas (edges in particular) should be walked slowly prior to cutting to encourage any amphibians and reptiles to move away of their volition (if present). Medium to tall sward grass should not be cut to ground level

immediately and cutting should be undertaken in a directional manner, working from the middle of a space outwards to enable time for the amphibians and/or reptiles to escape.

- 5.6 Wildflower grasslands and flowering plants provide a valuable nectar and food source for invertebrates. Once established, wildflower grassland should be left to seed before a cut is taken (i.e. a late summer cut). Pruning of shrubs and herbaceous species should be undertaken once flowering has finished.

#### **Implementation of the Maintenance Works**

- 5.7 Planting should be maintained by the landscape contractor for a minimum of 12 months following planting, with any defective planting replaced by the end of the first year.
- 5.8 Maintenance of the landscape areas shall be undertaken by a competent Landscape Contractor, registered with the British Association of Landscape Industries (BALI).
- 5.9 All soft landscape areas to be maintained to BS7370-4:1993 Grounds Maintenance.
- 5.10 The landscape maintenance of the site is to be carried out to a high standard at all times and in accordance with the schedule and specifications within this management plan.
- 5.11 The contractor shall ensure that the site is left tidy and safe following all maintenance works. All arisings should be removed from site in accordance with the maintenance schedule.
- 5.12 The contractor shall programme their visits to coincide with appropriate weather conditions for carrying out maintenance operations including the use of chemicals and the mowing of grass. Grass mowing in excessively wet conditions is prohibited. Chemicals are not to be used if children and pets are present.
- 5.13 A record of all maintenance visits should be completed by the maintenance contractor and these should be submitted to the Client for review every six months.
- 5.14 The maintenance contractor shall ensure that any chemical application is undertaken by trained personnel only with the appropriate NPTC certificates and in accordance with the manufacturer's recommendations.
- 5.15 The 'Code of Practice for the Safe Use of Pesticides for Non-agricultural Purposes' will be observed where applicable. The use of any chemicals shall be included within the maintenance visit records as described above.
- 5.16 The Contractor should notify the Client immediately to any significant pest or disease problem affecting plant stock and a suitable strategy for treatment should be discussed and agreed with the Client.

