

Wimborne St Giles Neighbourhood Plan

Report to Inform Habitats Regulations Assessment

Knowlton Parish Council

April 2024, updated July 2024

Quality information

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1. Introduction

- 1.1 AECOM was appointed by Knowlton Parish Council to undertake a report to inform the Habitats Regulations Assessment (HRA) of the Wimborne St Giles Neighbourhood Plan (WSGNP). This is to inform Dorset Council, in their role as Competent Authority, of the potential effects of Neighbourhood Plan (NP) development on European sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs, and Ramsar sites designated under the Ramsar convention), and how they are being, or should be, addressed in policies of the draft WSGNP.
- 1.2 Wimborne St Giles is a parish that is very rural in character, the major enterprise being agriculture and various forms of rural husbandry. Much of the surrounding countryside is valued by locals and visitors, being situated in the Cranborne Chase Area of Outstanding Natural Beauty (AONB), for both its environmental and historical assets. Notably, the area covered by the WSGNP does not fully align with the civil parish boundary of Wimborne St Giles but includes a small portion of the adjoining parishes of Gussage All Saints, and Woodlands and Edmondsham (upon consent being granted by the relevant Parish Councils).
- 1.3 The WSGNP for the period between 2021 and 2036) provides the framework that the overarching Local Planning Authority (LPA) Dorset Council will use (in addition to the emerging, higher-tier Dorset Local Plan) when determining planning proposals within the parish. The primary goal of the WSGNP is to ensure that residents of all ages and backgrounds continue to be able to remain in the area and village facilities are safeguarded.
- 1.4 At the time of writing the draft NP, the overarching strategic planning framework was provided in the East Dorset and Christchurch Local Plan (Part 1: Core Strategy). The Core Strategy sets out the broad location, scale and distribution of development in its geographic area, identifying Wimborne St Giles as a village with limited permitted development to support the role of the settlement in sustaining its resident community. It is to be noted that the former council areas of West Dorset, Weymouth and Portland, Purbeck, North Dorset, East Dorset and Christchurch, and Swanage have now been amalgamated into Dorset Council. Consultation on a new Local Plan for Dorset ended in March 2021, with a view for adoption by spring 2027¹. No housing or employment sites in Wimborne St Giles Parish were allocated in the adopted Core Strategy or emerging Local Plan. This means that the growth included in the WSGNP is additional to that which would have been assessed in the HRAs accompanying the two overarching strategic frameworks.
- 1.5 For informing this HRA, policies contained within the adopted East Dorset and Christchurch Core Strategy, and the emerging Dorset Local Plan have been considered. All development proposals brought forward in NPs must meet the policy requirements set out in higher-tier planning frameworks, which therefore provide important context to HRA. At the same time, not all mitigation measures must be explicitly 'repeated' in NP policy wording (except where such need is identified).

¹ <https://www.dorsetcouncil.gov.uk/documents/35024/282495/Dorset+Council+Local+Development+Scheme+-+March+2024.pdf/fa883252-bf8b-d9ee-d193-4617353b0821>

- 1.6 The objective of this report is to identify if any policies and / or sites proposed for allocation in the WSGNP have the potential to cause Likely Significant Effects (LSEs) and, where identified, adverse effects on the integrity of European sites, either in isolation or in-combination with other plans and projects, and to determine whether site-specific or policy mitigation measures are required.

Legislative Context

- 1.7 The United Kingdom (UK) left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (“the Withdrawal Act”). The Withdrawal Act retains the body of existing EU-derived law within our domestic law. The most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – make it clear that the need for HRA continues post-Brexit.
- 1.8 The HRA process applies the ‘Precautionary Principle’² to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the European site(s) in question. Plans and projects with predicted adverse impacts on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 1.9 The need for Appropriate Assessment (AA, Figure 1) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended).

Conservation of Habitats and Species Regulations 2017 (As Amended)

With specific reference to Neighbourhood Plans, Regulation 106(1) states that:

“A qualifying body which submits a proposal for a neighbourhood development plan must provide such information as the competent authority [the Local Planning Authority] may reasonably require for the purpose of the assessment under regulation 105... [which sets out the formal process for determination of ‘likely significant effects’ and the appropriate assessment].”

