

LAND AT DUCK'S NEST, ARBORFIELD

Habitat Regulations Assessment

Prepared for: David Wilson Homes (Southern)

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1 Introduction

SLR Consulting Ltd. (SLR) was commissioned by David Wilson Homes to prepare a Habitat Regulations Assessment (HRA) Screening Report for:

“A hybrid application comprising:

- a) A full application for the change of use of land from agricultural land to provide an area of Suitable Alternative Natural Greenspace (SANG), including the details of associated landscaping, planting, drainage measures, parking, walking routes and other works associated with the creation of the SANG.*
- b) An outline application with all matters reserved other than access into the site for a residential development of up to 135 dwellings, open space, internal accesses and parking, drainage measures, landscaping and all other associated works.”*

The application site occupies 17.72ha of agricultural land. The net developable area for up to 135 new homes is 4.2ha. Approximately 23.7% of the site would be developed for residential use.

Under the European Directive 92/43/EEC (The Habitats Directive) developers are required to undertake a Habitat Regulations Assessment (HRA) to ascertain whether proposed development is likely to have a likely significant effect on any European Sites and whether a formal Appropriate Assessment of the proposed development is required under the Conservation of Habitats and Species Regulations 2017, as amended.

An initial assessment showed that there are no European sites within the boundary of Wokingham Borough; however, the Thames Basin Heaths SPA is located in an adjoining authority and, therefore, requires consideration. The site is approximately 2.8km from the Thames Basin Heaths Special Protection Area (SPA) and as such, in order to mitigate potential impacts on the SPA from increased visitor pressure, an approximately 12.8ha of Suitable Alternative Natural Greenspace (SANG) is being incorporated into the development proposals as required by Policy CP8 of the Wokingham Borough Council Local Plan Core Strategy (2010), the design of the SANG is in line with the Natural England SANG quality guidance. The remaining undeveloped area of the site has been designed as public open space, SuDs and for biodiversity.

This information is intended to enable the local planning authority to determine the application in the light of potential effects upon European Sites.

This document should be read in conjunction with the following documents:

- SANG Delivery and Management Plan;
- APPENDIX 1: Hard & Soft Landscape Materials Schedule;
- Indicative Landscape Strategy (23-538 DL102 REV-B);
- SANG: Landscape Planting Plans – Overall (DNF-SANG-002.0; and
- SANG: Landscape Planting Plans - Sheets 3-5 (DNF-SANG-005.0 – 007.0).

1.1 Regulations

The Conservation of Habitats and Species Regulations 2017, as amended and the Conservation of Offshore Marine Habitats and Species Regulations 2017 transpose the European Union Birds Directive 1979/2009 and Habitats Directive 1992 into UK law. Under these regulations, competent authorities are required to consider whether plans or projects will have a likely significant effect on the integrity of a European protected site, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

European Nature Directives (Habitats and Birds)

Previously the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), served as the basis for the designation of SAC. Similarly, SPA were classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). The provisions for designation of these sites have now been incorporated into national legislation and collectively these are referred to as the UK national site network (previously referred to as the Natura 2000 network). In general terms, these sites are considered to be of exceptional importance for rare, endangered or vulnerable habitats and species within the UK's territory (and previously within Europe). The sites designated for nature conservation under the Habitats and Birds Directives may be referred to as 'European sites'.

Following the UK's withdrawal from the EU on 31st of January 2020; the legislation underpinning the protection of European sites has been updated. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019¹ effectively carries over and transposes EU law on this matter into UK domestic law.

Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) transpose the requirements of Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law and under this legislation the assessment of the implications for European sites or Habitats Regulations assessment is required where plans or projects have the potential to effect European sites and where those projects are not connected with or necessary to the management of such sites.

In such cases, Regulation 63 of the Conservation of Habitats and Species Regulations 2017, as amended, requires that the competent authority makes an Appropriate Assessment of the implications for European site or sites in view of a site's conservation objectives, before deciding to undertake, or give consent, permission or other authorisation for, a plan or project which:

- is likely to have a significant effect on a European site, either alone or in combination with other plans and projects; and
- is not directly connected with or necessary to the management of that site.

A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.

¹ <http://www.legislation.gov.uk/ukxi/2019/579/contents/made>

2 Methodology

This section of the report sets out the methods of gathering the information to support the preparation of this report.

2.1 Objectives of Habitat Regulations Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed.

Assessment is undertaken through a series of four stages, the first of which is evidence gathering i.e. the collection of information on relevant European sites, their conservation objectives and characteristics and other plans or projects. This is followed by Screening or the identification of Likely Significant Effects.

The stages of the HRA are:

- Stage 1: Screening: the process which identifies whether effects upon European Sites of a plan or project are possible, either alone or in combination with other plans or projects and considers whether these effects are likely to be significant.
- Stage 2: Appropriate Assessment: the detailed consideration of the effect on the integrity of the European site of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function
- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plan or project that avoid adverse effects on the integrity of the European site
- Stage 4: Assessment where no alternative solutions exist and where adverse effects remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the European network.

2.2 Documents accessed and guidance followed

- Thames Basin Heaths Special Protection Area Strategy 2010-2015;
- Habitats regulations Assessment screening of Woking Borough Council's Draft core strategy policies With potential for impacts on Natura 2000 and Ramsar sites;
- Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission 2001); and
- The Appropriate Assessment (Regulation 48) The Conservation (Natural Habitats &c) Regulations, 1994 (now 2010 (as amended)), Habitats Regulation Guidance Note, HRGN1, English Nature 1997.

