



Hampshire
County Council

Botley Bypass Phase 3 Landscape & Ecological Management Plan & Implementation Report

For: Hampshire County Council
Strategic Transport Team

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Hampshire County Council Landscape & Ecology Teams

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legal requirements for works carried out by or in behalf of the client at the above site and for the project this report has been produced to support.

Contents

1	Introduction	1
1.1	Objectives.....	1
	<i>Botley Bypass (Permission no: CS/17/81226)</i>	<i>1</i>
1.2	The Scheme.....	1
1.3	Design changes.....	3
1.4	Proposed works.....	4
2	Objectives & Structure of the Plan.....	5
2.1	Introduction	5
1.1	Condition requirements.....	5
1.2	Report Structure	6
3	Ecological Baseline.....	8
3.1	Introduction	8
	<i>Habitats.....</i>	<i>8</i>
	<i>Species.....</i>	<i>11</i>
3.2	Ecological Trends and Constraints	16
4	Habitat Management Strategy	18
4.1	Introduction	18
4.2	Scope of the Strategy.....	18
4.3	Responsibilities	18
4.4	Aims.....	19
4.5	Objectives and Prescriptions.....	19
	Table 1: Management Aims, Objectives and Prescriptions.....	20
	Table 2: Management Prescription details	21
5	Further details on management prescriptions.....	23
5.1	Introduction	23
5.2	Ecological supervision	23
	<i>Ecological Clerk of Works (ECOW)</i>	<i>23</i>
	<i>Named Ecologist Supervision (Bat Licence).....</i>	<i>23</i>
5.3	Vegetation removal.....	23
	<i>Trees, hedgerows and scrub.....</i>	<i>23</i>
	<i>Grassland and Arable</i>	<i>24</i>
5.4	Protected and Notable species mitigation measures	24
	<i>Badgers</i>	<i>24</i>
	<i>Bats.....</i>	<i>25</i>
	<i>Otter.....</i>	<i>28</i>
	<i>Birds.....</i>	<i>29</i>
	<i>Reptiles.....</i>	<i>30</i>
	<i>Invertebrates.....</i>	<i>32</i>
	<i>Fish</i>	<i>33</i>
5.5	Protection of retained features	34
	<i>Fencing and signage.....</i>	<i>34</i>
	<i>Pollution control.....</i>	<i>35</i>

6	Habitat Creation & Management.....	36
6.1	Introduction	36
6.2	New habitats	36
	<i>Trees, scrub and hedgerow</i>	<i>36</i>
	<i>Habitat connectivity</i>	<i>36</i>
	<i>Grassland.....</i>	<i>37</i>
	<i>Fen.....</i>	<i>38</i>
	<i>Restoration of temporary works areas</i>	<i>39</i>
7	Habitat Enhancement Strategy	40
7.1	Introduction	40
7.2	Hamble Valley SINC & Conservation Area	40
8	Landscape Management & Maintenance Plan	42
8.1	Introduction	42
8.2	Roles and Responsibilities for Landscape Management and Maintenance	43
8.3	Status of the Management Plan	43
8.4	Supporting Documents	43
8.5	Landscape Design Aims and Objectives	44
	<i>Botley Bypass</i>	<i>44</i>
8.6	Landscape Management Objectives	45
	<i>The Establishment Period.....</i>	<i>45</i>
	<i>Access.....</i>	<i>45</i>
	<i>Facilities.....</i>	<i>46</i>
8.7	General Management / Maintenance Objectives for Soft Landscape	46
8.8	Landscape Components with Specific Management Objectives	46
	<i>Trees, whips including hedgerows and native planting mixes.....</i>	<i>46</i>
	<i>Grassland: including verge edge general amenity mix and species rich meadow grassed /</i>	
	<i>wildflower areas.....</i>	<i>47</i>
	<i>Swales and balancing ponds:</i>	<i>47</i>
	<i>Fen Habitat.....</i>	<i>48</i>
	<i>Removal of trees, shrubs, hedgerows and scrub to allow implementation of the road</i>	<i>48</i>
	<i>Works Required:.....</i>	<i>48</i>
	<i>Retained existing trees and hedgerows</i>	<i>48</i>
8.9	Establishment Specification	49
	<i>Native Tree & Shrub Planting:.....</i>	<i>49</i>
	<i>Grassed verges up to 2m wide, whole of the highway grassland, swales and balancing ponds</i>	
	<i>.....</i>	<i>50</i>
	<i>Species rich meadow/Wildflower Grassland (these areas are shown on the planting plans in</i>	
	<i>Appendix 2)</i>	<i>50</i>
	<i>Fen habitat</i>	<i>51</i>
	<i>Trees, Hedgerows, Shrub and Whip Planting.....</i>	<i>51</i>
8.10	Control of Non-Native Invasive species	54
8.11	Fences and Gates	54
8.12	Programming of Maintenance and Management Operation	55
	<i>General.....</i>	<i>55</i>
	<i>Maintenance Schedule</i>	<i>56</i>
	<i>Timetable for Implementation</i>	<i>56</i>
	Table 5: Maintenance Schedule for Year 1 after completion of Planting	57

Table 5: Maintenance Schedule for Years 2 –5 after completion of Planting.....	59
8.13 British Standards	61
References.....	62
Appendix 1 – Site Location & Scheme Boundary Plan	63
Appendix 2 – Planning Application Boundary Plan	64
Appendix 3 – Ecological Constraints Plan	65
Appendix 4 – Phase 1 Habitat Map	66
Appendix 5 – Vegetation Clearance Plans	67
Appendix 6 – Planting Plans	68
Appendix 7 – Bat and Bird Box Locations	69
Appendix 8 – Reptile Fencing.....	70
Appendix 9 – Reptile Hibernacula and Log Piles	71
Appendix 10 – LEMP Plans.....	72

1 Introduction

1.1 Objectives

- 1.1.1 Hampshire County Council's (HCC) Landscape & Ecology Teams were commissioned by HCC's Highways Implementation Team to produce a Landscape and Ecological Management Plan and Implementation Report (LEMPiR) to support the delivery of infrastructure for the third phase of the Botley Bypass scheme, Hampshire and for construction of the noise bunds under the adjacent Botley Fields development.
- 1.1.2 This document details the proposed arrangements for managing identified landscape and ecological impacts associated with this phase of the development and is designed to provide sufficient information to allow the discharge of the following planning conditions relating to landscape and ecological mitigation, management and enhancement for Phase 3 of the Bypass.

Botley Bypass (Permission no: CS/17/81226)

- Condition 10: Protected Species Mitigation Strategies
 - Condition 11: Habitat Management Plan
 - Condition 12: Habitat Enhancement & Management Scheme
 - Condition 16: Landscape Management Plan
- 1.1.3 This document has also been prepared to support submission of a Reserved Matters Application for the Botley Fields development under permission O/18/83698 relating to construction of the acoustic mitigation (noise bunds) which support both the Botley Fields development and Phase 3 of the Bypass. These noise bunds will be constructed as part of the Bypass Phase 3 project.

1.2 The Scheme

- 1.2.1 The Planning Application submitted for the Botley Bypass covered three phases as follows;
- Phase 1: Uplands Development Infrastructure – Woodhouse Lane North (constructed)
 - Phase 2: Woodhouse Lane South (partially constructed, some works to be completed at Western Gateway)
 - Phase 3: New Bypass and bridge over the River Hamble (construction due to commence Spring 2025).
- 1.2.2 Botley Bypass Phase 3 (hereafter referred to as 'the Scheme') will be located from the junction with Winchester Street and Uplands Way, crossing farmland and the river Hamble before joining with the A334/A3051.

1.2.3 The Scheme consists of;

- A new 1.8km 40mph single carriageway bypass including shared footway/cycleway from the roundabout on Woodhouse Lane to a new roundabout on the A334/A3051 at Pinkmead Farm.
- Construction of a new bridge crossing the River Hamble and adjacent floodplain, incorporating an open span structure.
- Improvements to the junction of the A334/A3051 including construction of a four-armed roundabout to the west of the existing priority junction.
- Accommodation works including a new access into land adjacent to the Bottings Industrial Estate, on the A334 and the proposed new housing adjacent to Sherecroft Gardens.
- Upgrades to the A3051 approach to the new roundabout at the eastern end of the works, adjacent to Pinkmead Farm.
- Construction of 2m high acoustic bunds with a 1m high noise fence on top adjacent to the allocated housing area to the east of Winchester Road, to reduce potential noise impacts from the bypass on the new development.
- A 3m wide shared footpath cycleway.
- Planting and earthworks for landscaping and ecological mitigation.
- Lighting, drainage, roadside barriers and fencing.

1.2.4 Utility, services and other associated infrastructure provision. Ecological and landscape mitigation including an ecological mitigation area to the north of the consented Botley Bypass roundabout is proposed to the east of Woodhouse Lane. This area that has been named Holmesland North on the plans for identification purposes. Works here include ground modelling, mitigation planting, including the embankment up to Woodhouse Lane and seeding previously required for the bypass scheme, have been incorporated into the area.

1.2.5 Establishment of new areas of fen habitat to compensate for loss of habitat within Botley Mill Woodland Site of Importance for Nature Conservation (SINC) and Sherecroft Farm SINC. New fen habitat will be established within and around new fluvial ponds which are being created as part of the flood compensation for the scheme.

1.2.6 The scheme will alleviate traffic volumes passing through the centre of Botley village. The Botley Bypass scheme was granted planning approval by HCC in November 2017 (see Appendix 1).

1.3 Design changes

- 1.3.1 Various amendments have been made to the approved bypass design since 2017 to accommodate the delivery of the road, bridge, and development at Botley Fields and Sherecroft Farm. Including the following changes which are relevant to this LEMP:-
- 1.3.2 The original bund adjacent to the proposed Botley Fields development has been extended south westwards until it reaches the edge of the Hamble Valley. This bund has been designed to provide a noise bund to the proposed Botley Fields development and it will include a noise fence along the ridgeline.
- 1.3.3 The proposed hedgerow along the boundary to the Botley Fields development has been removed and replaced with groups of native tree and shrub planting to provide varied habitats, connectivity and to screen the bunds and tall vehicles on the road.
- 1.3.4 The design of the bridge has been amended to accommodate various technical problems with ground conditions in the Hamble Valley. A clear span bridge with a larger central pier is now proposed.
- 1.3.5 The proposed hedgerow along the boundary within the Sherecroft Farm development has been removed and it will be replaced with a low bund and native tree and shrub planting to be provided by the developer of this site. This new planting will be partly accommodated on the development side of the boundary and partly on the back of the road verge of the Bypass. This planting will be more substantial than the original hedgerow that was proposed.
- 1.3.6 The design of the road drainage around the junction of A334 and A3051 Pinkmead Farm, as well as a safety review has changed the proposed roundabout layout. However, the principle of replanting the hedgerow including trees has essentially remained unchanged, their location has been adjusted to fit the new configuration. Alterations have been made to the noise bunds along the edge of the Bypass adjacent to the proposed Botley Fields development, this has resulted in an increased length of noise bunds to incorporate the requirements for the new housing area into the road scheme. Additional native planting and wildflower/meadow grassland is proposed on these bunds to soften their appearance and provide biodiversity.
- 1.3.7 Winchester City Council have given planning permission for a new area of housing at Sherecroft Farm, adjacent to the Bypass to the east of the River Hamble (hybrid planning permission reference 20/0049/FUL). The housing development has incorporated an alternative ground shaping, noise reduction measures and planting along the edge of the Bypass. This has removed the need for the roadside planting that was originally proposed as part of the Bypass planning application.
- 1.3.8 Design changes to the bridge have been required for geotechnical reasons. This has had the benefit of retaining the existing fish pass adjacent to the River Hamble. However, the proximity of the gas main to the north of the proposed bridge has resulted in a need to steepen the embankments from 1:3 to 1:2. To accommodate this, the original planting proposals have been reduced and relocated to near the bottom of the slope for safety reasons.

- 1.3.9 To construct the Bypass a temporary construction haul road and two temporary bridges over the Hamble River are required. The haul road is proposed to start from Winchester Street through what will become the access to the Botley Fields development. The access would follow the red line boundary within the Botley Fields Development and follow a route that is adjacent to the area that will become the noise bunds. Prior to the construction of the bunds the temporary road will be largely removed and the aggregate used for part of the bunds fill. This haul road is included within the Botley Fields noise bunds Reserved Matters Application.
- 1.3.10 The area of vegetation removal that was originally envisaged within the River Hamble Valley has changed as the result development of construction methodology for the bridge. In the 2017 Planning Application it was assumed the main area of tree felling beyond the footprint to the bridge would be to the north to facilitate construction access, removing trees between the railway bridge and the proposed road bridge. However, due to the presence of a major water main in this location, it is now proposed to put in temporary bridges to the south of the permanent road bridge. This will result in the removal of 31 additional trees in excess of these approved in the Planning Permission for the Scheme. This additional tree loss has been mitigated for within the planting proposals.
- 1.3.11 The drainage and road alignment has been altered around the junction of the Botley Bypass with the A334 Station Hill and the A3051 Botley Road. This has resulted in the need to include a small area of additional land take opposite Pinkmead Farm. This will allow new drainage features to be incorporated in the central island on the A3051. The mitigation planting proposals have been amended and replacement hedgerows added to the Scheme.
- 1.3.12 The location of the site compounds are shown on the 'Proposed Site Compounds and Haul Routes' drawing in addition to areas of land that are required for the storage of topsoil, subsoil, and construction materials. After construction of the Scheme is completed these areas will be subject to various land uses, including restoration to agriculture or development for housing or commercial purposes.

1.4 Proposed works

- 1.4.1 The Scheme footprint includes a 1,470m length of road between the new junction on Winchester Street and the proposed roundabout at the junction of the A334 with the A3051. Short sections of the A334 and A3051 will be widened adjacent to the new roundabout to allow for ties into the existing roads. This will entail the removal of hedgerows, grassland and trees within the proposed Scheme footprint.
- 1.4.2 Works will entail an initial period of advanced vegetation clearance and fencing work in February 2025, followed by commencement of construction in April 2025. Construction works are scheduled to be completed in 2027. The vegetation clearance works proposed as part of the advanced works and main works are shown in Appendix 5 and assessed in the Arboricultural Impact Assessment for Botley Bypass Phase 3 and the Botley Fields Noise Bund phase (MJC Tree Services, Revision 9, November 2024).

2 Objectives & Structure of the Plan

2.1 Introduction

- 2.1.1 This LEMP and Implementation Report sets out the general principles and quality standards required for the short and longer-term ecological and landscape management operations relating to the development of Botley Bypass Phase 3. It has been prepared in response to conditions 10, 11, 12 and 16 of the Bypass planning permission.
- 2.1.2 The close relationship between habitat and landscape management means that many of the objectives and features overlap. This plan however expands on the landscape management objectives to include further details on biodiversity mitigation strategies, scheme area ecological receptors and objectives.

