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FORMER LORD MAYOR TRELOAR HOSPITAL, HAMPSHIRE

Outline Ecological Mitigation and Management Strategy

29/04/2014

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Former Lord Mayor Treloar Hospital, Hampshire

Outline Ecological Mitigation and Management Strategy

29/04/2014

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1 Introduction

1.1 Project Background

1.1.1 The Home and Communities Agency (HCA), proposes to redevelop a parcel of land located to the south west of Alton, Hampshire to provide new residential provision with associated infrastructure.

1.1.2 This Outline Ecological Mitigation and Management Strategy (Outline EMMS) has been prepared to summarise key principles for ecological mitigation and management to be applied on Site during the construction and operational phases. This strategy does not consider potential requirements with respect to off-site ecological receptors.

1.1.3 It is anticipated that should outline planning permission be granted, detailed, species/habitat specific EMMS will be prepared noting in detail how principles will be applied and compliance with relevant biodiversity legislation will be achieved. These detailed plans would be submitted to East Hampshire District Council in support of the relevant reserved matters application. These detailed plans would supplement the Construction Environmental Management Plan (CEMP), to ensure activities proposed are compatible with construction activities and appropriate working methods are employed.

1.1.4 Supporting illustrations and figures can be found in the reporting outlined in Table 1.

1.2 Ecological Baseline

1.2.1 The Site comprises a number of derelict buildings of various structural types and the surrounding grounds. The grounds are primarily grassland (some of which is used for grazing horses), bounded by hedgerows which include both species rich and species poor sections. The section of grassland to the south of Robertson House (Building B), supports calcareous grassland and forms Lord Mayor Treloar Hospital Site of Importance for Nature Conservation (SINC). The Site also includes part of Alexandra Wood, a mixed semi-natural woodland with marginal scrub and tall ruderal vegetation which forms part of Ackender Wood/ Alexandra Wood SINC.

1.2.2 Baseline ecological surveys have confirmed that protected species and species of conservation concern occur on Site, Table 1 provides a summary of species for which positive records have been made.

Table 1: Summary of Ecological Baseline with regard to Protected / Notable Species

Species	Description of Baseline Conditions	Report Reference
Badger	■ Three active badger setts are located on Site. In addition, a number of further holes which could have been of badger origin but which are not considered to comprise setts were identified within the immediate surrounds.	WSPE, 2012a
Bats	■ The Site supports an assemblage of at least 8 species. Bat activity recorded during automated surveys in 2012 was dominated by common pipistrelle *Pipistrellus pipistrellus* which is a common species and widely occurring across the UK. The remaining species recorded were regularly encountered albeit in lower numbers (*Myotis* sp, serotine *Eptesicus serotinus* and barbastelle *Barbastella barbastellus*) or much less frequently encountered with only very low numbers of calls recorded (noctule *Nyctalus noctula*, Leisler's *Nyctalus leisleri*, long-eared species *Plecotus* sp. and soprano pipistrelle *Pipistrellus pygmaeus*). Of particular note are records for the rarer barbastelle bat which were found to be regularly commuting and occasionally foraging within the Site. ■ Key habitats within the Site used by bats were confirmed to be along the woodland edge along northern boundary of the Site, along linear tree lined	WSPE, 2012b

