APPENDIX 1:

UPDATED ECOLOGICAL SURVEY 2018

Our ref: 6233 / JNHW

fpcr

masterplanning
environmental assessment
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14 September 2018

By Email: lnoakes@dandara.com

Dear Leigh,

RE: LAND EAST OF FONTWELL AVENUE - ECOLOGY

The following letter provides summary details following an extended Phase 1 Habitat updating survey of the above named site completed on 16th April 2018.

Site Context and Current Status

The application site is approximately 17.8ha in size and lies to the east of Fontwell Avenue (the A29), and south of Arundel Road, centred on grid reference SU 952 068 (Figure 1). The dominant habitat comprised several semi-improved grassland field compartments. The site perimeter and larger field compartments to the west are bounded by tree lines and native species hedgerows. Smaller, horse-grazed paddocks and field compartments to the east are mostly bounded by electric fences. A small number of tree groups and individual trees are present.

The site is bordered to the north by residential dwellings and by a hotel, restaurant and petrol station. To the east and south the site is bordered by the tree-lined Wandleys Lane, agricultural fields, scattered residential properties and private gardens, and horticulture nurseries. Fontwell racecourse and associated buildings lie on the opposite side of Fontwell Lane to the west.

An initial ecological assessment of the site and buildings was carried out by FPCR Environment and Design Ltd in June 2014 in order to identify specific habitats and features of ecological interest which may be affected by the proposed works.

Further protected species surveys were completed to assess the sites suitability to support bats, breeding birds, badger, reptile and Great Crested Newts (GCN). An ecological appraisal of the site was submitted with a planning application for residential housing in 2015 (planning ref WA/22/15/OUT). Additional protected species survey focusing on bats and dormice were also completed over the relevant survey period in 2016 to support the planning appeal for the site (Appeal Reference: APP/C3810/V/16/3143095).

In June 2015 the grassland was subject to further detailed assessment following the detailed methodology of National Vegetation Classification. This detailed assessment was completed as the Sussex Biodiversity Record Centre had mapped areas of the site as Lowland Meadow, a habitat of principle importance as listed in S41 of the NERC Act 2006. The survey confirmed the grassland did

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not meet the criteria to be classified as the S41 habitat Lowland Meadow and the majority of the grassland habitats onsite were species poor improved grassland.

The following report details the results of the updating ecological site walkover carried out by a suitably qualified ecologist on 10th August 2018. Survey methods followed the extended Phase 1 Survey technique as recommended by Natural England[1]. This involved a systematic walkover of the site by an experienced ecologist to classify the broad habitat types and to particularly identify any habitats of principal importance for the conservation of biodiversity as listed within Section 41 (S41) of Natural Environment and Rural Communities (NERC) Act 2006[2].

Habitats

The update Phase 1 survey recorded minor changes in the habitats recorded previously onsite. These changes included the advancement boundary scrub habitats into the field compartments as well as the succession of grassland compartments into tall ruderal habitat, due to a lack of management. In addition, lack of management, has resulted in the hedgerows onsite changing in structure and diversity, particularly hedgerow H7 which decreased in length due to the transition into a dense scrub belts.

The lack of use of hardstanding areas in the northern extent of the site, had resulted in the establishment of coloniser species. Further degradation of the buildings onsite was recorded including the complete collapse of building B, from the original phase 1 walkover. Further detailed descriptions of the habitats and buildings onsite are discussed below.

These changes have not resulted in any significant material alterations which effect the assessments submitted to the Local Planning Authority over the determination period or the Inspector at the Appeal.

Further information can be obtained from the site photographs located at the end of the report in Appendix A, as well as a full botanical species list for the habitat on site in Appendix B

Species Poor Improved Grassland (Photograph 1)

Intensively managed species poor improved grassland was the dominant habitat across the site. The field margins were approximately 1-2m wide, supporting unmanaged grassland, tall ruderal and scrub habitats. At the time of survey horses were recorded in the field compartments surrounding the farm buildings and stables, off Wandleys Lane, in the eastern extent of the site.

The intensive management resulted in a very short sward <3cm in height, supporting a limited grass species, abundant with perennial rye grass *Lolium perenne,* false oat grass *Arrhenatherum elatius*, frequent rough meadow grass *Poa trivialis,* occasional cock's foot *Dactylis glomerata* and Yorkshire fog *Holcus lanatus.* A very low herbaceous diversity was recorded sparsely distributed across the grassland compartments, consisting of occasional ribwort plantain *Plantago lanceolata,* common sorrel *Rumex acetosa*, and rare distributions of dandelion *Taraxacum officinalis agg.*, creeping buttercup *Ranunculus repens* and ox-eye daisy *Leucanthemum vulgare*.

