

Landscape and Ecological Management Plan

HEYFORD PARK, BICESTER, PARCEL 6

Dorchester Living

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Prepared by: **Andrew Ferguson**
Position: **Landscape Architect**
Qualifications: **CMLI, Landscape Architecture, MALA, BA (Hons)**

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1 INTRODUCTION

1.1 Background and Context

1.1.1 This report presents a Landscape and Ecological Management Plan for the Public Open Space (POS) associated with the development at the land within Parcel 6 of the development of Heyford former military base and the wider context encompassing surrounding development parcels. The POS is to be managed for the primary purpose of low-key recreational use, to provide biodiverse ecological habitat and to provide an attractive setting to the new properties.

1.1.2 The management responsibility will be with the appointed Management Company. Areas are to be managed in accordance with this Management Plan for a minimum ten-year period, commencing at the time of completion of the contractor's defects liability period. For the duration of the contractor's defects liability period (12 months after completion of works) the maintenance liability of all areas will lie with the developer.

1.1.3 It is the intention that the areas of land that this document relates to are covered by landscape management instructions for a full duration of ten years. After the initial ten year management period, this document is to be reviewed to check for its relevance to the landscape.

1.1.4 This report has been designed to provide a steering manual for the day-to-day management of the site and one, which can be updated as required. It sets out in broad terms the landscape and biodiversity aspirations for the site, both in the short and longer term and provides practical means by which these aims may be translated to well managed results on the ground.

1.2 Report Structure

1.2.1 The report is structured as follows:

- Section 2: describes the management aims and objectives for the Site.
- Section 3: gives a site description and evaluation of baseline conditions.

- Sections 4 and 5: sets out the management strategy for the existing Site. This includes new planting on the Site with specific advice relating to routine maintenance, management operations and species specific information.
 - Section 6: gives information on species specific landscape management.
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2 MANAGEMENT AIMS AND OBJECTIVES

2.1 Aims and Objectives

2.1.1 The primary landscape objective for the landscape areas subject to this Management Plan is to create and maintain a functional, attractive and sustainable space, to increase the sense of site unity and to increase the visual appeal and emphasise the site's characteristics. The main aim of the Management Plan is to set mechanisms in place which ensure that the open space is well managed, for the benefit of the residents so that it does not become degraded through neglect, inappropriate management or misuse.

2.1.2 The primary biodiversity objective is to maintain ecological connectivity within the site and create a range of habitats to serve as resting, shelter, foraging and commuting habitat for a range of species. To this end, wild areas that interconnect without habitat fragmentation i.e. interlinking green corridors within and around the site will be maintained.

Where practicable the habitats and landscaped areas will be enhanced and managed to maximise the potential biodiversity in the site. Enhanced value to wildlife is important to the overall impact of the management proposals. This is particularly relevant and specific to bat habits as set out in section 6.

2.1.3 An acceptable visual appearance and the provision of an ecologically sustainable, healthy and diverse vegetative framework will ensure that the appeal and functional purposes of the area is sustained in the foreseeable future.

2.1.4 The general principle aims for managing the site are as follows:

- To introduce sensitive management policies which will enhance the visual and ecological appeal of the site, maximise the screening functions where needed and create a high quality landscape setting for the new buildings whilst never forgetting that excessive maintenance can discourage wildlife.

- To encourage appropriate use of the site by residents, whilst strongly discouraging inappropriate and indiscriminate use of the site by, for example, vandalism, tipping, anti-social behaviour.
- To ensure that the long term health and vigour of the new planting is optimised in the future.
- To implement a programme of measures to increase the visual and amenity appeal of the site.
- To retain and enhance existing ecological connectivity and habitats for biodiversity.
- To develop diversity and sustainability in new habitats.
- To allow natural succession where relevant.
- To provide enhanced habitat for species such as bats, breeding birds, hedgehogs, reptiles and insects.
- To monitor developments and allow flexibility to the management approach.

2.1.5

The specific site objectives are as follows:

- To optimise the biodiversity of the grassland and both native/ornamental planted areas within the Public Open Space.
 - Encourage populations of notable and protected species including bats, birds, insects, hedgehog and reptiles that may encounter the site by encouraging the development of habitats of notable and protected species, promote structural and age diversity of vegetation, including newly planted trees planted within close proximity to existing mature specimens.
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3 SITE DESCRIPTION AND EVALUATION OF BASELINE CONDITIONS

3.1 Site Surveys

- 3.1.1 A site wide Phase 1 Habitat survey has been undertaken, along with arboricultural survey and arboricultural method statement (D.0341_TS AIA TPP PH6). Specific to this Parcel 6 development site, a Preliminary Bat Survey has been undertaken by 4 Acre Ecology Ltd on 23.02.2016. This report follows up on a much earlier Heyford Park Settlement Area: Mitigation Implement Programme Report (27.11.12) which was a response to the Phase 1 Habitat findings. Confirmation by 4 Acre Ecology Limited reveals that bats are present (limited numbers) and should be accommodated under law.
- 3.1.2 Other previous surveys have been carried out on the site between 2001 and 2010. These cumulated in an Environmental Statement produced by Watermen in 2010. The Ecology Chapter of this (Chapter 120) included mitigation measures to minimize the impact and enhance the site post development. The consented planning permission Condition 48 required a Programme of implementation of mitigation and enhancement to be produced before commencement. This LEMP document looks to protect and aid the establishment of this work; protecting existing landscape features and promoting establishment of the proposed works.
- 3.1.3 The Environmental Statement identified hedgerows and trees, Great Crested Newts, Bats and nesting birds requiring on site mitigation with further enhancements to waterbodies¹. Great Crested Newts and waterbodies are not applicable, whilst the parcel also contains no existing hedgerows.
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¹ Wildlife and Countryside Act 1981

