the ecology partnership

Land at Quinton Road, Sittingbourne

Landscape and Ecological Management Plan (LEMP) Condition 25

The Ecology Partnership, Thorncroft Manor, Thorncroft Drive, Leatherhead, Surrey KT22 8JB

T +44 (0) 1372 364133 E info@ecologypartnership.com W ecologypartnership.com

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

1.1 The Ecology Partnership was commissioned by Redrow Housing to develop a strategy in order to support the Landscape Ecology Management Plan (LEMP) on land at Quinton Road, Sittingbourne.

1.2 The Ecology Partnership undertook a range of ecological surveys on the site to support the application and subsequently support the discharge of conditions. These surveys are summarised below.

1.3 The site is located on the northwest side of Sittingbourne in Kent (TQ 89507 65404), east of the A249. The site covers approximately 7.5ha and consists of predominately an arable field, with tree lines with scrub around the perimeter. The surrounding local area comprises agricultural and pasture fields, residential and commercial properties, grazing marsh, hedgerows, small blocks of woodland, tree-lines and waterbodies, such as ponds and the River Swale. The site is bounded to the south-west by residential and commercial properties and to the south-east and north-east by agricultural fields. The A249 extends along the site's north-west boundary. The approximate red line boundary of the site is shown in Figure 1 below and in Figure 2 in wider context.

Figure 1: Approximate location of the survey area (red line)

Taken using Google Earth Pro (10th August 2020)

Figure 2: Approximate location of the survey area (red) showing the surrounding area

Taken using Google Earth Pro (10th August 2020)

1.4 A Landscape and Ecological Management Plan (LEMP) condition 25 is required for the site which addresses the following matters:

A Landscape and Ecological Management Plan (LEMP) shall be submitted to, and be approved in writing by, the local planning authority prior to occupation of the development. The content of the LEMP shall include the following.

a) Description and evaluation of features to be managed;

b) Ecological trends and constraints on site that might influence management;

c) Aims and objectives of management;

d) Appropriate management options for achieving aims and objectives;

e) Prescriptions for management actions, together with a plan of management compartments;

f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period;

g) Details of the body or organisation responsible for implementation of the plan;

h) Ongoing monitoring and remedial measures.

i) Mechanisms to ensure that the management of ecology on this site is wellintegrated with arrangements for the adjoining parts of the Local Plan allocation, which are subject to planning application reference 18/502190/EIHYB.

The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body(ies) responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. The approved plan will be implemented in accordance with the approved details.

Reason: In the interest of minimising harm to wildlife.

2.0 Landscape Ecological Management Plan (LEMP)

2.1 This Landscape Ecological Management Plan (LEMP) sets out the proposed long-term landscape management and ecological strategy for the landscape areas associated with the development, land at Quinton Road.

2.2 Landscape and Ecological Management principles apply to the whole of the site, and the overall vision for the ongoing management, are based on the Landscape Strategy Plan as shown in appendix 1.

2.3 These detailed documents will act as a guide for the Management Company who will be responsible for the long-term maintenance of the landscape areas and sets out the long-term design objectives and scope of management tasks over a 15 year period. They set out:

- overall management responsibilities;
- overarching management objectives;
- the scope of ongoing maintenance works for the built operational phase; and
- a summary of annual maintenance operations during the initial management period (5 years, covering the initial defects liability).

2.4 Key measures to safeguard landscape and significant ecological features on-site include:

- retention of existing vegetation and ecological features; and
- safeguarding of retained trees using fencing, no dig surfacing and exclusion zones during development (see separate Arboricultural Survey).

2.5 The proposals includes the development of houses and landscape planting, access roads, drainage features, and play facilities. The landscape and ecological design strategy aims are as follows:

- to protect the features of landscape and nature conservation interest through scheme design and sensitive construction;
- to enhance the ecological and landscape value of retained vegetation;
- to establish a new planted landscape framework indigenous hedgerows, formal hedgerows, tree planting, ornamental shrub planting, amenity grass, wet meadow grass, and wildflower meadow;

- to provide new landscape framework to complement the existing vegetation framework of the site, to increase the botanical diversity, to provide opportunities for leisure along with biodiversity enhancement;
- to provide publicly accessible and quality areas of informal/formal recreation with pedestrian priority tree planted streets, and footpaths;
- Sustainable Urban Drainage to be an integral part of the development proposals.

2.6 The Landscape Strategy is provided in appendix 1.

Ecological Management Objectives

2.7 The LEMP has been developed to ensure that habitat management will retain and enhance biodiversity and provide long term suitable habitat for protected species.

2.8 Therefore, the documents main objectives are:

- To maintain and enhance the existing wildlife and nature conservation interest;
- To create additional wildlife habitats;
- To supplement existing trees with new tree planting to maintain the longevity of this resource and create a sense of place and different character areas within the site and to control invasive and undesirable species;
- To maintain and reinforce the landscape and ecology structure of the site;
- To retain commuting and foraging corridors for bats;
- To provide new habitats to support a range of species, including bats, birds, reptiles, common amphibians, and invertebrates.
- To protect and enhance the woodland adjacent to the site and to provide new edge habitats of greater botanical interest.

2.9 These objectives have been supported by the baseline ecological assessment, where areas of higher ecological value have been identified and where in areas of low ecological value there are opportunities for ecological enhancements.

3.0 Ecological Baseline Review

2012 PEA

3.1 A PEA was previously conducted on the site in 2012 in which a much larger area, which incorporated the current site (Figure 3). The survey identified that the site was comprised predominantly of: arable fields; species-poor hedgerows; tall ruderal vegetation; semi-improved grassland; scrub; scattered deciduous woodland; and coniferous trees. A water-filled drainage ditch and pond were also identified on the site.

Figure 3: Approximate location of the survey area used in 2012 (yellow) as well as the current site (red)

Taken using Google Earth Pro (11th August 2020)

2012 Reptile Survey

3.2 A reptile survey was conducted over the site as a result of the edge habitats being identified as having the potential for supporting reptiles in the 2012 PEA. Common lizards and slow worms were located over the course of the surveys, these were concentrated along the eastern boundary and adjacent to the substation, with other individuals located

near the doctor's surgery and associated with the edges of the site. Overall, the site was identified as supporting a 'low' population of slow worms and a 'good' population of common lizards.

2012 Bat Surveys

3.3 Bat surveys were carried out across the site in both June and August 2014 as a result of the edge habitats being identified as having the potential for supporting commuting and foraging bats within the 2012 PEA. Over the two surveys low numbers of common pipistrelles and soprano pipistrelles, as well as a single noctule were recorded, with only a few of the passes being associated with the hedgerows and trees lines on site.