## **6.0 MONITOR THE SITE AND REVIEW THE PLAN**

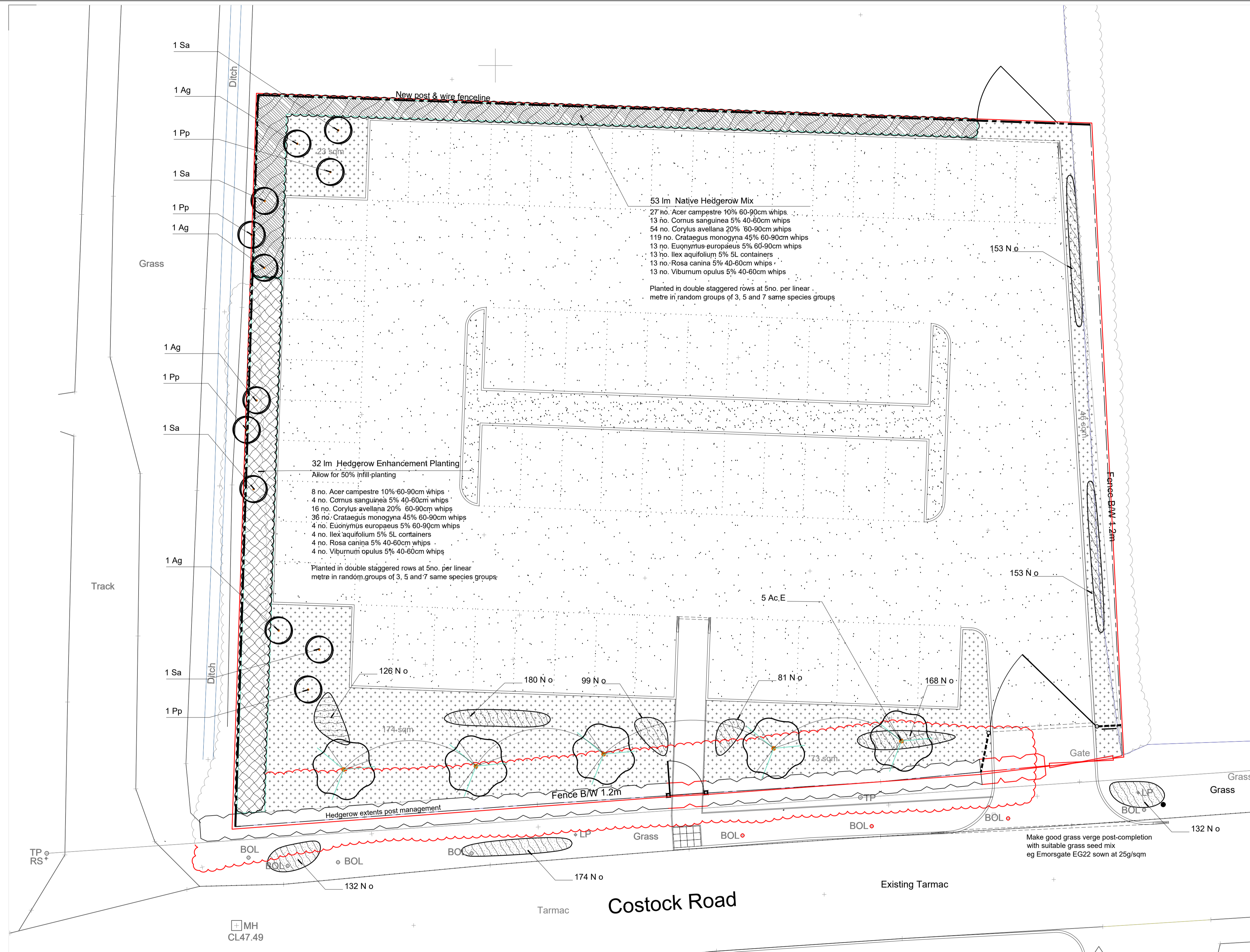
### **Objective 5: Provide a framework of monitoring and review periods.**

- 6.1 The applicant will be responsible for the management and monitoring for the 30-year management period.
- 6.2 Monitoring will be undertaken in years 2, 5, 10, 20 and 30 as per current BNG guidance
- 6.3 In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats will be monitored.
- 6.4 Results of this monitoring will be used to inform changes to the management plan and 30 year work programme. The prescriptions provided here will not be set in stone and will be altered if required in agreement with the Local Planning Authority (LPA). The management plan will run for a period of 30 years, with the work programme fully reviewed at the end of the initial five year period by those members of staff involved in site management, and the LEMP updated accordingly, to be updated for the life of the development.
  - Regular arboricultural visual inspections, as part of the tree safety risk assessment for the development.
  - Ecological inspection by a qualified ecologist in years 2, 5, 10, 20 and 30 to provide baseline data for future surveys to be monitored against.
- 6.5 Results of monitoring should be submitted to the LPA and will include condition assessments of the habitats, noting which condition assessment criteria have been passed/failed. The monitoring report would also detail any revisions that may be required to the management plan if habitats are not achieving the anticipated condition.
- 6.6 Monitoring should also include checks of proposed bat, owl and bird boxes (where access allows) and recommendations for replacement/ re-instatement of these features, if necessary.

# **APPENDIX A**

## **9312-SL-01 Soft Landscape Proposals**





**KEY**

- Application Boundary
- Existing Vegetation to be Retained, Protected & Managed
- Existing Hedgerow Costock Road frontage to be Retained, Protected & Managed to maintain junction visibility splays
- Existing Hedgerow to be Removed
- Proposed Specimen Trees
- Proposed Native Hedgerow Mix with Selected Standard Trees
- Enhancement/ Infill Hedgerow Planting
- Proposed Meadow Seeding eg Emorsgate EL1 Flowering Lawn Grass Mix seeded at 4g/sqm
- Proposed Bulb Planting (Naturalising)

