QINETIQ SITE, FORT HALSTEAD, KENT

LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

A Report to: QinetiQ

Report No: RT-MME-153844-03 Rev B

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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

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1. INTRODUCTION

1.1 **PROJECT BACKGROUND**

In November 2020, QinetiQ commissioned Middlemarch Environmental Ltd to produce a Landscape and Ecological Management Plan (LEMP) associated with the strategic redevelopment of QinetiQ owned land within Fort Halstead. A full description of the proposals is provided in Section 1.3.

A range of ecological surveys were completed by Waterman Group between 2006 and 2013 and by Middlemarch Environmental Ltd in 2018, with further updated surveys in 2020, to inform a separate hybrid planning application associated with the redevelopment of the wider Fort Halstead site. Land surveyed as part of these assessments included QinetiQ owned land.

Middlemarch Environmental Ltd was subsequently instructed to undertake a full suite of targeted surveys of the QinetiQ owned land, comprising:

- Preliminary Arboricultural Assessment (Report RT-MME-150872-01);
- Arboricultural Impact Assessment (Report RT-MME-150872-02 Rev B);
- Preliminary Ecological Appraisal (Report RT-MME-150872-03 Rev B);
- Preliminary Bat Roost Assessment (Report RT-MME-150872-04 Rev B);
- Badger Survey (Report RT-MME-150872-05 Rev B); and,
- Dusk Emergence and Dawn Re-Entry Bat Surveys (Report RT-MME-153340-01 Rev C).

An Ecological Mitigation Strategy (Report RT-MME-150872-06 Rev B), a Bat Protection Strategy for Building X78 (Report RT-MME-150872-08 Rev B) and a Bat Mitigation Strategy for Building X9 (Report RT-MME-150872-08 Rev B) have also been prepared.

In addition to this LEMP, Middlemarch Environmental Ltd has also compiled a Construction Ecological Management Plan (CEcMP, Report RT-MME-153844-01 Rev C) and undertaken a Biodiversity Net Gain Assessment (Report RT-MME-153844-02 Rev B).

1.2 SITE DESCRIPTION AND CONTEXT

The wider Fort Halstead site is located off Star Hill Road in Halstead, Kent, centred at National Grid Reference TQ 4970 5922. It is an irregular shaped parcel of land that measures 131.89 ha in size. The wider Fort Halstead site is bordered by the A224 Polhill to the north-east and Star Hill Road to the south-west. A mixture of arable and pastoral fields, pockets of woodland and farm buildings surround the site. The wider landscape is dominated by a rural setting, consisting of agricultural land interspersed with pockets of woodland and small settlements.

The planning application site extends to 15.8 ha and sits within the wider Fort Halstead site. The site is known as the QinetiQ enclave and is located on the southern-most boundary of the wider Fort Halstead site. The application site is bound by Crow Road to the north, the Scheduled Ancient Monument to the east, ancient woodland to the west and the existing site perimeter fence to the south.

At the time of the survey, the QinetiQ enclave comprised a defence research facility which contained a number of buildings with associated areas of hardstanding, surrounded by parcels of semi-natural and plantation woodland. Areas of neutral grassland, calcareous grassland and amenity grassland were also present, as well as patches of scrub and tall ruderal vegetation.

1.3 DESCRIPTION OF DEVELOPMENT

The proposals for the site are as follows:

Works to the proposed QinetiQ enclave comprising the erection of perimeter security fence, erection of a new reception building, creation of a new main site entrance along Crow Road, refurbishment of existing buildings including plant installation, creation of a new surface level car park and access, installation of two new explosive magazine stores and surrounding pendine block walls, demolition of existing buildings, installation of 6no. storage containers, installation of new site utilities and landscaping works.

1.4 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Proposed Site Plan / 30002236-BHK-00-XX-DR-A-003	Baker Hicks

Table 1.1: Documentation Provided by Client

1.5 SCOPE OF THE LEMP

This LEMP is designed to provide information regarding the long-term management of landscape and ecological habitat features to be retained and created on site. It covers a period of ten years, and contains the following information:

- Chapter 2: Summary of Ecological Baseline
- Chapter 3: LEMP Context
- Chapter 4: Landscape and Ecological Management Proposals
- Chapter 5: Implementation, Monitoring and Review
- Chapter 6: Drawings

The LEMP is a live document and may therefore be subject to review based on the findings of monitoring of the success of initial management or as detail on the landscape proposals is made available. It is anticipated that at the end of the period covered by this plan a new LEMP will be compiled based on the findings of monitoring and in accordance with the best practice principles.