2.3 Process Outline

It is the purpose of the HRA screening stage to determine, on a precautionary basis, whether a plan or project has the potential to cause a likely significant effect on one or more European sites. Following the precautionary principle, the conservation objectives of a site should prevail where there is uncertainty and harmful effects are assumed in the absence of evidence to the contrary. If a likely significant effect is identified, an Appropriate Assessment is required to determine whether it can be concluded that the plan

or project alone, or in combination with other plans and projects, will not result in an adverse effect on the integrity of one or more European sites.

The HRA screening stage has been characterised in Guidance provided by the European Commission² as a four step process. These steps are:

- determining whether the project or plan is directly connected with or necessary to the management of the site;
- describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the European site;
- identifying the potential effects on the European site;
- assessing the significance of any effects on the European site.

When each of these steps has been worked through there are two potential outcomes:

- One or more likely significant effects on designated features of European sites are identified, or there is uncertainty about the absence of likely significant effects, and the project requires an Appropriate Assessment (Stage 2); or
- There is an absence of likely significant effects on designated features of European sites as there is no pathway by which such effects could occur and therefore there is no requirement for an Appropriate Assessment. This is also known as ‘screening out’ the need for further assessment.

The person applying for permission for a project must provide sufficient information to the competent authority, where there are likely significant effects on European sites; to enable the competent authority to assess whether an Appropriate Assessment is required.

Through the use of this *activity – change – effect* concept, it is possible to identify potential European sites (and their qualifying features) that may be subject to likely significant effects through the determination of a series of search parameters.

Where it is considered not possible to ‘screen out’ likely significant effects without detailed appraisal, or where mitigation is required that would not be implemented were it not for the need to protect the designated site, it is necessary to progress to the later ‘Appropriate Assessment’ stage to explore the adverse effects and devise mitigation. This stage may in some instances involve detailed data collection and analysis, and development of mitigation approaches, however, in other cases, where mitigation is already available, it may simply be a case of identifying the need to implement such mitigation. In short, the assessment detail should be ‘appropriate’ to the situation at hand.

The outcome of these steps is a series of search parameters based on potential pathways of effect that can then be used to determine both the European sites for inclusion within the HRA process, due to their physical proximity to the project site, and those linked by way of mobile fauna and associated functional habitat.

2.4 Determining Likely Significant Effects

The HRA screening process uses the threshold of likely significant effects to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the

² European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.

term likely significant effect. However, in the Waddenzee case (Case C-127/02) the European Court of Justice found that a likely significant effect exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the conservation objectives of the site concerned, whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11) further clarifies the position by noting that for a conclusion of a likely significant effect to be made *"there is no need to establish such an effect...it is merely necessary to determine that there may be such an effect"*.

Under the Habitat Regulations an effect is likely if:

- It cannot be excluded, in that it is capable of having an effect, on the basis of objective information; and
- It is likely to undermine the site's conservation objectives, after all aspects of the plan or project have been considered alone and in combination with other plans and projects.

Within the screening assessment, each potential effect is considered using information from surveys undertaken to inform the HRA process, published literature (where available), other available baseline data, modelling outputs, the project design and professional judgement (informed by CIEEM, 2018³). Where a potential effect has been identified but no likely significant effect is predicted the evidence and reason for reaching this conclusion is provided.

2.5 Appropriate Assessment

Where it is determined that a conclusion of 'no likely significant effect' cannot be drawn, the analysis has proceeded to the next stage of HRA known as Appropriate Assessment. Case law has clarified that 'appropriate assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to appropriate assessment rather than determination of likely significant effects.

By virtue of the fact that it follows the screening process, there is a clear implication that the analysis will be more detailed than undertaken at that stage. One of the key considerations during appropriate assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment would take any policies or allocations that could not be dismissed following the high-level Screening analysis and analyse the potential for an effect in more detail, with a view to concluding whether there would actually be an adverse effect on the integrity of European sites (in other words, disruption of the coherent structure and function of the European site(s) and interference with the sites ability to achieve its conservation objectives).

A decision by the European Court of Justice⁴ in 2018 concluded that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may not be taken into account by competent authorities at the Likely Significant Effects or 'screening' stage of HRA. That ruling has been taken into account in producing this HRA.

³ Chartered Institute of Ecology and Environmental Management (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

⁴ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

Also, in 2018 the Holohan ruling⁵ was handed down by the European Court of Justice. Among other provisions paragraph 39 of the ruling states that *“As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, ... typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area”* [emphasis added]. This ruling has been taken into account in the HRA process, particularly regarding the qualifying bird species of the Thames Basin Heaths SPA (e.g. nightjar, Dartford warbler, woodlark), which may nest in heathland, acid grassland and rotationally-managed conifer plantation beyond the SPA boundary.

Where necessary measures should be incorporated into a project in order to avoid or mitigate adverse effects on European sites.

⁵ Case C-461/17

3 Description of the Thames Basin Heaths SPA

The only European Site that has the potential to be significantly affected by the proposed development is the Thames Basin Heaths Special Protection Area (SPA) (site reference code UK0012793) which is located within 5km of the Duck's Nest Farm site. The SPA comprises 13 component Sites of Special Scientific Interest (SSSIs), of which the closest to the Site is Bramshill SSSI; at its nearest point, this is approximately 2.8km to the south-west of the Site.

3.1 Site Characteristics

The Thames Basin Heaths Special Protection Area (SPA) consists of 8,274ha of lowland heathland spanning 11 authorities. It predominantly comprises dry and wet heath but also includes area of deciduous woodland, gorse scrub, acid grassland and mire, as well as associated conifer plantations. Historically, these habitats were almost continuous, but they are now fragmented by roads, housing and farmland. Most importantly from a conservation perspective, this heathland complex supports important breeding bird populations, such as the ground-nesting species nightjar and woodlark and the Dartford warbler, which nests close to the ground in heather or gorse.