Figure 1: The legislative basis for Appropriate Assessment.

- 1.10 Therefore, it is important to note that this report has two purposes:

- To assist the Qualifying Body (Knowlton Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect European sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
- On behalf of the Qualifying Body, to assist the Local Planning Authority (Dorset Council) to discharge their duty under Regulation 105 (in their role as ‘plan-making authority’ within the meaning of that regulation) and

² The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: “When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis”.

Regulation 106 (in their role as ‘competent authority’) and reach the formal HRA decision.

- 1.11 As Competent Authority, the legal responsibility for ensuring that a decision of LSEs is made, an AA (where required) is undertaken, and Natural England are consulted, falls on the Local Planning Authority. However, they are entitled to request from the Qualifying Body the necessary information on which to base their judgment and that is the key purpose of this report.
- 1.12 Over the years, the term HRA has come into wide currency to describe the overall process set out in the Habitats Regulations, from LSEs screening through to identification of IROPI. This has been established to distinguish the overall process from the individual stage of AA. Throughout this report the term HRA is used for the overall process and the use of AA is restricted to the specific stage of that name.
- 1.13 In spring 2018 the ‘Sweetman’ European Court of Justice ruling³ clarified that ‘mitigation’ (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a European site that would otherwise arise) should **not** be taken into account when forming a view on LSEs. Mitigation should instead only be considered at the AA stage. This HRA has been cognisant of that ruling.

Scope of the HRA

- 1.14 There are no standard criteria for determining the ultimate physical scope of an HRA of a Plan document. Therefore, in determining the physical scope of the assessment, we were guided primarily by the identified impact pathways (called the source-pathway-receptor model) rather than by arbitrary ‘zones’. Current guidance suggests that the following European sites should be included in the scope of assessment:
- All sites within the boundary of Wimborne St Giles; and,
 - Other sites shown to be linked to development within the parish boundary through a known impact ‘pathway’ (discussed below).
- 1.15 Briefly defined, impact pathways are routes by which the implementation of a policy within a Neighbourhood Plan document can lead to an effect upon a European site. An example of this would be new residential development resulting in an increased local population and, therefore, increased demand for recreational spaces. This may increase recreational pressure in designated sites, which could then result in significant disturbance to wintering or breeding birds.
- 1.16 Guidance from the Ministry of Housing, Communities and Local Government (MHCLG) states that the HRA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (MHCLG, 2006, p.6). More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that proposed mitigation could be ‘achieved in practice’ to satisfy that the proposed development would have no adverse effect, then this would suffice. In this case the High Court ruled that for ‘*a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in*

³ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Reg 61 of the Habitats Regulations.'

The Layout of this Report

1.17 **Chapter 2** of this report explains the methodology by which this HRA has been carried out, including the three essential tasks that form part of HRA. **Chapter 3** provides details of the relevant European sites, including Conservation Objectives and current pressures and threats. **Chapter 4** provides detailed background on the main impact pathways identified in relation to the WSGNP and the relevant European sites. **Chapter 5** undertakes the screening assessment of LSEs of the Plan policies and sites potentially proposed for allocation. The AA is undertaken in **Chapter 6**. The conclusions and recommendations arising from the HRA process are provided in **Chapter 7**.

Quality Assurance

1.18 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015 and 14001:2015, ISO 44001:2017 and ISO 45001:2018. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.19 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2017).

2. Methodology

Introduction to HRA Methodology

- 2.1 The HRA will be carried out with reference to the general EC guidance on HRA⁴ and that of the UK government⁵.
- 2.2 Figure 2 below outlines the stages of HRA. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the Plan until no significant adverse effects remain.