Species	Description of Baseline Conditions	Report Reference
	features including the woodland shelterbelt running east-west through the centre of the Site, the north-south beech *Fraxinus excelsior* hedgerow in the western part of the Site, along the southern boundary of the woodland in the western part of the Site and along the tree-lined access road into the Site. ■ The bat surveys completed confirmed the presence of bat roosts within three buildings on Site: Building B (Robertson House), Building H (the Bat House) and Building I (the Bunker). Of the other buildings present two were confirmed to have negligible potential to support bats (A and D), three low potential (C, F and G) and one low-moderate potential (E).	
Birds	■ A range of common bird species were recorded to be present on Site in 2012, the majority of which have wide-ranging habitat preferences plus a few woodland specialists both over winter and in the breeding season. Bird species considered to be breeding or potentially breeding on Site included 10 species identified as being of varying conservation priority, one of which (barn owl) is also a specially protected species during the breeding season. The majority of bird breeding behaviour was associated with the woodland trees, hedgerows and scrub on Site, with a few species (notably barn owl) also using the buildings on Site.	WSPE, 2012c
Dormouse	■ Dormice are present on Site, with a juvenile recorded within vegetation south of Alexandra Wood in 2012 indicating breeding activity. As dormice are elusive mammals and nest tube surveys are known to be of limited use in determining distribution of dormice within a Site, all woody vegetation within the Site should be considered dormouse habitat, in accordance with current Natural England guidance (Natural England, 2012).	WSPE, 2012d
Invertebrates	■ The majority of grassland on Site does not appear to support an invertebrate community of raised conservation value based on the results of the invertebrate survey completed in 2012. Invertebrate species diversity, though relatively high overall, is lower in these areas than in the calcareous grassland central to the Site (contained within the Lord Mayor Treloar SINC) where a more diverse assemblage occurs including UKBAP Priority invertebrate species. The intrinsic invertebrate interest of the calcareous grassland present on Site is significantly raised above the background level; reflecting at least in part the botanical community present and relatively low intensity management.	WSPE, 2012e
Fungi	■ Sixty-eight species of macro-fungi were recorded on Site during the mycological surveys completed in 2012. No legally protected, nationally rare or scarce species were recorded. Six Wax Cap species were recorded overall, the majority of records were obtained from the calcareous grassland within the Lord Mayor Treloar Hospital SINC, however four of the six Wax Cap species recorded were found outside the SINC, in the north field.	WSPE, 2012f
Reptiles	■ Three species of native, widespread reptile species are present on Site including; adder *Vipera berus*, grass snake *Natrix natrix* and slow worm *Anguis fragilis*. Both adult and juvenile animals of each species were recorded indicating breeding activity either on Site or in the immediate vicinity. Based on the number and distribution of survey records the following population estimates are provided (for further definitions see WSPE, 2012g): • An exceptional breeding population of slow worm is present on Site utilising edge habitats throughout the entirety of the Site (with the possible exclusion of the furthest north field edge, at the eastern end); • A good breeding population of adder is present on Site concentrated in the area surrounding Robertson House, extending along the hedgerow edge to the south-east and into the south-west field; and • A low breeding population of grass snake is present on Site, with records scattered throughout the Site ranging from the north-east corner, to the south-west of the Site.	WSPE, 2012g

1.3 Legislation and Planning Policy

1.3.1 Consideration has been given to legislation and planning policy relevant to biodiversity in preparation of this strategy; further details in respect to the habitats and species present are contained within the respective baseline reports (see references provided in Table 1).

1.3.2 The following legislation has been considered:

- The Conservation of Habitats and Species Regulations 2010, as amended;
- The Wildlife and Countryside Act 1981, as amended;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Protection of Badgers Act, 1992; and
- The Hedgerow Regulations 1997.

1.3.3 The following planning policy has been considered:

- National Planning Policy Framework, 2012;
- East Hampshire District Local Plan: Second Review, 2006; and
- East Hampshire District Local Plan Joint Core Strategy, 2012[1].

1.4 Consultation Background

1.4.1 During the survey programmed in 2012, and subsequently during preparation of parameter plans in 2013, East Hampshire District Council was consulted on matters relating to ecology. Table 2 overleaf contains a summary of consultation undertaken.

Table 2: Summary of Consultation Undertaken to Date

Organis -ation	Individual / Title	Date / Form of Consultation	Summary of outcome of discussions
EHDC	Peter McKeon (Senior Ecologist)	Email correspondence 18/08/2012.	Consultation with regard to the specification for bat survey to be completed on Site. Peter McKeon stated that further emergence surveys may be required (in addition to those proposed for 2012) to have confidence in a negative result.
EHDC	Sarah Wariss-Simmons (Senior Ecologist)	Meeting 20/09/12 and follow-up telephone calls.	Consultation regarding scope of works completed to inform master planning. EHDC confirmed that full wintering bird survey would not be expected, however noted that approach to bat surveys would need to be justified. In correspondence, the application of planning policy relevant to the SINC habitat on Site was queried; this was passed to the case officer at EHDC for comment. EHDC noted that recreational provision should be carefully managed with respect particularly to ancient woodland habitat and reptile mitigation measures.
EHDC	Tristan Norton (Senior Ecologist)	Meeting 24/05/13 and follow-up emails.	Consultation regarding updated masterplan, and overview of supporting information. Protected species mitigation discussed, alongside potential scope for off-site mitigation (reptiles). EHDC will require mitigation proposals to justify approach to different species, and note that further bat surveys may be required to satisfy their expectations and enable a robust assessment (see meeting notes). In correspondence the application of planning policy relevant to the SINC habitat on Site was queried again, this was passed to the case officer at EHDC for comment.