2015 Update PEA

3.4 An update PEA of the same site shown in Figure 3 above in 2015. The result of the survey identified that the majority of the site was unchanged since the original 2012 PEA, with the site still being maintained as arable fields. The areas of ecological interest were identified as being restricted to the edges of the site, as well as along tree lines and hedgerows.

3.5 The survey did not find any evidence of badgers on or around the site were access was possible. Mammal holes believed to have been made and used by rabbits were identified along the central ditch/hedgerow. A walkover and survey of the wet ditch did not find an evidence of water voles such as latrines, burrows or feeding platforms. The update walkover did not find any new evidence or signs of badgers. The hedgerows across the site were seen to be generally species-poor and defunct with scattered trees.

3.6 An update survey on all of the ponds on site was also conducted (Figure 4). All of the ponds were assessed for their suitability to support GCNs, this was conducted using the Habitat Suitability Index (HSI). Pond 1 scored '0.46', Pond 2 scored '0.56' with Pond 3 scoring '0.57', which equates to Pond 1 having poor suitability, with Pond 2 and 3 having below average suitability for GCN. Whilst previous records of GCN have been recorded south of the site, the boundary to movement and retention of the suitable edge habitat would be retained, and as such the works would not impair the ability of GCNs to survive,

breed, reproduce or rear young. Furthermore, eDNA samples were taken from the ditch network on site, which came back as negative, for any GCN DNA.

3.7 The site was considered to have the potential to support breeding and ground nesting birds. Enhancements and precautionary methods were recommended and can be found in the full report.

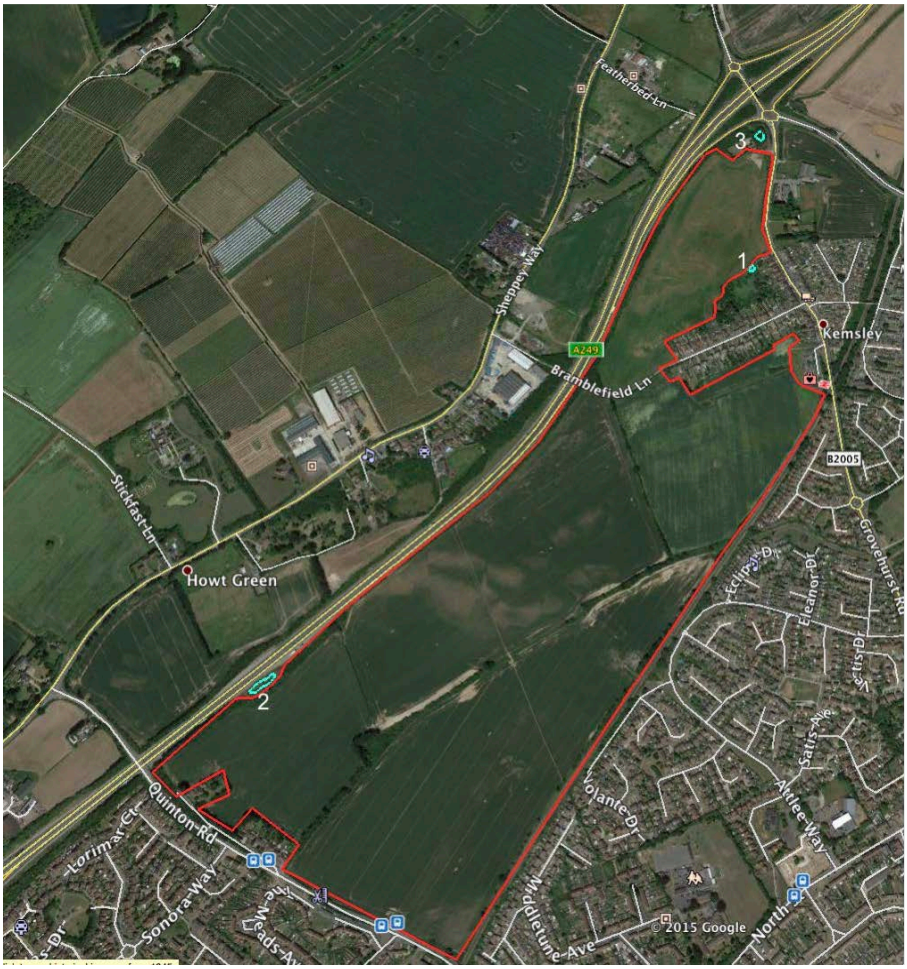

Figure 4: Location of the waterbodies on the site and on the edges of the site. All of these water bodies have been assessed using the HSI method.

Taken using Google Earth Pro (2015)

2015 Update Bat Transect Surveys

3.8 Two transect surveys for bats were undertaken in July and August 2015 by and a remote recording device was deployed at the end of July recording for eight consecutive nights. The 2015 surveys had similar findings to those found during the 2014 surveys, with

activity concentrated along the central hedgerow running east to west and the central hedge running north to south from the A249 to the railway line. Similar species were found to 2014; however, the Anabat remote recording device revealed serotines, noctule and occasional Myotis to also be present in low numbers.

3.9 The low levels of use were attributed to the generally poor quality of habitats within the site, being largely agricultural and the relative isolation of the site to other more optimal habitats. The largest tree-line/hedgerow is associated with the A249 and will be impacted upon by noise levels and potentially wind and light, which would affect movement of bats across the road and into the wider landscape. No bats were recorded along this boundary.

2015 Update Reptile Survey

3.10 In March 2015 a terrestrial survey of the site for reptiles (presence/likely absence) was carried out between the dates of 18th July and 8th September 2015. Reptile mats were laid along the edges of the fields in strategic areas in the longer grassland adjacent to the hedgerows.

3.11 During this survey, a peak count of 126 slow worms were counted across the entire wider application site. Figure 5 below shows the key areas where reptiles were identified during the 2015 survey of the wider site, where peak slow worm counts are shown in blue and peak common lizard counts are shown in orange. All of the slow worms were noted along the boundaries, including field margins in the southern half of the site which is subject of to this report. During the last two visits, common lizards were also noted on the site, although none were found within the site which is subject to this report. The site as a whole was considered to support a 'low' population of common lizards on the site, but an 'exceptional' population of slow worms.