Around 75% of the SPA has open public access being either common land or designated as open country under the Countryside and Rights of Way Act 2000. The location of the Thames Basin Heaths amidst a highly populated area has resulted in the site being subject to high recreational pressure. Natural England published a Draft Delivery Plan for the Thames Basin Heaths SPA in May 2006, partly in response to the European Court of Justice ruling of October 2005. This was updated by the 'Thames Basin Heaths Special Protection Delivery Framework' published by the Thames Basin Heaths Joint Strategic Partnership Board in January 2009. These documents allow a strategic approach to accommodating development by providing a method through which local authorities can meet the requirements of the Habitats Regulations through avoidance and mitigation measures. The closest component parts of the Thames Basin Heaths SPA lie approx. 58m to the south of Wokingham borough (in Hart District) and approx. 158m to the south-east of Wokingham borough (in Bracknell Forest District).

Qualifying Features

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Annex I breeding species:

- European nightjar *Caprimulgus europaeus*: 7.8% of the GB population
- Dartford warbler *Sylvia undata*: 27.8% of the GB population
- Woodlark *Lullula arborea*: 9.9% of the GB population

Conservation Objectives

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features

- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Threats & Pressures to Site Integrity

The following threats and pressures to the site integrity of the Thames Basin Heaths SPA have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Undergrazing
- Forestry and woodland management
- Hydrological changes
- Inappropriate scrub control
- Invasive species
- Wildfire / arson
- Air pollution: Impact of atmospheric nitrogen deposition
- Military
- Habitat fragmentation

4 Impact Pathways

4.1 Impact Pathways Considered

The following impact pathways are considered relevant:

- Recreational pressure;
- Loss of Functionally Linked Land; and
- Air pollution

4.2 Background to Recreational Pressure

Disturbance to breeding birds

There is concern about the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfil conservation objectives while also providing recreational opportunity. This applies to any habitat, but the key qualifying features in lowland heathland are particularly vulnerable to human disturbance. An English Nature (the predecessor of Natural England) Research Report summarizes the key urban effects on heathland as habitat fragmentation, human disturbance, disturbance by animals linked to human presence (i.e. dogs and cats), increased risk of fires and trampling damage⁶. Various research reports have provided compelling links between changes in housing and access levels and impacts on European protected sites^{7,8}.

Particular concern applies to recreation effects on ground-nesting birds, with many studies concluding that more urban sites support lower densities of key species, such as stone curlew and nightjar^{9,10}. This is a direct consequence from the fact that birds are expending energy avoiding the stressor and this is time that is not spent feeding or incubating the eggs¹¹. Overall, disturbance is likely to increase energetic output while reducing energetic input, which can adversely affect the 'condition' and ultimately survival of the birds.

Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird

⁶ Underhill-Day, J. 2005. A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Reports 623. 56pp.

⁷ Liley D, Clarke R.T., Mallord J.W., Bullock J.M. 2006a. The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.

⁸ Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. 2006b. Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.

⁹ Clarke R.T., Liley D., Sharp J.M., Green R.E. 2013. Building development and roads: Implications for the distribution of stone curlews across the Brecks. PLOS ONE. doi:10.1371/journal.pone.0072984.

¹⁰ Liley D., Clarke R.T. 2003. The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. Biological Conservation 114: 219-230.

¹¹ Riddington, R. et al. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. Bird Study 43:269-279

diversity and abundance than hiking¹². Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers¹³. A UK meta-analysis suggests that important spatial (e.g. the area of a site potentially influenced) and temporal (e.g. how often or long an activity is carried out) parameters differ between recreational activities, suggesting that these are factors that should ideally be considered in ecological assessments¹⁴. In addition, displacement of birds from one feeding site to others can increase the feeding pressure on available resources, which need to sustain greater numbers of birds¹⁵. Importantly, recreational disturbance is generally higher in summer than in winter (due to more people engaging in outdoor activities) and this is also when the qualifying bird features are breeding in the SPA.

Disturbance can also arise from a much wider urbanisation effect that presents itself as a much more direct threat to survival, such as in the case of predation by dogs and cats. Dogs are often exercised off-lead and roam out of sight of their owners and have been documented to kill ground-nesting birds. Cats tend to roam freely at night, potentially hunting prey many kilometres away from their home.

Trampling damage, erosion and nutrient enrichment

Most terrestrial sites can be affected by trampling and other mechanical damage, which in turn causes soil compaction and / or erosion. Multiple research studies have experimentally shown the effects of trampling on plant community structure, often comparing several recreational activities:

Wilson & Seney¹⁶ examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.

Cole et al.¹⁷ conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses,

¹² Banks P.B., Bryant J.Y. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* 3: 14pp.

¹³ Miller S.G., Knight R.L., Miller C.K. 2001. Wildlife responses to pedestrians and dogs. 29: 124-132.

¹⁴ Weitowitz D., Panter C., Hoskin R., Liley D. The spatio-temporal footprint of key recreation activities in European protected sites. Manuscript in preparation.

¹⁵ Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

¹⁶ Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. *Mountain Research and Development* 14:77-88

¹⁷ Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* 32: 203-214, Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. *Journal of Applied Ecology* 32: 215-224

sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.

Cole¹⁸ conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year. Heavier trampers caused a greater reduction in vegetation height than lighter trampers, but there was no difference in the effect on cover.

Cole & Spildie¹⁹ experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse trampling was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance but recovered rapidly. Generally, it was shown that higher trampling intensities caused more disturbance.