[1] The East Hampshire District Local Plan: Joint Core Strategy is yet to be adopted, however it has been considered in preparation of this document as it reflects the approach EHDC intend to apply in the future to planning decisions and biodiversity subject to adoption.

2 Ecological Avoidance and Mitigation Measures

2.1 Habitats

2.1.1 Alexandra/Ackender Wood SINC

2.1.2 Development of the Site will alter the types, and extent of semi-natural habitat present. The extent of habitat change will be quantified at the detailed design stage; proposals will affect the majority of habitat types present, however, importantly Alexandra/Ackender Wood SINC will not form part of the built footprint. The woodland SINC will be retained and protected from adverse effects of development through the instatement of an offset of at least 15m in width and future management to benefit biodiversity.

2.1.3 It is anticipated that, to support the relevant reserved matters application a detailed woodland management plan will be prepared. Through appropriate management practices it would be possible to enhance this parcel of woodland; this could be achieved through:

- the gradual removal of coniferous species allowing natural reversion to native broadleaved species with associated understory and ground flora (the latter are currently very sparse where conifers cause heavy shading);
- rotational coppice of the shrub layer to overall promote denser cover, yet allow ground flora periods of reduced shading; and
- regular monitoring of ground flora to identify the locations of greatest abundance and protect these zones from scrub encroachment.

2.1.4 Management objectives will be selected to be in accordance with the East Hampshire Biodiversity Action Plan aims to enhance the biodiversity value of woodland SINCs.

2.1.5 To discourage informal access, and associated negative effects (already apparent in parts of the woodland), it is likely that defined access routes will be instated. These will comprise well marked routes located to link new development on Site to the existing footpath network. Paths will be located to avoid area of greatest biodiversity interest, and marked with post and rail fencing or similar structures to direct pedestrian access along permitted routes only.

2.1.6 Former Lord Mayor Treloar Hospital SINC

2.1.7 To facilitate development, whilst a proportion of the Former Lord Mayor Treloar Hospital SINC will be retained in situ a section is likely to be removed.

2.1.8 During the construction period, the retained SINC area will be fenced (netlon or similar) to prevent incidental incursion by construction plant and ensure the area is not used for storage. Where scrub has encroached into this area it will be cut to ground level and, where appropriate treated with herbicide to prevent regrowth. The removal of scrub should permit all part of the retained SINC to revert to the calcareous grassland community for which the SINC is designated, and protect the associated invertebrate and mycological communities. The section retained will be managed during the operational phase to benefit biodiversity, however it is acknowledged that it may be difficult to ensure the botanical community present is not affected by increased recreational pressure – for example thorough soil compaction (trampling), and nutrient enrichment (dog fouling). It is considered impractical to prevent public access to the retained SINC area, instead it is proposed that interpretation boards are utilised to communicate with members of the public to highlight its nature conservation value and encourage appropriate recreational use. Management will include a typical

'meadow' cutting regime, with cutting timed to allow forbs to flower and set seed and arisings removed to prevent the accumulation of nutrients.

2.1.9 During the preparation of the detailed development designs, it is anticipated that areas will be identified for recreation of calcareous grassland communities and/or to receive turves (and associated substrate) translocated from the area of SINC which will not be retained in situ. The strategy for grassland translocation will be developed in association with the relevant reserved matters application.

2.1.10 Habitat Change on Site: Non-SINC Habitat

Grassland

2.1.11 A network of grassland will be retained on Site, notably the proposed Country Park in the east of the Site provides the opportunity to retain and manage larger section of grassland in combination with narrower strips along the edges of retained woodland and hedgerows. This habitat type will form a key part of the green infrastructure network on Site, and reflecting the underlying chalk substrate new area will be managed to promote a diverse, calcareous grassland botanical community.