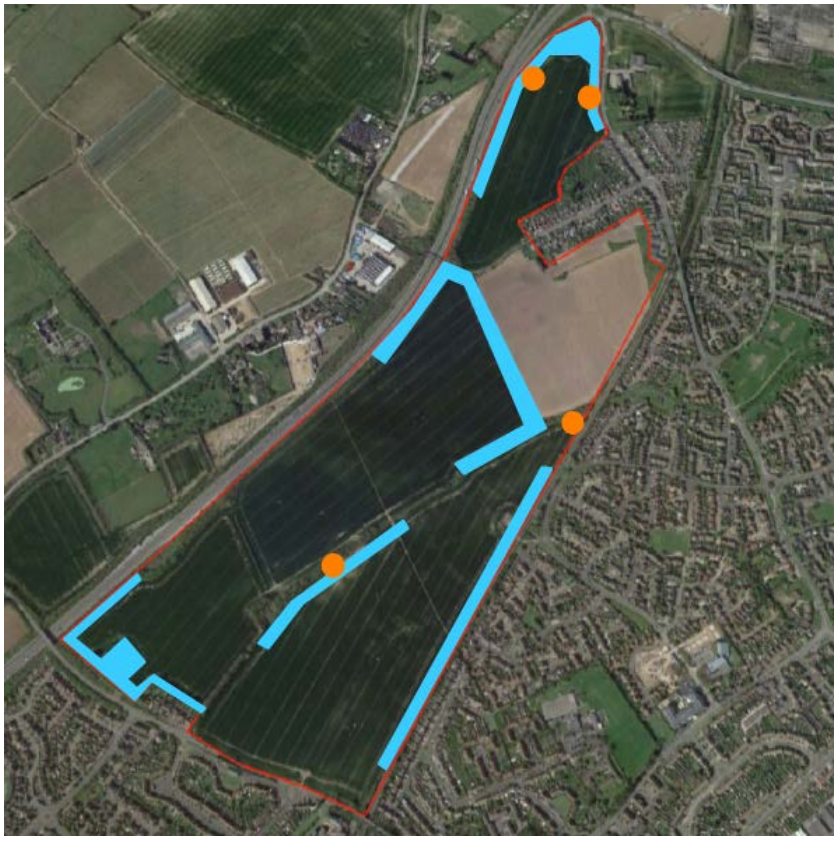

Figure 5: 2015 reptile survey results with blue indicating peak areas for slow worms, and orange dots indicating the location of common lizards.

Taken using Google Earth Pro (2015)

2015 Breeding Bird Survey

3.12 A breeding bird survey was undertaken across the wider application site on 15th July, 29th July and 17th August 2015. The surveys recorded a total of 21 species using the site, of which one species is considered to be a farmland specific species. Six bird species were considered to breed or hold territory in habitats within or fringing the site.

3.13 None of the species recorded during the survey are included in Schedule 1 of the Wildlife and Countryside Act, nor are any included in Annex 1 of the EU Council Directive on the Conservation of Wild Birds.

3.14 Two of the species recorded during the survey are included in the Birds of Conservation Concern (BOCC) Red list. These included skylark and house sparrow. Skylark were considered to be breeding within section 2 (north-east field, adjacent to doctors surgery)

due to the characteristic calling and flight patterns seen in survey 1; however, this species was not seen again after this survey. House sparrow were not considered to be breeding within the site, only feeding on the crops, due to the lack of buildings and dense climber habitat usually associated with the species.

3.15 A further three species are included in the BOCC Amber List which included swallow, dunnock and common whitethroat, of which common whitethroat was considered to hold a territory within the site.

3.16 Three of the species recorded are included in the 2009 review of the bird species included in the Kent Red Data Book. These species include skylark, goldcrest and house sparrow.

3.17 The total of 21 species and only one farmland bird recorded on three survey visits was considered to reflect the position of the site close to residential areas, the railway line and the A249. Only six species were considered to be breeding within the hedgerows and treelines. The diversity of birds found on site was not considered to be particularly good with largely common birds found.

2016 Update PEA

3.18 An update walkover was also conducted on 4th May 2016 by The Ecology Partnership (The Ecology Partnership, 2016), covering the same survey area used in this report (Figures 1 and 2). The areas of ecological interest are restricted to around the edges of the site, along tree-lines and hedgerows which are present on the field margins. As such, the majority of the site comprises arable land.

3.19 The site was considered to not have materially changed from the previous surveys, with no new ecological features identified.

2017 Update PEA

3.20 An update walkover was also conducted on 27th October 2017 by The Ecology Partnership (The Ecology Partnership, 2017), covering the same survey area used in this report (Figures 1 and 2). Again, the habitats on site were considered to not have materially changed since the previous 2012, 2015 or 2016 walkovers.

2017 eDNA Survey

3.21 eDNA samples were taken from Ponds 2 and 3 (Figure 6) by The Ecology Partnership (The Ecology Partnership, 2017) to ascertain the presence of GCN within them. Samples were taken from both of the ponds on the 20th April 2017, and sent off for analysis. Results from the samples taken from all ponds indicate GCN absence. All samples tested negative for any GCN DNA.

2018 Wintering Bird Surveys

3.22 Due to the habitats present on site, as well as the sites proximity to The Swale Special Protection Area (SPA)/Ramsar, approximately 2600m to the east, and the Medway Estuary and Marshes SPA/Ramsar Site approximately 2400m to the northeast, a survey of the sites use by wintering birds was undertaken by The Ecology Partnership (The Ecology Partnership, 2018).

3.23 The site was visited monthly between October 2017 to February 2018. Visits were timed to coincide with different states of tide, in case this influenced site use by waterbirds. The survey combined a wintering waterbird survey of farmland (Gillings *et al.* 1999, 2007) and a wintering farmland bird survey for birds other than waterbirds (Gillings *et al.* 2008).

3.24 There were no waterbirds observed on site over the three survey visits, however, it is important to consider this field in the context of the neighbouring fields (promoted by Persimmon) when considering impacts on local SPAs. The numbers of wintering waterbirds observed on neighbouring fields were negligible, with maximum counts of 18 black-headed gulls, 2 lapwing, 3 common gulls and 1 herring gull. No significant effect on the conservation objectives of either SPA is likely.

3.25 A total of 12 bird species were observed on the site. When considering the neighbouring fields also, 26 species other than waterbirds were recorded, including a number of species of conservation concern. The majority of these fed within field boundary habitats that will be retained and enhanced within the landscape plan.

3.26 The development will result in the loss of arable land and the residual effect will be on any species that feed solely within the arable; in this case skylark.

3.27 The density of birds on this field is considered to be well below the average for this habitat in winter in Lowland England. Thus, whilst the development will result in a residual impact on skylarks, it is on a habitat widespread locally and is not considered to be significant.

2020 PEA Review

3.28 It was considered that the habitats present on site have not materially changed since the update PEA from 2017, with the exception of the northern and eastern boundary vegetation being changed from a hedgerow to a tree line. The land is still being farmed, resulting in the site being dominated by arable land. The site also contained a mix of habitats around the border, these included areas of tall ruderals, scattered scrub, lines of trees, as well as a few scattered trees.