2. SUMMARY OF ECOLOGICAL BASELINE

2.1 DESIGNATED SITES

2.1.1 European Statutory Sites

The desk study completed as part of the Preliminary Ecological Appraisal (Report RT-MME-127947-01) for the wider Fort Halstead site in 2018 included a search for European statutory nature conservation sites within a 5 km radius of the site (extended to 10 km for any statutory site designated for bats).

No European sites were identified.

2.1.2 UK Statutory Sites

The 2018 desk study included a search for UK statutory nature conservation sites within a 2 km radius (of the wider Fort Halstead site). No sites were identified.

However, the site is located within 10 km of Westerham Mines SSSI, which is located 6.93 km south-west. The principal interest of this site is the use of its abandoned ragstone mines by a variety of hibernating bats. The ancient woodland within and adjacent to the site has the potential to form part of the foraging range for populations of bats supported by Westerham Mines SSSI. As such, increased illumination associated with operational lighting could lead to the severance of commuting routes or a reduction in suitable foraging habitats for these bats. Nevertheless, given the distance between the site and the SSSI and the fact that the lighting within the QinetiQ site will not change significantly as a result of the refurbishment works, any effect on local bat populations is considered to be minimal. An ecological review of detailed lighting designs will be undertaken to ensure that best practice principles have been followed and impacts on bats are minimised. Westerham Mines SSSI will not be discussed further within this LEMP.

2.1.3 Irreplaceable Habitat (Ancient Woodland)

The 2018 desk study included a search for ancient woodland sites within a 2 km radius (of the wider Fort Halstead site). A total of 81 parcels of ancient woodland were identified, one of which falls within of the QinetiQ site. Due to the type of development (i.e. refurbishment of existing laboratories and offices) within the existing built footprint, no significant increases in recreational disturbance of the ancient woodland within and adjacent to the QinetiQ site are anticipated. However, opportunities exist for the woodland to be enhanced. Management proposals for the woodland are outlined in Chapter 3 and specific objectives and management prescriptions are provided in Chapter 4.

2.1.4 Non-Statutory Sites

A review of the desk study data provided by Kent and Medway Biological Records Centre as part of the 2018 desk study (for the wider Fort Halstead site) confirms that there are five non-statutory nature conservation sites within a 2 km radius of the QinetiQ site:

- Chevening Estate Local Wildlife Site (LWS), located 280 m south-west;
- Crown Meadow Wood Woodland Trust Reserve, located 1.22 km south-east;
- Chevening Churchyard LWS, located 1.22 km south-west;
- Woodlands West of Shoreham LWS, located 1.33 km north-east; and,
- Polhill Bank Kent Wildlife Trust Reserve, located 1.33 km north-east.

Due to the type of development (i.e. refurbishment of existing laboratories and offices) within the existing built footprint, and the distance between the development site and the non-statutory nature conservation sites, no operational phase impacts are anticipated. Non-statutory sites will not be discussed further within this LEMP.

2.1.4 Areas of Outstanding Natural Beauty

The site falls within Kent Downs Area of Outstanding Natural Beauty (AONB). AONBs are "Designated areas where protection is afforded to protect and manage the areas for visitors and local residents...considered to have such natural beauty it is desirable they are conserved and enhanced" (Natural England, 2019¹). The Kent Down AONB Management Plan 2014-2019 (Kent Downs AONB Unit, 2014²) acknowledges that the AONB comprises a range of 'biodiversity-rich' habitats, including semi-natural chalk grassland and ancient

¹ Natural England. (2019). Areas of Outstanding Natural Beauty (England). Available at: <u>https://naturalengland-</u>

defra.opendata.arcgis.com/datasets/6f2ad07d91304ad79cdecd52489d5046_0?geometry=-20.251%2C47.971%2C15.828%2C57.264 ² Kent Downs AONB Unit. (2014). Kent Downs Area of Outstanding Natural Beauty: Management Plan 2014-2019. Revision 2, April 2014.

semi-natural woodland, which are present within the site (refer to Section 2.2). The AONB Management Plan outlines a series of policies which set out how the AONB will be conserved and enhanced. Of particular relevance to this LEMP are policies relating to Biodiversity and Woodland and Trees. Where relevant, these policies are reflected in the management measures proposed in Chapter 4 of this LEMP.