Woodland, Hedgerow and Trees

2.1.12 All retained hedgerows will be protected during the construction phase by implementing measures in line with BS5837:2012, a similar approach will be used to protect retained woodland and standard trees. Retained hedgerows on Site will be managed to promote biodiversity benefits during the operational phase. Where a hedgerow will be removed to facilitate development it is anticipated that new, species-rich hedgerow will be planted to ensure no net loss of this habitat type and maintenance of a functioning habitat network.

2.2 Species

2.2.1 Badger

2.2.2 All badger setts present on site will be retained and protected throughout the construction period, and land surrounding known setts will be landscaped prior to the operational phase to prevent undue disturbance during the operational phase.

2.2.3 During the construction phase, effects upon badgers will be avoided through the following measures:

- No construction works will occur in close proximity to the known badger setts (offset to be agreed in relation to specific phase of works), where appropriate fencing will be used to delineate exclusion areas;
- Habitat connectivity will be maintained between the setts and wider landscape, primarily as no works will encroach into adjacent woodland but also through the retention of corridors crossing grassland to the south and east; and
- Mechanisms will be put in place to avoid incidental harm to individual badgers (for example escape routes will be provided from excavations and potentially harmful substances and materials will be securely stored).

2.2.4 Bats

2.2.5 The mitigation measures to reduce the effects of development upon bats focus on the retention of suitable foraging habitat on Site, and recreation of roosting opportunities within retained and new built structures.

2.2.6 Bat activity surveys completed in 2012 identified the edge of Ackender Wood which forms the north-western boundary of the Site to be of particular value to bats. This habitat is retained and protected within the proposed plans which incorporate a 15m offset between built development and the woodland edge. This offset provides the opportunity to incorporate planting which extends, and diversifies the woodland edge, for example through shrub planting increasing structural diversity. No part of the offset will be illuminated, and a sensitive lighting strategy will be employed across the Site as a whole (see below).

Lighting

2.2.7 Habitat degradation resulting from increased levels of after dark lighting will be mitigated through sensitive design; the following key principles will be implemented when lighting layout and types are selected at the reserved matters stages:

- Lighting column height will be the minimum necessary for purpose;
- Lighting intensity will be the minimum necessary for purpose, and where possible lighting will be avoided;
- The use of timers and, or motion sensors will be considered to minimise the length of time lighting is in use where appropriate;
- Lighting will use narrow spectrum bulbs where possible to reduce the range of species affected by lighting (avoiding UV, and white and blue wavelengths of the light spectrum) and avoid attracting lots of insects;
- Lighting will be directional, and hoods, lourves and, or other design styles will be used to avoid up-lighting and spillage into areas which do not specifically need to be lit;
- Lighting designs will avoid spillage on to semi-natural vegetation throughout the Site (landscaping) with specific attention given to maintaining dark conditions along the edge of Alexandra/Ackender Wood SINC.

Tree works and Creation of New Roosting Opportunities

2.2.8 To inform the relevant reserved matters application, where tree removal and, or selective pruning is required a ground level inspection will be repeated to confirm the potential for bat roosts to be present. Subject to the results of the re-inspection, the following approach to mitigation is provided for trees directly affected by proposals and found to have potential to support roosting bats:

- Trees assessed as having low potential to support bat roosts will be soft felled by suitably qualified arborists, following a pre-felling dawn survey or at height inspection[2] to confirm the absence of a bat roost;
- Trees assessed as having moderate potential to support bat roosts will be subject to a climbing inspection to enable a thorough assessment of potential and the search for evidence indicating the presence of roosting bats. If at this stage the potential is downgraded to low, the trees will be soft felled by suitably qualified arborists as above. If evidence of bats is recorded, or the potential for a roost to be present remains, further survey will be completed as for high potential trees (see below); and
- In the event that works will affect trees with high potential to support bat roosts, for example if selective pruning is required to reduce health and safety concerns; trees will be subject to dusk,

[2] For each tree which is to be removed survey methods will be tailored to the probability that a roost is present, and the nature of potential roost features.

and or dawn emergence surveys to establish the presence or likely absence of bat roosts. The surveyor completing the re-survey will confirm the number of survey visits, and timing of visits to be completed.