Further towards the eastern grassland compartments regular management and disturbance of the soil by horses supported colonising species, including annual meadow grass *Poa annua*, knotgrass

[1] JNCC. 1990. *Handbook for Phase 1 habitat survey – a technique for environmental audit.* Peterborough: JNCC
[2] *The Natural Environment and Rural Communities Act 2006.* [Online]. London: HMSO Available at: http://www.legislation.gov.uk/ukpga/2006/16/contents [Accessed 17/05/2015]

Polygonum aviculare, creeping cinquefoil *Potentilla reptans*, and daisy *Bellis perennis*. Due to the dry weather conditions at the time of the survey, a number patches of bare ground were also recorded in these fields.

Semi-improved Grassland (Photograph 2)

Three grassland compartments, located in the north-eastern and south-eastern extent of the site, supported unmanaged semi-improved grassland habitats, with a sward height >100cm. This grassland habitat, supported a high grass species content, with frequent to abundant distributions of false oat grass, cocks foot grass, as well as frequent distributions of creeping bent *Agrostis stolonifera*, rough meadow grass and Yorkshire fog. Rare to occasional patches of this grassland supported locally frequent red fescue *Festuca rubra*, sweet vernal grass *Anthoxanthum odoratum* and tall fescue *Festuca arundinacea*. The density and tall sward structure of this grassland limited herbaceous diversity to typical tall herb species including, nipplewort *Lapsana communis*, perforate St John's wort *Hypericum perforatum*, common hogweed *Heracleum sphondylium*, perennial sow-thistle *Sonchus arvensis* and ragwort species *Senecio sp.*

Where the horses had been given access to these fields, the resultant sward in grazed areas, included locally frequent patches of common bird's foot trefoil *Lotus corniculatus*, creeping buttercup, daisy and creeping cinquefoil. Notably the furthest east of these semi-improved grassland compartments supported a number of self-set young trees, including pedunculate oak *Quercus robur*, hawthorn *Crataegus mongyna* and elder *Sambucus nigra*, as well as scrub dominated by bramble *Rubus fruiticosus* encroachment along the northern boundaries scrub.

The field margins around all the fields varied between approximately 1-2m, supporting and unmanaged grassland, with a tall sward >100cm. The sward comprised frequent to abundant with cocks foot, false oat grass and creeping bent with occasional distribution of mugwort *Artemisia vulgaris*, cleavers *Galium aparine*, common nettle *Urtica dioica*, broadleaved dock *Rumex obtusifolius* and ragwort species. The field margins often supported, dense bramble scrub, advancing from the hedgerow boundaries. Notably stands of locally frequent/abundant bracken *Pteridium aquilinum*, were distributed along some of the field margins. Rare distributions of cuckoopint *Arum maculatum*, hemlock *Conium maculatum*, ground ivy *Glechoma hederacea* and common fleabane *Pulicaria dysenterica* were recorded, associated with more established margins, as well as field margins bordering woodland dense hedgerow and woodland habitats.

Tall Ruderal (Photograph 3)

Tall ruderal vegetation was limited and sporadically distributed around the site. Tall ruderal compartment locations were consistent with the previous phase 1 survey of the area, including at the base of hedgerows, as well as in an area of disturbed ground located adjacent to building G.

Two improved grassland compartments in northern-western extent of the site, recorded in the previous phase 1 survey, supported dense ruderal vegetation, due to the lack of management. Further tall ruderal vegetation was located around mature pine trees located in the centre of the western field compartments. Along the eastern boundary of the site two patches of tall ruderal vegetation were recorded in the field compartments north and south of the buildings. Tall ruderal vegetation communities' onsite, generally supported frequent to abundant common nettle, creeping thistle *Cirsium arvense*, common hogweed and broad-leaved dock. A locally abundant community of rose bay willow herb *Epilobium angustifolium* was identified in the northern eastern field compartment, associated with a damp area offsite.

Woodland and Scattered Trees (Photograph 4)

A total of five woodland compartments were recorded onsite and a single woodlands offsite, adjacent to the north-western boundary and also on the southern boundary of the site. The majority of the woodlands onsite were comprise of mature trees with a sparse understory, with the exception of woodland W3, located in the centre of the site, which was comprised of low canopy structure and a dense scrub understory.