Summary

3.29 In summary the site is considered to be constrained by the following:

- Low population of slow worms;
- Low population of common lizards;
- Nesting birds;
- Foraging badgers;
- Foraging bats;
- Low bat potential trees.

4.0 Management Responsibilities

4.1 The LEMP should be reviewed during the life of the management plan with reviews undertaken before the end of each five year period. The revised LEMP should include similar provisions for the long-term management of the biodiversity enhancement areas.

4.2 Maintenance operations should also be refined to suit:

- The needs of users;
- The conservation of ecological interests;
- Improvements in equipment and horticultural aids;
- Changing legislation and sustainability requirements;

- The completed scheme when soft landscaping including species have been confirmed; and
- The detailed management recommendations for the existing trees to be retained, as set out in the tree survey report

4.3 Subject to agreement with the Council, the management will be organised and implemented by a site management organisation and representatives from residents. The developer will fund the site management company for the period of the build and for 5 years thereafter.

Monitoring and Review

4.4 The effectiveness of the proposed management will be assessed after 5 years (covering the initial defects liability) against the management objectives set out in section 2 and adjusted accordingly.

4.5 The various tasks contained within the LEMP should, subsequently, be reviewed and revised as deemed necessary every 5 years within the overall 15-year period, informed by visual inspections. All areas of the landscape scheme will be closely monitored throughout a 5-year aftercare period by a suitably competent professional so that the most appropriate management regime can be defined on an area-by-area basis. This process will identify where the existing management regime requires modification to meet management objectives, both annually and in the long-term.

Protection of Existing Vegetation During Construction

4.6 All trees retained as part of the development proposals will be protected in accordance with the separate Arboricultural Method Statement document to comply with the provisions of BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'.

4.7 Protective fencing will be erected prior to any construction activity commencing and will be maintained until practical completion of all building and engineering works. The protective fencing should be checked by a qualified arboricultural consultant. If for any

reason the fencing needs to be moved or altered, this will only be done under the supervision of the appointed arboriculturist.

4.8 New underground services will be designed to avoid the root protection areas of retained trees unless written permission for incursion into tree root protection areas has been granted by the Local Authority's Arboricultural Officer. In addition, any new services close to trees will be installed to comply with the National Joint Utilities Group (2007) Volume 4, Issue 2: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

4.9 Refer to the Arboricultural Method Statement for details of protective fencing and other protective measures to be undertaken during construction.

Wildlife

4.10 To ensure that no impacts occur to badgers during any construction activities, all contractors working on the site will be briefed regarding the potential presence of badgers.

4.11 All trenches and excavations will be closed overnight to prevent badgers and other wildlife from becoming trapped. Where it is not feasible to close excavations overnight, any trenches or deep pits (deeper than 0.3m) within the site that are to be left open overnight will be excavated with at least one sloping end and/or provided with a means of escape should a badger and other wildlife enter. This could simply be in the form of a roughened sturdy plank of wood placed in the trench as a ramp (at an angle no more than 45 degrees) to the surface.

4.12 The trenches or pits will be inspected each morning to ensure no badgers/wildlife have become trapped overnight. Should a trapped badger be encountered, a suitably qualified ecologist will be contacted immediately for further advice. The storage of topsoil or other 'soft' building materials within the site should be given careful consideration.

4.13 Any large diameter pipes or culverts (greater than 150mm in diameter) would be blocked overnight to prevent badgers from becoming trapped or taking up residence.

4.14 During construction, the storage of any chemicals required for the building construction should be kept well away from any badger/wildlife activity and contained in such a way that they cannot be accessed or knocked over by any roaming wildlife.

4.15 The trees and hedgerows on and around the site present good quality foraging and nesting habitat for bird species.

4.15 Without mitigation, the development could contravene the legislation and policy which protects breeding birds. Vegetation clearance, including to enable works, could result in harm to individual birds and the damage or destruction of nests, eggs and habitat suitable for nesting. However, using established techniques it should be possible to avoid harm to individual birds, nests and eggs during the development process.

4.16 All vegetation clearance should take place outside of the bird breeding season (March to August inclusive). If this is not possible, a breeding bird nest survey should be undertaken up to 48 hours prior to clearance, and a watching brief undertaken during site clearance in case any nests are missed during the initial check. If breeding birds are present then the works to these areas will be delayed until after the young have fledged.

4.17 Translocation of reptiles as per the EDS requirements and the maintenance of the translocation area.

4.18 Low' potential bat trees do not require further surveys, but it is recommended that sensitive clearance is undertaken. Methods are detilaed in the EDS.

Programme

4.19 Removal of above ground vegetation and site stripping will be conducted between late September and end February (outside the bird nesting season). If this is not possible, then prior to any vegetation clearance or site-stripping works being conducted between March and September (inclusive) in any year, the area to be stripped will be surveyed for nesting birds by an appropriately qualified ecologist. The nests of all wild British birds are afforded protection under the Wildlife and Countryside Act (1981 and amendments) prohibiting their damage, destruction, or taking while they are in use or being built.

4.20 Any trees identified as having potential to support roosting bats that are scheduled for removal will be subject to an at height endoscope inspection, supervised by a licenced bat ecologist before being carefully felled. If evidence of roosting bats is discovered during this inspection, the tree should be retained until further surveys can be undertaken and the tree would then be included in the European Protected Species License.

4.21 Supervision of vegetation removal, the ecological watching brief and all other ecological supervision and monitoring will be undertaken by an ecological consultant. The consultant ecologist will also advise on the location of habitat/wood piles; construction will be undertaken by a landscape contractor.

Ecological Enhancements

4.22 Detailed ecological enhancements are detailed in condition 16.

5.0 Detailed Management

5.1 All the operations in the maintenance and management strategy must be the most sustainable possible, and that this will be reviewed as part of the landscape condition. This review will include the suitability of species in the long term with a view to global warming, the need for watering after the initial maintenance liability period, the use of imported mulches, local composting, the removal and recycling of plastic tree guards, all of which being part of the proposals.

Maintenance Operations: Operational Phase Year 1-5

5.2 The LEMP assumes that the landscape scheme will have been implemented based on detailed drawing that will be produced in accordance with the landscape areas as shown on the Landscape Strategy Plan appendix 1. The LEMP has incorporated the maintenance provisions for plant establishment and therefore provides a comprehensive source of maintenance requirements following practical completion.

5.3 Proposed maintenance operations are outlined in the below list of overarching requirements which should be read in conjunction with the actions contained in the tables outline annual management operations in section 6.