2.2.9 In the event that the presence of a bat roost is highlighted at this stage, the requirement for works affecting the roost would be reconsidered to explore whether adverse effects can be avoided. Where possible, in this scenario proposals would be updated to enable retention and protection of the bat roost. In the event that retention is not possible, a licence would be sought from Natural England to permit works to proceed, the licence application would be subject to a detailed method statement.

2.2.10 To mitigate the loss of roosting opportunities and to enable future monitoring, new roosting opportunities in the form of bat boxes will be installed on mature trees in suitable locations on Site. It is anticipated that a variety of designs will be used, and at least a proportion of boxes will be installed on mature trees within Alexandra Wood.

Removal of Built Structures and Creation of New Roosting Opportunities

2.2.11 To inform the relevant reserved matters application, where refurbishment or removal of built structures is proposed a ground level external and internal inspection will be repeated. The objective of the survey will be to verify the level of potential for a bat roost to be present, and search for evidence indicating bat activity since surveys completed in 2012.

2.2.12 It is considered likely that confirmed roosts on Site will be affected by proposals, therefore in outline the following approach is proposed:

- Buildings assessed as having low potential to support bat roosts, such that the presence of a roost is improbable, will be subject to a pre-clearance dawn survey to confirm the absence of bats before been soft-stripped of features with potential to support roosts under an ecological watching brief;
- Buildings assessed as having moderate or high potential to support bat roosts will be subject to a repeat programme of emergence / re-entry surveys to confirm the presence or likely absence of a roost. If the continued, likely absence of roosting bats is confirmed these buildings will be soft stripped under an ecological watching brief. Or if a roost is confirmed, actions will be as below; and
- Buildings known to contain bat roosts that cannot be retained within development plans will be subject to sufficient survey to characterise the roost present such that alternative, replacement roosting opportunities may be incorporated into the designs of retained and/or new buildings on Site. The construction of new roosting opportunities and subsequent removal of existing roost features will be subject to licence from Natural England, with methods selected to minimise negative effects upon the bat population present.

2.2.13 Beyond the replacement of confirmed bat roosts on Site, it is recommended that a proportion of all new built structures on Site are designed to include roosting opportunities to ensure no net loss of habitat for roosting bats on Site. Where possible roosting opportunities should be integrated into designs as opposed to external fixtures (i.e. built in wall cavities / crevices in soffit boxes rather than external bat boxes) to promote long-term security and reduce the likelihood of disturbance or removal.

2.2.14 Birds

2.2.15 To avoid direct effects upon nesting birds, clearance of suitable habitat will occur outside the main nesting season (i.e. clearance will occur September – February inclusive). If during this period an active nest is suspected an ecologist will complete a pre-clearance survey to either confirm the absence of active nests, or if in the unlikely scenario an active nest is identified install an appropriately sized exclusion area in which no works will occur under the nest is no longer active.

2.2.16 A range of common bird species were recorded to be present on Site in 2012, the majority of which have wide-ranging habitat preferences plus a few woodland specialists both over winter and in the breeding season. The majority of bird breeding behaviour was associated with the woodland trees, hedgerows and scrub on Site, with a few species (notably barn owl) also using the buildings on Site. Woodland habitat on Site will be retained and protected through both the construction and operational phase, and adjacent landscaping will be designed to include thicket species providing replacement nesting habitat for that lost to facilitate development. Specifically, designs will be developed to provide multiple suitable roosting opportunities for barn owl. This will include suitable nesting opportunities integrated into one of the new buildings on Site, in addition to boxes secured to mature trees as generally mitigation using built structures has been shown to be more effective.

2.2.17 Dormice

2.2.18 Woodland habitat on Site will be retained, protected and extended as described in Section **Error! Reference source not found.**to ensure suitable habitat for this species remains on site long term, securing favourable conservation status of this species so far as possible. To facilitate development, it is highly likely that connected vegetation capable of supporting this species will require removal. Although dormice have not been recorded in connected hedgerow habitat on Site it is possible that they may utilise these areas.

2.2.19 Prior to works commencing, updated survey information will be collected to monitor dormouse presence on Site and inform a future application to Natural England to licence vegetation works which would otherwise affect this species.

2.2.20 Invertebrates

2.2.21 Mitigation measures to reduce effects upon invertebrates focuses on retention of a mosaic of semi-natural habitats on Site which will be managed to retain botanical diversity and associated invertebrate communities. Management described with respect to SINC habitat on Site described above in Section 2.1 will be tailored to reduce the overall effect the development will have upon the invertebrate community present on Site.