Woodland W1 (Photograph 4) was located along the boundary of the north-eastern corner of the site. The canopy comprised ash *Fraxinus excelsior*, common lime *Tilia x europaea*, beech *Fagus sylvatica* and sycamore *Acer pseudoplatanus*. Dense woody shrub understory comprising of mainly hawthorn and blackthorn, although also supporting occasional holm oak *Quercus ilex*, guilder rose *Viburnum opulus*, wild cherry *Prunus avium* and holly *Ilex aquifolium*. A number of the trees within this woodland area, were densely covered in ivy *Hedera helix* mats and travellers joy *Clematis vitalba*. Two rows of planted, mature cherry laurel shrubs were recorded adjacent to this woodland community, along with an understory of this shrub compartment supported dense stands of bramble scrub.

Woodland W2 in the north-eastern extent of the site comprised two small wooded compartments linked together by hedgerow H2. The canopy included: mature sycamore, field maple *Acer campestre*, scots pine *Pinus sylvestris* and pedunculate oak *Quercus robur*. This woodland had a limited understory, supporting tall ruderal vegetation and sparse shrub species including hazel *Corylus avellana*, butterfly bush *Buddleja davidii*, elder and ornamental holly species, which extended out to from a scrub belt.

Woodland W3, located in the centre of the site, comprised of predominantly immature tree species including ash, beech, hawthorn and sycamore. The northern extent of this habitat was made of entirely of a dense scrub understory including bramble and rose *Rosa sp.*, with limited species diversity, confined to the edges including cow parsley *Anthriscus sylvestris*, cocks foot, false oat grass and ragwort species. Towards the southern extent several mature oak trees were located, with a sparse understory comprised of elder, hawthorn and bramble.

Woodland W4 was located in between horse grazed field compartments in the eastern extent of the site. This mixed plantation woodland was comprised of a variety of mature tree species including sycamore, ash, Norway maple *Acer platanoides*, walnut *Juglans regia*, horse chestnut *Aesculus hippocastanum* and cypress species *Cupressus sp.*, with an equally diverse understory of woody shrub species including hazel, hawthorn, common dogwood *Cornus sanguinea*, elder and holly. Considerably leaf litter on the woodland floor, and over-shading has resulted in limited ground flora diversity, abundant with ivy.

Woodland W5 was located in the western extent of the site, surrounded by improved grassland compartments. Comprised of mature oak trees, this woodland has a sparse understorey of limited diversity including holly and elder, with a tall ruderal vegetation community below, abundant with common nettle.

The site boundary supported a wide range of immature and mature trees and with a dense scrub understory. These boundary features supported a range of different tree species including sycamore, ash, pedunculate oak, field maple, hazel, layland cypress *Cupressus x Leylandii*, wild cherry and willow species *Salix sp.*. Notably along the western boundary a number of mature trees species including common lime, hornbeam *Carpinus betulus*, horse chestnut, English elm *Ulmus minor*, Scots pine and poplar species *Populus sp.*, linked by sparse scrub habitats.

In addition to woodland habitats onsite a number of mature Scots pine and pedunculate oak trees were located in the two large field compartments in the western extent of the site. Surrounding these trees further tall ruderal and scrub communities with abundant bramble and occasional holly and elder shrubs were recorded.

Hedgerows and Scrub

A total of eleven hedgerows and two treelines were recorded onsite. The additional hedgerows recorded were the results of degradation of structure leading to the development of belts of scrub. In general these hedgerows did not support any significant change in diversity, from the original assessment of the site, mainly dominated by a few species. The majority of the hedgerows onsite, except hedgerow H3 supported over 80% native species and therefore are considered to qualify as habitats of Principle Importance under S41 of the NERC Act (2006). None of the hedgerows qualified under Hedgerow Regulations 1997.