3.2 Ecological Trends and Constraints

- 3.2.1 Building development to the roofspace of buildings 485 and 488 may result in temporary disturbance vacation, in the transitional period whilst the habitat enhancement of mitigation is fulfilled.
- 3.2.1 Increased footfall pressure from new residents (particularly dog walkers) will raise the potential level of ambient disturbance. This will be controlled for by mowing distinct footpaths and retaining wilder rough vegetation to discourage straying from the paths. Increased predation by cats on birds and small mammals cannot be controlled for.
- 3.2.2 Increased littering will be controlled for by means of the general site maintenance.
- 3.2.3 The building of children's dens and fire lighting is a potential risk. Illustrated information boards highlighting the range of species that are present and explaining the rationale underpinning the management regimes will help to offset this by engendering a sense of ownership and respect for the natural environment. A supporting information leaflet will also be included in each home sales pack.
- 3.2.4 Natural succession will inevitably change the overall species mix but this is to be encouraged to some extent but will also be controlled by a rotational mowing programme for the more invasive species see *post*.
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4 MANAGEMENT PLAN

4.1 Works Programme

4.1.1 It is expected that the Management Plan will commence following completion of the landscape works. The provisions of the establishment maintenance specification set out below should also be adopted by the contractor during the 12 month defects liability period, prior to handover.

4.1.2 It should be noted that the proposed annual timing of operations in the following Works Programme are flexible and it is anticipated that the exact programme of works will be influenced by seasonal weather conditions and factors such as variability in growth rates and perceived effects on biodiversity.

4.1.3 In the management schedules set out below, the timing of operations (by season or month) is only given where this is critical, either in terms of achieving optimum results or minimising potential disturbance to wildlife. In general terms pruning or other works to established trees, which may contain breeding birds, should avoid the bird breeding season. In most years this is from February to August inclusive.

4.2 Legal Constraints

4.2.1 Presence/potential presence of statutorily protected species will need to be given due consideration with respect to management operations in the affected areas.

4.3 Management of Existing Mature Trees

Objective : Two existing mature specimen trees are to be subject to some arboricultural works, to ensure public safety but also to enhance their longevity, their value to the setting of the site and to optimise their wildlife potential. Mature/veteran trees will be retained if deemed structurally sound and dead branches/ standing dead wood only removed where it is not safe to be retained *in situ*. As a minimum annual inspections should be carried out on trees in areas of human activity i.e. near paths or roads, with other trees undergoing a detailed inspection every 3-5 years. Dead wood arisings will be maintained on site to create

habitat piles. Prior to any works on mature trees capable of providing suitable features for bat roosts these trees will be inspected by a licensed bat worker and works will be undertaken in accordance with 'Best Working Practice', as specified by Collins, J (ed.)(2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London.

4.4 Mowing

4.4.1 Tree roots and trunks are often damaged by lawn mower blades and strimmers. Wounding tree roots and trunks harms the tree and allows disease pathogens to enter the tree, causing internal tree rot, and shortening the life span of the tree. Mowing damage can be avoided by:

- raising lawn mower blades accordingly to reduce damage to surface roots
- mulching around trees to prevent grass growth to agreed diameter and depth (app 1.0m around bark circumference and 10/12cm deep, do not pile mulch against trunk)
- controlling grass growth with approved herbicides

4.4.2 Following the inspection a schedule will be provided of essential remedial surgery/other works or tree removal required for public safety/tree health reasons and this to be supplied by Cherwell District Council as required. Works are to be carried out in accordance with BS 3998 - 2010 Tree Work - recommendations or refer to 'the current document' of that standard. These works are to be undertaken at a time to avoid the bird breeding season and preferably during the winter months unless more urgent action is required. As the site is located within a conservation area, the local council will require consultation prior to major pruning works to existing trees.

4.4.3 A detailed Arboricultural Impact Assessment has been provided by Pegasus Group (D.0341_TS AIA TPP PH6) and should be read in conjunction with this report.

5 MANAGEMENT OPERATION FOR NEW PLANTING TO COMMUNAL AREAS AND POS

5.1 Aims and Objectives

- 5.1.1 It is expected that the management operations will commence following Practical Completion of the new planting.
- 5.1.2 It should be noted that the proposed timing of operations in the following Works Programme are flexible and it is anticipated that the exact programme of works will be influenced by seasonal weather conditions and factors such as variability in growth rates.
- 5.1.3 In the maintenance schedules set out below, the timing of operations (e.g. by season or month) is only given where this is critical, either in terms of achieving optimum results or minimising potential disturbance to wildlife. In general terms pruning of mature shrubs as well as operations to mature trees, which may contain breeding birds, should avoid the bird breeding season. In most years this is from late February to August inclusive.
- 5.1.4 Please refer to Appendix A for detailed planting proposals, drawings 1619 A2 01-02 for setting out, 1619 A2 02 for proposed planting schedule and 1619 A2 03 for tree planting details.