2.2.22 Fungi

2.2.23 Where possible, areas of grassland shown in the baseline survey to be of elevated value for the mycological species will be retained in situ and excluded from the construction zone. Where this is not possible, measures to reduce negative effects will follow those described with respect to SINC habitat on Site described above in Section 2.1.

2.2.24 Reptiles

2.2.25 A network of habitat suitable for reptiles will be incorporated into development designs; this will include a corridor along the southern face of Ackender/Alexandra Wood SINC ensuring habitat connectivity across the site and retention of at least a proportion of the reptile population currently present post-development.

2.2.26 To minimise the risk of killing and, or injuring reptiles a comprehensive translocation programme will also be developed prior to commencement of works on Site. Due to the distribution of reptiles on site it will be necessary to translocate individuals from works areas, although a proportion of the population should be unaffected by the development where located in retained and protected habitat.

2.2.27 At the earliest opportunity suitable receptor habitat will be identified, to ensure no net loss of habitat, the receptor habitat will be of equivalent size, and of equivalent or greater habitat quality to the area of suitable reptile habitat to be lost. The site should ideally be connected to suitable habitat present on Site occupied by reptiles, however if this is not possible it should be located within Hampshire. Once receptor habitat has been secured and prepared, trapping and translocation of reptiles from the works area will occur. Exclusion fencing will be installed to isolate the works area from adjacent habitat suitable for reptiles, and over a period of months[3] reptiles present within the works area will be removed to the receptor site by an appropriately experienced and trained ecologist. Once trapping results indicate with reasonable confidence that the majority of reptiles have been translocated (i.e. trapping on five consecutive days during suitable condition yields no captures), the works area will be subject to a destructive search to confirm the absence of any further reptiles.

2.2.28 During the construction period, exclusion fencing will remain in situ to prevent any reptiles accessing the works area from adjacent land. The fencing will be subject to periodic checks to confirm its integrity and enable any maintenance required to occur. On completion of works when there is no longer a risk of injury to reptiles the fencing will be removed.

2.2.29 In the longer term, retained and newly created habitat will be managed to provide suitable conditions for reptiles on Site, and at the selected receptor site. This will include measures designed specifically to benefit reptiles such as creation of uneven margins along treelines and hedgerows and newly created wetland habitat to ensure longer vegetation is present to provide shelter for reptiles, whilst shorter areas provide suitable basking habitat. In addition features will be created to provide suitable habitat for hibernation and egg laying; these will be created during the construction phase and comprise log and, or brash piles which provide refuges for reptiles, or more sculptural features associated with landscape designs. Refugia will be created in areas of the Site where recreational access is restricted.

[3] It is likely exclusion would take a minimum of 60 days during suitable weather conditions.

3 Future Ecological Monitoring and Management

3.1 Future Ecological Monitoring

3.1.1 Prior to commencement of works, a walkover survey will be completed to verify baseline conditions and if appropriate inform targeted further surveys to confirm the location of protected species (for example targeted bat survey to gather detailed information to inform a subsequent licence application to Natural England to permit works to known roosts).

3.1.2 Based on the results of the verification survey, and the principles contained within this document it is anticipated that detailed, species/habitat specific EMMS will be prepared noting in detail how principles will be applied and compliance with relevant biodiversity legislation will be achieved. These detailed plans would be submitted to East Hampshire District Council in support of the relevant reserved matters application. These detailed plans should supplement the Construction Environmental Management Plan (CEMP), to ensure activities proposed are compatible with construction activities and appropriate working methods are employed.

3.2 Principles for Habitat Management

3.2.1 The approach to management of habitats on Site seeks to ensure that both retained and newly created habitat is managed longer term to benefit biodiversity on Site. The following key principles and actions will be incorporated into the detailed EMMS.

3.2.2 Grassland and Edge Habitats

3.2.3 Where grassland is retained on Site, and within hedgerow / woodland edges, this will be excluded from the construction works area using appropriate fencing and signage.