Table 1: Hedgerow Survey Summary

Ref	Canopy Sp.	Length (m)	Notes	HEGS Value and Score	Important Under REGS
H1	*Fs, Ac, Pa, Vo, Cm, Ap, Rf*	34	Residential boundary hedge. Mixed native dominance. 1 mature standard, 3 young standards. No gaps, 5 connections.	-1 High to very high value	No
H2	*Ps, Ia, Ac, Cm, Qr, Rf*	31	Countryside Hedgerow. Mixed native dominance. 1 mature standard, 1 young standard. No gaps, 5 connections.	-1 High to very high value	No
H3	*Ac, Ps, Cm, Pl, Sn, Bd, Rf, Qr*	143	Countryside Hedgerow. 1-2 species dominance. 1 mature standard, 1 young standard. 10-0% gaps, 5 connections.	2+ Moderately high to high value	No
H4	*Ap, Fs, Fe, Sx sp, Te,, Cm, Rf, Bd, Pl*	31	Residential boundary hedge. 1-2 species dominance. 3 mature standards, 5 young standards. No gaps, 1 connection.	2 Moderately high to high value	No
H5	*Rf, Pl, Fs, Ia, Fe, Cl*	81	Residential boundary hedge. 1-2 species dominance. 7 mature standards, No gaps, 2 connections	2+ Moderately high to high value	No
H6	*Ap, Ac, Fs, Cm, Lv, Rf, Bd,*	35	Countryside Hedgerow. 1-2 species dominance. 1 mature standard, 4 young standards. 10-0% gaps, 2 connections.	2 Moderately high to high value	No
H7	*Ca, Ap, Sn, Rf, Bd*	40	Countryside Hedgerow. 1-2 species dominance. 1 mature standard, 4 young standards. No gaps, 4 connections.	2+ Moderately high to high value	No
H8	*Cm, Sn, Rf*	98	Countryside Hedgerow. 1-2 species dominance. 1 mature standard, 3 young standards. 10-0% gaps, 2 connections.	2 Moderately high to high value	No
H9	*Lv, Rf*	27	Residential boundary hedge. 1-2 species dominance, No gaps, 2 connections.	3 Moderate value	No
H10	*Sn, Ac, Cm, Ia, Qr, Rf, Lv*	154	Countryside Hedgerow. Mixed species dominance. 2 mature standards, 4 young standards. 10-0% gaps, 5 connections.	-1 High to very high value	No
H11	*Cm, Ca, Ac, Qr, Rf, Fe, Ia*	82	Residential boundary hedge. 1-2 species dominance, 2 mature standards, 2 young standards, 10-0% gaps, 1 connections.	2 Moderately high to high value	No

Species Key: *Ap Acer pseudoplatanus* Sycamore, *Ac Acer campestre* field maple, *Bd Buddleja davidii* butterfly bush, *Cm Crataegus monogyna* hawthorn**,** *Cl Chamaecyparis lawsoniana* Lawson cypress, *Fe Fraxinus excelsior* ash, *Fs Fagus sylvatica* Beech, *Ia Ilex aquifolium* holly*, Lv Ligustrum ovalifolium* garden privet, *Pa Prunus avium* wild cherry, *Ps Prunus spinosa* blackthorn, *Prunus laurocerasus* cherry laurel, *Qr*

Quercus rober English oak*, Rc Rosa canina* Dog rose, *Rubus fruiticosus* bramble agg. *Sn Sambucus nigra* elder, *Sx sp. Salix sp* willow species, *Te Tilia x europea* common lime, *Viburnum opulus* guelder rose.

Two treelines were recorded in the western extent of the site, consisting of immature tree species including ash, pedunculated oak, hawthorn and rowan *Sorbus aucuparia*, as well as unmanaged grassland field margin habitats.

Scrub vegetation was recorded encompassing the entirety of the site, as well as forming scrub belts between grassland compartments and linkages between woodland and hedgerow habitats. Scrub habitat consisted of predominantly bramble and hawthorn, but also supporting occasional to locally frequent stands of blackthorn *Prunus spinosa* and rose species. In addition to this occasional shrub and immature tree species were recorded with scrub belts including elder, holly, hazel, field maple and wild cherry.

Buildings and Hardstanding (Photograph 5a-c)

A total of seven buildings were assessed during the update walkover, located in the north-western and south-eastern extents of the site. These habitats were associated with bare ground and hardstanding supporting ephemeral habitat consisting frequent annual meadow grass and perennial rye grass, as well as occasional coloniser species including knotgrass, pineapple weed *Matricaria discoidea*, lesser trefoil *Trifolium bubium,* greater plantain *Plantago major* and daisy.

Buildings 1-4, were located on a small hardstanding compartment in the northern extent of the site. Buildings 1 and 4 (Photographs 5a & b) were both single storey sheds, constructed from stone and brick walls, both with simple roof structures constructed from corrugated metal and pitched clay tile roofs, respectively. In addition to this wooden learn-to barn was constructed on the eastern aspect building 1. Buildings 2 and 3 were three stable structures situated between buildings 1 to 4, constructed out of pitched wooden panel walls, with a wooden roof covered in plastic lining.

Buildings 5-7 consisted of barn buildings associated with the farm and residential buildings located off Wandleys Lane. Buildings 5 (Photograph 5c) and 7 were both single storey sheds, constructed from pitched wooden panel walls, with a corrugated metal simple roof structure. Building 7 was significantly greater in size, with an open structure, used for storing vehicles, whereas building 5 was considerably smaller used for storage. Building 6 was a long, single storey stable building, constructed from brick walls with pitched wooden window shutters and a corrugate metal roof.