2.2 Condition requirements

- 2.2.1 Condition 10 of decision notice CS/17/81226 for the Botley Bypass Scheme requires the submission of a detailed protected species mitigation strategy as follows:
- ‘Prior to the commencement of development, detailed reptile, badger and otter mitigation strategy, informed by updating survey work as necessary, shall be submitted to and approved in writing by the Local Planning Authority. Development shall subsequently proceed in accordance with any such approved details.*
- Reason: To avoid impacts to protected species and in accordance with policy 24NC of the Eastleigh Borough Local Plan Review (2006) and policy CP16 of the Winchester District Local Plan Part 1 (2013). This information is required prior to commencement of development in order to satisfy the Local Planning Authority that the impact of the development on protected species is satisfactorily mitigated before construction begins on site’.*
- 2.2.2 Condition 11 of decision notice CS/17/81226 for the Botley Bypass Scheme requires the submission of a Habitat Management Plan for fisheries habitat as follows:
- ‘No development shall take place until a scheme for the provision and management of fisheries habitat creation has been submitted to and approved in writing by the Local Planning Authority within a Habitat Management Plan and implemented as approved. Thereafter the development shall be implemented in accordance with the approved scheme.*
- Reason: The proposal of the bypass and associated infrastructure has the potential to impact upon the ecological and fisheries value of the river and its corridor. This condition is in line with Para 109 of section 11 of the National Planning Policy Framework’.*
- 2.2.3 Condition 12 of decision notice CS/17/81226 for the Botley Bypass Scheme requires the submission of measures to manage and enhance ecological features for approval by the Local Planning Authority and is worded as follows:

‘Prior to commencement of the development, a detailed Habitat Enhancement and Management Scheme, supported by drawings, and stating management aims, objectives and prescriptions as well as a monitoring and review process, shall be submitted to and approved in writing by the Local Planning Authority. Development shall subsequently proceed in accordance with any such approved details.

Reason: To conserve and enhance biodiversity in accordance with the Natural Environment and Rural Communities Act. This information is required prior to commencement of development in order to satisfy the Local Planning Authority that the impact of the development on biodiversity is satisfactorily mitigated before construction begins on site.’

- 2.2.4 Condition 16 of the decision notice CS/17/81226 for the Botley Bypass scheme requires the submission of measures to manage and maintain landscape planting for approval by the Local Planning Authority and is worded as follows.

‘Prior to the commencement of development, a Landscape Management Plan shall be submitted to the Local Planning Authority for approval in writing. The Plan shall specify the phasing and timescales for carrying out of landscaping works, and provision for future maintenance. Any trees or shrubs which, within a period of five years from the date of planting, die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species. The scheme shall be implemented as approved.

Reason: In the interests of visual amenity and landscape character of the area site and in accordance with policy 18CO of the Eastleigh Borough Local Plan Review (2006) and policy DM24 of the Winchester District Local Plan Part 2 (2017). This information is required prior to commencement in order to satisfy the Local Planning Authority that the landscaping is agreed prior to construction beginning on’.

2.3 Report Structure

- 2.3.1 This document presents the approach to be taken to address these specific issues during delivery of the Botley Bypass Phase 3 and is structured as follows.

- **Ecological baseline** – summarises details of the existing ecological conditions of the proposed scheme footprint and relevant adjacent areas and ecological trends and constraints.
- Habitat Management Strategy – details
- the aims, objectives and prescriptions of measures to protect and enhance existing ecological features and mitigate impacts
- the extent and type of proposed replacement habitats including any new planting
- proposed management and maintenance of habitats
- Ecological Mitigation

- **Habitat Enhancement Strategy** – details measures to enhance the identified ecological features new habitats.
 - Landscape Management & Maintenance Plan - detailing:
 - Roles and responsibilities for management and maintenance of landscaped areas
 - Status of the management plan
 - Landscape design aims and objectives
 - Landscape management objectives and works required
 - Programming of implementation, maintenance and management operations
-
- **Appendix 1** – Proposed scheme layout & habitat areas
 - **Appendix 2** – Outline landscape plans and detailed Landscape Planting Plans
 - **Appendix 3** – Ecological Constraints Plan
 - **Appendix 4** – Phase 1 Habitat Map
 - **Appendix 5** – Vegetation Clearance Plans
 - **Appendix 6** – Planting plans

3 Ecological Baseline

3.1 Introduction

3.1.1 This section summarises the current ecological baseline conditions as described within the submitted Botley Bypass Environmental Statement Volume 1 (HCC, July 2017) and Land West of Woodhouse Lane Environmental Statement Volume 1 (HCC, July 2018) and relevant technical appendices, as well as subsequent updating surveys and assessments undertaken by HCCET up to 2024 as detailed within the submitted Botley Bypass Phase 3 Ecological Appraisal of advanced vegetation clearance (HCC, October 2024). In summary, following detailed assessments carried out between 2015 and 2018, updating field-based assessments were carried out in 2021, 2022 and 2024 of vegetation communities and various protected and notable species. These updating visits included assessments of site habitats and conditions as well as assessments of protected species activity. The primary purpose of these surveys was to assess whether site conditions had changed and provide up to date baseline data on the status of protected species to inform mitigation measures.

3.1.2 The ecological baseline information described here is taken primarily from descriptions of Survey Areas 3, 4 and 5 within the Botley Bypass Environmental Statement 2017 and its supporting technical reports, supplemented by the updated assessment within the 2024 Ecological Appraisal of advanced vegetation clearance.

Habitats

General description

3.1.3 Habitats within and adjacent to the scheme footprint are largely dominated by agriculturally improved grasslands, intersected by native field boundary hedgerows. The central section of the Scheme crosses the River Hamble and an associated fish pass channel. Habitats within the Hamble valley include areas of wet woodland to the west, within Botley Mill Woodland SINC and areas of relic fen meadow within Sherecroft Farm Meadows SINC to the east of the River Hamble.

Grassland

3.1.4 The dominant habitat type across the site is improved grassland. The bulk of the land within Uplands Farm to the west of the Hamble, and Sherecroft Farm to the east contains species-poor, improved grassland. The improved grassland is of limited ecological value being typically dominated by grasses including Rye-grass and Fescue with occasional Cock's-foot and contains few herbaceous species.

- 3.1.5 To the east of the River Hamble, within Sherecroft Farm, are three large fields of poor semi-improved grassland formerly grazed by horses. Grazing ceased in late spring 2022, after which the grassland has been unmanaged. The cessation of grazing allowed vegetation to develop and species recorded here included Sweet Vernal Grass, Soft Brome, Toad Rush, Meadow Buttercup, Thyme-leaved Speedwell, Black Medick, White Clover, Red Clover, Creeping Thistle, Common Mouse-ear, Common Knotgrass and Burnet Saxifrage.
- 3.1.6 Small areas of species-poor semi-improved grassland are present within road verge habitats within the eastern section of the Scheme, surrounding the A334/Pinkmead junction. These areas are typical highways verge habitat, comprising sown grassland that has been managed by regular mowing.

Hedgerow

- 3.1.7 Various boundaries within the scheme area comprise native hedgerows of varying quality. The majority of hedgerows are species-poor and dominated by Hawthorn with frequent Bramble.
- 3.1.8 To the east of the River Hamble, within Sherecroft Farm is a stretch of species-rich hedgerow with trees. To the west of this is a line of trees, shrubs and Bramble patches fringing the fish bypass channel adjacent to Sherecroft Farm Meadow SINC. This line of vegetation contains a single large dead Pedunculate Oak, Crack Willow, Alder and Hawthorn.
- 3.1.9 A tall, dense species-poor hedgerow is located adjacent to a public footpath within Sherecroft Farm, fringing Bottings Industrial Estate. This hedge is dominated by Hawthorn, with occasional Elder, Blackthorn, Bramble and Dog Rose. The 2024 updating survey found that the northern end of this hedgerow had been removed as part of the Sherecroft Farm development.
- 3.1.10 On the eastern side of the A334, just north of the Pinkmead junction, there is an intact species-rich managed hedgerow. This contains frequent Elm, Hawthorn, Ash and Bramble.

Scrub

- 3.1.11 Scrub habitat is located just outside the scheme footprint, along the embankments of the railway line to the north of the site. The embankment is characterised by dense, tall Bramble with patches of thick Hawthorn and Blackthorn and abundant Traveller's Joy. Small trees are regular, with Field Maple and Sycamore being most frequent.

Wet Woodland

- 3.1.12 The western edge of the River Hamble contains an area of wet woodland, known as Botley Mill Woodland SINC. The woodland is dominated by dense Alder and until recently was grazed lightly by a small number of cattle (no grazing noted in 2024). The Alder woodland contains trees of varying ages, with examples of mature multi-stemmed coppiced specimens as well as younger individuals. Occasional dead/decayed specimens are present. The site was subject to detailed botanical assessment by HBIC in 2014 and was considered to be a former fen habitat that had subsequently been colonised by trees: the habitat has not changed in any measurable way since that previous assessment.

Trees and other woodland

- 3.1.13 The single largest block of trees outside the River Hamble corridor is situated immediately north of the A334/Pinkmead junction. This comprises a crescent-shaped section of overgrown scrub with trees containing Field Maple, Pedunculate Oak, Scots Pine, Ash, Norway Maple, Hawthorn and Cherry Plum. This area is clearly of planted origin and unmanaged.
- 3.1.14 On the southern side of the A334/Pinkmead junction is a line of mature trees situated on an overgrown highways drainage ditch. Species present are Pedunculate Oak, Ash, Yew, Hornbeam, Field Maple, Bird Cherry and Elm.
- 3.1.15 Further mature trees are situated on the southern edge of the A3051 to the east of Pinkmead Farm. These are all large, mature Pedunculate Oaks set within improved pasture with species-poor managed hedgerows.

Fen

- 3.1.16 To the east of the River Hamble is an area of relic fen meadow habitat. The northern end of this area is within the scheme footprint. The area was subject to detailed botanical survey by HBIC in 2014, as Sherecroft Farm Meadow. Update walkover surveys were carried out in 2022 and 2024.
- 3.1.17 The area contains a complex mix of fen-like vegetation, considered to conform to the National Vegetation Classification (NVC) communities (from north to south): S6 *Carex riparia* swamp, M23 *Juncus acutiformis* – *Galium palustre* fen meadow, and M27 *Filipendula ulmaria* – *Angelica sylvestris* mire.
- 3.1.18 The default vegetation to the north (and therefore closest to the proposed works) is a mix of sedge-dominated swamp with Greater/Lesser Pond-sedge and various tall herbaceous species such as Meadowsweet, Wild Angelica, Hemp-agrimony, Water Mint, Common Fleabane and Marsh Thistle. The general absence of management is resulting in dense stands of Common Nettle and Hemlock Water-dropwort. The invasive Himalayan Balsam is present at low density throughout, and the area is somewhat overgrown.

3.1.19 The ground-level vegetation within Botley Mill Woodland to the west of the River Hamble is similar and is classified as poached fen-like vegetation, with local variation. The western edge of the woodland contains an improved, drier grassland. Within the central parts of the woodland the ground conditions are boggy, and species present include Remote Sedge, Common Nettle, Pendulous Sedge, Ivy, Water-pepper, Wood False-brome, Wood Speedwell, Opposite-leaved Golden-saxifrage, Brooklime, Broad Buckler-fern, Wood Avens, Water Mint, Creeping Buttercup, Meadowsweet, Cuckoo-flower, Marsh Bedstraw, Common Fleabane, Water forget-me-not, Hemp Agrimony, Water Figwort, and Common Valerian. The invasive Himalayan Balsam is frequent to locally abundant within this area.

Running water

3.1.20 The River Hamble runs in a southerly direction through the central section of the scheme area. The river exhibits a sinuous, low energy canal-like flow downstream to Botley Mill. The channel exhibits a silt substrate with a relatively consistent water depth of approximately 0.4 m. Overall channel shading is <25% with in-channel vegetation increasing to 50% with dense patches of emergent vegetation at the margins. The only submerged aquatic plant species noted within the channel is Shining Pondweed.

3.1.21 The channel margins contain lush marginal and emergent vegetation, with Yellow Flag Iris, Hemlock Water-dropwort, Pendulous Sedge, Greater/Lesser Pond-sedge, Reed Sweetgrass, Water Dock, Meadowsweet, Common Nettle and Water Mint all frequent. Himalayan Balsam is present scattered throughout the immediate channel marginal zone, with some areas of dense growth.

3.1.22 Approximately 25m east of the river channel is a smaller channel created as a fish pass in 2009. The channel was created to aid fish passage around Botley Mill: a weir at the Mill is impassable to fish moving upstream. The channel is narrow, c.2m in width, and exhibits sections of fast, active flow to the north and sections of slower flow as the channel gradient flattens out further south. At the northernmost section of the pass a series of engineered rock 'tombstones' have been placed within the channel and at the bank sides to ensure suitable flow regimes for migrating fish.

Species

Bats

3.1.23 A single bat roost was confirmed within the proposed scheme footprint during the original surveys in 2016. A mature Ash tree within the Botley Mill woodland to the west of the River Hamble was found to support a single, non-breeding Common Pipistrelle day roost. Updating surveys in 2022 and 2024 did not identify any roosting activity from this tree. This tree (T152) is now identified for retention.

3.1.24 Updating surveys in 2022 (climb and inspect and emergence surveys) identified four trees as supporting likely roosts for Pipistrelle species. Surveys identified likely (but not confirmed) emergences of single Pipistrelle bats from T26, T91, and T157 and two Pipistrelle bats from T155.

- 3.1.25 Updating surveys in 2024 (repeat climb and inspect and emergence surveys) did not identify any emerging bats or evidence of bats during climbed inspections. However, emergence surveys identified very early bat activity within the Botley Mill Woodland to the west of the Hamble indicating the likely presence of nearby roosts, in particular for Soprano and Common Pipistrelle. Given the frequent roost switching behaviour of tree roosting bats and given the availability of potential roost features, it is considered likely that the Botley Mill woodland supports a number of bat roosts and there is a potential for all suitable trees to be used by roosting bats.
- 3.1.26 The site is dominated by improved grassland with areas of woodland, the River Hamble and associated floodplain habitats, and hedgerows. The mosaic of habitats provides optimal bat foraging/commuting/social opportunities, and the entire landscape is considered to provide good quality bat habitat.
- 3.1.27 With regard to bat activity, the original surveys carried out between 2014 and 2017 recorded at least nine species comprising Common Pipistrelle, Soprano Pipistrelle, Myotis species, Daubenton's Bat, Whiskered/Brandt's Bat, Noctule, Serotine and Long-eared Bats. In addition, the rare Bechstein's Bat was suspected from a call recorded on one occasion within the Sherecroft Farm area in May 2017.
- 3.1.28 The 2021 and 2022 bat activity surveys recorded at least six bat species: Common and Soprano Pipistrelle, Noctule, Leisler's Bat, Western barbastelle, and Myotis species.
- 3.1.29 Activity surveys were not undertaken in 2024 as there had been no significant habitat changes on site. However, bat activity was recorded during the emergence surveys. These surveys recorded at least six species of bats within the Hamble Valley area including Common and Soprano Pipistrelle, Noctule, Serotine, Long-eared, and Myotis species.
- 3.1.30 Key areas of bat activity (as observed during walked transect surveys) in both phases of survey work are the River Hamble corridor and the boundary habitats across Uplands Farm. The River Hamble corridor provides an optimum resource for bat species, with unlit vegetation such as woodland, trees and hedgerows in association with open water and wetland habitats.
- 3.1.31

Badger

- 3.1.32 No obvious badger activity was noted within the scheme area in 2021 or 2022 with no obvious trails noted, and no latrines were identified within the surveyed area. The 2024 surveys identified a well-worn mammal path, likely badger, from the edge of the scrub to the west of the Hamble and into the improved pasture to the northwest, approximately 70m south of the Scheme boundary as well as potential evidence of foraging in the form of a couple of snuffle pits within the woodland to the west of the River Hamble. In addition to the setts recorded during the original 2015-17 assessment (as detailed in the original Confidential Badger Report which accompanied the original ES in 2017) an additional disused outlier sett was recorded in 2024, outside of the red line boundary. This sett comprised a two-hole outlier, with both holes covered with vegetation and showing no signs of recent use when the sett was identified in September 2024.
- 3.1.33 The Scheme area is generally suitable for Badgers, with good foraging opportunities and, outside the scheme area within the railway embankment, good opportunities for sett construction. Badgers are present locally, but there is no sett construction within or immediately adjacent to the Scheme footprint which could be impacted by the works.