In heathland sites, trampling damage can also affect the value of a site to wildlife. For example, heavy use of sandy tracks loosens and continuously disturbs sand particles, reducing the habitat's suitability for invertebrates²⁰. Species that burrow into flat surfaces such as the centres of paths, are likely to be particularly vulnerable, as the loose sediment can no longer maintain their burrow. In some instances, nature conservation bodies and local authorities resort to hardening paths to prevent further erosion. However, this is concomitant with the loss of habitat used by wildlife, such as sand lizards and burrowing invertebrates.

Prolonged or repeated excessive trampling and the resulting erosion may, over time, lead to the exposure of tree roots. It has been demonstrated that recreational trails with high usage are subject to significantly more erosion and root exposure²¹. Due to their size such root systems might not immediately appear to be sensitive to trampling damage. Indeed, a research study in 2002 showed that recreational trampling led to significant damage in the vegetation layer, particularly the beech seedlings and their fine mycorrhizal roots, but that the roots of mature trees were resilient to trampling²². However, it has also been found that tree root exposure is associated with a higher risk of infection and rot. Furthermore, while trampling may not directly damage the tree roots, it does affect the soil structure around the root zones of mature and ancient trees, which in turn determines root growth, associations with mycorrhizal

¹⁸ Cole, D.N. 1995c. Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

¹⁹ Cole, D.N., Spildie, D.R. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* 53: 61-71

²⁰ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

²¹ Leung Y.-F. & Marion J. F. (2000). Recreation impacts and management in wilderness: A state-of-knowledge review. *USDA Forest Service Proceedings* 5: 23-48.

²² Waltert B., Wiemken V., Rusterholz H.-P., Boller T. & Baur B. (2002). Disturbance of forest by trampling: Effects on mycorrhizal roots of seedlings and mature trees of *Fagus sylvatica*. *Plant and Soil* 243: 143-154.

fungi and overall tree growth. Soil compaction leads to a loss of space for air and water molecules, both of which are integral to tree health²³.

A major concern for nutrient-poor habitats (e.g. heathlands, bogs and fens) is nutrient enrichment associated with dog fouling, which has been addressed in various reviews (e.g.²⁴). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more spread out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually²⁵. While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components²⁶. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats (e.g. heathland) is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical for improved grasslands.

In the SPA the main risk of recreational pressure is a reduced breeding success of nightjar, Dartford warbler and woodlark, all of which nest on or close to the ground.

The Thames Basin Heaths SPA is a 8,274ha site in south-eastern England, an area of the country which is highly populated and where housing growth will lead to a further increase in the population of Boroughs and Districts surrounding the SPA. Recognising this as a key issue, English Nature (the predecessor of Natural England) commissioned a visitor survey in 2005 to establish a baseline level of recreational use in the SPA²⁷. This initial survey provided an estimate of approx. 5 million annual visits to the SPA, highlighting it as a recreational honeypot resource in the region. Due to the ongoing issue of housing growth in the region, and to monitor potential changes in recreational pressure within the SPA, Natural England commissioned a repeat visitor survey in 2012 / 2013, aiming as much as possible to repeat the methodology used in the 2005 survey²⁸.

4.3 Background to Loss of Functionally Linked Land

While most European sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this

²³ Natural England Site Conservation Objectives Supplementary Advice Note for the Windsor Forest & Great Park SAC. Available at: <http://publications.naturalengland.org.uk/publication/5175000009015296> [Accessed on the 14/10/2019].

²⁴ Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. 2005. Dogs, access and nature conservation. English Nature Research Report, Peterborough.

²⁵ Barnard A. 2003. Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* 11:16-19.

²⁶ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

²⁷ Liley D., Jackson D.B. & Underhill-Day J.C. (2006). Visitor Access Patterns on the Thames Basin Heaths. English Nature Research Reports, N682, Peterborough.

²⁸ Fearnley H. & Liley D. (2013). Results of the 2012/13 visitor survey on the Thames Basin Heaths Special Protection Area (SPA). Natural England Commissioned Reports, No. 136. 107pp.

is not always the case. A diverse array of qualifying species including birds, bats and amphibians are not confined to the boundary of designated sites.

For example, the highly mobile nature of both wildfowl and heathland birds implies that areas of habitat of crucial importance to the maintenance of their populations are outside the physical limits of European sites. Despite not being designated, this area is still integral to the maintenance of the structure and function of the interest feature on the designated site and, therefore, land use plans that may affect such areas should be subject to further assessment.

The Thames Basin Heaths SPA is the only European site within 10km of Wokingham Borough's boundary that supports mobile species, namely nightjar, Dartford warbler and woodlark. Their main habitat requirements are the following:

- Nightjar show a preference for bare patches or areas of very short or sparse vegetation with widely scattered trees where they are able to see predators approaching. These patches may be on open heath, in patchy scrub and in the interface between heath and woodland, as well as in clearings in woodland or plantations. Nightjars are known to forage up to 6 kilometres away from their nesting territory.
- Woodlark are strongly associated with bare ground, especially where this is adjacent to structurally diverse vegetation and short heather. They utilise scattered trees and large bushes as song-posts. Woodlark use a variety of habitats adjacent to heathland for foraging, including short grassland, stubble fields or margins of arable fields, golf courses and bare areas in quarry sites.
- Dartford warbler favour large areas of open terrain, largely free of obstructions, in and around nesting, roosting and feeding areas in lowland heathland with gorse and heather. They benefit from availability of an unobstructed line of sight within nesting, feeding or roosting to enable birds to detect approaching predators, or to ensure visibility of displaying behaviour. However, they will utilise enclosed features such as clearings in conifer plantations.