5.2 Operation 1 : New Specimen Trees

- 5.2.1 **Objectives:** to promote early establishment and vigour in all newly planted trees within the development area. Longer-term management to include replacement as required and formative pruning to create a healthy, strategic landscape component and to perpetuate the original design aims. Please refer to Appendix A drawing 1619 A2 01-03 for tree specification and planting schedule.
- 5.2.2 Ecologically where existing mature trees are retained and compatible, the following principles should be upheld. These criteria are also beneficial in establishing proposed trees for selection and replacement trees as required. Habitats and trees at the site such as broadleaved trees and scrub are predominantly proposed for

retention. The majority of the conifers are to be gradually replaced. The following mitigation for scattered trees is recommended.

- If trees or groups of trees are to be removed they should be replaced with native trees of a similar or greater number.
- Nut, berry-bearing and flowering native species to attract butterflies, moths and breeding birds should be used.
- Where possible trees should be associated with other ecological features to provide extra benefit to biodiversity, i.e. hedgerow, woodland, ponds or scrub.
- The avenue nature of many of the trees on site should be retained and enhanced to aid bats and birds in commuting and foraging and;
- Trees to be removed with bat potential should be surveyed for bats; The European Protected Species Licence for Bats will be modified to include any additional roosts found.
- The removal of the trees should only be carried out following the appropriate bat surveys, updated mitigation measures and following a successful application to Natural England to modify the existing licence.

Establishment Maintenance of New Specimen Trees

5.2.3

Establishment Maintenance of newly planted trees will be required for the first three years after planting to ensure rapid early growth. Visits shall be undertaken at least monthly between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Years 1 and 2. All trees to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- All trees to be treated with an annual application of an approved slow-release fertiliser (e.g. Osmocote) at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- Trees that have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading. Tree supports (including underground guys) to be

regularly checked, adjusted, repaired and replaced as necessary and irrigation tubes to be kept free of blockages.

- Weed control is required to keep all planting areas free of grass and weed growth. This weed control must be by hand in Year 1, with chemical control, using Glyphosate, permitted only in 1.0m squares around clear-stemmed trees in Years 2 and 3.
- Trees to be kept free of pests and diseases; regular monitoring to be undertaken.
- General pruning to be carried out to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches.
- Planting areas to be kept free of litter and leaf fall and grass edges to be kept regularly trimmed and tidy.
- Where mulch is used as a top dressing, this to be regularly topped up to 100mm, to ensure a minimum depth of 75mm. Mulch to be kept cleared off adjacent grass, paved areas etc.
- General autumn tidy.
- All arisings to be removed from site and the site to be left clean and tidy at all times.

5.2.4 An inspection is to be made in August each year. Any losses of planted trees, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement trees are to be of the same specification and size as the original plants.

5.2.5 New tree planting within the Public Open Space should be regarded in a different light to those within residential area. As such, in the longer term these trees may be subject to minimal management to allow the trees to develop into character trees of value to wildlife.

5.3 **Operation 2: General Notes (Site wide) - New Native and Non-Native Species Hedges**

5.3.1 Proposed hedges are planted to the following mitigation criteria as part of planning condition 48 (Environmental Statement) and for ecological purposes the objectives below should be actively pursued through management:

- Habitats such as hedgerows are predominantly proposed for retention although some boundary hedges are to be removed during demolition and construction phase. The following mitigation for hedgerows is recommended:
- Nut, berry-bearing and flowering native species to attract butterflies, moths and breeding birds should be used.
- Where possible hedgerows should connect with ecological features to provide extra benefit to biodiversity i.e. other hedgerow, woodlands, pond or scrub which may be used for commuting and foraging bats and birds.
- Where access gaps are created in hedgerows, enhancement should take place for 20m either side of the gap.

5.3.2 ***Objectives for Phase 6:*** Promote early growth of new hedge plants to create well-structured and healthy, dense hedges. Please refer to Appendix A drawing 1619 A2 02 for hedging species and planting schedule.

Initial Establishment Maintenance of New Hedges

5.3.3 Establishment Maintenance of new hedge planting will be required for the first three years after adoption to ensure rapid early growth. Monthly visits to be undertaken between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Year 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- Hedge plants to be treated with an annual application of an approved slow-release fertiliser (e.g. Osmocote), at the manufacturer's recommended rates in April of Years 1, 2 and 3.

- Plants, which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading.
- The need for weed control will be minimised through the use of mulch in planting areas. The mulch is to be regularly topped up to 75mm, ensuring that the lower branches and foliage of plants are not smothered. Mulch to be kept clear of adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional weed control required to keep the hedge trench free of grass and weed growth must be by hand in Year 1, with chemical control, using glyphosate, permitted only in Years 2 and 3.
- Plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- General pruning to be carried out to trim laterals, remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches. Leading shoots to be left untrimmed during the Establishment Period.
- Planting areas to be kept free of litter and leaf fall.
- General autumn tidy.
- All arising's to be removed from site and the site to be left clean and tidy at all times.