5.4 Management principles are devised for the following landscape elements that are proposed or existing within the site:

- individual trees: existing and new including street trees and tree planting;
- native thicket matrix planting (native scrub mixtures with trees) along the linear park;
- new hedgerows:;
- wetland areas seasonably wet areas of SuDS attenuations basins;
- new orchard creation and community asset creation;
- grassed areas: mown amenity, wildflower meadow and wetland types.

Overarching Requirements

5.5 All areas of planting / vegetation should be cleared of litter at least once a month to keep the site clean and tidy.

5.6 The requirement for watering should be assessed regularly during long, dry periods (typically during the summer months between April and September) to ensure that all areas of new and existing planting are maintained in good health and vigour. Trees, shrubs, and hedge planting should be watered regularly and in response to weather conditions.

5.7 Any damaged shoots/branches are to be pruned back to healthy wood. Plants are to be pruned in accordance with good horticultural practice to maintain healthy well-shaped specimens.

5.8 As part of turfing and seeding, when newly turfed and seeded areas reach 50mm they should be lightly rolled and cut to a height of 40mm. All arisings shall be removed. Any bare patches shall be made good at this time. Lawn areas should then be cut at appropriate intervals during the growing season to maintain a 40mm high sward. Watering, weeding and repair of all erosion and settlement with reseeding or turfing shall be undertaken as required to establish a uniform and healthy stand of grass.

5.9 Replacement planting should be carried out in November or February/March, avoiding the winter frosts. Replacement seeding should be carried out in spring or autumn.

Existing Trees/Vegetation

5.10 The objectives for the management of existing retained trees and vegetation are to:

- Retain and enhance their contribution to ecological networks and corridors;
- Retain and enhance their contribution to the landscape setting;
- Retain their contribution to the landscape structure;
- Enhance their age diversity, structure and character as a long term ecological and landscape resource;
- Ensuring their retain their ecological connectivity;
- Ensure the retention of the edge ecological corridor between off site and the north eastern woodland.

5.11 The LEMP will retain and enhance the edge habitats, notably on the north eastern edge of the site where a landscape edge will provide a significant ecological corridor. Mature trees will be retained on the south and western edges of the site.

5.12 The LEMP will retain and enhance the edge habitats, notably on the north eastern edge of the site, where a landscape edge will provide a significant ecological corridor.

5.13 An annual condition, and health and safety, inspection will be undertaken to identify essential works. The table below sets out management objectives and prescriptions for the retained trees and vegetation

Table 1: Retained Vegetation Manageent

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Full tree condition survey to be undertaken every five years.	To sustain a healthy and safe tree population	✓	✓	✓
Annual safety inspections and surveys.		✓	✓	✓
Arboricultural work as recommended by surveys, with consideration given to bats and birds. Remove ivy from trees where tree health is impaired. Ivy will otherwise be retained on trees for the benefit of invertebrates, bats and birds.		✓	✓	✓

New Tree and Shrub Planting

5.14 The objectives for new tree planting and ornamental shrub including the following

- The provision of new tree planting within the site;
- To integrate ecological features within the development area;
- To strengthen the landscape structure;
- Provide new habitat creation;
- Provide a range of trees and shrubs with differing age, structure, character and species.

5.15 New native planting is proposed within the layout to create green linear features within the north eastern edge of the development and new tree planting along the main spine road.

5.16 An annual inspection will be undertaken of tree stakes and ties, which are to be adjusted as necessary and removed once tree anchorage has been established. Similarly, any trees that are supported by underground guys will be inspected for wind-throw or rotation within their planting pits, and the pits excavated, and guys repositioned and tightened, if necessary.

5.17 Trees and shrubs found to be dead or dying within the first 5 years post planting to be replaced on a like-for-like basis as soon as possible within the next available planting season. During the first 5 years of the management plan period, the following activities would be required to improve the condition of the tree planting:

- Clear vegetation from around the tree base;
- Replace dead/dying or vandalised trees;
- Manage scrub encroachment if required;
- Check stability and remove staked/ties;
- Prune as appropriate.

5.18 These activities would continue throughout the 15-year LEMP plan period, but it may be necessary for the timing / frequency of activities to be adapted according.

5.19 Table 2 below, sets out management objectives and prescriptions for the newly planted trees and shrubs.

Table 2: New Tree Planting Management

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Water trees and shrubs as required to ensure satisfactory establishment, and for a period of not less than two years after planting. Frequency: as required to maintain healthy plant growth.	To ensure sustained tree and shrub growth To conserve the 'layered effect' of vegetation in the local landscape	✓	✓	✓
Trees should be inspected every 3 months for the first two years of the plan to ensure that trees are healthy, not diseased, damaged, or dead. Inspection to identify any dead limbs or other parts of a tree that may cause harm to the tree or member of the public.		✓	✓	✓
Establishment maintenance for new trees (maintenance of tree stakes, ties, guys and guards). Once established any guards and stakes should be removed and taken off site and disposed of responsibly.		✓	✓	✓
Any species which die, become diseased or seriously defected within the first 5 years should be replaced like for like in the first available planting season. Tree replacement should be undertaken as required in early spring or late autumn.		✓	✓	✓
Yearly pruning should be conducted between January and March based on findings of inspections. Formative pruning as required. Emergency pruning should be conducted immediately when a critical fault is noticed.		✓	✓	✓
Weeds on top of tree pits should be removed by hand. Litter and other debris should be removed from planting beds. Mulch should be topped up to depths and levels set out in planting works implementation specification. • Frequency of weed removal: fortnightly from spring to autumn and then monthly during the winter months; • Frequency of debris removal: bimonthly • Frequency of mulch replenishing: every 6 months		✓	✓	✓

Native Thicket / Scrub Planting

5.20 The objectives for new native shrub and scrub planting including individual trees will include the following;

- New areas for new native scrub planting to provide robust ecological networks along the north eastern edge of the site;
- To create a diverse a rich species mixture the north eastern edge, to provide new opportunities for nectar and fruiting resources;

- To provide new opportunities for nesting and foraging areas for birds and commuting and foraging bats;
- To provide a layered effect of the vegetation on north eastern edge of the site.

5.21 New native scrub, shrub and tree planting are proposed within the north eastern edge of the site to enhance that linear feature on the edge of the site and to provide a linear recreational area linked to the wider landscape.

5.22 Ruderal vegetation should be allowed to develop at margins. In years 1-5, the primary aim is to ensure successful establishment of plants. From year 5 onwards, the aim will be to create a visually diverse, mature, and natural looking areas.