Protected Species

Badger

The grassland fields, tree groups and hedge bases provide suitable foraging habitat for badger, and the tree groups and interior hedgerows provide suitable cover for badger sett creation. Notably three medium sized disused mammal holes were found under mature trees in the southern extent of woodland W3. No conclusive badger evidence in close proximity to these holes could be found, suggesting they were created by badger. Furthermore the disused condition of these holes would suggest they have not been active recently.

No additional evidence of badger activity such as holes, tracks, feeding signs or prints was recorded within the site or immediately adjacent habitats. Therefore it is considered that the site does not currently support significant badger activity, however given the sites suitability to support them it is advised area **it is recommended that an updating survey should be carried out immediately prior to the commencement of any works to check that badgers have not moved into the site.**

Bats

The linear habitats onsite, including the hedgerows, scrub belts and woodland edges provided suitable commuting habitat for bat species. Further unmanaged semi-improved grassland compartments, field margins and tall ruderal areas will provide good assemblages of invertebrate species, providing good foraging habitats for bats. Previous activity survey, recorded generally low levels of bat activity, focused around the linear features onsite. The most frequently encountered species was common pipistrelle, with occasional soprano pipistrelle, brown long-eared bat and *Nyctalus* species also recorded. No overall 'hot spots' of bat activity were identified, and no regularly used commuting route was noted.

In addition to this, static detector surveys recorded the highest number of bat passes in the western boundary of the site, adjacent to Fontwell Avenue. The lowest number of bat passes were recorded along the southern boundary. A fairly high bat diversity was recorded onsite during these surveys consisting of common pipistrelle (over 91%), *Myotis* species (4.6%), soprano pipistrelle (3.4%), *Nyctalus* (0.2%), brown long-eared bat (0.2%), noctule (0.05%), barbastelle (0.04%), Leisler's bat (0.02%), and Nathusius' pipistrelle (<0.005, single pass).

The evidence above demonstrates that the site is conducive to support a variety of bat species. However the large fields of intensively managed improved grassland, comprising the majority of the site, provide sub-optimal foraging habitat. Notably the linear scrub belts, hedgerows, mature tree lines and woodland provide optimal habitats to support a low population of bats onsite.

Three buildings were identified onsite to have potential to support roosting bat species. Building B1 was a single story shed, constructed from stone walls with a simple corrugated metal sheet roof. Limited bat roosting features were identified on this building, although the limited access to observe the entirety of the roof or the internal roof void was a constraint to this assessment. It is therefore considered that this building provides negligible to low roosting potential for bat species.

Building B4 is a single story shed, constructed from brick walls, with a simple roof covered with pitched clay tiles. Ivy was present climbing on the southern apex of this building and a significant number of the roof tiles were either hanging or had fallen, providing gaps into the roof void. It is expected that there is a roof void present, however due to limited access an internal survey of this building could not be completed. Due to the presence of a number of good bat roosting features, it is considered that this building is of moderate potential to support roosting bat species.

Building B5 was constructed was a single storey shed, used for storage, and constructed out of pitched wooden panel walls and a corrugated metal roof. Notable roof features on this building included lifted wooden panels on the walls, providing access points into a possible wall cavity and roof void, although internal inspections of these buildings were not completed. It is therefore considered to be of low roosting potential due to the regular use of the building, causing disturbance for roosting bat species.

No further buildings onsite were identified to provide features to support roosting bat species. All of the buildings are scheduled for demolition, therefore **further nocturnal surveys of buildings B1, B4 and B5 are recommended to assess the presence/likely absence of roosting bats if the building are effected by the reserved matter proposals**.

A total of eight mature trees were identified around the site, varying from low to moderate potential to support bat roosting species. Due to this potential to support roosting bat species, it is

recommended that these trees are either climbed or emergence surveys completed on them, where they are to be removed or significantly impacted by the development. Further details of the roosting features identified on the individual trees are documented in the Table 2 below.

Table 2: Details of Trees with Bat Potential

Tree	Species	Bat Potential (Ground Assessment)	Features
BT1	Pedunculate Oak, *Quercus robur*	Low	Detached platey bark around main trunk, with further branches dying in crown providing significant deadwood.
BT2	Pedunculate Oak, *Quercus robur*	Low	Detached platey bark around main trunk, with further branches dying in crown providing significant deadwood.
BT3	Ash *Fraxiunus excelsior*	Low	Overlapping branches providing small cavity. Further branch tear outs and knot holes present.
BT4	Leyland Cypress *Cupressus x leylandii*	Low	Natural split in main trunk and re-joining of stems above provide cavity in main trunk.
BT5	Pedunculate Oak, *Quercus robur*	Moderate	Large cavity opening just above the base of the main trunk.
BT6	Pedunculate Oak *Quercus robur*	Low	Small branch tear out from main stem, with suspect cavity in main trunk. Dead tree.
BT7	White Poplar *Populus alba*	Low	Large branch tear out leaving split end on remaining branch. Further occluded union identified on another branch of tree.
BT8	Scots Pine *Pinus sylvestris*	Low	Heavily matted ivy covering main trunk of dying large tree. Multiple cracks found in the trunk.