5.3.4 An inspection to be made in August each year. Any losses of hedge plants, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.

5.3.5 It may be necessary to reinforce the integrity of the new hedges by installing a framework of posts and wire, to be kept intact and in good repair during the Establishment Period.

Longer term Management of Hedges

5.3.6 Regular maintenance visits should be made at a minimum of monthly intervals between April and September with two visits during the dormant season each year. It

will be necessary to undertake general 'tidying' e.g. removal of litter, as described above for the Establishment Period. All arisings to be removed from site.

- 5.3.7 Mature hedges will need cutting to prevent the native hedge becoming 'leggy' and to encourage growth. Cutting on a three year cycle (one side, top, other side) will allow time for flowering and fruiting shrubs to develop throughout the length of the hedge and is the most beneficial for wildlife.
- 5.3.8 Planting, laying and cutting will be carried out between October and March where possible to ensure that birds are not nesting and ideally in January and February to ensure that the fruiting berries are not lost. If a hedge must be trimmed during the fruiting season it is essential to only cut one side so that plenty of food remains. A healthy hedge can normally recover well from severe cutting, but repeated cutting at the same height can gradually cause whole hedges to die off. One major problem associated with mechanized hedge cutting is the decline in the number of saplings left in hedges to grow into mature trees. Trees will be marked with tree tags from The Tree Council or use fluorescent tape to prevent them being lost.
- 5.3.9 Gaps will either be planted with new plants, which are an opportunity to increase the botanical diversity of the hedge or add trees to the hedge line, or be left to regenerate naturally if possible. Any new planting will need to be protected from stock, rabbits and deer for approximately 3-4 years. Initially the surrounding hedge may need cutting back to ensure the new plants receive sufficient light. Regular trimming in the early years of a hedgerow's life will help make it dense.
- 5.3.10 An inspection to be made in August each year. Any losses of planted plants, whether by natural means, wear and tear or vandalism and any other plants that have failed to thrive, will be replaced in the planting season following the loss. This to include any plants that are relatively short lived and which will require routine replacement during the period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.
- 5.3.11 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced.
- 5.3.12 The hedge should be cut into the shape of a triangle and maintained at that shape through the contract period, by cutting back annual growth once each year during the

winter months (November – March). The shape and size of the existing hedge will dictate the exact triangular profile but it should be symmetrical. The hedge should not normally be above 3.0 metres in height or 3.0 metres wide at the base.

- 5.3.13 Recommended cutting machinery for hedging operations will be by use of a hand held mechanical hedge trimmer or a tractor-mounted flail/cutting bar/circular saw attachment for bigger material. To achieve the initial triangular profile a tractor-mounted shape saw should be used. All cut faces should be left neat and clean with no jagged ends or tears.
- 5.3.14 Intermittent laying will be used as a renovation and wildlife-friendly management technique. As hedges grow, they gradually become more tree-like; gaps tend to appear lower down and the stems cease to provide an effective barrier. At this point, the hedge should be allowed to grow sufficiently tall (3-5m high) so that it can be laid, both to fill in the gaps and to ensure the long-term viability of the hedge by promoting vigorous regrowth from the base. Laying involves partially cutting stems, so that they will bend without breaking, at ground level and laying them at an angle of between 35 degrees to the ground and horizontal. These cut stems, known as pleachers, will be laid parallel to each other and tucked tightly together, protecting the new growth from livestock grazing. Vertical stakes and binders will be used to strengthen and thicken the hedge, depending on regional variation. The aim should be to manage the hedgerow through cutting so that it is not necessary to lay more often than at least every 20 years.
- 5.3.15 Hedge margins are an important habitat for all wildlife and a buffer zone of at least 1m will be maintained on both sides being cut no more frequently than every three years.
- 5.3.16 Regular monitoring for pests and diseases will be undertaken on an ongoing basis and any necessary control measures will be undertaken as soon as possible.

5.4 **Operation 3 : New Ornamental Shrub and Herbaceous Planting**

Objective: to encourage rapid establishment of a closed canopy of shrubs and ground cover planting in ornamental and native planting beds and to create consistently dense, substantial hedge structures. Longer term management will aim

to sustain shrubs, hedges and herbaceous planting in a healthy, vigorous condition and to maximise the visual amenity of the planting. Please refer to Appendix A drawing 1619 A2 02 for planting schedule.