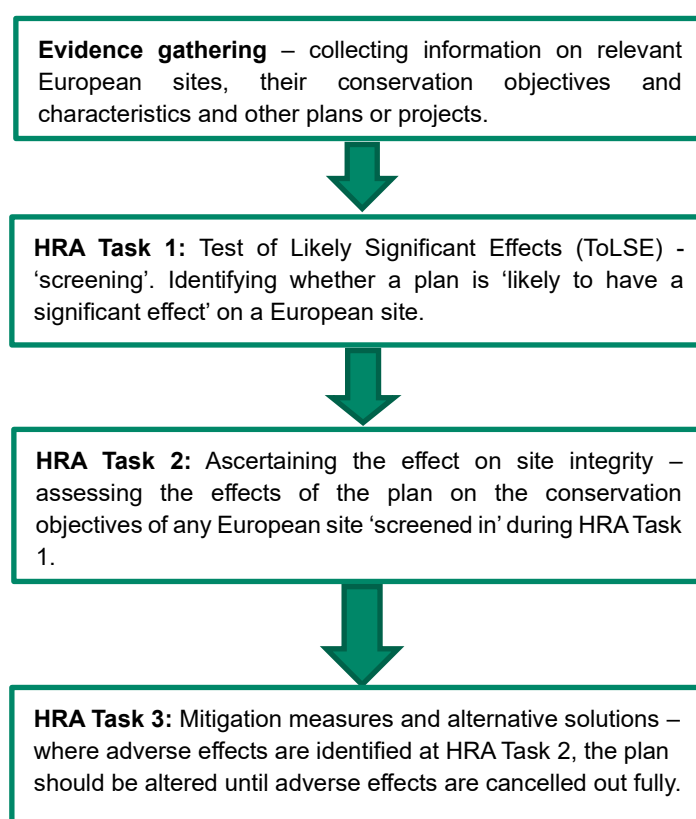


Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2011.

Description of HRA Tasks

HRA Task 1 – Likely Significant Effects (LSEs) Screening

- 2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a LSEs screening - essentially a brief, high-level assessment to decide whether the full subsequent stage known as AA is required. The essential question is:

⁴ 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.

⁵ <https://www.gov.uk/guidance/appropriate-assessment>

“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?”

- 2.4 The objective is to ‘screen out’ those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction.
- 2.5 The LSEs screening is based on identification of the impact source, its pathway to receptors and an appraisal of the specific European site receptors. These are normally designated features but also include habitats and species fundamental for designated features to achieve favourable conservation status (notably functionally linked habitats outside the European site boundary).
- 2.6 In the Waddenzee case⁶, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:
- An effect should be considered ‘likely’, “if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site” (para 44);
 - An effect should be considered ‘significant’, “if it undermines the conservation objectives” (para 48); and
 - Where a plan or project has an effect on a site “but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned” (para 47).
- 2.7 The LSEs screening consists of two parts: Firstly, it should determine whether there are any policies that could result in negative impact pathways and secondly it establishes whether there are any European sites that might be affected. It identifies European sites that are most likely to be impacted by the Plan and the impact pathways that are most likely to require consideration.
- 2.8 It is important to note that LSEs screening must generally follow the precautionary principle as its main purpose is to determine whether the subsequent stage of AA (i.e., a more detailed investigation) is required.

HRA Task 2 – Appropriate Assessment

- 2.9 Where it is determined that a conclusion of ‘no LSEs’ cannot be drawn, the analysis must proceed to the next stage of HRA known as AA. Case law has clarified that AA 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 AA rather than the screening process. AA refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (coherence of structure and function) of European Sites in light of their Conservation Objectives.
- 2.10 By virtue of the fact that it follows LSEs screening, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during AA is whether there is available mitigation that would entirely address the potential effect. In practice, the AA would take any policies or proposed sites that could not be dismissed following the high-level

⁶ Case C-127/02

screening analysis and evaluate the potential for an effect in more detail, with a view to concluding whether there would be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the European site(s)).

- 2.11 In 2018 the Holohan ruling⁷ handed down by the European Court of Justice included among other provisions paragraph 39 of the ruling stating 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].
- 2.12 In evaluating significance, AECOM will rely on professional judgement as well as the results of bespoke studies, supported by appropriate evidence/data, and previous stakeholder consultation regarding the impacts of development on the European sites considered within this assessment.

HRA Task 3 – Mitigation

- 2.13 Where necessary, measures will be recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on European sites. For example, there is considerable precedent, both nationally and locally, concerning the level of detail that a Plan document needs to contain regarding mitigation for recreational impacts on European sites. The implication of this precedent is that it is not necessary for all measures that will be deployed to be fully developed prior to adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.
- 2.14 When discussing ‘mitigation’ for a NP document, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves since the NP document is a higher level policy document.