Most of these qualifying species forage in a range of different habitats, including common and widespread ones, and the focus of assessment is therefore on nesting habitat for which they have much more specific requirements.

Generally, the long-term substantial loss, degradation and fragmentation of lowland heathland habitats has been the major factor associated with the decline of nightjar and woodlark²⁹. Whilst a large portion of woodland and heathland in the area is located within the Thames Basin Heaths SPA, there are various parcels of such habitats outside the designated site boundary, all of which could provide functionally linked supporting habitat to SPA species.

The most suitable habitats for nesting nightjar and woodlark are heathland, acid grassland and rotationally-managed plantation woodland (meaning any woodland that is cropped and replanted on a regular cycle, creating clearings in which the birds can nest). Woodland that is maintained as continuous-cover forestry is generally unsuitable for nesting nightjar and woodlark, unless they incorporate a sufficient number of large, sparsely vegetated, clearings. Development that would affect areas of

²⁹ Research examples that support/explore this include: Rose, et al. 2000. Changes in heathland in Dorset, England between 1987 and 1996. *Biological Conservation*. 121: 93-105. & Langston et al. 2007. Nightjar *Carpodacus europaeus* and Woodlark *Lullula arborea* – recovering species in Britain? *Ibis*. 149: 250-260.

rotationally-managed plantation woodland, heathland or acid grassland (irrespective of whether they are part of the European sites) could potentially affect nightjar and woodlark.

Research undertaken in Breckland Forest³⁰ has shown that nightjar are most likely to use conventionally managed plantation during the first 20 years of 60 year forestry cycles, including the initial 2 year 'felled unplanted' period. Population densities are highest during the restock phase (plantation age of 0-5 years), although significant densities can also be supported during the pre-thicket (6-10 years) and thicket (11 – 20 years) stages. Woodlark most likely use conventionally managed plantation during the first seven years (including the initial 2 year felled unplanted period), particularly the restock phase (plantation age of 0-5 years).

4.4 Air Pollution

Air pollution, specifically nitrogen deposition, is highlighted within the relevant SIPs as a threat/pressure to the integrity of the Thames Basin Heaths SPA. Nitrogen deposition can affect natural habitats, impacting their function and supporting processes, including their ability to support qualifying species, particularly through acidification and eutrophication. Acidification causes a decrease in the pH of habitats due to the deposition of nitrogen oxides (NOx) through acid rain and direct uptake of pollutants, this degrades the soils and reduces species diversity. Eutrophication causes nitrogen enrichment of habitats, increasing soil fertility which can have a deleterious effect on the quality of semi-natural, nitrogen limited habitats. Growth of competitive and/or invasive species is promoted, resulting in changes to habitat composition. Air pollution is of particular concern for those habitats/units which are in unfavourable condition already.

Dwarf shrub heath found on the Thames Basin Heaths SPA is susceptible to atmospheric pollution, and has a critical load/level of 10-20 Kg N/ha/yr. Exceedance of will result in a transition from heather to grass dominance, a decline in lichen, changes in plant biochemistry and an increased sensitivity to abiotic stress³¹. These changes may affect the suitability of the habitat to support the qualifying features.

³⁰ Dolman PM & Morrison C, 2012. Temporal change in territory density and habitat quality for Breckland Forest SSSI woodlark and nightjar populations, Unpublished report for Forestry Commission and Natural England.

³¹ Air Pollution Information System (2023) Available at: <https://www.apis.ac.uk/node/974>

5 Test of Likely Significant Effects (LSEs)

5.1 Recreational Pressure

The development of up to 135 net new homes would be accompanied by an increase in the local population as well as the demand for recreational resources. Being a local and attractive destination, the Thames Basin Heaths SPA (a composite European site) would be likely to receive some of this additional recreational pressure. The SPA harbours breeding bird populations of nightjar, woodlark and Dartford warbler. All these bird species are ground-nesting (or build their nests close to the ground in gorse) and are therefore highly susceptible to recreational disturbance, particularly from dog walkers. Natural England's Site Improvement Plan highlights that the SPA is already subject to high levels of recreational use, which is likely to affect the distribution and breeding success of its Annex I bird species.

The closest component parts of the SPA lie just outside of Wokingham Borough, but are within the travel distance that residents are expected to travel. Given that proximity to home determines the likelihood of people visiting European sites, it is likely that the component parcels of the SPA closer to Wokingham Borough are more likely to be visited by residents from the authority.

Due to this Likely Significant Effects cannot be excluded, and the site is screened in for Appropriate Assessment.

5.2 Loss of Functionally Linked Land - Thames Basin Heaths SPA

The Thames Basin Heaths SPA is designated for its mobile breeding bird species, including nightjar, Dartford warbler and woodlark. These species routinely forage beyond the designated site boundary but can also nest in suitable locations (e.g. patches of heathland, acid grassland and plantation woodland) outside the SPA. The closest part of the SPA is only approx. 58m to the south of Wokingham Borough, and any of the qualifying species could use habitats in the southern part of the authority. As established above, neither nightjar nor woodlark has highly specialised prey requirements and as a result they include many common and widespread habitats in their foraging resource. In contrast, they do have highly specialised nesting requirements; suitable habitat for nesting is therefore sparse and the loss of such habitat, even outside the SPA, could affect the overall SPA population (depending on whether the land parcels are actually used for nesting). However, field survey indicates that the site does not comprise heathland, acid grassland or plantation woodland.

Therefore, it is concluded that the proposed development would not result in Likely Significant Effects on the Thames Basin Heaths SPA regarding the impact pathway loss of functionally linked land. The site is screened out from Appropriate Assessment.