Birds

The hedgerows, trees, tall ruderal and tall grassland habitats within the site provide potential nesting and feeding opportunities for a range of birds including farmland and urban edge species, areas of grazed semi-improved grassland provide further foraging habitat. Previous survey work confirmed the breeding bird assemblage using the site was only of local level importance.

As there has been no significant change in the habitats present across the site, the assemblage of breeding birds using the site is unlikely to have significantly changed and the mitigation previously agreed will be adequate to minimise potential effects to breeding birds locally.

Great crested newts (*GCN*)

The hedgerow, scrub, field margins and woodland areas provide suitable habitat for foraging, commuting, rest and shelter this species onsite. However the intensively managed improved grassland compartments comprising the majority of the site are unsuitable for this species. Furthermore consultation results received from Sussex Biological Records Centre (SBRC) provided no records of GCN in the local area of the site.

In 2015 survey work completed on three ponds within 500m of the site, found no GCN during four individual survey visits. Further habitat suitability indices completed on these water bodies concluded that Pond P1, closest to the site (c.100m distance) was good suitability for GCN (HIS 0.72), while the remaining two ponds both located c.430m distant from the site, had ‘Below Average’ and ‘Poor’

suitabilities (HSI scores 0.56 and 0.31 respectively). An additional pond was located within a 500m radius of the site, however due to access restrictions this was not surveyed.

Given the site is comprised largely unsuitable terrestrial intensively managed habitat it is considered unlikely that GCN would be present on the site. Further lack evidence of this species recorded within 500m of the site, including specific pond surveys, this species is not identified as a statutory constraint to proposals and no further survey or mitigation work is required.

Reptiles

The site is largely made up of large intensively managed improved grassland habitats which are unsuitable for reptile species. However the unmanaged field margins, scrub, tall ruderal and semi-improved grassland habitats do provide suitable habitat onsite for foraging, resting and commuting reptile species.

Consultation records receive from SBRC concluded that common reptile species were in the local area of the site, including slow worm, common lizard and grass snake. However the majority of these records were concentrated at least 1km south and east of the site. Severn specific reptile surveys were completed onsite during 2014, recording a single adult grass snake, along the northern boundary of the site, concluding a low population of grass snakes is present onsite.

The suitability of specific habitats onsite, notably the unmanaged field margins, scrub and semi-improved grassland habitats, are conducive to support a viable population of common reptile species. It is therefore advised that specific mitigation measures are put in place for the clearance of any of these habitats, including passive displacement and translocation, and should be completed under ecologist supervision.

Other Species

Brown hare *Lepus europaeus* and hedgehog *Erinaceus europaeus* are both species of principal importance under the provisions of the NERC Act (2006). Habitats within and adjacent to the site are considered suitable to support both species at low densities. Neither was recorded present during site surveys.

No evidence of potentially suitable habitats for any other protected, rare or notable species were recorded present.

Conclusions & Recommendations

The dominant habitat, covering the majority of the site, is intensively managed improved grassland of low botanical diversity and ecological value. Consequently the loss of this habitat is not considered to be a constraint to the development of the site. The loss of these areas of improved grassland habitats can be mitigated for via the creation of smaller areas of species-rich grassland throughout the proposed development.

The established hedgerows and scrub belts throughout the site provide good wildlife corridors, and are therefore considered of high ecological value. Where possible hedgerows and established scrub belts should be retained within development proposals, and gaps through habitats kept to a minimum distance to maintain wildlife corridors of ecological value. Any unavoidable losses of trees or sections of hedgerows can be mitigated for through native species planting. Further enhancements of these habitats can be established through additional planting of local native woody species to improve

foraging and connectivity onsite and in the wider landscape, for a variety of species. The creation of new tree lines and hedgerows onsite will also improve connectivity for wildlife throughout the site and in the wider landscape.