5.23 Management is detailed in table 3.

Table 3: New Shrub and Thicket Management

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Shrub planting should be inspected every 3 months to ensure that shrubs are healthy, not diseased, damaged, or dead. Formative pruning as required. Dead or unhealthy shrubs should be removed on inspection and replaced with the same species and size as required to achieve the desired visual effect. • Frequency of inspections: 3 monthly • Frequency of remedial work: immediately as required. • Frequency of seasonal remedial pruning works: Pruning, dead heading at the end of plant flowering seasons (spring to autumn) as required	To ensure sustained tree and shrub growth To conserve the 'layered effect' of vegetation in the local landscape	✓	✓	✓
Any species which die, become diseased or seriously defected within the first 5 years should be replaced like for like in the first available planting season. Tree replacement should be undertaken as required in early spring or late autumn.		✓	✓	✓
Yearly pruning should be conducted between January and March based on findings of inspections. Formative pruning as required. Emergency pruning should be conducted immediately when a critical fault is noticed.		✓	✓	✓
All shrub beds should be fertilised to replenish nutrients using an approved slow release fertiliser as per the manufacturer's recommendations. Trees should be fertilised in the first two years of establishment using a liquid based organic fertiliser as per the manufacturer's recommendations. An		✓	✓	✓

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
approved organic soil conditioning agent should be applied to all planting beds as per the manufacturer's recommendations and worked into the top 150mm of the soil profile without damaging existing vegetation. Mulch should be removed prior to application and reinstalled after soil conditioner has been added. • Frequency for shrub fertiliser: annually • Frequency tree fertiliser: annually for the first two years • Frequency for amenity planting bed soil conditioner: annually in early spring				

New Native Hedgerows

5.24 The objectives for new native hedgerow planting along the north eastern linear park edges including the following;

- Creation of new native hedgerow with a variety of species to provide diversity in species and structure;
- Supporting linear feature creation and habitat linkages along linear park edge.

5.25 An annual inspection to replace dead/diseased plants will be undertaken at the end of each growing season for the first 5 years after planting, and pruning to promote healthy growth, where required. After that period, pruning of native hedgerows will be carried out, once in 5 years, between November - February.

5.26 Allow new hedgerows that are proposed primarily to provide screening/biodiversity benefits, to establish to a height of 2m. Then cut 20% of the hedgerow once annually to a height of 1.5m on a 5 year rotational basis to allow the hedgerow to fruit and provide food for wildlife. The height of each trim should be gradually increased with each cut, until a height of at least 2m is attained for low sections. Any small sections of newly planting hedgerow saplings will not be cut for the first 10 years. Cutting should only take place between November and February (inclusive) for the following reasons:

- to allow flowers, fruits, and nuts to fully develop before cutting, thus providing foraging for many insects, birds, and bats, if they colonise from other hedges within 1.5km; and

- to avoid bird mortality or injury during the bird nesting season (generally March to August (inclusive)).
- See outline management in table 4 below.

Table 4: New Hedgerow Management

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Establishment maintenance for new hedges: trimming, weeding, annual inspection, replacement of losses, irrigation as required, hedgerow formative pruning, thinning). Adjustment and replacement of stakes and guards as required. Replace as necessary. Plant guards to be straightened and ties checked during each inspection (at least 4 inspections during the year) and adjust to avoid chaffing and other damage. Guards and stakes to be removed at the appropriate time, typically during 4th or 5th year, dependant on the mammal population. Guards and stakes to be taken off site and disposed of responsibly.	To ensure successful establishment	✓		
Trim as required to maintain neat appearance (works subject to restrictions within bird nesting season). Gap up as required in winter.		✓	✓	✓

SuDS Basins and Wetland Area

5.27 The objectives for SUDS basin and wetland planting include the following;

- Create a species rich wildlife habitat and sustain the long term habitat diversity of the SUDS / ponds basins;
- Monitor the SUDS basin for invasive species and scrub species present so drainage is retained and the species diversity is maintained;
- Avoid the use of chemicals to manage invasive species / pesticides etc;
- Monitor edge habitats and replant where required. To maintain feature and plant cover in attractive condition and achieve biodiversity and habitat objectives.

5.28 The monitoring of the SuDS feature's performance will be undertaken separately, in accordance with the advice provided by the project/site engineer, for example monitoring in-flow and out-flow. Maintenance of marginal vegetation around areas of open water;

this includes removal of arisings from site and should avoid the amphibian breeding/larval period of January – August.

5.29 Submerged and emergent aquatic/marginal plants will be hand cut on 25% per year rotational basis (at a minimum 0.1m above the base of the SuDS feature), along with plants that extend over more than two thirds of the surface area of the pond, in the autumn, which is the least damaging time of year for pond maintenance. This will avoid disturbance to the aquatic wildlife in their breeding season/larval period (January - August). Arisings are to be left adjacent to the pond for 24 hours, to ensure that no aquatic wildlife are present in the vegetation, and allow them to crawl back into the pond, before they are removed. Algae will be removed in summer; 2 visits per year.

5.30 Management details are shown in table 5 below.

Table 5: SUDS Basins and Wetland / Marginal Planting

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Regular litter removal and grass cutting/ grass edges - grass should be cut at 50mm with a minimum height of 25mm. Periodic removal of any excess silt, as required. Once established, lift and divide marginal planting annually according to species. Replace any losses.	To maintain structures as safe and fit for sustainable drainage function To maintain feature and plant cover in attractive condition and achieve biodiversity and habitat objectives	✓	✓	✓
Inspections should be undertaken on a minimum basis of once a month, particularly during the vegetation establishment period and after significant storm events to identify areas of erosion, locations of silt deposits, and health of the vegetation and soil. Undertake any repairs/maintenance as required.		✓	✓	✓
Cut back vegetation as required in autumn to ensure optimum functioning and free flow of water.		✓	✓	✓
Remove invasive species.		✓	✓	✓

Amenity Grass

5.31 The objectives for amenity grassland including the following;

- Amenity grassland of good quality condition which is managed for amenity value.

5.32 The amenity grassland relates to short mown grassland areas. During the initial establishment, the grassland should be mown when it reaches 75mm in height and cut to 40mm in height in the first year. The arisings (cuttings) from this first mow should be removed off-site to encourage grassland establishment. Table 6 below shows the management regime.