3.2.4 During the operational phase of the development grassland habitat on site will be managed to promote biological diversity, management will include the following actions:

- Managing the parcels to promote a variety of sward heights, and species compositions by selecting an appropriate approach to cutting regimes (and removal of arisings); and
- Creating irregular edge habitat along linear features such as retained hedgerows, and woodland edge to provide a range of microhabitats suitable for a range of invertebrates and suitable conditions for reptiles (providing both cover and basking locations).

3.2.5 Specific management practices for newly created calcareous grassland, or land receiving translocated turves (and associated substrate) from the area of SINC which will not be retained will be devised in association with the relevant reserved matters application.

3.2.6 Hedgerows and Trees

3.2.7 Retained hedgerows and trees will be protected during the construction of phases in line with BS5837:2012.

3.2.8 During the operational phase, trees will only be removed where a health and safety risk is identified which cannot be managed through other means (for example selective pruning). Should this occur trees will be replaced with new native species typical of the local area and of local provenance. Hedgerow management during the operational phase will include the following actions:

- Cutting or laying on a 2-3 year rotation outside of the bird nesting season (i.e. not during March to August inclusive) with up to 50% of hedgerows to be cut at any given time (i.e. alternate cutting of hedgerow faces), to promote structural complexity and enable shrubs to flower and fruit regularly favouring birds and small mammals;
- The 'gapping' up of hedgerows where appropriate using native species of local provenance to maintain connectivity of the hedgerow network;
- The creation of a margin at the hedgerow base of at least 2m width, which is infrequently cut (i.e. 2-3 year rotation) to allow a diverse edge to develop and reduce disturbance immediately adjacent to the hedgerow; and
- Retaining standard trees within hedgerows, and where cutting is required positioning cut wood in proximity to hedgerows (taking into account root protection) to promote diversity of micro-habitats favoured by invertebrates.

3.2.9 In preparation of detailed EMMS relevant to the management of trees and hedgerows, the potential effects of management upon dormice will be considered and if appropriate Natural England will be consulted with respect to licencing requirements.

3.2.10 Woodland

3.2.11 Retained hedgerows and trees will be protected during the construction of phases in line with BS5837:2012.

3.3 Principles for Habitat and Species Monitoring

3.3.1 Habitat Monitoring

3.3.2 The detailed EMMS will set out monitoring to be completed for different elements of the Site. The objective of monitoring will be to provide data against which habitat establishment in new areas, and condition in retained areas, can be assessed. The monitoring proposed in the detailed EMMS will cover a period of at least 5 years post-development.

3.3.3 Species Monitoring

3.3.4 The detailed EMMS will set out the approach to species monitoring proposed to measure effects of the development, and associated mitigation upon species communities on Site. The proposed approach will tie in with habitat monitoring, and any necessary monitoring required in line with species-specific method statements where required (for example badger, bat and dormouse) particularly where these are to be licenced by Natural England.

3.3.5 The following measures will be incorporated where relevant:

- Detailed botanical surveys (quadrat surveys or similar) to monitor species composition within retained SINC habitat on Site, newly created / translocated grassland habitat, and other area of newly created habitat to monitor botanical diversity;
- Walkover survey visits (annually) to monitor signs of badger activity across the site;
- Completion of reptile survey visits (series of visits annually) to monitor artificial refugia for the presence of reptiles within both retained and newly created habitat;
- Completion of monitoring visits to bat roosting opportunities designed into the scheme (for example bat boxes) both during the summer, and during the winter period where appropriate to monitor the number and species of bats roosting; and

- Completion of monitoring visits to dormouse nest boxes installed within suitable habitat on Site at appropriate intervals during the summer period to monitor the dormouse population present.

3.3.6 The results of monitoring will be provided to the Hampshire Biological Information Centre (HBIC) annually.

4 References

4.1 Project References

4.1.1 WSPE, 2012a. Lord Mayor Treloar, Badger Survey.

4.1.2 WSPE, 2012b. Lord Mayor Treloar, Bat Survey.

4.1.3 WSPE, 2012c. Lord Mayor Treloar, Bird Survey.

4.1.4 WSPE, 2012d. Lord Mayor Treloar, Dormouse Survey.

4.1.5 WSPE, 2012e. Lord Mayor Treloar, Invertebrate Survey.

4.1.6 WSPE, 2012f. Lord Mayor Treloar, Fungi Survey.

4.1.7 WSPE, 2012g. Lord Mayor Treloar, Reptile Survey.

4.2 Technical References

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