2.2 HABITATS

As part of the Preliminary Ecological Appraisal of the QinetiQ site (Report RT-MME-150872-03 Rev B) an Extended Phase 1 Habitat Survey was undertaken over two site visits in August 2020. The following habitats were identified:

- Amenity grassland;
- Broad-leaved semi-natural woodland;
- Buildings;
- Fencing;
- Hardstanding;
- Poor semi-improved grassland;
- Scattered scrub;
- Scattered trees;
- Tall ruderal vegetation; and,
- Unimproved calcareous grassland.

The proposed redevelopment works will fall predominantly within the existing built footprint. Reference to the 'Proposed Site Plan' prepared by Baker Hicks illustrates that the most important habitats, including broadleaved semi-natural woodland, unimproved calcareous grassland and the majority of scattered trees will be retained, although some scattered trees will need to be removed to facilitate the redevelopment works.

Pockets of amenity grassland, poor semi-improved grassland, scattered scrub and tall ruderal vegetation will also be retained.

Any habitat loss will be limited to common and widespread habitats of low or negligible ecological value (amenity grassland, buildings, fencing and hardstanding).

Management proposals for the retained habitat features are outlined in Chapter 3 and specific objectives and management prescriptions are provided in Chapter 4 of this report.

2.3 PROTECTED/NOTABLE SPECIES

2.3.1 Bats

Roosting Bats

No bat roosts have been identified within any of the buildings within the QinetiQ site boundary during surveys completed by Waterman Group between 2007 and 2014 and Middlemarch Environmental Ltd in 2018.

A targeted Preliminary Bat Roost Assessment (Report RT-MME-150872-04 Rev B) of the buildings within the QinetiQ site was completed by Middlemarch Environmental Ltd over two site visits in August 2020. A total of 36 buildings were classed as having high potential to support roosting bats, and 26 buildings were classed as having low potential to support roosting bats. In addition, there are numerous trees across the site which may support potential roosting features for bats.

Several buildings with roost potential are proposed to be demolished and a number of trees are proposed to be removed. Prior to building demolition / tree removal works, further surveys will be undertaken to inform further mitigation requirements and the need for a licence from Natural England. Where impacts on roosting bats are predicted and a licence is required, replacement roosts will be provided in line with the licence. Further details are provided in the Preliminary Bat Roost Assessment (Report RT-MME-150872-04 Rev B) and EMS (Report RT-MME-150872-06 Rev B).

Additional bat boxes will be installed across the QinetiQ site to enhance the site for bats. Details are provided in Section 4.6.

Foraging and Commuting Bats

Nine species of bat (common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Daubenton's bat, whiskered bat, Natterer's bat, brown long-eared bat and serotine) were recorded utilising the wider Fort Halstead site for foraging and commuting during the 2018 suite of surveys. Common pipistrelle was the most frequently recorded species, whilst low levels of activity by other species were recorded. Activity was concentrated around the site peripheries, particularly around areas of woodland.

All woodland within the QinetiQ site will be retained and enhanced, continuing to provide valuable foraging and commuting habitat for a range of bat species.

2.3.2 Badger

A confidential chapter relating to badgers is provided in Appendix 1.

2.3.3 Dormice

During the 2018 Dormouse Survey (Report RT-MME-127947-10) of the wider Fort Halstead site, a single dormouse was identified in a nest tube located within an area of bramble scrub, located towards the south-western corner of the QinetiQ site, connected to the semi-natural broadleaved woodland which extends around the site.

Habitat suitable for dormouse within the QinetiQ site will be retained, with any works which have the potential to impact dormouse being carried out under licence from Natural England, as required.

2.3.4 Other terrestrial mammals (brown hare and hedgehog)

The mosaic of woodland, grassland and scrub within the QinetiQ site offers suitable refuge and foraging opportunities for hedgehogs and brown hares and will be retained and enhanced.

2.3.5 Birds

During the Breeding Bird Survey (Report RT-MME-127947-06) of the wider Fort Halstead site, undertaken between May and July 2018, a total of 44 bird species were recorded breeding / probably breeding within the site. The most notable species recorded within the QinetiQ site boundary were song thrush, spotted flycatcher and yellowhammer (Species of Principal Importance in England and Birds of Conservation Concern 4 Red List species); bullfinch and dunnock (Species of Principal Importance in England and Birds of Conservation Concern 4 Amber List species); and, stock dove and tawny owl (Birds of Conservation Concern 4 Amber List species).