Establishment Maintenance of Ornamental Shrub and Herbaceous Planting

- 5.4.1 Establishment Maintenance of new planting will be required for the first five years after planting to ensure rapid early growth. Visits to be undertaken at least monthly between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:
- 5.4.2 Watering as required to ensure healthy growth, particularly in Year 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to maintain planting areas in moist condition but without risk of waterlogging, to eliminate drought related stress.
- 5.4.3 All shrubs, hedge plants and herbaceous plants to be treated with an annual application of an approved slow-release fertiliser (e.g. Osmocote), at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- 5.4.4 Plants which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading. All tree and shrub guards and other protection, to be regularly checked, re-firmed, repaired or replaced as necessary.
- 5.4.5 Regular hand weeding will be required to ensure weed free planting areas throughout. The need for weed control will be minimised through the use of a 75mm minimum layer of mulch. The mulch is to be regularly topped up to 75mm, to ensure a minimum depth of 50mm, using the mulch originally specified. Mulch to be kept 10mm below adjacent grass, paved areas etc. and cleared off as necessary. In the gapping up planting areas, stringent weed control is also necessary and may be either by hand or with glyphosate, carefully applied to avoid damage and to create a weed free zone of 1m diameter centred on each plant.
- 5.4.6 It is necessary to ensure that the lower branches and foliage of plants within the mulched ornamental areas (e.g. Hebe) are not smothered. Mulch to be topped up as necessary and kept cleared off adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional

weed control required must be by hand in Year 1, with chemical control, using glyphosate, permitted only in Years 2 and 3 in those areas without herbaceous plants. Where herbaceous species are present hand weeding will be required.

- 5.4.7 Plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- 5.4.8 Ornamental planting areas to be kept free of litter and leaf fall, with all arising's removed from site and the planting areas to be left clean and tidy at all times.
- 5.4.9 General autumn tidy taking care not to discourage wildlife which may be present.
- 5.4.10 New hedging to be subject to specific formative pruning (see below).
- 5.4.11 An inspection to be made in August each year. Any losses of shrubs, hedging or herbaceous plants, whether by natural means, accidental damage or vandalism and any other plants that have failed to thrive, to be noted and replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.
- 5.4.12 The new formal hedging shall be maintained in accordance with the preceding clauses, with special care to keep hedges clear of invasive ruderal species. Pruning, clipping, and training of hedges shall be carried out in September each year, to avoid disturbance to birds in the breeding season. Once new sections of formal hedge have reached the desired height of 600mm high, they shall be managed according to the longer term management prescriptions as set out below.
- 5.4.13 The herbaceous planting is to be dead-headed after flowering and routinely managed.

Longer Term Management of Ornamental Shrub and Herbaceous Planting

- 5.4.14 Regular maintenance visits should be made at monthly intervals between April and September with two visits during the dormant season each year. It will be necessary to undertake general routine maintenance including weeding, removal and replacement of dead plants, litter and leaf fall clearance (except in native planting areas), topping up, raking and sweeping of mulch to provide a tidy appearance etc., as described above for the Establishment Period. All arising's to be removed from site and the site to be left clean and tidy at all times.

- 5.4.15 An inspection to be made in August of each year until Year 5. Any losses of planted plants, whether by natural means, wear and tear, accidental damage or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. This to include any plants that are relatively short lived (e.g. Hebe and Lavandula) and which will require routine replacement during the 5 year period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.
- 5.4.16 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced but topping up of mulch must still be undertaken as necessary to maintain the ornamental beds in a weed free condition. At this stage it may be possible for those areas without herbaceous planting, to be treated with glyphosate, to minimise the need for physical removal of weeds. Ornamental planting beds to be maintained in a weed free state and mulch material to be kept topped up to ensure a minimum depth of 50mm, as appropriate.
- 5.4.17 In dry summers some ornamental beds may require watering to ensure healthy growth, in the longer term.
- 5.4.18 Regular monitoring for pests and diseases will also be needed on an on-going basis and any necessary control measures undertaken as soon as possible. At a time to be agreed (likely to be between Years 4 and 5) and when no longer considered necessary / inflicting constraint on the plants, plant guards and other protection, to be removed with care to avoid damage to the plants.
- 5.4.19 General and formative pruning to shrubs to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, discoloured, thin, weak, over-crowded, old or broken branches from shrubs by pruning back with a clean cut to the main stem, or to a sound and healthy outward growing lateral. Ground cover plants e.g. Hedera and Pachysandra, to be trimmed to shape and to prevent encroachment onto adjoining hard surfaces, shrub species or grass edges in April to June each year.
- 5.4.20 Specific shrub species shall be pruned in accordance with best horticultural practice and as a general guidance note the following examples have been given:

Agapanthus H. Hybrids	No need to cut down in the autumn, as the seedheads look attractive over winter.
Dryopteris filix-mas	Remove dead or diseased fronds as necessary.
Euonymus fortunei spp.	Clip to shape in April and trim again if necessary in late August.
Geranium spp.	Remove the flowering stems and straggly growth in July after flowering, to encourage second flush of flowers. In March or April every 3rd year, lift, divide and replant if necessary.
Hebe spp.	To be neatly clipped to a maximum height 1m. Clip in April and remove any dead wood as necessary.
Lavandula spp.	Cut back flowering stalks on last year's wood in September /October and trim to create a tidy, dome shaped form.
Lonicera nitida	Cut all new growths back by half each year in March to encourage bushy growth. Prune in September to maintain shape.
Viburnum davidii	Cut back 30% of stems to ground level in March, if overcrowded. Trim to shape in March and September and out of adjoining shrubs.