5.3 Air Pollution - Thames Basin Heaths SPA

To aid in advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, Natural England produced (internal) guidance in 2018 (Natural England, 2018) which affirms the Department of Transport's Transport Analysis Guidance that, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant. This is because beyond 200m, emissions are considered to have dispersed sufficiently that atmospheric concentrations are essentially background levels. Furthermore, the rate of decline is steeply curved, i.e. concentrations will decline rapidly in the first few metres from the roadside, slackening to a more gradual decline up to the 200m limit.

The Natural England guidance uses predicted annual daily traffic flow (AADT) to predict whether any change in vehicle emissions is likely to be significant with regards to effects on National Site Network sites. Their guideline threshold is an increase, resulting from a plan or project, in excess of 1,000 AADT, seen as *“the level that equates to a change in traffic flow which might increase emissions by 1% of the critical load or level and might consequently result in an environmental effect nearby. Emissions below this level are widely considered to be imperceptible.”*³².

Within the Air Quality Assessment³³ for Duck’s Nest the assessment procedure outlined within the IAQM Nature guidance document has been used in relation to the assessment of sensitive ecological receptors. This initially comprises a screening assessment irrespective of current baseline rates to indicate whether:

- Any sensitive qualifying features are located within 200m of a road link projected to experience developmental-generated vehicle movements; and
- The Proposed Development (‘in-isolation’ for non-European sites and ‘in-combination’ with other development for European sites) is likely to generate either >1,000 AADT on a road link (and/or >200 HDVs).

The outcomes of the above determine whether impacts associated with the Proposed Development could result in a ‘likely significant effect’ on the assessed ecological feature, providing the location of the screened ecological receptor can be validated. If the above conditions are not met, then impacts on ecological designations are likely to be imperceptible, whereby resultant effects can be classed as ‘insignificant’. It should be acknowledged, however, that an exceedance of the criteria above does not, of itself, imply damage to a habitat, but rather further assessment and input from an ecologist is required to identify any potential adverse effects.

The Thames Basin Heath SPA is located approximately 3km to the south of the Site at its closest point. Based on the available road traffic data, as informed by SLR Transport and Mobility Planning, small sections of the SPA are located within 200m of roads where operational phase trip generation could occur such as the A322, A30, A327 and the M3, and several other B-roads, which may serve new residents of the development.

Longmoor Bog, Bramshill, Castle Bottom to Yateley and Hawley Commons SSSIs, Longmoor Bog LNR, and various Ancient Woodland are also located within 200m of roads where operational phase trip generation could occur.

As the maximum trip-generation on the assessed road network associated with operation of the Proposed Development falls below the aforementioned screening criteria, the potential effects of the Proposed Development on the conservation sites are considered to be not significant.

Although no significant impacts are anticipated as a result of the development alone, consideration is given to the potential for the development to contribute toward an in-combination effect of increased traffic and any associated impacts on air quality. The Air Quality Assessment³⁴ concluded that the cumulative trips assessed were 1,248 trips of which the Proposed Development would contribute 59 trips.

³²Natural England (2018). Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (internal guidance)

³³ SLR (2024) Ducks Nest Farm Air Quality Assessment.

³⁴ SLR (2024) Ducks Nest Farm Air Quality Assessment.

Due to this Likely Significant Effects cannot be excluded, and the site is screened in for Appropriate Assessment.

5.4 Summary of Screening Outcomes

The screening exercise undertaken to inform this HRA has concluded that no likely significant effects will occur as a result of the development alone or in combination with other plans and projects through the Loss of Functionally Linked Land.

It is likely that significant effects would remain as a result of the development in combination with other plans and projects through Recreational pressure and air pollution.

Therefore, further Appropriate Assessment is required and this is considered below.

6 Appropriate Assessment

6.1 Recreational Pressure

The Thames Basin Heaths SPA is a composite site formed of remnant parcels of lowland heath across Surrey, Berkshire and Hampshire. The qualifying features forming the basis of the SPA designation are three bird species; the nightjar, woodlark and Dartford warbler. Published research has shown that a significant proportion of recreational visitors to the SPA arrive from within 5km. Further published research has demonstrated a clear link between recreational pressures (particularly though not limited to dog walking) and reduced reproductive success of bird species which form qualifying features for the SPA.

Proposals involving a net increase of one or more dwellings within a 400m-5km radius of the SPA are therefore required to implement avoidance and mitigation measures. The 13 Local Planning Authorities surrounding the SPA, together with the South East England Partnership Board and Natural England, established the Thames Basin Heaths Joint Strategic Partnership (JSP). In 2009 the JSP agreed a Delivery Framework to enable the development of housing in the vicinity of the SPA without resulting in adverse effects on the integrity of the SPA. The Delivery Framework sets out an approach based on the implementation of avoidance and mitigation measures:

- The provision of Suitable Alternative Natural Greenspace (SANG)
- Strategic Access Management and Monitoring (SAMM) for the SPA itself, funded by development

Wokingham Borough Council's Core Strategy sets out the key elements of the vision for the development of the borough until March 2026. Policy CP8 Thames Basin Heaths Special Protection Area states that no additional residential development will be permitted within 400m of the SPA boundary, and *"residential proposals involving increases of one or more net additional dwelling within 5km (linear) of the SPA will need to be assessed for whether there is likely to be significant impacts. This distance covers 70% of all visitors. Furthermore, within the area from which 80% of visitors come (equates to 7km linear), the Appropriate Assessment recognises that proposals of 50 dwellings or more dwellings will need to be assessed for whether they are likely to generate significant impacts"*. Policy CP8 further notes that SANG is *"to be provided and maintained in perpetuity in line with the quality and quantity standards advocated by Natural England"*.