Hazel dormouse

- 3.1.34 The site is dominated by extensive areas of improved grassland, with potentially suitable habitat for Hazel Dormouse restricted to boundary scrub and hedgerows. The wet woodland next to the River Hamble has a sparse understorey with a canopy dominated by Alder with occasional other species and provides lower suitability habitat.
- 3.1.35 Nest tube surveys were carried out in 2015 across the entire Botley Bypass scheme area and nest tube surveys were carried out within the Phase 3 scheme area in 2021 and 2022. A review of planning applications also identified that surveys were also undertaken in 2016 within the land to the east of the River Hamble as part of the Sherecroft Farm development. No evidence of Hazel Dormouse presence was noted during any of the surveys, and it is therefore concluded that this species is likely absent.

Otter

- 3.1.36 The River Hamble and the Fish Pass channel provide good quality habitat for Otter with the channels providing suitable foraging habitat and the riparian habitats either side providing suitable habitat for lying up sites as well as potential for holts within bankside and woodland trees, although no potential holt sites or lying up sites were recorded during any of the surveys.

3.1.37 The surveys that supported the 2017 ES identified two spraints, one on the banks of the main Hamble channel and one on the fish pass channel. Updating surveys in 2021 identified fresh Otter spraint on an old Mink raft on the edge of the River Hamble Channel. The survey in 2022 again found fresh spraint on the Mink raft in the channel of the River Hamble. During the 2023 survey, two spraint locations were identified, one fresh spraint was located along the fish pass channel and one old and one fresh spraint located together where the fish pass joins the main channel. No evidence of Otter was found during the 2024 survey.

3.1.38 The 2017 ES concluded that the site was unlikely to support breeding or resting sites for Otter, however, watercourses within the Scheme area are used as a dispersal route and will form part of an otter territory. The evidence recorded during the updating surveys supports this conclusion.

Water vole

3.1.39 The River Hamble provides good quality habitat for Water Vole with a diverse mix of emergent and bankside vegetation providing abundant foraging resource for water vole. The western bank of the River Hamble in the vicinity of Botley Mill woodland is partially shaded but still supports lush growth of emergent and bankside vegetation. To the north of the existing railway viaduct there is denser shading from bankside woodland and a lower suitability for Water Vole but marginal vegetation still provides some suitability. South of the scheme boundary there are less bankside trees and lush growth of a diverse mix of emergent and bankside species providing good quality habitat.

3.1.40 The Fish Pass channel is largely overgrown and shaded by bankside trees and scrub with limited emergent and marginal vegetation except within occasional more open areas and is of lower suitability for Water Vole within the survey area.

3.1.41 Surveys for the original planning application in 2016 and 2017 recorded no evidence of Water Vole. Updating surveys in 2022, 2023 and 2024 recorded no evidence of Water Vole and this species is assessed to be likely absent from the site.

Birds

3.1.42 The original surveys and updating breeding bird surveys in 2022 found the proposed scheme footprint to support a typical assemblage of breeding bird species associated with woodland, hedgerows and grassland.

3.1.43 The key habitat to be impacted by the works is Botley Mill Woodland SINC and the riparian woodland and adjacent hedgerows and trees on the eastern side of the Hamble. This area supports a typical assemblage of breeding bird species associated with woodland and scrub habitats. Of note is the presence of a territorial Cetti's Warbler, recorded singing on all survey occasions within habitat on both banks of the River Hamble within the Scheme area.

- 3.1.44 The habitats in the eastern section of the Scheme, especially those surrounding the A334/Pinkmead junction were largely devoid of singing bird species. These habitats are immediately adjacent to near-constant traffic flow, and it is concluded that traffic noise levels are such that territorial activity such as singing is suppressed. No ground-nesting species were recorded within the arable/grassland habitats, although several species, including kestrel and starling, were noted foraging within the open grassland and arable habitats across the proposed scheme footprint and adjacent areas.
- 3.1.45 A House Sparrow colony is evidently present within the Bottings Industrial Estate adjacent to Sherecroft Farm, with birds occasionally seen within the dense hedgerow between the two areas.
- 3.1.46 The bulk of the site, comprising improved grassland, is mostly suboptimal for bird species other than as foraging habitat and no ground nesting birds were recorded.

Reptiles

- 3.1.47 The majority of habitat within the site is generally unsuitable for reptile species, comprising species-poor and structurally uniform improved grassland. Surveys were carried out in 2015, 2016 and 2017 to support the planning application, and were updated in 2021 and 2024.
- 3.1.48 The previous surveys between 2015 and 2017 recorded peak counts of three adult Slow-worms within rough grassland east of Uplands Farm; three adult Slow-worms and a single juvenile Grass Snake close to the railway embankment at the northern end of the eastern riverbank; and two adult female, two adult male and three juvenile Slow-worms and two juvenile Grass Snakes within boundary areas of Sherecroft Farm.
- 3.1.49 The reptile presence/absence survey carried out in 2021 recorded a maximum of four individual Slow-worms, comprising two adult females and two adult males. These animals were recorded at two locations: outside the scheme area at the south-western edge of the former horse-grazed pasture at Sherecroft Farm; and in rough grass at the edge of the public footpath to the east of Uplands Farm, just outside the scheme area.
- 3.1.50 The 2024 updating surveys recorded similar numbers, with a maximum during any one visit of two adult Slow Worm, comprising two females. No Grass Snake were recorded during 2024. During 2024 a total across all surveys of five Slow Worms (all adult female) were recorded to the east of the River Hamble within the margins of the field to the south of the railway embankment; one Slow Worm (juvenile) in the southeast corner of field to west of Uplands Farm track; and, one Slow Worm (adult female) along northern boundary of the fields west of the Hamble.
- 3.1.51 The reptile surveys undertaken demonstrate that the Scheme area supports a small but persistent breeding population of Slow Worm within suitable unmanaged peripheral vegetation and occasional Grass Snake within the wetter habitats associated with the River Hamble.

Invertebrates

- 3.1.52 Habitats across the site are of varied value for invertebrates, with the wet woodland and fen habitats along the Hamble valley providing the greatest potential value. During surveys in 2016, the Nationally Rare Alder Leaf Beetle *Agelastica alni*, was recorded on site within Botley Mill Woodland. Consultation with the Natural Environment Research Council (NERC)-hosted UK Beetle Recording scheme (Chrysomelidae Recording Scheme, Pers. Comm.) confirmed that the species had re-established in the County (and elsewhere in the UK), likely from continental Europe and was spreading rapidly via uncertain mechanisms.
- 3.1.53 The Environment Agency Catchment Data Explorer identifies that the Main River Hamble is of overall Moderate ecological status (2022) and that invertebrates are of High ecological status.

Fish

- 3.1.54 An assessment of fisheries habitat was undertaken for the 2017 ES and updating assessments have been undertaken in 2018 and most recently in 2024 (Phase 3 Botley Bypass Project – Updated Fisheries Habitat Assessment and Enhancement Report 2024). Within the Phase 3 area, The River Hamble and an associated Fish Pass channel provide important habitat for fish, including migratory Brown / Sea Trout. The fish pass channel was created to promote migratory fish movement between the tidal and non-tidal River Hamble, bypassing the major water level management sluice infrastructure at Botley Mill. Migratory fish species rely on this single route of passage and connecting watercourses in order to follow migration routes on the River Hamble.
- 3.1.55 Across monitoring stations in the vicinity of the Botley Bypass scheme, eleven different species of fish have been caught. Coarse fish represented include Dace, Bullhead, Grayling, Minnow, Roach, Chub and 3-spined stickleback. In addition, the migratory species Brown / Sea Trout and European Eel have been recorded. Both lamprey of indeterminate species *Lampetra* sp. and those identified as being Brook Lamprey have been recorded within the area.

3.2 Ecological Trends and Constraints

- 3.2.1 The Scheme footprint contains habitats of primarily local ecological value including large areas of species-poor grassland. Habitats of key interest comprise the River Hamble and SINCs located to the west and east of the River Hamble which include wet woodland and fen habitats which are of National ecological value, together with areas of species-rich hedgerow which are also of National value.
- 3.2.2 Survey effort has demonstrated that in terms of protected and notable species, whilst the scheme footprint supports a number of protected and notable species, the proposed scheme is not likely to result in long-term residual significant adverse impacts.

- 3.2.3 Clearly the construction of the Scheme within this landscape will have an immediate profound effect on the environs in terms of habitat impacts and will result in increases in noise, light and airborne particulates and waterborne pollutants which may have effects on the presence and composition of flora and fauna within and in close proximity to the proposed Scheme area. Ecological mitigation, compensation and enhancement measures will assist in ameliorating the identified impacts of the Scheme and ensure that known ecological features are protected and that the immediate landscape remains, as far as is reasonably possible, permeable to wild flora and fauna.

4 Habitat Management Strategy

4.1 Introduction

- 4.1.1 This section provides details of the proposed management of habitats, existing and proposed, within the site. It should be noted that management is taken to mean not just the physical management of habitats but their creation and establishment in the context of ecological mitigation, compensation and enhancement. This information should be read in conjunction with the Habitat Maintenance and Management Plan set out in chapters 6 and 8 of this LEMPIR. In addition, the Botley Bypass Fisheries Habitat Creation and Management Plan should also be considered with regard to aquatic ecology.
- 4.1.2 The habitat management plan provides details of the location, composition, establishment and ongoing maintenance of areas of new habitat within the Scheme footprint.
- 4.1.3 This Habitat Management Strategy comprises broad aims for habitat management at the site, followed by more detailed objectives and prescriptions for specific management activities designed to achieve those aims.

4.2 Scope of the Strategy

- 4.2.1 The strategy covers the area defined by the boundary of the proposed Scheme as shown in Appendix 1: it does not seek to provide a management strategy for the wider landscape or for previous phases of the bypass. However, where relevant, the strategy includes actions for land lying outside the boundary of the proposed works in recognition of the presence of mobile ecological receptors within and without the artificial planning boundary of the scheme.

4.3 Responsibilities

- 4.3.1 The production and delivery of this strategy is the responsibility of Hampshire County Council in response to conditions imposed by the permitted schemes. The strategy will form part of the contract for the scheme construction (advanced and main works) and therefore its implementation during the pre-construction and construction phase will be the responsibility of the successful contractor and their appointed representatives.
- 4.3.2 The scheme Contractor will be required to appoint an Ecological Clerk of Works (ECoW) to oversee the implementation of construction-phase aspects of this strategy, alongside any other ecological mitigation measures contained in other documents.
- 4.3.3 Post-construction management and maintenance of the habitat areas will be the responsibility of Hampshire County Council and their appointed landscape contractor as detailed in section 8.2.

4.4 Aims

4.4.1 The aims of the habitat management strategy are to mitigate the predicted impacts of the proposed works on identified ecological receptors and to provide ecological compensation and enhancements where necessary:

- Retain and protect existing ecological receptors within the proposed scheme footprint and the wider landscape;
- Ensure that the proposed Scheme provides meaningful ecological mitigation, compensation and enhancement measures which are consistent with proposals for the associated development schemes.

4.5 Objectives and Prescriptions

4.5.1 Tables 1 and 2 below provide details of the management objectives and prescriptions for the site. Further information on the implementation of selected prescriptions is provided in section 5.

Table 1: Management Aims, Objectives and Prescriptions

Management Aim	Management Objective	Management Prescription
1. Retain and protect existing habitats of nature conservation value	1.1 Ensure habitat loss is minimised	1.1.1 Appoint Ecological Clerk of Works (EcOW)
		1.1.2 Ecological supervision of advanced vegetation removal works.
		1.1.3 Ecologist to clearly define extent of habitat removal in conjunction with design team.
	1.2 Protect retained semi-natural habitats during construction	1.2.1 Retained habitats to be clearly defined pre-construction.
		1.2.2 Secure fencing and signage where necessary to be installed and maintained throughout construction phase.
		1.2.3 Pollution control measures to be implemented
	1.3 Minimise effects of habitat fragmentation and isolation	1.3.1 Identify opportunities to maintain/retain habitat corridors
		1.3.2 Ensure design incorporates features to maintain/retain/enhance linear habitat features.
	1.4 Mitigate impacts to protected and notable species.	1.4.1 Provide specific measures to address potential impacts to protected and notable species with potential to occur within scheme footprint: badgers, bats, otters, nesting birds, reptiles.
2. Provide new and enhanced habitats of nature conservation value	2.1 Ensure that new areas of habitat provide ecologically valuable and locally appropriate vegetation.	2.1.1 Ensure landscaping design incorporates a range of native plant species within locally appropriate habitat types.
		2.1.2 Produce detailed landscape maintenance plan for all areas of new plantings.
	2.2 Take opportunities to enhance existing habitat features to increase nature conservation value.	2.2.1 Provide additional habitat and species enhancements.

Table 2: Management Prescription details

Management Prescription	Details
1.1.1 Ecological Clerk of Works (ECoW)	• All phases of works (advanced works and main works) shall have an appointed Ecological Clerk of Works (ECoW). • The ECoW shall be responsible for ensuring the implementation of all ecological mitigation measures during construction phases. • The ECoW shall liaise with and report issues to the Site Manager.
1.1.2 Ecological supervision of advanced vegetation removal works.	• All vegetation removal works to be supervised by an ecologist where necessary. Ecologist to inspect hedgerow sections prior to removal where necessary. • Tree removal (where necessary) to be subject to ecological supervision. • Tree with identified bat roost to be removed under European Protected Species mitigation licence.
1.1.3 Ecologist to clearly define extent of habitat removal in conjunction with design team.	• HCC ecologist has provided detailed advice to design team on extent of habitat removal. On-site supervision of vegetation removal works (pre-and during construction) to ensure only defined areas are removed.
1.2.1 Retained habitats to be clearly defined pre-construction	• Environmental Statement contains clearly identifiable habitat plan showing locations of all ecological features of interest. Successful contractor to ensure that habitat plan is reviewed and informs construction management.
1.2.2 Secure fencing and signage where necessary to be installed and maintained throughout construction phase.	• Appropriate fencing to be installed pre-construction to define construction area (to include compound and access routes) and prevent informal intrusion/damage. • Where necessary, signage to be installed on fencing to identify areas of ecological sensitivity and prevent informal disturbance (particularly relevant for works within the Hamble Valley).