PLEASE REFER TO PLANTING SCHEDULE ON 1619 A2 02 (APPENDIX A)

NB. Viburnums are susceptible to a number of pests and disease, including Viburnum beetle and require particularly vigilant monitoring and early treatment.

5.4.21

Vigorous species to be pruned as necessary to restrict lateral and top growth, to prevent infringement on adjoining plants, paths, grass, edges etc. It may be necessary in 5 - 15 years after planting, to undertake rejuvenate pruning of these and other species, if they outgrow their location or become over-mature. In these cases shrubs to be cut to 100mm above ground level in March. Plant re-growth is to be

monitored and any shrubs which do not regenerate successfully to be removed and replaced, with plants of the same size and specification as the original plants.

- 5.4.22 Herbaceous planting including Geranium and Nepeta to be dead headed after flowering, with flower stems cut to ground level. Similarly dead top growth of deciduous species to be cut down to just above ground level in September / October. Where necessary to maintain a tidy appearance and in accordance with good horticultural practice, any dead leaves of evergreen species to be cut back to ground level in the autumn. Those species which retain attractive winter leaves e.g. Heuchera spp. to be retained un-pruned but tatty leaves to be cut out on a regular basis. Any woody growth of species to be cut hard back in late February.
- 5.4.23 Vigorous herbaceous species e.g. Geranium spp. to be divided and splits used to extend / gap up the original planting in October, as necessary to ensure longevity and free flowering of the parent plants. Particular care will be required in areas of perennial plants that die back in the autumn and in these areas it will not be possible to use herbicides and mulch will need to be topped up with care to avoid smothering.
- 5.4.24 Due to the relatively short lived nature of the Hebe and Lavender plants, provision should be made for plant replacement after 5-10 years. Similarly, it may be necessary to replace some of the herbaceous species, which have a tendency to die out, in time. This to be undertaken in early spring, as necessary.

5.5 **Operation 4 : Grass Cutting Native Wildflower Grassland (Emorsgate EM3) in Public Open Space**

- 5.5.1 **Objective:** Areas of native wildflower grassland are to be maintained as a high amenity space, with informal mown paths cut to create walkways where required. Meadow grass for the best part is limited to areas under existing mature trees with the purpose of restricting ambient disturbance by site users.

Establishment Maintenance of Native Wildflower Grassland

- 5.5.2 Areas of newly seeded/turfed grass to be subject to establishment maintenance during the first year after seeding.
- 5.5.3 Cut to height of 75mm, once in late August, once again in mid-October and in mild winters once again in mid-March. All cut material should be collected by sit on mower

collection box at once, except for the August cut which shall be left for 3-5 days after cutting to allow to dry, for re-dispersal of seeds. This can then be collected using the collection box on a sit on mower. NB. It will be necessary for the company maintaining the wildflowers to have an understanding of the principles of wildflower management, which is different from normal amenity grass management. This should ideally be demonstrated before the contract for the grounds maintenance is let.

5.5.4 Strimming by hand may be required in more difficult to reach areas. In this instance, maintenance is to be conducted using the same techniques detailed above. Use of a strimmer will be beneficial and arisings will need to be raked up by hand.

5.5.5 Piles of mown grass cuttings will be created from the arisings of general site management to provide grass snake egg incubation beds (1 cubic metre- preferably much larger). These should be located in POS areas of low species diversity where they will not adversely affect the existing habitat, all heaps will not be interfered with between June to September and October to March but may be carefully replenished at any time. To be located offsite on management land away from housing and areas of potential disturbance.

5.6 Operation 5: General Long Term Management Objectives

5.6.1 This area will ideally support and become a link corridor and habitat for a diversity of mammals, birds and insects protecting the existing tree lined avenue.

5.6.2 Adding strategically placed wood log piles and fallen tree trunks away from trafficked areas will also encourage wildlife colonies to nest and create homes and encourage wildlife enhancement through habitat creation. Locations to be recommended by Consulting Ecologist.

5.6.3 As the above if trees are to be removed due to disease or dying then the areas to be set aside for wildflower seeding until the replacement trees have reached maturity.

- 5.6.4 Nest boxes are to be checked for damage and ensure correct alignment is maintained to encourage nesting birds² etc. Rotten or damaged boxes are to be removed and replaced with boxes as specified within the original approved documentation. All boxes are to be maintained by a suitably qualified person; for general advice refer to:
<http://rspb.org.uk/asdvice/helpingbirds/nestboxes/smallbirds/maintenance.aspx>.

5.7 Operation 6: Site Housekeeping, Hard Landscaping and Open Spaces

- 5.7.1 **Objective:** Ensure that the site is respected and that the hard and soft landscape elements including high quality fixtures are maintained in good condition, without the risk of degradation through natural processes or abuse.