Developers should provide or contribute to SANG at a standard of at least 8ha per 1000 residents and the purpose of SANG is to provide new alternative natural greenspaces which are attractive to new and existing residents for recreational activities such as dog walking, thereby alleviating pressure on the SPA sites.

The SANG will provide an attractive alternative natural and semi-natural environment, adjacent to proposed new homes at the site and in close proximity to the existing population of Arborfield Cross and Arborfield Garrison. Careful design would ensure that the SANG would integrate well into the surrounding countryside. Designed as a predominantly natural environment, with limited physical infrastructure, the SANG will distinguish itself from typical amenity open space through the provision of varied habitat types, informal access and the provision of areas designated for dog walkers to allow suitable and controlled off-lead access.

In the case of the site, the creation of the c. 12.8ha SANG at the Site is proposed to meet this requirement to accommodate the required length of path and to ensure that the various quality criteria are met resulting in a greater area than that required by just the capacity assessment alone.

The design of the SANG takes account of the site quality checklist for the creation of a SANG which was produced by DEFRA and agreed by Natural England in 2021 as follows:

Table 1 - Review of suitability based on Guidelines for the Creation of SANG

SANG Quality Criteria	Baseline Situation	Comments on Deliverability
For all sites larger than 4ha there must be adequate parking for visitors, unless the site is intended for local use, i.e. within easy walking distance of the developments linked to it. The amount of car parking should be determined by the anticipated use of the site and reflect the visitor catchment of both the SANGS and the SPA.	There are no existing parking facilities.	The site is primarily intended for local use, but as a benefit of the scheme, access to a surfaced carpark 250 x 250m (500m ²) has been proposed from an internal road within site. Should the residual capacity be used by development at a future date the car park would already be in place.
It should be possible to complete a circular walk of 2.3 – 2.5 km around the SANG.	Public access is currently available along Footpath ARBO 17 only, at the western edge of the site.	A new circular route of 2.66km has been proposed with a loop which is accessible to all (hoggin path or similar) and a second with more challenging slopes (mown paths). This connects to Footpath ARBO 17. The primary accessible route is 2.05km and the secondary challenging route is 1.67km overall (including links through the primary route).
Car parks must be easily and safely accessible by car and should be clearly sign posted.	Not applicable.	Access proposed from internal road within site with a surfaced carpark 250 x 250m (500m ²). The entrance can be easily signposted and the details of such should be agreed with the Highways Authority and secured by condition.
The accessibility of the site must include access points appropriate for the particular visitor use the SANGS is intended to cater for.		
The SANGS must have a safe route of access on foot from the nearest car park and/or footpaths.	Not applicable.	Safe access paths are proposed direct from the car park, through a mobility kissing gate, directly onto the SANG's circular walk, which could start and finish at the car park.
All SANGS with car parks must have a circular walk which starts and finishes at the car park.		

		Dog proof fencing around the car park and SANG would allow dogs to be safely exercised off-lead directly from the car park which is a desirable criteria.
SANGS must be designed so that they are perceived to be safe by users: they must not have tree and scrub covering parts of the walking routes.	The area identified for the SANG is currently open fields with two no. existing trees and a short length of hedgerow. Existing woodland and woodland belts are present on the edges of the SANG.	New, mixed native woodland and woodland edge has been proposed along the boundaries of the site adjacent to the A327 (Observer Way) to shelter the SANG area from the road and to provide new green infrastructure links. Additional mixed native woodland and woodland edge has been proposed alongside existing areas of woodland to reinforce and enhance existing vegetation. Small, mixed, native woodland copses and scattered trees have been proposed between lengths of path to create variety, but the heart of the proposed SANG remains open with wildflower meadow and long sightlines across the site to the wider countryside from the highest point of the landform.
Paths must be easily used and well-maintained but most should remain unsurfaced to avoid the site becoming urban in feel.	The existing Footpath ARBO 17 is a grass track.	Accessible paths have been proposed as hoggins, a material which would naturalise over time, but would ensure accessibility to all across the SANG. The more challenging secondary route would be formed of mown paths.
SANGS must be perceived as semi-natural spaces with little intrusion of artificial structures except in the immediate vicinity of car parks. Visually sensitive way-markers and some benches are acceptable.	Whilst the Site comprises open agricultural fields there is a degree of influence from residential and commercial uses to the north and east and from the road infrastructure and traffic associated with the A327 (Observer Way).	The introduction of species-rich and wildflower meadow will create a more natural feel to the existing fields. As will in implementation of native shrub planting, woodland copse and scattered broad-leaved trees.

		Woodland and woodland edge planting along the boundaries of the Site with the A327 (Observer Way) will screen views of road infrastructure and traffic removing the greatest detractor.
All SANGS larger than 12ha must aim to provide a variety of habitats for users to experience.	The Site currently comprises rough grassland with broad-leaved woodland along some boundaries, two broad-leaved trees and a remnant length of hedgerow.	Native planting proposed within the SANG would create a variety of habitats including woodland and woodland edge, mixed native shrubs, wildflower meadow, wet grassland and marginal / aquatic planting associated with the proposed ponds.
Access within the SANGS must be largely unrestricted with plenty of space provided where it is possible for dogs to exercise freely and safely off lead.	Current access along Footpath ARBO 17 is unfenced and dogs should be kept on leads.	The SANG would be fenced with timber post and rail with dog-proof mesh to ensure dogs can be exercised off-lead freely.
SANGS must be free from unpleasant intrusions (e.g. sewage treatment works smells, etc.).	There is some noise and visual intrusion from the A327 (Observer Way).	Proposed woodland and woodland edge planting along the Site's boundaries with the A327 (Observer Way) would screen the road and associated traffic creating a buffer and providing a greater sense of enclosure and tranquillity.
SANGS should be clearly sign-posted or advertised in some way.	Not applicable.	Signage and interpretation boards are proposed for the Site to advise users of the walking route and the features of the Site, including information about site ecology. Bespoke leaflets will be created and provided to new occupants of the proposed residential area advertising the facility. The SANG will be added to the list of sites on the Council website and the developer will make the best endeavours to locally advertise the Site to the wider community, to promote use of and educate the public regarding the SANG.
SANG should have leaflets and/or websites advertising their location to potential users. It would be desirable for social media to be used as well, with the goal of reducing paper use. Although a leaflet for a new home is desirable. It could advertise the TBH Partnership website at https://www.tbhpartnership.org.uk/greenspace		