**NOTES:**  
 This drawing is to be read in conjunction with all relevant contract documentation from the design team, with any conflicting information to be brought to the attention of Robinson Chartered Landscape Architecture in writing before commencing on site.  
 The contractor is to check and verify all levels and dimensions before construction. Any discrepancies are to be brought to the attention of Robinson Chartered Landscape Architecture in writing before commencing on site.  
 All dimensions in mm, unless otherwise stated.  
 Do not scale from this drawing.  
 All sub base and concrete specification to engineer's details.  
 Waterproofing of any element to be specified by others.  
 All proprietary products shall be installed in accordance with manufacturers written instructions.  
 Plants should be ordered to suit site areas in accordance with scheduled plant densities.  
 Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.  
 Do not scale areas or dimensions from this plan as the layout has been derived from a large scale OS base plan.  
 It is the contractors responsibility to ascertain the positions of all underground and above services.  
 Tree locations and design layout may be subject to change following an accurate survey of all service locations.

PLANTING SCHEDULE				
LATIN NAME	QUANTITY	FORM	GIRTH	HEIGHT
<b>SPECIMEN TREES</b>				
Acer campestre 'Elegant' (Ac E)	5	Heavy Std Root Ball	12-14cm	3.0-3.5m
Alnus glutinosa (Ag)	4	Select Std Root Ball	10-12cm	3.0-3.5m
Prunus padus (Pp)	4	Select Std Root Ball	10-12cm	3.0-3.5m
Sorbus aucuparia (Sa)	4	Select Std Root Ball	10-12cm	3.0-3.5m
<b>NATIVE HEDGEROW</b>				
LATIN NAME	QUANTITY	FORM	HEIGHT	DENSITY
Acer campestre (Ac) 10%	35	BR	60-90cm	5 per LM
Cornus sanguinea (Cs) 5%	17	BR	40-60cm	
Corylus avellana (Ca) 20%	70	BR	60-90cm	
Crataegus monogyna (Cm) 45%	155	BR	60-90cm	
Euonymus europaeus (Ee) 5%	17	BR	40-60cm	
Ilex aquifolium (Ia) 5%	17	5L container	40-60cm	
Rosa canina (Rc) 5%	17	BR	40-60cm	
Viburnum opulus (Vo) 5%	17	BR	40-60cm	
<b>NATURALISING BULBS</b>				
Narcissus obvallaris N o	1398	12" +		3 per plug at 300mm c/s

DATE	DRAWN	DESCRIPTION OF REVISION	REVISION LETTER	CHECKED BY
301122	IDR	Revised to reflect updated layout	A	IDR
300321	IDR	Final Draft for Comment	-	IDR

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Drawing title -  
**SOFT LANDSCAPE PROPOSALS**

Drawing scale	Drawn by	Drawn date
1:125	608	30-03-21
Revision	Checked by	Checked date
1	IDR	30-03-21
Drawing number - 9312-SL-01	Revision - A	