1.2.3 Pollution control measures to be implemented	• All works to accord with pollution control measures (e.g. Ciria C532 Control of water pollution from construction sites). • Particular care shall be taken in proximity to the River Hamble valley including the River Hamble main channel, Fish Pass and riparian habitat within Botley Mill Woodland SINC and Sherecroft Farm Meadows SINC, as well as the Pinkmead Stream. • Site Manager and ECoW to ensure that appropriate measures are implemented.
1.3.1 Identify opportunities to maintain/retain habitat corridors	• Landscape proposals include retention of habitat corridors, and new plantings provide replacement and enhanced areas of habitat throughout the scheme footprint.
1.3.2 Ensure design incorporates features to maintain/retain/enhance linear habitat features.	• HCC ecologist and design team have identified opportunities for maintenance of existing habitat corridors, and these have been incorporated into the final design.
1.4.1 Provide specific measures to address potential impacts to protected and notable species with potential to occur within scheme footprint: badgers, bats, otters, nesting birds, reptiles.	• Construction-phase mitigation measures developed to avoid impacts to protected and notable species.
2.1.1 Ensure landscaping design incorporates a range of native plant species within locally appropriate habitat types.	• The Landscape & Ecological Management Plan & Implementation Report Plan (HCC, 2024) incorporates plantings dominated by locally appropriate native plant species throughout. Seeded areas to comprise locally appropriate wildflower seed mixtures.
2.1.2 Produce detailed landscape maintenance plan for all areas of new plantings.	• The Landscape & Ecological Management & Implementation Report, (HCC, 2024) has been produced and will be implemented (see chapters 5 and 6).
2.2.1 Provide additional habitat and species enhancements.	• Creation of new areas of fen habitat. • Provision of bat and bird boxes. • Provision of reptile hibernacula and log piles

5 Further details on management prescriptions

5.1 Introduction

5.1.1 This section provides further details of specific management prescriptions.

5.2 Ecological supervision

Ecological Clerk of Works (ECoW)

- 5.2.1 Ecological supervision will be required throughout the pre-construction and construction phases of works to oversee any activities which have the potential to impact upon sensitive receptors and ensure compliance with the LEMPIR and any specific licences or consents.
- 5.2.2 For each phase, the Contractor shall appoint a suitably qualified professional ECoW to ensure that the aims, objectives and prescriptions within this document are implemented.
- 5.2.3 The ECoW shall liaise directly with the Site Manager and maintain a written record of all actions taken.

Named Ecologist Supervision (Bat Licence)

- 5.2.4 In addition to the general supervision undertaken by the ECoW, there is a requirement for certain elements of the works to be supervised by the Named Ecologist or an approved Accredited Agent for works to remove trees with confirmed bat roosts under a Natural England Bat Mitigation Licence.

5.3 Vegetation removal

Trees, hedgerows and scrub

- 5.3.1 Vegetation works are required in order to facilitate the proposed scheme. In order to avoid impacts to nesting bird species advanced tree, scrub and hedgerow removal works along the route will be carried out during winter 2024/25 (complete by end of February 2025) by HCC-appointed contractors. The location of the proposed vegetation removal works is shown in Appendix 5.
- 5.3.2 Contractors will remove trees and areas of scrub and hedgerow using chainsaws. All arisings will be removed from site or chipped in situ. Larger tree trunks will be retained for future use on site for recreational or amenity projects. Within the SINC areas, selected arisings comprising a range of diameters will be also retained to provide log piles and hibernacula for reptiles. Any deadwood arisings from Botley Mill Woodland and Sherecroft Farm Meadows will also be retained and used to create habitat piles for invertebrates. Where necessary, vegetation regrowth will be strimmed during spring to ensure that nesting birds are not attracted to cut areas.

- 5.3.3 Grubbing-up of stumps will be carried out during the initial construction phase (April 2025 onwards) and will, where considered necessary, be supervised by an ecologist. This includes ecological supervision of all areas with suitability for reptiles (see submitted Reptile Mitigation Strategy Report drawings). Supervision of all stump removal within the Hamble Valley will also require ecological supervision due to the sensitivities of the habitats present. Particular care will be needed when undertaken stump removal where roots may be present in the banks of watercourses (River Hamble, Fish Pass and Pinkmead Stream) to avoid damage to the bankside habitat and cause siltation of the watercourse.
- 5.3.4 Clearance of trees supporting bat roosts will be undertaken under a Natural England bat licence during Spring 2025 (April/May). Trees with roost potential which cannot be fully inspected during the winter clearance will also be felled during Spring 2025 (see Section 5)

Grassland and Arable

- 5.3.5 Much of the Phase 3 area supports suitable reptile habitat and within the areas of suitable habitat, the removal of grassland vegetation (as well as ground level clearance of areas of scrub and hedgerows) has a risk of harming reptiles. A detailed reptile mitigation strategy has been developed to minimise the risk of harm to individual reptiles. This will include supervision by the Contractor's appointed ecologist as well as specific measures including a reptile relocation exercise, phased vegetation clearance and destructive search (see submitted Reptile Mitigation Strategy Document).

5.4 Protected and Notable species mitigation measures

Badgers

- 5.4.1 It is assumed that Badgers could attempt to cross the Scheme footprint during the construction period. It will therefore be necessary to allow Badgers access across the works area until such time as the scheme is completed and operational. The presence of Badgers within the works area during the hours of darkness will not present any safety issues for contractors and the specific exclusion of Badgers from the works area is not considered feasible or necessary. Badger-proof fencing would need to be high-tension steel mesh dug into the ground to a depth of c.1m: for such a low-risk scheme this is not considered necessary.
- 5.4.2 Appropriate security fencing (e.g. Heras) will be installed around the entire construction site perimeter in advance of works. This fencing is highly likely to deter badgers and any other larger fauna from entering the construction area.
- 5.4.3 The ECoW or another appointed ecologist will undertake weekly inspections of the perimeter fencing to assess the presence of Badger activity. A weekly inspection log should be maintained alongside a record of any mitigating actions taken.
- 5.4.4 Given that Badgers may be present within the construction area throughout the construction period it is imperative that sound construction practices are followed to avoid harm to Badgers. The following measures will be adhered to:

- All steep-sided excavations deeper than 0.5m depth must either be entirely covered during non-working hours or, alternatively, fitted with a scaffold board ramp or earth ramp to facilitate badger egress should an animal enter the excavation.
- Any potential evidence of Badger diggings (which may indicate sett formation) will be reported immediately to the site manager and the ECoW.
- Weekly inspections by the ECoW/ecologist will be made of any potential Badger resting areas within the construction site. This will include spaces beneath site cabins and beneath/within stored materials e.g. pipes. An inspection log will be maintained alongside a record of any mitigating actions.
- Where necessary, changes to the location and manner of stored materials will be made to avoid potential issues e.g. ensuring materials are stored off the ground. Any pipework of 200mm diameter or greater will be capped when stored.

Bats

- 5.4.5 The proposed removal of trees will result in the loss of three trees with confirmed/suspected roosts (T91, T155, T157) as well as loss of a number of trees containing potential roost features (PRF) (14 x PRF-M and 12 x PRF-I). All identified roosts are day roosts for pipistrelle bats. Given the frequent roost switching behaviour of tree roosting bats it is probable that even where repeat surveys have not identified any evidence of roosting activity that these features have potential to have been used by roosting bats in the past and be used in the future.
- 5.4.6 Trees with confirmed and probable roosts will be subject to removal only after a Natural England European Protected Species mitigation licence is obtained. Trees with confirmed and probable roosts will be clearly marked prior to the commencement of works. Additionally, trees supporting potential roost features will also be clearly marked out on site prior to removal.
- 5.4.7 The majority of trees where no roosts have been identified will be felled during the advanced vegetation clearance in winter 2024/25 due to the high risk of nesting birds being present during the spring/summer. However, confirmed roosts and other trees where they cannot be safely and fully inspected during the winter to confirm there are no bat present at the time of felling, will be felled in spring 2024 during the active season when pre-felling emergence/re-entry surveys can be undertaken to ensure no bats are present at the time of felling. Where suitable and specified within the Natural England Mitigation Licence, exclusion devices may be fitted to potential roost features during the active season to exclude bats prior to felling.
- 5.4.8 For each tree, the following felling procedure will be implemented.
- Works to confirmed roosts to be supervised by Named Ecologist on Natural England Bat Licence or an Accredited Agent who has been approved in writing.

- Works to trees with potential roost features but not confirmed roosts to be supervised by an experienced and licenced bat worker (minimum Natural England level 2 class licence)
- Trees subject to either climbed inspection and endoscope inspection on day of removal, or to emergence/re-entry survey the night/morning prior to removal.
- If bats are present, the tree will be retained until all bats have vacated the roost feature – to be confirmed by climbed assessment of emergence survey. If not covered by the bat mitigation licence then a licence amendment will be required for any newly identified roosts not covered by the granted licence (i.e. either a different species, different type of roost, different tree)
- Once absence of bats has been confirmed, the tree will be felled on the same day, or features which can be fully inspected and bats confirmed to be absent can be blocked to allow felling at a later time. Where features are blocked in advance of felling they must be subject to regular inspections to ensure features remain blocked. If blocks are dislodged, the PRF will be re-inspected.
- Where feasible, trunk or limb sections with PRFs will be cut sectionally to retain PRFs intact and lowered to ground.
- Cut sections with PRFs will be retained on the ground outside the works area for at least 48 hours prior to removal (or left on site).

5.4.9 To compensate for the loss of roosting resource, where suitable PRF's can be removed from trees intact and are suitable (i.e. the feature has sufficient longevity to merit translocation), and where safe to do so, features will be strapped to trees within the wider woodland in areas outside of the works footprint and outside of public access.

5.4.10 Further compensatory bat roost boxes will be installed on retained trees outside the works area. These will comprise a series of woodcrete bat boxes of different designs (including cavity and crevice type boxes) to provide a range of different roosting features suitable for different bat species. These boxes will be attached to suitable trees within the River Hamble corridor. Two boxes will be installed for every PRF-M tree removed and one box will be installed for every PRF-I tree removed. Based on the number of trees with bat potential to be removed this will include the following boxes (or an equivalent approved by the HCC ecologist):

- 10 No. 1FF Schwegler Bat Box with Built-in Wooden Rear Panel;
- 10 No. 2FN Schwegler Bat Box;
- 16 No. 2F Schwegler Bat Box with Double Front Panel; and
- 10 No. Vincent Pro Bat Box

5.4.11 The location of bat boxes is shown in Appendix 7.

5.4.12 Night-working is not proposed. Where this becomes necessary, artificial lighting will not be directed at retained vegetated boundaries such as woodland and hedgerows. No night-working will be undertaken around the Hamble Valley area including the River Hamble, Fish Pass, Botley Mill Woodland and Sherecroft Farm Meadows. Any proposed lighting will be subject to review by the ECoW and measures to minimise potential impacts will be implemented. The specification of any temporary construction lighting, including any temporary lighting around site compounds, will follow best practice to minimise any impacts to bats and other species. This will include:

- All luminaires should lack UV elements when manufactured.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Light spill must be minimised as far as possible.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow.

5.4.13 No other bespoke measures are considered necessary for bats during the construction phase.

5.4.14 New streetlighting will be at the junctions but the majority of the scheme corridor, including the key habitat along the Hamble Valley, will remain unlit. Where street lighting is required this will be designed to minimise the impact on bats and other species using best practice guidelines¹ including the following:

- All luminaires should lack UV elements when manufactured.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be used.

¹ Bat Conservation Trust and the Institute of Lighting Professionals (2023) Guidance Note GN08/23 Bats and Artificial Lighting at Night.

- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.

Otter

5.4.15 The following potential impacts are identified:

- Direct loss (killing and injury) during site clearance and construction may arise in the absence of mitigation. This specifically includes becoming trapped in excavations left uncovered with no means of escape.
- Direct loss of habitats for foraging is considered likely during the construction phase as fen, wet woodland and riparian areas are cleared in advance of the construction of watercourse structures and supporting infrastructure and haul routes.
- Construction-phase noise, visual and light disturbance of stream corridor and riparian habitat (Hamble Valley) which may impact otters.
- Percussive piling for the new River Hamble Bridge foundations: this is likely to be a source of intensive noise and visual disturbance.
- Pollution of watercourse during construction.

5.4.16 The following measures will be implemented to minimise the risk to Otters:

- Fencing will demarcate the construction footprint and no works will occur outside this fencing. The ECoW, in liaison with the site manager, will ensure that secure perimeter fencing is maintained. The placement of the fencing should retain as much riparian vegetation as possible.
- Where works are to be undertaken within suitable Otter habitat – i.e. the Hamble Valley area (including the River Hamble, Fish Pass and Wet Woodland and Fen Habitat), the ECoW will undertake a pre-works inspection of the works area and up to 50m either side of the working areas to identify any evidence of Otter. Should any evidence of an Otter holt site or laying up site be identified the ECoW will consult with the HCC Ecologist regarding any additional mitigation measures and licencing which may be required to undertake the works.
- All vegetation clearance and site clearance activities within the Hamble Valley will be supervised by an ECoW.
- The only in-channel works proposed within the Hamble Valley are the temporary culverting of the Fish Pass to allow the piling rig to access the central area. Prior to these works the ECoW must inspect the area for signs of Otter and then supervise the installation and removal of the culvert.
- No night working or temporary artificial lighting is to be undertaken within the Hamble Valley area.

- All works within the Hamble Valley must be undertaken in accordance with the Flood Risk Activity Permit.

5.4.17 It is reasonable to assume that as no night working is to be undertaken within the Hamble Valley area, construction activity is not likely to result in significant disturbance to otters, which are primarily nocturnal: otters are highly unlikely to be present within the River Hamble or Fish Pass at the time at which disturbance would occur and no potential holt sites have been identified on site or within the wider survey area during any of the otter surveys which could be disturbed by the construction works.

5.4.18 The ECoW should determine the extent to which construction noise and visual disturbance may be presenting an issue for otters within the Hamble Valley. Where an issue is identified, the following measures will be considered:

- The use of noise-attenuation hoarding attached to perimeter fencing and other noise mitigation measures.
- The restriction of certain activities to peak daytime periods (rather than early morning or evening).

Birds

5.4.19 Where vegetation removal is required within the nesting bird season (generally March to August inclusive, though may extend beyond this), works shall proceed only after a detailed inspection by a suitably qualified ecologist. Where an active nest is noted, works shall not continue in that area until nesting activity has concluded. Appropriate buffers around active nests shall be determined by the ECoW and marked out with appropriate barrier tape or fencing. This nesting bird check must be undertaken no more than 24 hours prior to the vegetation removal being undertaken.