The vast majority of territories on site were associated with the woodland and scrub habitats within the site. These habitats will be retained and enhanced. A series of bird nest boxes will be installed across the site.

2.3.6 Reptiles

During the 2018 Reptile Survey (Report RT-MME-127947-09), populations of slow worm and common lizard were recorded within the southern part of the site wider Fort Halstead site, including a good population of slow-worm and a good population of common lizard within the area of unimproved calcareous grassland located within the southern part of the QinetiQ site. Areas of grassland which remained un-grazed appeared to provide much more suitable habitat for reptiles, with a taller, tussocky sward and adjacent areas of scrub and tall ruderal. The mosaic of habitats suitable for reptiles within the QinetiQ site will be retained and enhanced.

2.3.7 Terrestrial invertebrates

A Terrestrial Invertebrate Survey (Report RT-MME-127947-08) was undertaken for the wider Fort Halstead site by Middlemarch Environmental in 2018. This confirmed that the most important area for invertebrates is the area of chalk grassland (unimproved calcareous grassland) in the southern part of the site, part of which falls within the QinetiQ site boundary. This habitat is being retained as part of the development and as such the most notable invertebrate species will not be displaced from the site as a result of the proposed works. Furthermore, it is anticipated that the general habitat retention, creation and enhancement measures provided as part of the landscaping scheme will increase the suitability of the site for a range of species groups, including invertebrates.

No records of stag beetle were provided in the desk study. However, this species is predominantly distributed across south-east England, and the site supports suitable habitat for this species, including dead wood. The majority of woodland habitat is being retained, including all ancient woodland, and therefore stag

beetle, if present, is unlikely to be displaced from the site. The enhancement of the woodland and provision of more dead wood will further increase the suitability of the site for stag beetles.

2.3.8 Great crested newt and common amphibians

There is no aquatic habitat suitable for breeding within the site. Reference to Ordnance Survey mapped data identified three waterbodies within a 250 m radius of the wider Fort Halstead site, but these are located over 470 m away from the proposed works footprint and therefore it was considered unlikely that any amphibians, particularly great crested newts, will be encountered during the development works.

2.3.9 Otter, water vole and white-clawed crayfish

There are no watercourses or waterbodies on or adjacent to the site, and as such, otter, water vole and white-clawed crayfish are not notable considerations with respect to the proposed development.

2.3.10 Other protected/notable species

The following species have been scoped out of further assessment due to a lack of desk study records and/or the absence of suitable habitats within the site and its surroundings and/or the location of the site outside of their known distributions: pine marten *Martes martes*, polecat *Mustela putorius* and red squirrel *Sciurus vulgaris*.

2.4 NON-NATIVE INVASIVE PLANT SPECIES

No invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were identified within the QinetiQ site during the 2020 Phase 1 Habitat Survey. Although several invasive plant species have previously been identified within the wider Fort Halstead site, these specimens were located in the northern part of the wider site, a significant distance from the QinetiQ site. It is considered highly unlikely that the proposed works within the QinetiQ site will cause any breaches of legislation with regards to invasive species.

Lage areas of cherry laurel were present within some sections of woodland. Although not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), this species is vigorous and can grow unchecked. It can shade out native woodland species in the understorey and prevent woodland regeneration. It is proposed that this species is removed from the site. Further details are provided in Section 4.2.

3. LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN CONTEXT

3.1 FEATURES TO BE MANAGED

Table 3.1 provides a summary of the landscape and ecological features on site for which management proposals are provided in this report.

Habitat	Description
Existing woodland	Broadleaved semi-natural woodland is located throughout the site, the majority of which is
	ancient woodland. All ancient woodland will be retained, protected and managed.
Existing scrub	Patches of scattered scrub are located within areas of semi-improved neutral grassland and unimproved calcareous grassland in the southern part of the site. The scrub will be retained
	and enhanced.
Existing trees	Early-mature and mature trees are present throughout the site, many of which will be retained.
Newly planted trees	A range of native trees are to be planted across the site. Native species in keeping with the surroundings will be planted.
Existing grassland	The large expanse of unimproved calcareous grassland in the southern part of the site and smaller pockets of semi-improved neutral grassland will be retained and enhanced.
	Tall ruderal vegetation will fall under the management of the unimproved calcareous grassland. Pockets of amenity grassland will continue to be managed.
Species-specific	In line with the EMS (Report RT-MME-150872-06 Rev B), a range of bat, bird and dormice
features	boxes and herpetofauna hibernacula will be installed across the site.