Table 6: Amenity Grassland Management

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
First cut of grassed area do be done when the grass is reasonable dry and has reached an initial growth of 75mm. All arisings to be removed from hard surfaces and all works in a clean and tidy condition. Generally maximum height of growth at any time should be 50mm. All litter and debris should be removed prior to mowing. Cut as and when necessary to a height of 25mm or 50mm, depending on area, with all arisings removed. Trim all edges. Weed control: grass should be kept substantially free of broad leaved weeds using a suitable selective herbicide to manufacturer's instructions.	To achieve sward establishment to 95% minimum cover	✓		
Yr 2 onwards: cut to maintain grass height of 25mm or 50mm, depending on area, and remove arisings.	To maintain healthy growing grassed areas with 90% minimum grass cover	✓	✓	✓
Inspect and, if required, cultivate and overseed areas of worn grass. Fertiliser for grassed areas should be applied in March (spring) and September (autumn) to manufacturer's instructions.		✓	✓	✓
Inspect in late autumn and assess need for winter maintenance; principally scarification and/or aeration.		✓	✓	✓

Wildflower Meadow

5.33 The objectives for wildflower grassland including the following;

- To promote a biodiverse sward with desirable species composition;
- To promote a natural, attractive appearance;
- To maintain a diverse sward composition through the use of sensitive management regimes and control scrub and undesirable ruderal species;
- As far as practicable avoid the use of fertiliser and herbicides;
- To promote habitat diversity and a nectar rich sward.

5.34 Wildflower grassland areas include those areas along the north eastern linear park peripheral areas and at the as shown on the landscape plans.

5.35 Establishment of new (sown) grassland: Regular cutting when the grassland reaches 150mm in length (at least 3 times) will be undertaken taken in the first half of Year 1 as the sward is establishing to reduce the number of coarse grasses and pernicious weeds and maintain the balance between faster growing grasses and slower developing wild flowers. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site, no more than 10 working days after cutting.

5.36 After the first year, cutting visits should be undertaken to be a height of 50mm in late September. The proposed wildflower meadow should be subject to traditional meadow management based around a late summer hay cut (or grazing) after flowering, *with arisings removed*. The meadow grassland should not be cut from spring onwards to give species an opportunity to flower. The main late summer cut can then be supplemented with an autumn or spring cut depending on seasonal weather conditions. Thereafter, a mowing regime for managed grassland should contain one or more of the following elements:

- mowing or grazing in late summer or autumn; and
- managing of inappropriate lush spring growth, if required.

5.37 No selective herbicides will be used within these grassland areas. Instead, pernicious weeds (for example, dock and thistle) will be removed by hand, or burnt.

5.38 All arisings will be removed from site, immediately after cutting. Any litter will be removed prior to each cut, and leaves will be raked off grass prior to autumn cuts.

5.39 Management of the wildflower grassland areas are shown in table 7 below.

Table 7: Wildflower Grass Management

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Yr 1: scarify in autumn and sow suitable native wildflower mix. Cut to a height of 50 – 75 mm four times during the first year to encourage wildflower root development. All arising's should be removed. Repeat as required for 3 to 5 years to establish wildflower content. Spot treat or hand-pull undesirable weed species. Minimise chemical use.	To achieve sward establishment to 95% cover To achieve floristically diverse sward content, providing colour and seasonal variety for visitors and habitat for insects and birds. Control invasive weed species (by cutting prior to seed set)	✓	✓	
Post establishment: The wildflower meadow should be cut once per year to between 40 and 70mm (late August/ September for summer flowering meadow or July for spring flowering). However, subject to the results of monitoring, an additional cut in late March may be carried out, especially in the first few years following establishment. This measure would help control the vigour of the sward, especially of the bulkier grasses, and would encourage greater species richness. All arisings should be left in situ for 48 to 72 hours prior to removal. Minimise chemical use.	To ensure floristically diverse sward content and control invasive weed species	✓	✓	✓

Community Orchard

5.40 The objectives for orchard including the following;

- To promote an established fruiting tree species;
- To promote a natural, attractive appearance with wildflower edges;
- To provide a community asset;
- As far as practicable avoid the use of fertiliser and herbicides;
- To promote long term fruiting resource.

5.41 Newly planted trees, the first five years should include the following:

- Watering – Drought stress is common with newly planted trees (in the first three years), particularly when specimens have a large root-ball. Dry, windy conditions are especially likely to lead to water shortages so correct watering is essential.
- Weeding – Keep a vegetation-free circle for at least 1m in diameter around the tree to avoid competition for water from weeds, lawns and other plants. Weeding should therefore be undertaken once every two months between April-September for the first three years.
- Mulch – After feeding, apply a layer of mulch around the tree in late winter, which will help to conserve moisture and suppress weeds. Ensure there is a collar of 10cm around the stem of the tree which does not have mulch to prevent the mulch causing the bark to rot.
- Tree guards – It may be necessary to replace tree guards and eventually they will need to be removed.

5.42 In addition to the trees, the wildflwoer grassland edges shoud be managed as per the wildlfower grassland management as detailed in table 6. Cuttings should be removed diversity; never use fertilisers on the grass.

5.43 When the orchard is producing fruit, any unwanted fruit should be left to hang on the tree or where it falls as this is a good food source for a range of birds, badgers, hedgehogs and insects.

Table 8: Management Objectives for the community orchard

Task	Management Objective / Performance Standard	Years 1-5	Years 5-10	Years 11+
Establishment: Annual feed and irrigation as necessary to ensure successful plant establishment, replace losses, hand weed or spot treat weed growth and top up mulch. Monthly visits during growing season.	To ensure successful plant establishment	✓		
Mow the 'orchard' area (i.e. around the fruit trees) fully in March/April, then leave grass to grow long to protect the fruit trees until they are ripe or have been picked in September.	To ensure continued healthy plant growth and attractiveness as a community resource		✓	✓
Monitor the orchard area during summer and mow nettle and bramble patches selectively as needed – in blocks rather than as a single whole.	To ensure continued healthy plant growth and		✓	✓

	attractiveness as a community resource			
Keep all newly-established trees clear and hand-weeded / mulched as much as required (April - August).	To ensure continued healthy plant growth and flowering		✓	✓
Larger broken branches on fruit trees should be tidied up where appropriate (April - August).	To ensure continued healthy plant growth and flowering		✓	✓
Broken branches of plum or damson trees should be trimmed back in summer to prevent silver leaf (April - August).	To ensure continued healthy plant growth and flowering		✓	✓
Carry out moderate pruning of fruit trees to establish/maintain shape and tidy up broken branches (not plum family) (September - February).	To ensure continued healthy plant growth and flowering		✓	✓
Mulch bases of soft fruit with compost / cardboard to keep weeds down (September - February).	To ensure continued healthy plant growth and flowering		✓	✓
Check tree ties and, wherever possible, remove and cut stake off at ground level (September - February).	To ensure continued healthy plant growth and flowering		✓	✓
Consider new tree planting (replacements for any vandalised trees) (September - February)	To ensure continued healthy plant growth and attractiveness as a community resource		✓	✓
Leave fallen fruit where possible	To provide a resource for wildlife	✓	✓	✓

Allotments

5.44 Allotments will be created on site as per landscape layout and the long term management will be undertaken by the allotment authority (part of the LPA). The set up costs and a 15 year endowment for the site is provided by the developer.