It would be desirable for an owner to be able to take dogs from the car park to the SANGS safely off the lead.	Not applicable.	The location of the carpark is accessed from an internal road within the proposed residential area. The entire area of the SANG is enclosed with dog-proof fencing to ensure dogs would be able to be exercised off lead directly from the carpark.
Where possible it is desirable to choose sites with a gently undulating topography for SANGS.	The topography of the site and its context is gently undulating with the site varying in elevation from a high point along a ridgeline at approximately 80m AOD, along PROW ARBO 17, to 65m AOD.	The varied topography of the Site adds interest for visitors by creating views over the surrounding landscape.
It is desirable for access points to have signage outlining the layout of the SANGS and the routes available to visitors.	Not applicable.	The proposals include for extensive signage strategy to provide wayfinding around the Site and interpretation boards can outline the various routes available, including a map of the Site.
It is desirable that SANG provide a naturalistic space with areas of open (non-wooded) countryside and areas of dense and scattered trees and shrubs. The provision of open water is encouraged and desirable on sites. However large areas of open water cannot count towards capacity.	The existing site is formed of open agricultural fields with rough grassland, limited individual trees, a section of remnant hedgerow and woodland along some boundaries.	Proposed planting of woodland and woodland edge, mixed native shrubs, wildflower meadow, wet grassland and marginal / aquatic planting associated with the proposed ponds would create a naturalistic space with areas of open water.
Where possible it is desirable to have a focal point such as a view point, monument etc. within the SANGS.	Not applicable.	Both the high points at the western end of the Site and the proposed dog and ecological ponds create focal points along the circular routes, with carefully positioned benches to provide contemplation of the view.

Further detail of the design is provided in the SANG Delivery and Management Plan and associated documents listed in Section 1 of this report.

It is clear that the proposed SANG would be in accordance with, or exceed, the requirements set out in the site quality checklist and on that basis the potential for recreational pressure on the Thames Basin Heaths SPA would be mitigated.

6.2 Air Pollution

The Wokingham Borough Local Plan HRA³⁵ concludes that the Local Plan will not have an adverse effect on the integrity of any Habitats sites, either alone or in combination with other plans or projects.

The Air Quality Assessment³⁶ concludes that in-isolation, operational trips generated by the Proposed Development are found to be below the relevant IAQM screening criteria (for non-European sites, i.e. SSSIs, LNRs and AWs). As such, a more detailed assessment for non-European sites is not required and road traffic impacts associated with the operation of the Proposed Development will result in 'no likely significant effect' on non-European sites.

However, operational trips generated by the Proposed Development 'in-combination' are found to be above the relevant IAQM screening criteria (for European sites). The A327 (south of Bramshill Road) is expected to witness a total of 1,248 AADT flows 'in-combination' with other committed developments and projects/plans of which the Proposed Development would contribute 59 trips.

The Wokingham Borough Local Plan HRA³⁷ notes that *"The nature and distribution of habitat, in other words the ecological context, is particularly relevant to interpreting effects on the integrity of Thames Basin Heaths SPA because this site is designated for breeding nightjar, woodlark, and Dartford warbler rather than for its vegetation or habitats. Nightjar and woodlark will nest in rotationally managed commercial forestry but not in mature permanent woodland and, in this SPA, they nest primarily in areas of heathland. This is relevant because much roadside habitat within this SPA constitutes permanent woodland"*.

Further to this Paragraph 6.46 of the HRA³⁸, notes that on transects where forecast nitrogen exceeded the threshold, there was no heathland habitat (the habitat that supports the designated species) where nitrogen exceeded the threshold, and instead there was only woodland.

On this basis, it is concluded that, as the roadside habitat along the A327 (south of Bramshill Road) comprises woodland, and there is no heathland to impact, that there would be no significant effect as a result of air pollution either in isolation or in-combination.

³⁵ AECOM (September 2024). Wokingham Local Plan Update, Regulation 19 HRA, Wokingham Borough Council.

³⁶ SLR (2024) Ducks Nest Farm Air Quality Assessment.

³⁷ AECOM (September 2024). Wokingham Local Plan Update, Regulation 19 HRA, Wokingham Borough Council.

³⁸ AECOM (September 2024). Wokingham Local Plan Update, Regulation 19 HRA, Wokingham Borough Council.

7 Conclusion

This report has been able to determine that, as a result of the proposed development on land at Duck's Nest, Arborfield, in relation to recreational pressure and loss of functionally linked land there will be no likely significant effect on the Thames Basin Heaths SPA either as a result of the project alone, or in combination with any other plans or projects. It is also concluded that, as the roadside habitat along the A327 (south of Bramshill Road) comprises woodland, and there is no heathland to impact, there would be no significant effect as a result of air pollution either in isolation or in-combination.

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