Table 3.1: Summary of Landscape and Ecological Features to be Managed

3.2 ECOLOGICAL VALUE OF FEATURES TO BE MANAGED

This section outlines the ecological value of each of the landscape and ecological features to be managed and indicates whether they provide a contribution to national or local biodiversity targets.

Existing woodland

Ancient woodland is an irreplaceable habitat, taking centuries to develop. As detailed in the Woodland's Trust Practical Guidance document 'Planning for Ancient Woodland: Planners' Manual for Ancient Woodland and Veteran Trees' (July 2019), "Ancient woodlands support a high proportion of rare and threatened species many of which are dependent on the particular conditions that this habitat affords. For this reason, ancient woods are reservoirs of biodiversity..."

The broad-leaved semi-natural woodland within the site is classed as 'Lowland Mixed Deciduous Woodland', a Habitat of Principal Importance and Kent Biodiversity Strategy priority habitat.

Woodlands form an integral part of the Kent Downs AONB, and the retention and enhancement of this habitat within the site will contribute towards the policies of the Kent Downs AONB Management Plan², particularly those relating to 'Biodiversity' and 'Woodland and Trees'.

Existing scrub

Although not a Habitat of Principal Importance, the scrub habitats on site (which form part of a scrubgrassland mosaic) are likely to support a range of invertebrate and bird species and provide structural diversity and ecological connectivity across the site.

Existing and newly planted trees

Existing mature trees have intrinsic ecological value and cannot be readily replaced. They also contribute to a diversely structured habitat of value to a range of species. The newly planted trees will contribute towards the formation of a varied mosaic of habitats and, once established, are likely to support a range of invertebrate and bird species.

Existing grassland

The areas of unimproved calcareous grassland meet the criteria to be classed as 'Lowland Calcareous Grassland', a Habitat of Principal Importance and Kent Biodiversity Strategy priority habitat. This habitat is particularly valuable for invertebrates.

Chalk grassland is a valuable habitat within the Kent Downs AONB, and the retention and enhancement of this habitat within the site will contribute towards the policies of the Kent Downs AONB Management Plan², particularly those relating to 'Biodiversity'.

The poor semi-improved grassland does not qualify as a Habitat of Principal Importance but may support a range of invertebrate species. Retention and enhancement of grassland areas will contribute towards a varied mosaic of habitats within the site.

Species-specific features

These features will provide roosting opportunities for bats, nesting habitat for birds and dormice and hibernation features for herpetofauna.

4. LANDSCAPE AND ECOLOGICAL MANAGEMENT PROPOSALS

4.1 INTRODUCTION

This chapter provides aims and objectives of management, and outlines specific management prescriptions, for each of the following features:

- Existing woodland (Section 4.2);
- Existing scrub (Section 4.3);
- Existing and newly planted trees (Section 4.4);
- Existing grassland (Section 4.5); and,
- Species-specific features (Section 4.6); and

4.2 EXISTING WOODLAND

4.2.1 Aims and Objectives

Aim: Protect, maintain and enhance retained woodland.

Objectives:

- 1. Maintenance and enhancement of woodland at the site to contribute to the Kent Biodiversity Strategy and the Kent Downs AONB Management Plan.
- 2. Continue to provide valuable habitat for a range of fauna.
- 3. Ensure ecological and structural diversity and habitat connectivity is maintained.
- 4. To avoid disturbance to nesting birds during habitat management.

4.2.2 Management Prescriptions

Table 4.1 presents management activities in order to meet the aims and objectives outlined above.

				Year									
Feature	Prescription	Purpose	Timing	1	2	3	4	5	6	7	8	9	10
Existing woodland	Woodland thinning will be undertaken, favouring the retention of the strongest trees and those that offer the longest future useful life. Adequate spacing between plants will promote healthy future development of crowns of favoured trees. Edge treatment will favour the retention of lower branches and understory of younger trees or shrubs. Thinned plants will be cut down to 25-30 mm above ground level parallel with ground slope.	To develop a range of age classes of appeal to a broad range of species. To increase light and the creation of rides and glades, to encourage regeneration and allow development of targeted understory species.	November to February (to avoid bird nesting season).	x				x					x
	Within areas of no public access and where dead trees are not in prominent positions, they will be retained. If this is not possible, tree to be felled and tree stump retained as dead wood on site. Removal of cherry laurel. Cut	To provide valuable habitat for invertebrates and bird species.	n/a Remove	x	x	x	x	x	×	×	x	x	x
	during winter, treat stumps immediately (following check by ecologist). Treat regrowth between May and October.	understorey and allow regeneration.	November to February (to avoid bird nesting season).										