The woodland habitat recorded onsite are lacking structural diversity, either too sparse or dense in understory character, and therefore providing lower ecological diversity, in comparison to the woodland habitat adjacent to site. Despite this woodland habitats should be retained, as they provide good foraging and nesting habitat for a variety of species. Therefore where possible these habitats should be retained and enhanced through additional planting of native woody species as well as management of the understorey to reduce scrub overgrowth. These habitats should also be buffered from the development to protect Root Protection Zones (RPZs), as well as reducing disturbance and light pollution.

A number mature trees were identified onsite, providing key nesting and foraging habitat for a variety of species, as well as maintaining hedgerow structure, preventing soil erosion and conserving water onsite. Furthermore trees that are subject to Tree Preservation Orders (TPOs) should be retained within proposals and protected from likely potential adverse effects of physical damage and soil compaction during implementation of appropriate fenced Root Protection Areas (RPAs) for the duration of construction.

Retained trees and hedgerows should be suitably protected throughout the constructions works i.e. working methods should adhere to standard best practice guidance. This would include BS5837 Trees in Relation to Construction – Recommendations: 2012 for trees and hedgerows.

The remaining habitats comprised scrub, ruderal vegetation, bare ground, hardstanding and buildings. These habitats were considered to be of low ecological value and dominated by species that are common and widespread in the region such as bramble and nettle. Subsequently the loss of these habitats are not considered to be a constraint to the proposed development.

The creation of species rich flower bed throughout the proposed development, comprised of pollen rich native and non-native wildflowers and shrubs will provide a variety of pollen and nectar sources, available throughout the year, increasing ecological value for bees, butterflies and other pollinating insects. Further diversity in shrub and tree planting, will provide a range of forms, sizes and finer scale variation to enhance the future structural and three-dimensional complexity of the site.

Further species rich grassland areas of comprised of native species will help to provide net gains for biodiversity through provision of increased habitat diversity and ecological resources. This grassland should be managed appropriately to provide a diverse sward structure, important for invertebrate and reptile species. The retention of the majority of the trees and hedgerows onsite will maintain connectivity to the wider landscape encouraging higher species diversity onsite, enhanced by the biodiversity already found in the local area, notably slow worms, grass snakes, hazel dormouse, hedgehogs and a variety of bat and bird species.

To further minimise potential effects to the local bat population artificial lighting should be carefully designed adjacent to existing and new potential bat foraging areas including tree groups, hedgerows and commuting lines.

It is further recommended that bat and bird boxes are incorporated into the development proposals. These boxes should vary in size and design and should be set up in a variety of habitats onsite including on mature trees, hedgerows, buildings and in woodlands. Further information on the design of these boxes can be found in the ecological appraisal report for this project.

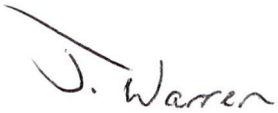
It is recommended that any removal of woody vegetation including hedgerow sections and trees should occur outside of the bird breeding season to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist to confirm the absence of active nests. If any nesting birds are present, the nest and a 5m buffer surrounding it must be retained undisturbed until the birds have fledged. If works are undertaken outside of the bird breeding period, such restrictions do not apply.

Unmanaged grasslands, scrub and tall ruderal habitats onsite are conducive to support common reptile species. It is therefore advised that **specific mitigation measures for the clearance of any of these habitats, should occur between April-September, at temperatures between 9°C - 18°C, in accordance with Froglife Advice Sheet 10 (1999).** Before the clearance of these habitats they should be checked thoroughly by an experienced ecologist, to reduce the risk of harm coming to any reptile species onsite. Any reptiles found during clearance should be moved to a pre-determined refuge area, offsite or area separated from the rest of the development, onsite.

No evidence or potentially suitable habitats for any other protected, rare or notable species were recorded during the site survey and no other ecological recommendations or mitigation for the proposed works are considered necessary.

We trust the foregoing is satisfactory and sufficient for your needs, but if you have any further queries or problems please do not hesitate to contact me at this office.