Routine Site Monitoring

- 5.7.2 All furniture including benches and light fittings etc., are to be regularly checked and cleaned and if necessary repaired, treated with an appropriate preservative or replaced as appropriate, and in accordance with manufacturer's instructions.
- 5.7.3 Regular routine checks of the site within management, will be required and any litter, dumped material or other debris to be removed on a weekly basis. Vigorous attention will be required with respect to control of dog fouling.
- 5.7.4 All areas of paving, flush and raised edging to paths and planting, kerbs, macadam and other hard surface areas throughout the Management areas of the site, to be kept free of leaves, litter and silt deposits, swept or alternative method of debris removal e.g. suction or blowing, on a monthly basis and maintained free of grass, weed, moss or algae growth, using appropriate translocated (e.g. Glyphosate) and residual (e.g. Casaron) herbicides and moss-killers. Particular attention is required to areas that may be prone to slipperiness. It may be necessary to use a pressure washer on occasion to remove any silt or algae build up.

² Wildlife and Countryside Act 1981

- 5.7.5 Longer term management of paths, as well as kerbs, macadam and other hard surfaces etc., will include twice annual monitoring in April and September of each year and repair/replacement to be undertaken as necessary, to prevent further deterioration.
- 5.7.6 Site drainage issues also to be addressed on a routine basis to ensure that there are no problems relating to blockages or disrepair of main drains or laterals, dispersal of surface water etc. This will include regular checking and clearance of any drainage gulleys and grated drainage channels and rodding of underground drainage pipes as necessary.
- 5.7.7 Gritting and snow clearance to be undertaken on an 'as required' basis to all paths and other hard surfaced areas.
- 5.7.8 Any unauthorised use of the areas or vandalism/graffiti/loitering/dens or other abuse or anti-social behaviour, to be reported immediately to the Local Authority/Police (as appropriate) for further action and/or removed as soon as possible. Similarly, any inappropriate use of the open space by residents e.g. installation of personal possessions/ children's play equipment etc. into the communal areas, dumping of shopping trolleys, storage of bikes etc., to be similarly reported and appropriate action/warnings issued.

5.8 Operation 7 : Play Spaces; LAP Provision

LAP provision subject to condition.

Refer to drawing 1619 A2 01, Appendix A. (LAP subject to approval)

- 5.8.1 **Objectives:** Ensure surfacing and equipment and safety fencing is kept clean and safe in line with manufacturer's instructions.
- 5.8.2 Play provision on site comes in the form of a LAP (Local Area Play). This area is within the public open space which sits in the eastern corner. The LAP area has been designed to manufacturer's specification and to BS EN 1176 and will have a post installation check ensuring full compliancy. This will be in association with ROSPA, in accordance with the manufacturer's specification and carried out by a registered member of the RPII (Register of Play Inspectors International.)

- 5.8.3 An annual follow up inspection will be undertaken on or before the anniversary of the post installation inspection for the duration of the play areas lifespan. The lifespan is that specified by the manufacturer. Please note that these inspection techniques in general can be applied to other equipment where there is no manufacturer's maintenance strategy in places as 'best practice'.
- 5.8.4 The safety surfacing, equipment and adjoining areas should be inspected weekly to ensure there are no risks such as broken glass, or animal faeces, or vandalised play equipment in the play areas. Public notification of a problem such as this should be promptly dealt with by the management company. Weekly checks should be carried out for foreign objects and worn/reduced surface areas to ensure compliancy with regards to fall height impact (Please note this inspection frequency and procedure may vary and must follow the manufacturer's specification).
- 5.8.5 Bound safety surfaces should be monitored on a weekly basis with an annual inspection to verify fit for purpose and condition. This will also be in accordance with manufacturer's specification.
- All pieces of play equipment to be checked weekly to ensure components are tight and no sharp edges or gaps have opened. All components to be tamper proof and if required to be replaced like for like from manufactures specification list.
 - Play equipment to be tested annually and reported upon based on manufacturer's check list. All equipment within public realm to carry a valid safety certificate. Any piece of equipment that is damaged or not fit for purpose to be put beyond use until removal or repair.
 - The areas will have a life span for as long as the play equipment lasts and, in time, will require redesigning and replacing together with the surrounding hardscape with new modern equipment with the existing soft landscaping retained and integrated into the new scheme. The time that this will happen will depend on the use and wear of the equipment and in line with manufacturer's recommendations.
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6 SPECIES SPECIFIC LANDSCAPE MANAGEMENT INFORMATION

6.1 Operation 8 : Avoidance of Adverse impacts on Bats Using the Site

Objective: To avoid disturbance/displacement of bats using the site. The conversion of the existing buildings will be carried out under a working method statement as part of a European Protected Species Licence (EPSM2012-5157A). This will help to ensure that the bats are not injured or killed during the construction process, while bat boxes will provide temporary roosting opportunities until the new buildings are constructed, which will be over a number of phases.

Across all phases 20 Loft spaces will be created with access for the light testing bats, specifically Brown Long-eared bats. These loft spaces will also have features for crevice dwelling bats. The number of roosts to be located in this phased area will be confirmed by 4 Acre Ecology Ltd ecological consultant.

Across all phases 25 bat boxes will be erected in suitable trees before any demolition work begins. As a precaution, to avoid the maternity season, demolition of buildings with identified bat roosts will be carried out from January to mid-May. The number and location within this phased area will be confirmed by 4 Acre Ecology Ltd consulting ecologist (see Appendix B).

A tool-box talk will be carried out by a qualified ecologist named on the licence. This will inform the contractors of the method statement both before commencement and for ongoing maintenance.