Table 4.1: Habitat Managemen	t Prescriptions – Woodland
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4.3 RETAINED SCRUB

4.3.1 Aims and Objectives

Aim: To maintain valuable scrub habitats across the site.

Objectives:

- 1. To provide a suitable 'buffer' between areas of ancient woodland and development areas, of value to wildlife and to discourage access to woodland areas.
- 2. To provide habitat for a range of fauna.
- 3. To avoid disturbance to nesting birds during habitat management.

4.3.2 Management Prescriptions

Table 4.2 presents management activities in order to meet the aims and objectives for this habitat.

								Ye	ear				
Feature	Prescription	Purpose	Timing	1	2	3	4	5	6	7	8	9	10
Existing	Scrub to be coppiced on a	To maintain a	November	х			х			Х			х
scrub	rotational basis, with 20%	diverse structure	to February										
	cut every three years.	of scrub within	for above-										
		areas of	ground										
		grassland and	vegetation										
		adjacent to	(to avoid										
		woodland.	bird nesting										
			season and										
			potential										
			harm to										
			dormice);										
			May to										
			October for										
			removal of										
			roots (when										
			dormice										
			and reptiles										
			are active)										

 Table 4.2: Habitat Management Prescriptions – Scrub

4.4 EXISTING AND PROPOSED TREES

4.4.1 Aims and Objectives

Aim: Ensure protection of existing standing trees and establishment of newly planted trees.

Objectives:

- 1. Protect existing trees at the site to contribute to overall biodiversity.
- 2. To add structural interest to the site.
- 3. To provide suitable habitat for a range of invertebrate, bird and bat species.
- 4. To avoid disturbance to nesting birds during habitat management.

4.4.2 Management Prescriptions

Table 4.3 presents management activities in order to meet the aims and objectives outlined above.

						_		Ye	ear				
Feature	Prescription	Purpose	Timing	1	2	3	4	5	6	7	8	9	10
Existing trees	Minimal intervention strategy. Tree condition to be reviewed annually to ensure no risk to public from damaged / dead trees. Qualified arboriculturalist to be consulted regarding potential issues.	Reasons of public health and safety. Maintain tree health.	n/a	x	x	x	x	x	x	x	x	x	x
	Any tree felling will consider a need to retain tree stumps. This is to be agreed on an individual basis in each situation.	Retention of tree stumps as standing dead wood to provide habitat for invertebrates.	November to February (to avoid bird nesting season).	x	x	x	×	x	x	×	×	×	×
	If dead trees are identified within prominent public locations and need to be removed, trees are to be replaced.	To maintain suitable quantity and quality of tree habitat across site.	n/a	x	x	x	x	x	x	x	x	x	x
Newly planted trees	Stakes, ties and tree guards to be checked regularly during establishment phase and loosened, tightened, or replaced as necessary. Tree protection will be removed in Year 5 if no longer required.	To ensure trees/shrubs become successfully established.	n/a	x	x	x	x	x					
	If for any reason large- scale losses of trees/shrubs occur, then an arboricultural assessment may be required to determine reasons for failure and identify appropriate remedial action.	To ensure trees/shrubs become successfully established.	n/a		x	x	x	x	x	x	x	x	×
	Within areas that do have public access, tree condition to be reviewed annually to ensure no risk to public from damaged / dead trees.	Reasons of public health and safety.	Management completed November to February (to avoid bird nesting season).		x	x	x	x	x	x	x	x	X

Table 4.3: Habitat	Management	Prescriptions – Trees
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4.5 EXISTING GRASSLAND

4.5.1 Aims and Objectives

Aim: Maintenance and enhancement of calcareous and neutral grassland.

Objectives:

- 1. Encourage grassland management techniques at the site to support Kent Biodiversity Strategy priorities and Kent Downs AONB Management Plan policies.
- 2. Increase the botanical diversity within the grassland sward.
- 3. Enhance suitability of the habitat for invertebrates.

4.5.2 Management Prescriptions

Table 4.4 presents management activities in order to meet the aims and objectives outlined above.