**GENERAL PLANTING NOTES**  
 All plants to be healthy, hardened-off and with good fibrous root systems and to comply with the requirements of BS3936. Specification for Nursery Stock: All plants to be protected from wind exposure at all times. All plants to be soaked in water for several hours prior to planting and to be well watered in. No planting to be carried out during poor weather conditions i.e. when the ground is frozen, waterlogged or during droughts, hot sunshine or persistent dry or cold winds.  
 All plants to be supplied in accordance with the HTA 'National Plant Specification' and from a HTA certified nursery. All plants and trees to be planted in accordance with British Standards BS3936 and BS5854. Delivery and handling of all plant material to be in accordance with BS4428/CLU/CPE Code of Practice for 'Handling and Establishing Landscape Plants' Parts I, II and III, and also in accordance with BS5854.  
**Weed Treatment**  
 All areas to be planted are to be treated with Roundup a minimum of 10 days prior to planting. Planted areas are to be kept weed free with the use of herbicides. Following the use of herbicides remove dead vegetation.  
**Planting Pits and Trench Preparation**  
 Cultivate the soil of all areas prior to seeding and planting. This should include loosening, aerating and breaking up soil into particles 2-8mm to depth of 150mm. Remove any undesirable material brought to surface to a depth of 100mm including visible weeds, roots and large stones or clay balls with any dimension exceeding 30mm. Final cultivation prior to seeding topsoil shall be brought to a fine tilth by approved mechanical means or by hand raking, and if necessary re-grading of the surface will be carried out to conform to the prescribed finished levels.  
 The preparation of planting pits, beds or trenches shall comply with the appropriate British Standards, namely BS4043, BS4428, BS5837 and BS5854.  
**Subsoil**  
 Subsoil grading of the site shall leave landscape areas with smooth flowing contours to achieve the specified finished levels when topsoiled. Prior to topsoiling, subsoil formation should be ripped and loosened to a minimum depth of 450mm, particularly in areas where heavy planting may have been traversing.  
**Topsoiling**  
 Excavation of planting pits, beds or trenches shall not take place when the ground is frozen or waterlogged such that damage may occur to the structure of the soil. All excavated shrub areas to be backfilled with either site won topsoil or imported topsoil which is to be BS3882: 2015 - General Purpose Grade unless stated otherwise. Soil to wildflower seeded areas to be to BS3882: 2015 - Economy Grade with low nitrogen and phosphorus content.  
 Imported topsoil or site won topsoil to be stored in accordance with BS3882: 2015.  
 All topsoiled areas to be free from pernicious weeds and roots, clay lumps, non-soil materials, brick or other building material.

foreign matter, chemical contamination, rocks and stones greater than 50mm diameter and any other debris that may interfere with the establishment of plants. Topsoil should be spread evenly over the areas to be seeded and planted. Minimum topsoil depths after settlement shall be: Grass - 150mm and Trees - 900mm. Topsoil shall be spread in layers not exceeding 150mm and firm each layer before spreading the next. At the time of laying, both material and weather should be reasonably dry. Soil levels should be 30mm higher than adjacent kerbs and paving and married in with existing soil levels.  
 The Contractor shall break up and cultivate at the base of the trenches or planting pits. The sides of the trenches or planting pits shall be loosened with a fork or other similar implement. All stones and the like over 75mm in any dimension, deleterious matter, weeds and weed roots brought to the surface by any cultivation or excavation shall be removed off site. The contractor shall remove off site the excavated subsoil/fill material when preparing planting pits. The imported topsoil should make up any deficiencies caused by the removal of the subsoil/fill material. Trenches and pits shall have the topsoil and any subsoil/fill material thoroughly broken up and mixed prior to backfilling.  
 All trees shall be supplied root balled, unless otherwise stated. Root balled trees shall be well grown, healthy and with a compact, contained rootball. They shall be nursery grown and have been regularly watered. Prior to planting, all plant material shall be stored in accordance with best practice.  
**Planting**  
 The selection, procurement, handling, storage and planting operations of all proposed trees shall be in accordance with BS5854:2014 - Trees from nursery to independence in the landscape, recommendations. Planting and associated operations shall comply with BS4043, BS4428, BS5837 and BS5854.  
**Tree Planting**  
 Unless otherwise stated planting shall be carried out during the period of 1 Nov to 31 March when the ground is not frozen or waterlogged. If planting is required outside this period agreement shall be sought and all bare root plants shall be substituted with container grown stock.  
 Trees to be pit planted unless specified otherwise. Tree pits in soft landscape to be excavated to 1m x 1m x 1m depth prior to topsoiling and all shrub planting areas excavated to 450mm depth.  
 Excavate tree pits and allow for a slightly raised central base to the pit. Retain topsoil for re-use. Excavated pits should be substantially larger than the volume of roots to be accommodated. Break up and loosen the base and sides of the pit. The trees should be planted to the same depth around the trunk as they were in the nursery. Back fill the pit in stages, whilst firming up the soil around the roots until the original ground level is restored.  
 Tree pits in soft landscaped areas to be filled with 1:3 mixture of compost and topsoil. Topsoil to contain peat free organic matter and Growtab fertiliser to be incorporated into each pit. Refer to detail 9312-HD-01 for tree pits in hardstanding, proprietary tree anchoring system, tree grille/ surfacing and irrigation piping.