5.4.20 Cetti's Warbler, a Schedule 1 bird was identified within the Hamble Valley area during the most recent breeding bird surveys. As a Schedule 1 bird this species is protected from disturbance such as from significant construction noise and vibration. Works with potential to result in significant noise and vibration, such as percussive piling, have been programmed to be undertaken outside of the main nesting bird season as far as possible which will minimise the risk of disturbance of Cetti's Warbler. Piling works are programmed to be undertaken from mid-August due to other ecological constraints (Fish). The Cetti's Warbler breeding season is typically between late-April and mid-July and the young fledge by mid-late August. With piling from mid-August there is therefore a risk of these works causing disturbance. General construction activities also have the potential to cause disturbance. To mitigate this risk, the site boundary fencing will be fitted with a temporary acoustic barrier where located within and adjacent to the Hamble valley area. This will provide both noise reduction and visual screening.

- 5.4.21 An ornithologist will undertake surveys between April and July 2025 to identify whether any breeding Cetti's Warbler are present within and adjacent to site. Where presence is confirmed the ornithologist will review the location of any territories and also review the risk of disturbance from construction activities. Where there is a risk of disturbance, further mitigation should be undertaken including noise reduction measures on machinery and equipment and further temporary acoustic barriers. If it is not possible to avoid significant disturbance with mitigation measures then such works should be programmed to be undertaken outside of the Cettis' warbler breeding period.
- 5.4.22 Fen habitat restoration and creation within the Hamble valley area including the new fluvial ponds will create additional suitable habitat for Cettis' Warbler and compensate for the habitat loss during construction. The tree, shrub and scrub planting along the corridor of the scheme will provide replacement habitat for other species. In order to provide replacement nesting habitat in the short term, i.e. whilst vegetation establishes, bird boxes will be installed within retained vegetation. This will include a range of different box types, suitable for a range of species, including: 10 No. 25mm entrance replica bark boxes; 5 No. Starling Bark replica bark boxes; 5 No. 32mm entrance boxes; 10 No. open fronted boxes; and 5 No. 30mm x 45mm oval entrance boxes. The location of bird boxes is shown in Appendix 7.

Reptiles

- 5.4.23 Due to the presence of low populations of Slow Worm and Grass Snake within the Phase 3 works area a detailed reptile mitigation strategy has been developed. This mitigation strategy is presented within the Botley Bypass Phase 3 Reptile Mitigation Strategy (HCC November 2024) and should be referred to for full details of the reptile mitigation strategy.
- 5.4.24 Enhancement of retained offsite habitat will include creation of four log piles using selected arisings from tree and shrub clearance. These will be constructed using a range of log diameters to create a range of void sizes within the log piles. These will be constructed prior to the commencement of the reptile relocation and will be placed outside of the reptile exclusion fence within the locations shown in the reptile mitigation strategy. Log piles will be a minimum of 2m long x 1m deep x 1m high.
- 5.4.25 Additionally, five reptile hibernacula will be constructed within the new highways soft estate following construction of the scheme. These will be a minimum of 2m long x 1m deep x 1m high and will be constructed in accordance with the design shown in Figure 1 below. Three hibernacula will be constructed within the highways soft estate to the east of the Hamble bridge and two will be constructed within the highways soft estate to the west of the Hamble bridge. The location of reptile hibernacula are shown in Appendix 9.

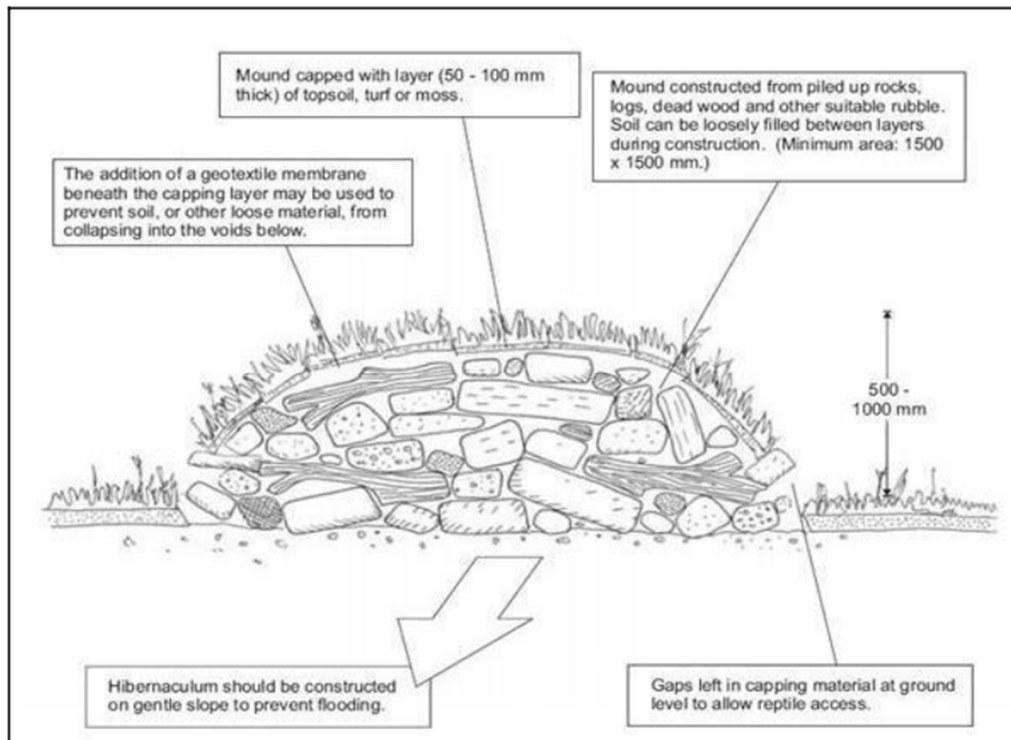


Figure 1 Reptile hibernacula specification

5.4.26 The landscape design for the completed scheme will compensate for the areas of reptile habitat lost under the construction footprint and permanent footprint of the scheme. The landscaping for the scheme includes a wide verge with large areas of native species-rich grassland (27,174m²), areas of less diverse native grassland (18,726m²), together with new native hedgerows (1,023 linear metres), native tree and shrub planting (6,549m²) and native shrub planting (1,855m²). This will create a corridor of suitable reptile habitat along the length of the Phase 3 scheme to the east and west of the River Hamble. The diverse grassland together with pockets of trees and scrub and hedgerows will create an increase in edge habitat compared to the current habitats and the extensive areas of species rich grassland will provide greater foraging suitability for reptiles.

5.4.27 The new road embankments either side of the new River Hamble bridge as well as bunds along side the new road within the Uplands Farm area will create more topographical diversity and provide opportunities for basking, particularly on the southern facing banks. Within the Hamble valley area, where fen and wet woodland habitats are lost as a result of the construction footprint of the scheme, these areas will be restored to fen habitat (7,894m²). The wide span of the new bridge will mean that this habitat restoration will continue beneath the span of the new bridge on both sides of the River Hamble, although diversity of flora and growth are likely to be impacted to some extent by shading from the structure. However, fauna, including Grass Snake, will be able to move along the restored banks beneath the new structure. Additional areas of fen habitat will be created around two new fluvial ponds, one on each side of the River Hamble. These fluvial ponds will create new seasonally inundated habitats and will provide new areas of suitable foraging habitat for Grass Snake. Proposed Landscape Drawings in Appendix 6 should be referred to for details of the habitat creation.

Invertebrates

- 5.4.28 Mitigation for invertebrates includes retention and protection of areas of high-quality invertebrate habitat wherever possible including maintaining buffers of at least 5m from retained hedgerows and tree lines where possible and minimising the temporary construction footprint within Botley Mill Woodland SINC and Sherecroft Farm Meadows SINC. Retained habitats will be protected throughout the construction programme with appropriate fencing and signage.
- 5.4.29 Where habitat clearance requires removal of deadwood, selected arisings will be retained as habitat piles outside of the construction footprint within areas of retained habitat in the Hamble Valley. This will include large diameter deadwood from the standing dead oak tree to the east of the Hamble as well as other sections of suitable deadwood removed from other trees. Where safe to do so, trees to be removed for the works which are outside of the construction footprint will be retained as habitat stumps or where possible monoliths to provide standing deadwood. Trees in the Hamble Valley area identified for removal but located outside of the construction footprint include T192, T193, T182 and T91.
- 5.4.30 Construction lighting will be avoided in the high quality invertebrate habitats within the Hamble Valley area.
- 5.4.31 During construction the impacts from water pollution and dust pollution will be mitigated through the use of best practice measures as outlined within the CEMP and Dust Management Plan.

5.4.32 Habitat restoration and creation along the scheme corridor as detailed on the Landscape Drawings and within this LEMP will provide a diverse mix of habitats providing good quality invertebrate habitat which will result in an overall increase in high quality invertebrate habitat along the Scheme corridor, much of which is currently low quality species poor grasslands. Habitat creation includes new areas of fen habitat (as well as fen restoration in areas of temporary impact), extensive areas of species-rich wildflower grasslands and a diverse mix of native tree and shrub planting and hedgerow planting. New SuDS and balancing ponds will provide further habitat for invertebrates as well as ensuring highway runoff does not degrade the wider water environment.

Fish

5.4.33 Detailed mitigation for minimising impacts to fish during construction are set out within the Updated Fisheries Habitat Assessment & Enhancement Report (2024). This mitigation has been informed by a number of meetings with the Environment Agency (EA).

5.4.34 Following consultation and discussions around a suggested 8 weeks window targeting a period of reduced salmonid migration, the EA have agreed that an 8 week window from 14 August – 21 October would be most acceptable based on the period comprising the lowest proportion of the total run migrating during an 8 week window.

5.4.35 Whilst there is a reduced movement of migratory Brown Trout during the August to October window, there remains a potential for impacts to migratory fish at this time. Where there is a risk of piling noise disturbing fish moving upstream, impacts can be reduced by diurnally restricting upstream movements during daylight hours (when piling is occurring). This could be achieved through deploying a stop net at the base of the fish pass and/or restricting the flow down the fish pass. If this is employed, it is recommended that each morning, after the re-insertion of the stop net and prior to the restriction of flow, trained ecologists survey the fish pass to assess whether any salmonids have attempted to move through the fish pass but have not made it all the way to the top of the pass. Any fish encountered should be moved upstream of the fish pass. The success of this approach would be improved through two factors:

- Clearance of bankside and shading vegetation from around the fish pass to improve access for surveyors to see and capture any retained fish and to reduce the attractiveness of the channel as a place for salmonids to 'pause' during upstream passage. Particular attention should be given to clearing vegetation and wooded debris from around 'pools' to deter fish from resting there.
- Placing the stop net as close to the base of the fish pass as possible. This would reduce the area that needed to be covered by surveyors each morning, increasing efficiency and reducing delays to programme, but also increasing likelihood that any / all 'trapped' salmonids would be successfully moved upstream.

- 5.4.36 The net should also only be in place for as little time as required, and only when piling is taking place. Periods of heavy rain ('freshets') are often a cue that results in the upstream movement of migratory salmonids. There should also be an allowance for two-to-three -day 'stop' periods during the piling period when no piling will take and during which sea trout can freely move up the fish pass channel i.e. no net will be in place. It is recommended that the above mitigations should be agreed with the Environment Agency via condition. The methodology for netting/fishing should also outline the number of days that salmonid monitoring should continue to be undertaken if no fish are encountered, i.e. 14 continuous days of no translocated fish means that daily monitoring can be ceased. All mitigation works would need to be subject to appropriate licences and conditions, such as an FR2 "Application for authorisation to use fishing instruments other than rod and line in England".
- 5.4.37 Further minimisation of impact could be achieved through using a soft-start procedure for piling activity.
- 5.4.38 The combined use of a soft start procedure, diurnal restrictions and a seasonal working window will drastically reduce the impact to fish receptors from noise and vibration. As such, the impact from noise and vibration generated during the demolition and construction on fish communities inhabiting, and moving through this stretch of the River Hamble can be minimised by the application of the above measures.

5.5 Protection of retained features

- 5.5.1 Fencing and signage The Scheme construction footprint will be securely fenced throughout the main construction phase. The installation of fencing (e.g. Heras-type) will prevent construction activities from intruding upon retained habitats and sensitive off-site habitats such as retained areas of Botley Mill Woodland SINC and Sherecroft Farm Meadows SINC. The location of the site boundary has been informed by the tree protection zones as detailed within the submitted Arboricultural Method Statement and well as through close working between the Contractors and the HCC Ecologist to identify key areas for retention of buffers and protection of these retained habitats. This includes retaining marginal habitats around field boundaries unless these are unavoidable within the construction footprint. Areas of retained habitat within the red line boundary include retaining a 5m grassland buffer from the hedgerow which forms the sites northern boundary with Bottings Industrial Estate, retaining a minimum 5m grassland buffer where the red line boundary is located along the railway embankment boundary to the east of the River Hamble, retention of area of fen and grassland habitat to the south of the construction footprint between the eastern bank of the river Hamble and the fish pass channel, and retaining a minimum 5m grassland buffer for the majority of land within Uplands Farm where the red line boundary is located along the railway boundary to the west of the Hamble.

- 5.5.2 In addition to the site boundary fencing, temporary reptile exclusion fencing will be installed in key areas of the site. Details are set out within the Reptile Mitigation Strategy document. The reptile fencing will be regularly inspected by the ECoW for the duration of works to ensure it remains intact. Where any damage occurs to the reptile fencing this will be fixed as soon as possible and the ECoW will consult with the HCC Ecologist regarding any implications for the reptile mitigation strategy.
- 5.5.3 To minimise construction noise disturbance to protected species, notably Schedule 1 bird Cetti's Warbler, sections of the site boundary fencing will have temporary acoustic barrier matting attached to the site boundary fencing.
- 5.5.4 Where necessary, appropriate signage will be attached to fencing to ensure that contractors are aware of the sensitivity of retained and adjacent habitats.
- 5.5.5 Tree protection fencing will be installed prior to construction works commencing as detailed within the submitted Arboricultural Method Statement.

Pollution control

- 5.5.6 Standard pollution control measures for construction sites will be implemented at all times during the construction phase.
- 5.5.7 Works within close proximity to the River Hamble main channel and fish pass, Pinkmead Stream, and the fen and wet woodland habitats in the Hamble valley are particularly sensitive and it is imperative that appropriate pollution control procedures are implemented.
- 5.5.8 A Construction Environment Management Plan (CEMP) will be produced by the contractor for approval by the planning authorities, detailing specific measures for ensuring that identified ecological receptors will be protected from harm and construction pollution sources.
- 5.5.9 A Dust Management Plan will also be produced by the contractor for approval by the planning authorities, detailing specific measures for the control and management of dust during construction.

6 Habitat Creation & Management

6.1 Introduction

- 6.1.1 The proposed landscape scheme for the site includes significant areas of new native tree and shrub planting along with sowing large areas of species rich grassland. The Scheme has been designed to provide continuity of characteristic habitats post-development and provide continued habitat linkages through the local landscape. This section provides further details of the proposed landscape scheme and how it achieves the aims and objectives of ecological compensation and enhancement, both in terms of habitats and protected and notable species.
- 6.1.2 Full details of the location of new plantings and the proposed maintenance schedule are found within the Landscape Management & Maintenance Plan detailed in Chapter 8 and associated landscape plans in Appendix 6. The following sections place the proposed landscape strategy within an ecological context.