Feature	Prescription	Purpose	Timing	1	2	3	4	5	6	7	8	9	10		
All grassland	Use 'spot' treatments where necessary to control the spread of noxious weed species. Treat species with an approved translocated herbicide and apply through a weed wiper or wand.	Maintain the diversity of the grassland sward by reducing competition from vigorous species.	June to September	x	×	×	×	×	x	x	x	×	×		
Calcareou grassland	IS Mowing to be reviewed annually and implemented as required.	To enhance the floral biodiversity of the grassland habitat.	n/a	x	х	x	x	x	x	x	x	х	x		
	Encroaching scrub to be cut back annually and tree saplings removed.	To maintain diversity and extent of valuable grassland habitat.	November to February (to avoid bird nesting season).	x	x	x	x	x	x	x	x	x	x		
Semi- improved grassland	Grassland to be cut annually after flowering in late July or August, to a height of 75-100 mm. Arisings left for a maximum of one week. Second cut to be undertaken at the end of the growing season.	To enhance the floral biodiversity of the grassland habitat. To allow seed to drop.	Late July / August to November	x	x	x	x	x	x	x	x	x	x		
Amenity grassland	Grassland to be cut throughout the growing season (March to October inclusive) to a height between 30 mm. All arisings to be removed.	Maintain close packed sward.	n/a	x	x	x	x	x	x	x	x	x	x		

Table 4.4: Habitat Management Prescriptions – Existing Grassland

4.6 SPECIES-SPECIFIC FEATURES

4.6.1 Aims and Objectives

Aim: To ensure long-term provision of habitat features for bats, birds, dormice and reptiles.

Objectives:

- 1. Monitoring of species-specific features to ensure they remain in favourable condition.
- 2. Replacement of any features lost or damaged to ensure no net-loss of habitat for notable species.

In accordance with the EMS (Report RT-MME-150872-06 Rev B), features for bats, dormice, birds and reptiles will be provided across the QinetiQ site. These features are described below.

Bats

Any requirements for the provision of replacement roosting features to compensate for roosts lost as a result of the refurbishment works will be informed by further surveys, as outlined in Section 2.3.1.

As part of the wider Fort Halstead development, a purpose-built bat house is to be provided in the southwestern part of site, adjacent to woodland and the QinetiQ area. In addition, one Schwegler 2F bat box and two Schwegler 2FDFP (or similar specification) bat boxes are to be installed on each of ten retained mature trees around the peripheries of the wider Fort Halstead site. It is proposed that at least three of these trees will fall within the QinetiQ site boundary. In addition, 20 integrated Habibat bat boxes are to be installed within buildings across the wider Fort Halstead site, of which at least four will be installed within buildings within the QinetiQ site boundary.

The bat boxes will be situated higher than 3 m from the ground to prevent any interference. The exact locations will be determined by a suitably qualified ecologist when the features are installed. These bat boxes will provide suitable roosting opportunities for a range of bat species.

Dormice

A series of dormouse nest boxes will be installed within suitable undisturbed locations around the site peripheries of the wider Fort Halstead site. At least 30 will be installed within the QinetiQ site boundary.

<u>Birds</u>

As part of the wider Fort Halstead development, the following nest boxes are proposed to be installed on retained mature trees within woodland / along woodland edges around the site peripheries to provide additional roosting opportunities for birds:

- 24 Schwegler 1B boxes (or similar), with 32 mm hole, suitable for use by small bird species such as great, marsh and coal tits, redstart, house sparrow and tree sparrow;
- 24 Schwegler 1N boxes (or similar), suitable for species such as robin, wren and pied wagtail;
- 24 Schwegler 3S Starling Boxes (or similar);
- Six Schwegler Owl Box No. 4 (or similar), suitable for use by stock dove (woodpeckers will sometimes spend the night in this box too) and four Schwegler Owl Box No. 5 (or similar), suitable for use by tawny owl; and
- Three Barn Owl Nest Boxes and three Kestrel Nest Boxes.

Of these, it is proposed that at least six Schwegler 1B boxes (or similar), six Schwegler 1N boxes (or similar), six Schwegler 3S Starling Boxes (or similar), one Owl Box No. 4 (or similar), one Barn Owl Nest Box and one Kestrel Nest Box are installed within the QinetiQ site boundary.