**Mulching**  
 Mulch whole surface of tree and hedge planted areas with 50mm minimum depth of chipped British forest biomass containing minimum of 70% wood content of particle size 35-45mm, medium grade. The mulch shall be free of pest, disease or weed contamination for handover.  
**Watering**  
 All plants shall be watered in to field capacity immediately after planting. The Contractor shall water the trees and hedges once planted so that the entire tree pit or planted area is moistened to field capacity i.e. "the amount of water retained by previously saturated soil once full drainage has ceased". Watering to field capacity shall continue frequently and on a regular basis as considered necessary by the landscape contractor and as necessary to ensure the successful establishment and continued thriving of all planting. Additional watering shall be undertaken during summer months and / or periods of drought. Post planting management and maintenance specifically for new tree planting shall include ongoing irrigation and formative pruning as outlined in BS5854. The period over which regular irrigation required for transplanted trees is likely to be at least two full growing seasons to ensure successful establishment. As the root system develops the frequency of irrigation can be reduced.  
**Staking**  
 Stake all standard trees with double short or long stakes as specified. Stakes to be first grade pressure impregnated round timber with chamfered tops. Position stakes close to tree on windward side and drive vertically at least 300mm into bottom of pit before planting. Backfilling: consolidate material around stake. Height of stakes: cut to approximately one third of the tree height above ground level.  
 All trees to be double staked with cross bar and tied, using 1.8m long, 75mm diameter rounded tree stakes, 75mm half rounded brace 650mm long, rubber ties and spacer blocks. Tying: secure tree firmly but not rigidly to stake with at least two ties within 50mm of top of stake.  
**Grass Seeding**  
 After cultivation operations have been carried out, use a pre-seed herbicide on areas to be seeded. Sow areas to be seeded with grass seed mix which has been stored off the ground in a clean, dry place free from vermin. Seed grass at a sowing rate as specified. Following an even distribution of seed, the contractor shall carry out a light raking or light harrowing of the area and

ensure consolidation of the seed with the soil by the use of a light roller.  
 All reasonable precautions shall be taken to ensure that pedestrian and other traffic do not cross areas during cultivation and until the grass has fully established.  
**Root Barriers**  
 Root barriers (ReRoot 1000 or equivalent) to be included adjacent to services where necessary and appropriate. Landscape contractor shall check all planting operations comply with appropriate standards and that in the absence of detailed surveys, any necessary underground investigations are undertaken to ensure there are no conflicts with existing or proposed utilities, services or foundations.  
**Rabbit Protection**  
 The Landscape Contractor is to determine from site analysis and observations whether planting areas should be protected against rabbits and other animal pests, and if so found to be required, is to propose suitable and appropriate protection methods.  
**Maintenance**  
 Regular visits shall be made for the specified Maintenance Period following practical completion, to maintain all planted areas in a weed and litter free condition and thereafter in accordance with the Landscape Management Plan.  
**NB**  
 In the event of any of the above information conflicting with construction details, schedules and specifications, the Landscape Contractor should seek the necessary clarification from the Landscape Architect.



## **APPENDIX B**

### **Bird & Bat Locations**



**KEY**

 **BIRD BOXES**

 **BAT BOXES**

## **BIRD BOXES**

### **LOCATION 1: BARN OWL:**

A barn owl box to be installed as a free-standing pole mounted box in accordance with the specification on the Barn Owl Trust website.

- 1) The box to be erected on a pole with a Minimum Height of 4 metres above ground level.
- 2) The box to be East Facing – ie opening towards the permanent grassland.
- 3) Design of box by: Barn Owl Trust



### **OTHER LOATIONS:**

A mixture of: Lodge nest box open-front

Brushwood tree nester

Apex starling nestbox

Artisan Bird Nester

Eg. <https://www.rspb.org.uk/>

## **BAT BOXES**

A mixture of: 2F Schwegler Bat Box (General Purpose)

Double chamber bat box

1FD Schwegler Bat Box

Improved Cavity Bat Box

Eg. <https://www.nhbs.com/4/bat-boxes-for-trees>