Yours sincerely,



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Appendix A: Photo Evidence

Photograph 1 – Species-poor improved grassland habitat intensively managed

Photograph 2: Semi-improved grassland, unmanaged habitat in North-eastern fields

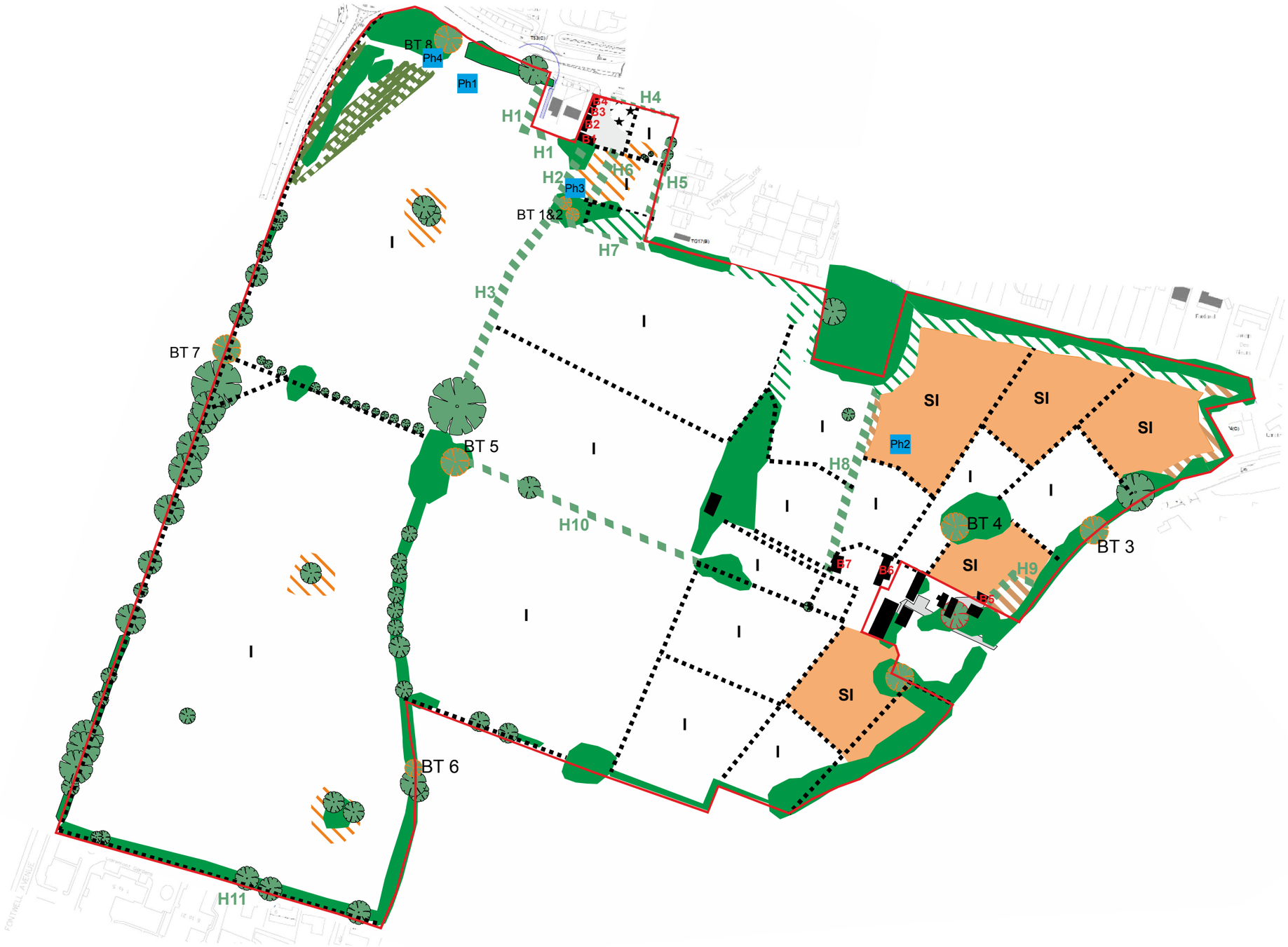
Photograph 4: Tall ruderal habitat located in northern field compartment.

Photograph 4: Woodland 1, located in the north-western corner of the site.

Photograph 5a: Building 1 supporting low to negligible bat potential, located in northern hardstanding compartment.

Photograph 5b: Building 4 supporting moderate bat potential, located in northern hardstanding compartment.

Photograph 5c: Building supporting low bat potential, located in eastern hardstanding compartment.



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KEY

- Site boundary
- Broad-leaved woodland / tree group
- Dense laurel shrub
- Tree
- Tree with low-moderate bat roost potential (Category 2b)
- Tree with low bat roost potential (Category 2c)
- SI Semi-improved grassland
- Tall ruderal
- Fence
- H1 Native Species Hedgerow
- Building
- Hardstanding
- Ephemeral / Scrub
- Ph2 Photograph Location

Dandara Ltd

Land East of Fontwell Avenue

PHASE 1 HABITAT PLAN

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NTS @ A3 RG / September 2014

Figure 2

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masterplanning ■ environmental assessment ■ landscape design ■ urban design ■ ecology ■ architecture ■ arboriculture ■

L:\6200\6233\ECO\Eco App\6233 Figure 2 Phase 1 Habitat Plan.cdr