5.45 The allotment authority will administer waiting lists, allocated plots, support new tenants, finance allocate, provide routine maintenance, pay for water bills etc.

5.46 The plot holders, who will accept responsibility ensuring allotments are managed in line with the requirements as detailed by the authority. This is outside the scope of this LEMP.

6.0 Management Matrix

6.1 A summary of annual maintenance operations during the management period is given below in terms of season and frequency:

6.2 The tasks outlined within the LMP should be reviewed every 5 years within the overall 15-year period. In years 4 to 15 maintenance operations within the site will be adapted to

reflect the increasing maturity of planting and habitats and visual inspections by would be carried out once per year in late September.

6.3 Annual visual inspections will be required in order that operations can be adapted to respond to the needs of planting as it becomes more established and to respond to unpredictable events, such as extreme weather, which may require additional, specific actions and to keep an up to date record of maintenance requirements. During Year 4 to 15, the following general management considerations are observed, followed by specific considerations for specific planting types / site areas.

Table 9: Management Matrix

Operation	J	F	M	A	M	J	J	A	S	O	N	D
1. Existing Trees/Vegetation:												
Annual safety and condition inspection to include checks for major deadwood and damaged branches and include cut back of vegetation from roadsides/sightlines;										✓		
tree works, pruning and management to promote vigour;	✓	✓										
litter/fly-tipping and self-sown tree removal;	✓			✓			✓			✓		
weed-free circle around existing trees.			✓	✓	✓	✓	✓	✓	✓	✓		
2. New Trees:												
Annual tree inspection, remedial pruning, as required;										✓		
Tree stake/guy adjustment/removal, and adjust rabbit protection;	✓											
removal of dead, diseased, and dying wood;										✓		
Formative pruning and trimming back from paths or roads;										✓	✓	
Adjustment of tree grilles;				✓						✓		
Remove fallen leaves;										✓		
Weeding and litter pick;	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
Defects replacements (first 3 years following planting);		✓									✓	

Operation	J	F	M	A	M	J	J	A	S	O	N	D
Self-sown tree removal by digging up or use of suitable herbicides;							✓					
Application of slow release fertiliser;	✓											
3. Native Thicket / Shrub Planting: Hand weeding around new planting, with spot treatments if necessary;			✓	✓	✓	✓	✓	✓	✓	✓		
tree stake/guy adjustment/removal, and adjust rabbit protection;	✓											
Replacement of dead or diseased new planting;		✓									✓	
Formative pruning;											✓	
4. New Hedgerows:												
Annual inspection - pruning as required (first 3 years following planting);											✓	
Pruning of hedgerows once in 3 years (Year 4-10);											✓	
Single species hedges - pruning as required	✓	✓									✓	✓
Weed and litter removal;			✓	✓	✓	✓	✓	✓	✓	✓	✓	
Check rabbit/deer protection, adjustments to ensure plants remain upright;		✓										
Application of slow release fertiliser;	✓											
Defects replacements (first 3 years following planting).		✓									✓	
5. Aquatic and Marginal Planting and Wetland Grass areas:												
Water topping up (as required);						✓	✓	✓				
Thin wetland plants / aquatics to reflect original plant centres when growth and spread exceeds one third of individual wetland area(s)										✓		
Clearance and cutting down marginals, as required;		✓	✓									
Wetland grass: cutting, as specified, and litter removal, and removal of arisings (grass adjacent to ponds cur once every 2 years);							✓			✓		
Litter and debris removal;				✓								
Algae removal.							✓	✓				
Defects reinstatement (once annually) (either/or).		✓									✓	

Operation	J	F	M	A	M	J	J	A	S	O	N	D
6. Amenity Grass Areas												
Cutting and litter removal;				✓	✓	✓	✓	✓	✓	✓		
Removal of fallen leaves									✓	✓		
Maintain grass-free circle, as specified, around trees					✓		✓		✓			
Maintain grass and weed free edges adjacent paths					✓							
selective herbicide treatment as necessary to control weeds;			✓	✓	✓	✓	✓	✓	✓	✓		
Scarification, spiking and top-dressing to ensure the ongoing health of the grass sward;					✓							
Application of fertiliser to maintain healthy growth;					✓				✓			
Defects reinstatement.				✓						✓		
7. Wildflower Grass:												
Cutting, as specified, and litter removal, and removal of arisings (Year 1and 2);				✓			✓			✓		
Cutting, as specified, and litter removal, and removal of arisings (Year 3 onwards) summer cut, in combination with an autumn **or** spring mowing;				✓			✓			✓		
Grass path cut to ensure grass is no longer than 125mm;					✓		✓		✓			
Defects reinstatement (once annually) (either/or).			✓								✓	
8. Orchards												
Inspections and general remedial work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual feed and irrigation as required. Keep all newly-established trees clear and hand-weeded / mulched. Tidy up larger broken branches. Trim back any broken branches of plum or damson trees. Monitor the orchard area during summer and mow nettle and bramble patches selectively as required.				✓	✓	✓	✓	✓	✓			
Mow the 'orchard' area fully in March/April, then leave grass to grow long to protect the fruit trees until they are ripe or have been picked in September.			✓	✓					✓			
Removal of leaf litter / grass re-instatement works			✓	✓					✓	✓		

Operation	J	F	M	A	M	J	J	A	S	O	N	D
Carry out moderate pruning of fruit trees to establish/maintain shape. Mulch bases of soft fruit with compost / cardboard to keep weeds down. Check tree ties and consider new tree planting.	✓	✓							✓	✓	✓	✓
Leave fallen fruit on the ground where possible									✓	✓	✓	✓
9. Allotments												
Management of allotments to be determined by plot holders / allotment association	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Note: '✓' where indicated, implies either/or for timing of specified management operation.												

9.0 Conclusions

9.1 The site has been subject to various ecological surveys to ensure that protected species and local wildlife have been considered as part of the scheme. The landscape plans have been designed to ensure the ecological value of the site is retained and enhanced where possible.

9.2 Management plans have been included per habitat type and the management matrix is provided to break down the management across the year.

9.3 It is considered that this report is sufficient to discharge the LEMP condition.

Appendix 1: Landscape Plans

The Ecology Partnership Ltd

Thorncroft Manor

Thorncroft Drive

Leatherhead

KT22 8JB

Tel: 01372 364 133

www.ecologypartnership.com

Approved: Alexia Tamblyn MA (Oxon) MSc CEcol CEnv MCIEEM FRGS

Date: 12/11/2021