In addition, the following nesting features are proposed to be installed on / within new buildings:

- 12 Habibat integrated Terraced Sparrow Boxes;
- 12 Habibat integrated Swift Boxes;
- 12 Habibat integrated Starling Nest Boxes; and
- 12 House Martin Terrace No 11.

Of these, at least three of each type of box will be installed within the QinetiQ site.

<u>Reptiles</u>

Two hibernacula will be installed within the grassland/scrub mosaic in the southern part of the QinetiQ site.

4.6.2 Management Prescriptions

Table 4.5 outlines the management activities required regarding the species-specific features.

				Year									
Feature	Prescription	Purpose	Timing	1	2	3	4	5	6	7	8	9	10
Bat boxes	Annual monitoring to assess condition of boxes and monitor usage. To be completed by a licensed surveyor. Replacement of failed boxes.	To ensure ongoing provision of bat roosting features on site.	May- August		x		x		x		x		x
Dormouse boxes	Bi-annual monitoring by a licensed ecologist to assess condition of boxes. To be completed by a licensed surveyor. Replacement of failed boxes.	To ensure ongoing provision of dormouse nesting features on site.	May/June and September/ October	x	x	x	x	x	x	x	x	X	x
Bird boxes	Condition of bird boxes features to be checked to assess condition. If problems are identified, remedial action will be agreed with an ecologist and implemented promptly.	To ensure ongoing provision of bird nesting features on site.	September (to avoid nesting season)	x	×	x	×	x	x	×	x	×	×
Herpetofauna hibernacula	Annual monitoring to assess condition and replace vegetation if necessary.	To encourage invertebrates, and subsequently provide habitat for herpetofauna and small mammals.	May to September, to avoid disturbing hibernating animals.	x	x	x	x	x	x	x	x	x	x

Table 4.5: Habitat Management Prescriptions – Species-Specific Features

5. IMPLEMENTATION, MONITORING AND REVIEW

5.1 IMPLEMENTATION

Landscape and Ecological Management works will be carried out in accordance with the following principals:

- Land ownership will be retained by QinetiQ.
- Ecological supervision of habitat management works and revisions to the LEMP will be carried out by Middlemarch Environmental Ltd, Triumph House, Birmingham Road, Allesley, Coventry, West Midlands, CV5 9AZ. Tel: 01676 525880.
- Practical habitat management works will be carried out by a contractor to be appointed by QinetiQ.

Should any of the organisations highlighted above no longer be involved in the project QinetiQ will be required to identify an alternative organisation with suitable competence and experience to fulfil the necessary role.

Any new bodies taking over responsibility for the site will need to agree to implement the LEMP.

5.2 MONITORING

Monitoring is required to check whether habitats are establishing correctly and to provide input into future amendments to site management. Table 5.1 outlines the recommended outline monitoring schedule for ten years following the completion of each phase of works.

			rear									
Feature	Monitoring	Timing	1	2	3	4	5	6	7	8	9	10
All Habitats	Check on the establishment and management of planted areas and compile report with remedial recommendations as required.	Мау				x				x		
Trees	To be monitored on an annual basis to check tree establishment (planted) and health (retained) and address any issues.	Carry out remedial works over winter, to avoid nesting bird season.	x	x	x	x	x	x	х	x	х	x
Species- specific features	Checks of bat and bird boxes to be undertaken annually. Vegetation clippings added to herpetofauna hibernaculum annually.	Bat boxes: October Bird boxes: November to February	x	x	x	x	x	x	х	x	х	x

 Table 5.1: Proposed Landscape and Ecological Monitoring

In addition, it is proposed that a series of targeted species monitoring surveys are undertaken, as detailed in Table 5.2.

Survey Type	Year				
	1 (2022)	2 (2023)	3 (2024)	4 (2025)	5 (2026)
Badger Survey	х		х		х
Bat Transect and Automated Survey	х	х	х	х	х
Botanical Survey		х		х	
Breeding Bird Survey	х		х		х
Dormouse Survey	х	х	х	х	х
Invertebrate Survey		х		х	
Reptile Survey	х		х		х
Winter Bird Survey		х		х	

Table 5.2: Proposed Species Monitoring Surveys

5.3 REVIEW

The results of the surveys are to be used to inform any modifications to the management plan. The plan is intended to be a rolling ten-year plan. Advice should be sought from the Kent County Ecologist, or Middlemarch Environmental Ltd.

APPENDIX 1

CONFIDENTIAL BADGER APPENDIX

(Provided as a separate document)