6.2 New habitats

Trees, scrub and hedgerow

- 6.2.1 The landscaping scheme includes diverse areas of native tree and shrub plantings. The purpose of these new plantings is to retain and enhance characteristic landscape features, to provide screening and noise attenuation for the new/widened road and to provide ecological connectivity. The following planting mixes are proposed:

Tree and shrub mix

- 6.2.2 These areas will be planted at 2m centres and create a slightly open structure during establishment. Whilst containing a diverse range of native shrub species, this mix includes species which will develop into larger trees thereby allowing a structurally diverse habitat to develop.
- 6.2.3 Areas of standard tree planting occur throughout the scheme. These will provide individual or small clusters of trees such as pedunculate oak, field maple, hornbeam, alder, silver birch and willow species.

Shrub mix

- 6.2.4 These areas will be planted at slightly higher density than the tree and shrub mix, creating areas of dense native scrub containing a diverse range of typical species.

Alder fen mix

- 6.2.5 These areas will be planted with species suited to damper soils such as alder and various willows.

Habitat connectivity

- 6.2.6 The new bypass will be fringed by new grassland verges, swales and noise attenuation embankments planted with a diverse native scrub mix. As such, habitat connectivity to the Hamble Valley and the adjacent woodland to the north will be maintained in the medium-to longer-term once grassland and woody plantings have established. This new habitat will provide a linkage between Winchester Street in the west and the A334 Station Hill in the east.
- 6.2.7 Connectivity to the surrounding landscape is maintained through linkages via the Hamble Valley connecting to Cold Down and Wangfield Copse to the north and hedgerows situated to the east on the A3051 (see Appendix 6).
- 6.2.8 The network of swales and drainage basins lying east and west of the River Hamble and adjacent to the A334 Station Hill will also provide valuable grassland and wetland stepping-stones and linkages within the proposed scheme footprint and between it and the wider landscape. It is not clear how wet these habitats will ultimately be, and it is therefore assumed that wetness will be intermittent i.e. during periods of high rainfall and run-off.
- 6.2.9 Overall, the proposed new tree, scrub and hedgerow plantings will provide:
- 411 no. Feathered, Standard or Heavy Std Trees.
 - 6,549m² of Native Trees and Shrub planting mixes
 - 1,855m² Native Shrub Planting
 - 1023 linear metres of Native Hedgerow Planting
 - The Uplands Development noise bund will include the following areas of native planting. (These figures are incorporated in the overall areas set out above).
 - 211 no. Feathered, Standard or Heavy Std Trees.
 - 3,000 m² of Native Trees and Shrub and Shrub planting mixes
 - 90 linear metres of Native Hedgerow Planting
 - The exact plant mixes are shown on the accompanying planting plans set out in Appendix 6.

Grassland

- 6.2.10 New areas of standard and species-rich grassland will be created. Species-rich/ meadow grass seed mixes shall be sown on all the noise mounds, embankments and around the ponds (Emorsgate Seeds EM4 or similar for clay soils). Yellow rattle will be added to the mix to assist in reducing grass vigour and creating space for the flowering species to grow. The new swales and drainage basins also provide opportunities for grassland creation and ecological enhancement.
- 6.2.11 The roadside verges will be sown with a typical hard-wearing roadside verge mix containing a high percentage of hard fescues. This thrives under low maintenance on poor soil.

- 6.2.12 This roadside verge mix will be enhanced by the addition of native wildflower annuals and perennials (such as Poppy and Cornflower) in order to provide an initial flush of more ecologically valuable species and longer-term interest. There are no species-rich road verges within the immediate landscape and therefore a bought seed mix is the only opportunity for increasing the biodiversity value of all grassland areas: natural colonisation will undoubtedly occur over time but there is no obvious source of species-rich verge grassland locally.
- 6.2.13 The roadside verge grassland and all sightlines will be subject to routine maintenance comprising six cuts of 1-2m width annually for verges designated as 'urban'. To maximise biodiversity value of the wildflower/ meadow grass areas, once established they will be cut once a year. This annual cut will be in late autumn (October) which will allow flowering and seed production and cutting in late autumn will also minimise the risk of harm to reptiles which will colonise these new areas of high-quality reptile habitat. To maintain low nutrient levels, arisings will be removed from the cut wildflower meadow areas. Where appropriate, arisings will be placed as compost piles on the edge of the grasslands to provide habitat for reptiles.
- 6.2.14 The drainage swales will be seeded with standard road verge amenity mix. These features are likely be dry for the majority of the year and therefore a dry grassland mix is an appropriate option. However, their primary function is to channel flood waters away from the road and so it is doubtful whether a more botanically diverse sward should be established initially rather than allowed to develop over time to match prevailing conditions. The drainage basins will be sown with a suitable wetland mix such as Emorsgate Seeds EM8.
- 6.2.15 Small areas of marginal wetland flora will be planted at the edges of the detention basins and swales: the basins and swales are unlikely to hold sufficient water to accommodate submerged aquatic species. Species to be included are marsh marigold, pendulous sedge, hemp agrimony, meadowsweet, soft rush, purple loosestrife and brooklime.

Fen

- 6.2.16 As part of the flood mitigation for the Scheme and to provide compensation for impacts to fen and wet woodland habitat, two new flood alleviation basins have been included in the scheme design. These have been designed as fluvial ponds and will be inundated during flood conditions. These will be developed as fen habitat, connected to the adjacent SINC sites. One area is to be located to the east of the Hamble floodplain, comprising a scrape into the improved grassland adjacent to the fish pass downstream of the proposed bridge crossing. The second area is to be located west of the western boundary of Botley Mill Woodland SINC, within the improved grassland agricultural field, connected to the existing fen by a scrape beneath the overhead powerline. Both areas have been developed to mimic the natural floodplain at the site and freely fill and drain during high water levels. Areas of temporary impact which will be lost during works within Botley Mill Woodland SINC and Sherecroft Farm Meadows SINC will also be restored to fen habitat. These areas will have similar levels to pre-construction and will be seasonally inundated during high water levels as per the current situation.

- 6.2.17 During construction, topsoil and subsoil removed from within Botley Mill Woodland and Sherecroft Farm Meadows SINCs is to be stored separately from other areas of soil for re-use within the restored areas of the Hamble Valley (including Botley Mill Woodland and Sherecroft Farm Meadows SINC) and within the new fluvial pond areas. The topsoil will contain a seedbank from the existing habitat and the re-use of these soils will help establish the proposed fen habitat. Due to the presence of Himalayan Balsam within these areas, this topsoil is highly likely to also contain Himalayan Balsam within the seedbank and therefore this must be controlled during works to reduce the persistence in the seedbank and prevent spreading to other areas of the site. This should be done through hand pulling of Himalayan Balsam during spring and early summer prior to flowering and seed production. This Himalayan Balsam control will need to be undertaken throughout the 5-year Landscape maintenance period.
- 6.2.18 Seasonal inundation of the fluvial ponds and restored areas within the Hamble Valley will bring in seeds from the wider area and natural colonisation from the adjacent retained fen habitats will also occur. Regeneration from the seedbank and natural colonisation from the adjacent retained habitats is the preferred method for restoring and creating fen habitat. However, should monitoring during the 5-year maintenance period indicate that seedbank germination and natural colonisation is not sufficient, additional seeding and plug planting of native fen species will be undertaken. Details of this are provided in section 8.

Restoration of temporary works areas

- 6.2.19 An area of agricultural field to the east of the Hamble River will need to be restored and returned to baseline condition. It will be used as a compound area during the bridge construction and for the storage of construction materials. After completion of the works all hard surfacing and building materials will be removed from the site. The surface will be deep ripped using a winged mole plough prior to replacing the topsoil. Any stone, metal or building material revealed by this process which is over a 30mm diameter will be removed. After topsoiling and cultivation, the field will be sown with a meadow mix, Emorsgate Seeds, EM20. Standard General Purpose Meadow Mixture. This grass will need time to establish before being grazed, preferably a year. To maximise biodiversity value the grass will be cut twice in the first year, once in late summer (end-July/August) and followed by a late autumn cut (October), allowing flowering and seed production.

7 Habitat Enhancement Strategy

7.1 Introduction

- 7.1.1 The Scheme provides an opportunity to undertake habitat enhancement measures which will aim to increase the biodiversity value of the immediate and wider landscape. This section provides details of proposed measures. As previously described, due to the nature of the current Scheme footprint, it is not possible to readily assign specific ecological enhancement elements to specific Scheme impacts. Rather, the proposed ecological enhancements fulfil multiple objectives in addressing impacts from this Scheme.
- 7.1.2 Although it is not possible to attribute specific measures to specific impacts, the overall strategy for the Scheme is aimed at delivering tangible ecological benefits in terms of semi-natural habitat and protected and notable species. The following sections describe specific areas where ecological enhancement will be achieved that will, individually and cumulatively, address impacts to habitats and species within the current Scheme footprint and adjacent areas.
- 7.1.3 Within the Phase 3 scheme, one area has been identified for specific ecological enhancements: Hamble Valley flood plain. However, the landscaping along the whole scheme corridor has been designed to provide ecological enhancements, creating a species-rich and diverse corridor along the scheme. The landscaping for the scheme includes a wide verge with large areas of native species-rich grassland (27,174m²), areas of less diverse native grassland (18,726m²), together with new native hedgerows (1,023 linear metres), native tree and shrub planting (6,549m²) and native shrub planting (1,855m²). The current habitats along the Phase 3 route are largely species-poor, dominated by agriculturally improved grasslands, with no species rich grasslands impacted. The new landscaping introduces native species-rich habitats across the scheme corridor and will link to habitat enhancements undertaken for Botley Bypass Phase 1 and 2, including the Holmesland North landscape and ecological mitigation area which is being delivered as part of the Phase 3 works.
- 7.1.4 The habitat creation along the scheme corridor will also provide enhancements for a number of protected species including reptiles, bats and invertebrates, by creating improved habitat diversity, structure and species-richness.

7.2 Hamble Valley SINC & Conservation Area

- 1.1.1 As outlined in Section 6 under fen habitat creation, fen habitat will be created within the two new flood alleviation basins either side of the River Hamble, in areas connected to the retained parts of Botley Mill Woodland SINC and Sherecroft Farm Meadows SINC. Within the Hamble Valley area, where fen and wet woodland habitats are lost as a result of the construction footprint of the scheme, these areas will also be restored to fen habitat.

7.2.1 The proposed works will result in the loss of 5,147m² of wet woodland and fen habitat. The restoration and new habitat creation within the flood alleviation basins will result in the creation of 7,894m² of new fen habitat. This excludes areas beneath the span of the new structure on the banks of the Hamble which will also be restored, however the diversity of flora and growth are likely to be impacted by shading from the structure.

7.2.2 In summary, the restoration and creation of fen habitat will be undertaken as follows:

- Prior to topsoil removal, any Himalayan Balsam present will be hand pulled and removed from site as per the Biosecurity Plan.
- Topsoils and, if required, subsoils from the areas of impacted works within the Hamble Valley will be removed and stored separately from other site soils. Topsoil depths within the working areas to be monitored so that restoration can use similar depths.
- The persistent seedbank of Himalayan Balsam within stored topsoil will be controlled through hand pulling to prevent flowering and seed production.
- Creation of a new area of flood plain (new fluvial ponds) to mimic the natural floodplain at the site and freely fill and drain during high water levels.
- Removal of all construction materials, temporary bridges, stone, concrete, etc from temporary works areas.
- Deep ripping of the subsoils where feasible, to relieve compaction and not tracking over the land afterwards.
- Placing stored subsoils (if removed) and topsoil within the new areas of fen habitat creation and within the areas to be restored within the temporary works footprint, ensuring levels within the restored areas are similar to the existing levels and replacing topsoil to a similar depth to pre-construction – as identified during topsoil removal.
- Habitats will be unseeded and left to develop from the retained seedbank and from natural colonisation from the adjacent retained habitats and from seeds brought in on floodwaters.
- Monitoring and management will be undertaken to identify the success of natural colonisation and seedbank establishment and where necessary seeding and plug planting will be undertaken – see Section 8.

8 Landscape Management & Maintenance Plan

8.1 Introduction

- 8.1.1 This section of the LEMPIR sets out the general principles and quality standards required for the short and longer-term landscape management operations relating to the specific elements of Botley Bypass Phase 3 to be brought forward within this scheme.
- 8.1.2 As specified in Section 2.2, this plan has been prepared to address the requirements of condition 16 of the planning permission granted by Hampshire County Council (HCC) in 2017 for the Botley Bypass.
- 8.1.3 It should be noted that this Landscape Management & Maintenance Plan covers the areas and issues that relate to the landscape proposals for the proposed road scheme from the junction with Winchester Street to the junction of the A334 with the A3051. The ecological mitigation strategy, habitat management objectives and management proposals are detailed in Sections 4 -7 of this plan.
- 8.1.4 Since gaining planning permission for the Bypass in 2017, planning proposals have been approved for new development at the eastern end of the Scheme including an area of housing adjacent to Sherecroft Farm and an extension to the Industrial Estate adjacent to Botley Station. The changes to the scheme have been set out in Section 1 of this report and detailed in 1.2.4.
- 8.1.5 The amendments are shown on planting plans in Appendix 6. They include changes to the proposed mitigation, in the vicinity of Uplands Farm resulting in additional noise bunds for the Botley Fields development, removal of planting on the verge adjacent to the development at Sherecroft Farm, as the development will plant and maintain this boundary and changes to the drainage around the junction of the A334 and the A3051. Restoration will also be required to the agricultural field to the east of the River Hamble which will be used as site compound.
- 8.1.6 These changes have resulted in amendments to the planting scheme. The additional noise bund around the Botley Fields Development has resulted in replacing a proposed hedgerow with groups of tree and shrub planting on the bund along with sowing a wildflower grass mix. The proposed housing development adjacent to Sherecroft Farm will provide the planted edge along the back of the verge. It will incorporate a new landscaped bund, planted with native trees and shrubs, removing the need and space to plant within the verge. The proposed swales at the new roundabout on the A334 have been amended as a result of detailed design. This has required additional land take around the north eastern quadrant of the roundabout and along the northern side of the A3051, a replacement hedgerow with trees is proposed within the land owners field. Additional tree removal has been necessary within the Hamble Valley to allow room for construction of the bridge and a temporary bridge. Replacement native planting suitable for the wet site is proposed.
- 8.1.7 The plan includes:
- Ecological Aims and Objectives

- Landscape Design intentions
- Aims of the management and maintenance plan
- Detailed installation specification
- Management objectives
- Detailed maintenance specification
- Indicative annual schedule of operations.