6.1.1 Care will be taken to avoid any unnecessary bright lights- both in regards to temporary security lighting during the construction phase and any long-term lighting plans for the site:

6.1.2 Any potential new lighting impacts associated with the proposed development will be minimised by the use of lights with little to no UV content, warm white light sources, and directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment. The use of light directional accessories such as baffles, hoods and louvres can assist with this. Particular attention will be made to avoid lighting of the boundary hedgerows.

6.1.3 Lighting types to be avoided include any blue-white light sources, metal halide and mercury lamps, and any form of uplighting, which lights above the horizontal plane, illuminating trees and foraging habitat.

6.1.4 **Measure:** Confirmation by Ecological Clerk of Works that the lighting regime is being complied with during and post construction.

Objective: Enhancement of the Site Habitats for Bats

6.1.5 To increase the roosting opportunities for bats through the Provision of Bat Boxes a range of bat boxes will be installed. These will be installed on mature trees at a minimum height of three metres to avoid interference by vandals. With the exception of the Schwegler 1FW Bat Hibernation Box (which is to be placed on north facing aspect) all boxes will be placed in a south to south westerly orientation and all lighting will be angled away to avoid direct illumination of the box.

Where necessary branches will be cleared to provide an unrestricted flight path to and from the box. Boxes will be checked and maintained annually by a licensed bat worker. NB bats may carry rabies and the bat worker must be fully vaccinated against this disease.

Measure: 25% of bat boxes to have shown occupation by bats by Year 5

6.2 Operation 9 : Enhancement of the Site Habitats for Birds

6.2.1 Objectives

- To increase the nesting opportunities for birds through the Provision of Bird Boxes.
- Creation of species-rich native wildflower areas to provide foraging habitat
- Provide native-planted ponds throughout the site;(external to this parcel)
- Contribute to the provision of 40 assorted bird nest boxes on mature trees across all site phases; to be retained to provide further nesting opportunities. The final number and location specific to this phase to be agreed in by 4 Acre Ecology Ltd consulting ecologist.

- Contribute to provision of 10 bird nest boxes on new buildings across all site phases suitable for House Martins. The final number and location specific to this phase to be agreed in association with 4 Acre Ecology Ltd consulting ecologist.

6.2.2 A range of bird boxes will be installed. See Appendix B. These will be installed on mature trees at a minimum height of three metres to avoid interference by vandals. All boxes will be placed in a north east orientation. Nest boxes are to be checked annually for damage and ensure correct alignment is maintained to encourage nesting birds etc. Rotten or damaged boxes are to be removed and replaced with boxes as specified within the original approved documentation. All boxes are to be maintained by a suitably qualified person³.

6.2.3 **Measure:** 50% of bird boxes to have shown occupation by birds by Year 3

6.3 Operation 10 : Enhancement of the Site Habitats for Hedgehogs

Objective: to increase the resting/shelter/hibernation/foraging opportunities for Hedgehogs.

6.3.1 Creation of brash heaps and log piles from the arisings from the tree surgery operations and general site maintenance will be undertaken. This will provide both shelter and invertebrate food sources as the brash/log piles decay and become colonised by insects. Log pile positions to be confirmed by 4 Acre Ecology Ltd Consulting Ecologist.

6.3.2 **Measure:** 2 log piles to be in situ by end of Year 1 3 brash piles to be in situ by end of Year 1.

6.4 Operation 11 : Monitoring

Objective: To establish success of the habitat creation measures. A full monitoring schedule can be seen in Appendix B

³ Wildlife and Countryside Act 1981

- 6.4.1 An annual check of onsite bird and bat boxes will be undertaken by licensed bat worker to establish take up of the enhanced habitat features.
- 6.4.2 A reptile survey will be undertaken in years 3 and 5 to establish current populations of reptiles (in particular grass snakes).
- 6.4.3 Checks of grass snake incubation beds, brash heaps and log piles will be undertaken on each site visit by the retained ecologist to ensure that these are being satisfactorily maintained. Assessment of structural diversity of the grass swards will also be undertaken during such visits.
- 6.4.4 A check of the lighting specs for the site will be undertaken by the Ecological Clerk of Works (retained ecologist) during construction.

6.5 Operation 12 : Reporting

- 6.5.1 **Objective:** To inform the accountable site managers of progress against this plan and the success or otherwise of the objectives in order that remedial action can be taken if necessary and to advise the Local Planning Authority of the outcomes so that the discharge of their duties under the NERC Act 2006 can be assessed.
- 6.5.2 **Timings:** annually to the managers, end of 5 and 10 years for the LPA.
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REFERENCES

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Stansted:
Unit 1, The Exchange,
9 Station Road,
Stansted, CM24 8BE

t +44 (0)1279 647044
e office@lizlake.com
www.lizlake.com

Bristol:
1 Host Street,
Bristol, BS1 5BU

t +44 (0)117 927 1786
e office@lizlake.com
www.lizlake.com

Nottingham:
Suite 201,
20 Fletcher Gate,
Nottingham NG1 2FZ

t +44 (0)115 784 3566
e office@lizlake.com
www.lizlake.com

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