8.2 Roles and Responsibilities for Landscape Management and Maintenance

- 8.2.1 The main contractor shall be responsible for the ground shaping including construction of all new embankment and cutting slopes, noise mounds, ditches and swales. This will be followed by topsoiling, which will include areas to be planted with whips and hedgerows, tree pits and areas to be grass seeded. The main contractor will sow the grass areas.
- 8.2.2 The landscape contract shall be designed, tendered and managed by a Hampshire County Council Landscape Architect and Quantity Surveyor and it shall be implemented by an accredited Landscape Contractor from the Hampshire County Council landscape framework who will be responsible for maintenance of the seeded areas as well as the tree and shrub planting that they have implemented.
- 8.2.3 The planting will be implemented in the first available planting season after construction and maintained by HCC's appointed contractor for a period of 5 years. After the initial five-year establishment period all the planting within the highway boundary will be managed by HCC Asset Management. Those areas that have been planted on private land will be maintained by the landowner. Ongoing management will be in accordance with the general principles outlined in Sections 8.6 to 8.12 below, with the emphasis on maintaining biodiverse habitats.

8.3 Status of the Management Plan

- 8.3.1 This plan has been prepared in line with the objectives of the Environmental Statement and to fulfil the requirements of the planning permission. It will be used as the basis for the landscape contract.

8.4 Supporting Documents

- 8.4.1 This plan needs to be read in conjunction with the following documents and planting plans:
- Botley Bypass Tree Survey, Arboricultural Impact Assessment, Tree Protection Plan and Arboricultural Method Statement (MJC Tree Services, November 2024)
 - Botley Bypass Phase 3 Reptile Mitigation Strategy
 - Planting Plans in Appendix 6 of this document.

8.5 Landscape Design Aims and Objectives

Botley Bypass

8.5.1 The approved planting plans for the landscape design for Botley Bypass were designed to protect and retain existing landscape features where possible and to mitigate the effects of the Scheme as set out in the Environmental Statement (ES) and ES Addendum. The emphasis has been placed on retaining trees where possible and replacing trees and hedgerows in those areas where they have to be removed to accommodate the Bypass. The approved plans have been amended since permission was given for the Bypass, these changes are set out in 8.1.6 above and shown on the accompanying planting plans. The new planting will provide a range of bio-diverse and natural environments that will:

- Reinforce and enhance the existing landscape;
- Aid the integration of the new road into the surrounding area;
- Provide a strong landscape structure which will develop over time;
- Screen and integrate the road into its setting and reduce the visual effects on surrounding houses and rights of way. In particular new houses at Botley Fields and Sherecroft Farm; and
- Enhance the ecological range and potential for wildlife by providing linked landscape features such as continuous sections of planting that will link existing landscape features that have been lost. These will be replaced with significant areas of native tree and shrub planting and areas of grassland providing an integrated network. The new drainage system of swales and ditches will provide additional habitats for water side species.

8.5.2 For the purposes of management and maintenance of the landscape there are four principal areas:

- Tree and shrub planting; this will comprise native planting, using species typically found in the area;
- New hedgerows with trees;
- Species rich grass /wildflower seeded areas; and
- Maintenance of the swales and balancing ponds.

8.5.3 Creation of meadow and grassland swards where space is available, mainly around the new balancing ponds adjacent to the River Hamble and on the noise bunds adjacent to the proposed Botley Fields development. See Planting plans No CJ008882-WPE-ELS-44301694-DR-M-0001-0007

- 8.5.4 It is important to remember that the landscape evolves and is created by the people who tend it. The original design and planting schedules are a starting point, and throughout the period of this plan the agreed maintenance and management objectives shall be followed. New plant material and natural regeneration as well as the decisions of the people tending the landscape will determine how it changes and grows over time.

8.6 Landscape Management Objectives

The Establishment Period

- 8.6.1 A five-year aftercare establishment period is built into the landscape contract to cover intensive post-installation maintenance requirements for the whole of the landscape works along the roadside and where hedgerows, trees or shrubs have been planted on adjacent land. During this period, the contractor is responsible for all horticultural maintenance operations, including weeding, mowing, maintenance of ties and tree protection and replacing planting which has failed to flourish; this shall be replaced on an annual basis in the winter if any plants die. Prior to hand over at the end of the 5-year period the tree stakes and ties shall be removed along with any rabbit guards, unless the plants have failed to establish well. At the end of this period any defects in soft landscape due to materials or workmanship will be rectified. Responsibility for the management and maintenance post-establishment will be the responsibility of the following:

- Roadside planting: Hampshire County Council Highways Arboricultural Team. The hedgerows shall be trimmed in years three and five, and in year five the tree stakes, rabbit proof spirals and shelters shall be removed prior to the hand over. After handover the planting will be maintained when necessary to ensure highway safety at all times.
- Planting on private and HCC land close to the Highway boundary shall be maintained for the first five years establishment period by the Landscape Contractor. The tree stakes, rabbit proof spirals and shelters shall be removed prior to the end of the contract. The long-term maintenance shall be the responsibility of the landowner.
- The verges shall be cut four – six times a year, because the road is likely to be classified as urban, prior to handing over to HCC term contractor for the long-term maintenance after the 5-year establishment period. The balancing ponds shall be cut on an annual basis to encourage wildlife. Any self-sown scrub within the balancing ponds shall be removed by hand.
- The species rich grass / wildflower seeding shall be cut twice in year one – three and then once a year for the rest of the five year establishment phase. Hampshire Highways will be responsible for the maintenance after this time, currently it is cut every three years. This regime may be subject to alterations in time.

Access

- 8.6.2 For landscape establishment purposes, vehicular access will be from the new sections of road. Surfaced maintenance points have been designed into the Scheme along the length of the new road, in particular adjacent to the new bridge, balancing ponds, swales and watercourses. Any work associated with pruning of trees and shrubs will be carried out as a separate contract and is to be actioned outside of the bird breeding season, March to September.

Facilities

- 8.6.3 The landscape maintenance contractor will need to provide his own facilities after the main contractor has left site. This shall include hot and cold water and toilets. In addition, they will be required to provide traffic management as set out in the contract documents and as required to carry out the works.

8.7 General Management / Maintenance Objectives for Soft Landscape

- Apply good horticultural and ecological practice to all operations
- Promote healthy growth and establishment of all plants, trees, grass, wildflower areas
- Ensure consistent control of invasive weeds
- Ensure development of optimum plant form, shape, and planting density
- Provide protection against pests and diseases
- Promote wildlife value and species diversity where appropriate
- Ensure long term commitment to replacement of defective plant material
- Review opportunities for introduction of new species or replacement of exhausted species where appropriate, in line with original design intentions.

8.8 Landscape Components with Specific Management Objectives

Trees, whips including hedgerows and native planting mixes

- 8.8.1 Management objectives: Providing a landscape structure that includes mature forest trees linked by hedgerows thereby creating a new landscape that helps to integrate the road into the landscape and screen some of the effects.
- 8.8.2 Tree, whip hedgerow management objectives: (detailed management set out below):
- Ensure that good horticultural practice is employed to encourage long term health and vitality of all trees, shrubs, hedges, and whip planted areas. Keeping woodland planting weed free at all times;
 - Planting to be thinned / re-spaced in order that they have sufficient room to develop;
 - Maintain a clean and safe environment;
 - Ensure well-balanced crowns and natural shape;

- Hedgerows to be lightly trimmed after 3-4 years to encourage bushy growth;
- All tree stakes shall have been removed by the end of the 5-year landscape contract and carefully disposed of offsite at a legal tip site; and
- All tree shelters or rabbit proof spirals shall be removed from the plants and the site at the end of the 5-year landscape contract period. They shall be disposed of at a legal disposal facility.

Grassland: including verge edge general amenity mix and species rich meadow grassed / wildflower areas

8.8.3 Management objectives: The provision of a combination of grass seeded areas and species rich meadow/wildflower seeded areas will provide visual and wildlife diversity. Quick growing annuals such as Poppies will be specified in the general seed mix to provide an instant effect. In the longer term the minimal mowing regime will allow a greater range of ground flora to set seed and regenerate. Appendix 6 includes the outline landscape proposals and the detailed planting plans, the latter set of plans show the areas with the different seed mixes.

8.8.4 Grassland management objectives: (detailed management set out below):

- Aid seedling development and maintain a balanced composition from one year to the next;
- Create structured grassland with grass tussocks creating a series of microclimates across the habitat, thus encouraging a diversity of floral and faunal species;
- Allow the meadow sward to meet and link up the scrub and tree planting and enhance the wildlife corridor function of the hedgerows; and
- Wildflower grass seeded areas shall be identified by setting out timber pegs around the edge of each area at a minimum of 4m intervals to ensure these areas are regularly mown.

Swales and balancing ponds:

8.8.5 Management objectives: Whilst the main aim of these features is to provide a sustainable drainage network, they also have a benefit to the flora and fauna in the area increasing biodiversity. (see Drainage Maintenance Plan for details)

8.8.6 Swales and balancing ponds management objectives: (detailed management set out below):

- Quickly establish grass surfaces within the swales and ponds prior to using for drainage purposes to stop silt build-up at points of exit. Turf to be laid in the bottom of the swales and ponds;
- Encourage waterside ground flora by planting a limited palette of native plants;
- Remove self-sown shrub species;

- Mow grass in the swales annually remove arisings; and
- Mow grass in the balancing ponds on an annual basis and remove arisings.

Fen Habitat

8.8.7 Management objectives: Successful establishment of fen habitat to provide compensation for the impacts to habitats impacted by the works. The fen habitat will establish a diverse mix of native species characteristic of fen habitat within the local area and provide habitat for invertebrates, reptiles, breeding birds and foraging bats.

8.8.8 Fen management objectives:

- Establish fen habitats similar to retained areas of fen including NVC communities identified within Sherecroft Farm Meadows SINC and Botley Mill Woodland SINC (M23, M27, S5, S6 and S12).
- Review establishment of vegetation from seedbank and natural regeneration. Implement supplementary sowing and plug planting where establishment is not successful.
- Remove non-native invasive species including Himalayan Balsam.
- Remove self-sown shrub and scrub species to ensure that habitats do not develop into scrub or woodland. Achieve no more than 10% cover of scrub and trees.

Removal of trees, shrubs, hedgerows and scrub to allow implementation of the road

8.8.9 These works shall be carried out in accordance with condition 16 of the Botley Bypass permission. These conditions require that only those trees and hedgerows identified in the approved Arboricultural Impact Assessment are removed, and measures are put in place to retain and protect other trees in accordance with the Tree Protection Plan & Arboricultural Method Statement.

Works Required:

- All trees and shrubs that need to be removed shall be felled and removed from site in phases in advance of the main works with the initial clearance work starting in Feb 2025
- This work shall be carried out during the months of September to February, outside the bird nesting season;
- These works shall be carried out in accordance with BS3998:2010;
- The contractor shall not track over or damage topsoil on fields to carry out this work; and
- Ensure protective fencing is in place prior to the main contract starting on site;

Retained existing trees and hedgerows

- Deadwood will be retained unless it poses a risk to health and safety, or to health of adjacent stock through disease contagion. Removal will follow updated ecological evaluation.

8.9 Establishment Specification

8.9.1 The requirements will change as the planting establishes and matures over the following periods:

- Establishment Phase (Years 1 to 5) shall be carried out by the landscape contractor who implements the scheme.

8.9.2 Any plant failures that appear within the rectification period (5 Years) due to materials, goods or workmanship not in accordance with the contract documentation shall be replaced by the contractor at his own expense on an annual basis during the planting season after the loss has occurred.

8.9.3 A provisional sum shall be included in the contract sum to allow for the replacement of plant material that has failed due to vandalism or theft.

Native Tree & Shrub Planting:

- All whip planting shall be protected by the use of bio-degradable individual tree or shrub shelters with a timber stake to protect the plants from rabbits;
- All hedgerow plants shall be protected by bio-degradable rabbit proof spirals and a bamboo cane;
- Trees and shrubs planted in the River Hamble corridor shall have mulch mats fixed around each plant to reduce the need to use herbicides in this location. These areas shall be strimmed to keep vegetation in check
- Keep a 1200mm diameter area around all individual trees and each whip weed free at all times by use of suitable herbicide (glyphosate). Use of herbicides in close proximity to existing watercourses (e.g. around the River Hamble Corridor) shall require additional care and safety to ensure no contamination occurs in accordance with Environment Agency guidelines²;
- Keep a 1200mm wide strip weed-free along the length of the hedgerows;
- Strim out remaining vegetation between the whip plants twice a year in mid-summer and late autumn;
- Keep all tree and shrub protection systems in good condition, ensuring fences are sound and shelters are firmly staked; and

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/601813/LIT_4719.pdf

- Replace any plants that die on an annual basis with the same species and specification.

8.9.4 The maintenance will accord with the requirements of BS7370-4:1993:

- Duration: Carry out the operations in the following clauses from practical completion of the planting.
- Frequency of maintenance visits: Monthly during growing season.

Grassed verges up to 2m wide, whole of the highway grassland, swales and balancing ponds

8.9.5 Cuts:

- Verges and sight lines along Botley Bypass shall be cut 4- 6 times a year during the five year establishment period;
- Grass swales, balancing ponds and access to the swales shall be cut 1 x time a year and the arisings shall be removed, as set out in the SuDs Maintenance / Management Plan; and
- The rest of the grassland including the species rich meadow/ wildflower areas within the highway boundary, shall be cut twice a year, then at the end of the five year establishment period they will be handed over to HCC Hampshire Highways asset management.

8.9.6 Generally:

- Maintenance of grass in a manner appropriate to the intended use; and
- Maintenance of grass height between 100-150mm during the summer months.

8.9.7 Remedial works:

- Re-seed areas where the grass has not established during the contract period.

8.9.8 The grass in the bottom of the balancing ponds shall be cut over the whole area during a dry period around August / September and the arisings shall be removed. Any self-sown scrub species shall be removed from these areas by hand taking care not to damage the base of the pond. Annually monitor the forebays and micropools at upstream and downstream ends of the ponds to ensure the base is level. If silt or other detritus has built up this shall be removed in the Autumn. Species rich meadow/Wildflower Grassland (these areas are shown on the planting plans in Appendix 6)

8.9.9 Establishment cuts:

- First cut to 10-14cm late July/early August;
- Second/final cut to 10-12cm late October;

- Leave arisings for 2 days (to allow invertebrate species to return to the grassland) and then remove all cuttings – where feasible arisings should be placed on the edge of the grassland to provide habitat for reptiles;
- Control scrub and invasive grass species to maintain the diversity of the meadow grassland: In addition to the mowing regime, spot treat with selective herbicide for 2 years to deal with pernicious perennial weeds such as dock (*Rumex obtusifolius*), thistle and other weeds as set out in the contract documents.
- The mowing will reduce to once a year after the seed has established (probably around year 3) and all arisings shall be removed from site.
- The ongoing mowing following establishment will be undertaken in late October to allow seeds to set and also to minimise the risk of harm to reptiles from ongoing management of the species-rich meadow habitats. As with the establishment cuts arisings will be left for 2 days to allow seeds to drop and invertebrates to return to the grassland, before being removed.

Fen habitat

8.9.10 During the establishment period the following should be undertaken:

- Tree, shrub and scrub saplings should be removed by either pulling or cutting.
- Perennial weeds such as Broadleaved Dock and Creeping Thistle should be cut and removed annually prior to seeding.
- Himalayan Balsam shall be hand pulled and removed prior to seeding for the establishment period.
- The requirement for cutting should be reviewed annually by an ecologist and undertaken once annually in October once vegetation has become sufficiently established. No more than 25% of the area should be cut in any one year. Arisings should be removed and placed in piles on the edge of the habitat to provide habitat for reptiles and invertebrates.

Trees, Hedgerows, Shrub and Whip Planting

8.9.11 Watering:

- All tree planting to receive watering for at least the first 2 growing seasons. The watering shall only be carried out if instructed by the Contract Manager;
- Ensure sufficient water is applied to maintain healthy growth; taking into account published meteorological data on rainfall for any given period, in particular in periods of Spring drought (April, May & June);
- Quantity: Trees: heavy and extra-heavy standard trees – 10 gallons per tree per application;
- Feathered trees, whips & hedgerow: wet soil to full rooting depth; and

- A bowser shall be used for watering the plants and it shall be parked on the verge or adjacent grassed areas whilst carrying out the works. A banks man shall be used to ensure safe passage of the bowser back off the verge and onto the highway. Signage advertising the works shall be as detailed in the landscape specification, this may include the use of variable message signs; coning off areas; implementing as much of the planting as feasible prior to the road opening and any other H & S requirements deemed necessary.

8.9.12 Weed control:

- All planting areas shall be kept clear of weed growth around the individual plants for the first 5 growing seasons; after 5 years, a herb layer can be allowed to return. Ensure that the methods used will cause a minimum of damage to adjacent planted areas;
- Tree and plant stems: Do not allow nylon filament rotary cutters or other mechanical tools closer than 200mm to the stem of any tree or plant. Include for strim guards around the base of each tree, height 225mm, or maintain a grass and weed-free area around the base of each tree, minimum diameter 1000mm; and
- Herbicide application: A foliar acting translocated or contact herbicide shall be applied to emergent weeds. The contract documents will provide full Health and Safety and environmental requirements for the use of these substances and the contractor shall only use approved products for the relevant locations and they shall be administered by BASIS registered operators. Herbicide shall not be used in the sensitive habitats in the Hamble Valley including Botley Mill Woodland SINC, Sherecroft Farm Meadows SINC, the River Hamble and Fish Pass and the new fluvial pond areas where fen habitat creation is being undertaken.

8.9.13 Fertiliser:

- An approved slow-release fertiliser shall be spread around trees and shrubs in the planted areas in accordance with manufacturer's instructions. Carry out a single application annually in March for the first 5 years; and
- Ensure there is a substantial buffer zone between fertilised areas and areas set aside for nature conservation to reduce the growth of unsuitable species and the nutrient enrichment of the wildflower meadows, ditches, and swales.

8.9.14 Re-firming, check/tidy:

- General: trees & shrubs shall be maintained in a firm position in the ground and all stakes and ties shall be checked regularly;
- Particular timing of inspections: i.e. after high winds, frost heave and other disturbances

- Replace missing rabbit guards, tree ties and stakes or mulch mats;
- Remove all plastic guards at the end of the 5-year maintenance period and recycle; and
- Report any significant failures.

8.9.15 Tree stakes and ties:

- Inspect all trees twice a year. Adjust fixing to suit stem growth and provide correct and uniform tension. If growth is sufficient for the tree to be self-supporting, remove fixing and fill holes with lightly compacted soil; and
- Check stakes for looseness, breaks and decay and replace as necessary. Remove stakes and ties after 3 - 4 years establishment, all stakes to be removed before the end of the year maintenance period.

8.9.16 Pruning generally:

- Pruning to be carried out in accordance with good horticultural and arboricultural practice;
- British Standard: BS7370.4, clauses 3.6.3 to 3.6.5;
- Agreement: before starting work agree with the Supervising Officer which trees, whips, shrubs and hedges are to be pruned or removed;
- Appearance: trim hedgerows to encourage bushy side growth after 3 -4 years leaving a well-balanced natural shape;
- Cutting: appropriate clean sharp tools. Clean cuts back to sound wood;
- Disease of fungus; give notice if detected;
- Do not use growth retardants, fungicides or sealant unless instructed; and
- Disposal of arisings: to be chipped and removed off site unless an agreed compost site can be found on site.

8.9.17 Pruning of trees:

- Tree work standards: to BS3998 and Forestry and Arboriculture Training and Safety Council Safety Guidance;
- During pruning protect adjacent structures, plants or trees;
- Chain saw work: operatives must hold a Certificate of Competence;
- Timing: prune between leaf fall and mid-winter; and
- Prunings: all prunings to be chipped and removed from site.

8.9.18 Thinning and pruning of young trees and whips up to 3m high:

- After 4 years full growing seasons the planting shall be assessed to see if, selective thinning of feathered trees and whips is required; and

- Prune between leaf fall and mid-winter.

8.9.19 Pruning of hedges:

- Timing: cut back lightly after 3 years and again in year 5 to encourage bushy side growth; works to be carried out between September and February. After 5 years establishment period the if the hedgerows are passed over to the landowner they should be cut back once a year between September and February with the aim of reaching to a height of 1.6m, width 1.2 – 1.4m. If the hedgerows remain in the ownership of Hampshire County Council they will be allowed to grow up as a bushy screen, providing diverse habitats and will help to screen the road from the surrounding landscape. All rabbit guards and tree shelters shall be removed from site at the end of the maintenance period.
- Form: The aim is to allow the hedgerows to be cut to achieve an 'A' shaped. If the hedgerow is planted on private land, the final height and shape will be determined by the landowner. If it is within Hampshire land it will be cut as necessary to maintain the growth.

8.9.20 Reinstatement:

- Remove dead plants as soon as possible and replace in the next scheduled round of replacement planting.

8.10 Control of Non-Native Invasive species

8.10.1 Identify and treat appropriately. Apply systemic intensive treatment to eradicate and to prevent further spreading in accordance with the Environment Agency guidance³ and the Wildlife and Countryside Act, Part 2 Schedule 9 1981⁴.

8.10.2 Within the Hamble Valley including natural regeneration areas and fen habitat creation areas, planted areas and areas of fen habitat recreation, herbicide treatment of invasive species must not be undertaken. Himalayan Balsam is likely to persist within the seedbank in these areas and also has potential to spread into the site from adjacent areas where this species is present. Hand pulling of Himalayan Balsam must be undertaken in these areas in spring and early summer, prior to flowering and seeding, to prevent further seed dispersal and diminish the seed present within the soils. This should be undertaken each year during the landscape maintenance period.

8.11 Fences and Gates

- Undertake regular conditions surveys. Report any problems; and

³ Gov UK Guidance 'How to stop invasive non-native plants from spreading', Last updated 2nd February 2022, Accessed 4th December 2024 at: <https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants>

⁴ Wildlife and Countryside Act 1980, Accessed 18th December 2024: <https://www.legislation.gov.uk/ukpga/1981/69/schedule/9/part/II>

- Problems creating health and safety concerns to be resolved immediately and reported.

8.12 Programming of Maintenance and Management Operation

General

Monitoring

- 8.12.1 The long-term success of the scheme is dependent on its maintenance regime.
- 8.12.2 This management plan is intended to provide a basis on which to write the detailed contract for the implementation and maintenance of the approved planting plans.
- 8.12.3 The management plan and maintenance operations included herewith will be reviewed at the end of the five-year establishment period. At this time, it will be known which areas will be returned to landowners and which areas will remain the responsibility of the Local Authority to ensure the longevity and full establishment of the planting. This will include proposed frequency of visits and operations detailed in the specification, i.e. cutting hedgerows and maintenance of trees. It shall also include scheduled dates for infrequent operations such as, thinning planting / pruning individual trees etc.

Fen Habitat Monitoring

- 8.12.4 As outlined above, monitoring of the created and restored areas of fen habitat will be required to ensure successful establishment. This monitoring shall involve an annual survey by an ecologist from HCC. This monitoring shall include:
- Habitat surveys to establish species present and vegetation communities present (NVC).
 - Review presence and abundance of negative indicator species including invasive non-native species.
 - Undertake habitat condition assessment using Natural England Statutory Metric⁵ condition assessments for wetland habitats.
 - Assessment of the rate of natural colonisation and review of the need for supplementary seeding and plug planting.
- 8.12.5 The annual monitoring will be used to:
- Advise on when annual cutting regime can commence.
 - Identify whether seeding or plug planting is required. Should habitats not be sufficiently established by the end of Summer in Year 3, supplementary seeding and plug planting would be undertaken during autumn in Year 3 using native species as advised by the HCC ecologist.
- 8.12.6 The monitoring will be written up annually with the result provided to HCC and the landscaping contractor.

⁵ Statutory Metric, Accessed 18th December 2024: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

Maintenance Schedule

8.12.7 Tables 4 and 5 provide an indicative annual schedule of maintenance visits applicable for the first five years of establishment. Works beyond this time are suggested works, that would be carried out by the landowner where hedgerows are handed back to them for maintenance in perpetuity. This provides a reasonable frequency of the more common operations but, is not intended to be fully comprehensive or restrictive. The landscape contractor is required to construct a schedule of operations specifying operations and frequency using his own experience and horticultural knowledge. After the initial five-year establishment period the planting within the highway boundary will be handed over for long term maintenance by the HCC's Arboricultural Team within. At the current time the only maintenance that will be carried out will be that which is required for highway safety.

8.12.8 Ongoing monitoring and maintenance of all other areas including Holmesland North will be managed in accordance with the general principles outlined in section 8.2.3.

Timetable for Implementation

8.12.9 Table 3 provides an indicative programme for the implementation of the ecological and landscape mitigation works. The exact phasing and timings of these works will be determined following appointment of the main contractor.

Table 3: Indicative programme for implementation of ecological and landscape works

Advanced works – vegetation clearance and temporary security fencing (phase 1)	February 2025
Reptile Mitigation – Relocation	March-May 2025
Vegetation clearance /installation of temporary tree protection measures - main works	February 2025 And March 2025
Phase 3 Main works	April 2025 – 2027
Removal of bat roost & install bat boxes	April-May 2025
Construction of ecological mitigation areas: Holmesland North (following Botley Bypass Works) Fen habitat creation – Fluvial Ponds	Winter 2027 – 2028 Winter 2027 As soon as fluvial ponds have been constructed.
Landscape planting / put up nest boxes	November 2026 – February 2027 & if the contract is delayed a 2 nd phase of planting may need to take place from November 2027 – February 2028

Table 4: Maintenance Schedule for Year 1 after completion of Planting

Activity	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
General inspections with Supervising Officer, Clerk of Works & Contractor.			X			X			X			X
Monitoring of fen habitat establishment by HCC Ecologist.						X						
Cut Grass Verges up to 2m wide & sight lines on roads designated as Urban (Main Contractor until their completion at end of 1 st yr.)				X	X	X	X	X		X		
Cut Grass swales									X			
Cut all grass in Balancing ponds									X			
Cut Species rich meadow/ wildflower areas year 1							X			X		
Cut Species rich meadow/ wildflower areas year 2 - 5									X			
Rest of Highway grassland cut 1x yr.									X			
Keep whip areas & individual trees in grass weed free by spraying 1.2m diam. around each plant				X		X		X		X		
Maintain mulch mats around whips and trees in the Hamble Valley					X				X			
Spray out 1200mm diameter circle around individual trees				X		X		X		X		
Keep hedgerow planting weed free by spraying a 1.2m wide strip along the total length				X		X		X		X		

Keep balancing ponds and fen habitat free from self-sown scrub species. Remove by hand.						X						X
Strim out any remaining weeds in whip areas to a height of 100mm							X					X
Water trees (Provisional if required)					X	X	X	X	X			
Mulch after planting		X										
Replacement planting	X	X									X	X
Over-seeding grassed areas if required				X					X			
Litter collection		X	X	X	X	X	X	X	X	X		X
Hand pulling of Himalayan Balsam					X	X	X					

Table 5: Maintenance Schedule for Years 2 –5 after completion of Planting

Activity	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Monitoring of fen habitat establishment by HCC Ecologist.							X					
Keeping Whip Areas Weed free by spraying out around each plant				X		X		X		X		
Strim between whip areas to remove residual weed growth to max 100mm high							X					X
Maintain mulch mats around whips and trees in the Hamble Valley, replace as required				X					X			
Spray out 1200mm diam circle around individual trees, reduce to 3 x yr. in yrs. 4-5				X		X		X		X		
Spray out 1200mm width along the hedgerows, reduce to 3 x yr. in yrs. 4-5				X		X		X		X		
Mulch whips and Hedgerows in yrs. 3 & 5												X

Annual application of Fertiliser to tree & Whip planting			X									
Cutting Hedgerows years 3 & 5 (after 5 years the responsibility of the landowner)									X	X		
Cut verges 4 to 6 times a year depending on location				X	X	X	X		X	X		
Cut grass visibility strips and 2m wide verges in front of visibility strips				X	X	X	X		X	X		
Cut Species rich meadow/ wildflower areas in years 1 -2							X			X		
Cut Species rich meadow / Wildflower meadows yrs 3 - 5										X		
Rest of Highway grass land									X			
Water all trees in dry periods				X	X	X	X	X				
Replacement Planting in winter months annually	X										X	X
Litter Collection		X	X	X	X	X	X	X	X	X	X	
Hand pulling of Himalayan Balsam					X	X	X					
End of maintenance, remove all tree stakes and shelters & spirals												

8.13 British Standards

8.13.1 As well as the Horticultural Trade Association standards described above the soft landscape works should meet the following British Standards:

- Topsoil handling, stripping and storage
- BS ISO 15799:2003 Soil quality - guidance on ecotoxicological characterization of soils and soil materials
- BS 3882:1994 Specification for topsoil
- BS 6031:1981 Code of practice for earthworks
- BS 7562-4:1992 Planning, design and installation of irrigation schemes guide to water resources
- BS 4428:1989 guide of practice for general landscape operations (excluding hard surfaces) AMD 6784
- BS 3882:1994 specification for topsoil and AMD 9938 Quality of Trees and Shrubs
- BS 3936-1:1992 Nursery stock specification for trees and shrubs
- BS 3936-5:1985 nursery stock specification for poplars and willows
- BS 3936-10:1990 nursery stock specification for ground cover plants Maintenance of gardens/ Landscapes
- BS 7370-4:1993 grounds maintenance recommendations for maintenance of amenity and functional turf (other than sports turf)
- BS 3998:2010 recommendations for tree work and AMD 6549 Horticulture
- BS EN 12579:2000 Soil improvers and growing media - sampling
- BS EN 13037:2000 Soil improvers and growing media - determination of pH Turf
- BS 3969:1998 Recommendations for turf for general purposes
- BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces).

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Appendix 1 – Site Location & Scheme Boundary Plan

Appendix 2 – Planning Application Boundary Plan

Appendix 3 – Ecological Constraints Plan

Appendix 4 – Phase 1 Habitat Map

Appendix 5 – Vegetation Clearance Plans

Appendix 6 – Planting Plans

Appendix 7 – Bat and Bird Box Locations

Appendix 8 – Reptile Fencing

Appendix 9 – Reptile Hibernacula and Log Piles

Appendix 10 – LEMP Plans