Geographical Scope of the HRA

- 2.15 There are no standard criteria for determining the ultimate physical scope of an HRA. Rather, the source-pathway-receptor model should be used to determine whether there is any potential pathway connecting development to any European sites.
- 2.16 In the case of the WSGNP, an area extending to 10km from the Parish boundary was selected in which European sites were identified. European sites with hydrological sensitivities were also considered. A search radius of 10km has been used for this analysis on the basis that any potential for aquatic pollution effects at greater distances is likely to be negligible due to dilution factors.

⁷ Case C-461/17

Confirming Other Plans and Projects That May Act ‘In Combination’

- 2.17 It is a requirement of the Regulations that the impacts of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question.
- 2.18 In considering the potential for combined regional housing development to impact on European sites the primary consideration is the impact of visitor numbers – i.e., recreational pressure and urbanisation.
- 2.19 When undertaking this part of the assessment it is essential to bear in mind the principal intention behind the legislation i.e., to ensure that those projects or plans (which in themselves may have minor impacts) are not simply dismissed on that basis but are evaluated for any cumulative contribution they may make to an overall significant effect. In practice, in combination assessment is therefore of greatest relevance when the plan or policy would otherwise be screened out because its individual contribution is inconsequential.
- 2.20 The following plans are considered to have the potential to act in-combination with the WSGNP:
- Christchurch and East Dorset Local Plan Part 1 – Core Strategy (adopted April 2014)⁸; and
 - South West Water & Bournemouth Water Resources Management Plan 2019 (adopted August 2019)⁹
- 2.21 It should be noted that, while the broad potential impacts of these other projects and plans has been considered, this assessment does not undertake full HRA on each of these plans. Instead, existing HRAs that have been carried out for surrounding authorities and plans were drawn upon.
- 2.22 Within this document, each site proposed for potential allocation and policy within the NP is subjected to HRA screening (both included in Table 5). LSEs are then scrutinised in more detail in the main body of the report and where necessary an AA is undertaken.

⁸ Available at:

<https://www.dorsetcouncil.gov.uk/documents/35024/290487/Christchurch+and+East+Dorset+Adopted+Core+Strategy.pdf/9ce14f8d-e447-fed2-c665-f50b37748ca5> [Accessed on the 23/01/2023]

⁹ Available at: https://www.southwestwater.co.uk/siteassets/document-repository/environment/sww-bw-wrmp19---finalplan_aug2019.pdf [Accessed on the 23/01/2023]

3. European Sites

3.1 In the case of the WSGNP, it has been determined that the European sites identified in Table 1 require consideration. The locations of these European sites in relation to the WSGNP boundary are shown in Appendix A.

Table 1: European sites for consideration and their location in relation to Wimborne St Giles Parish boundary.

European site	Approx. distance to Wimborne St Giles Parish
Dorset Heathlands SPA / Ramsar	495m to Verwood Heaths SSSI
Dorset Heaths SAC	1.1km to Horton Common SSSI
Avon Valley SPA / Ramsar	6.6km
River Avon SAC	6.6km
New Forest SPA / Ramsar The New Forest SAC	8.6km
Prescombe Down SAC	6.4km
Fontmell & Melbury Downs SAC	9.3km
Great Yews SAC	9.9km

3.2 This was based upon a search of surrounding European sites and the vulnerabilities of their designated features. All the above sites were subjected to the initial screening exercise. It should be noted that the presence of a conceivable pathway linking the parish to a European site does not mean that LSEs will occur. The reason for designation, Conservation Objectives and environmental vulnerabilities of the European sites are detailed below.

Dorset Heathlands SPA

Introduction

3.3 The Dorset Heathlands SPA lies within the Dorset Heaths Natural Character Area, covering an extensive and one of the best developed heathland complex in the UK. The site encompasses transitions between a range of habitats, including dry heath, wet heath and acid mire habitats, as well as a range of associated habitats (e.g. acid grassland, fen-meadow and bog woodland).

3.4 A range of qualifying bird species are supported by the SPA, including Dartford warbler, nightjar, woodlark (all breeding species), hen harrier and merlin (both overwintering species). Disturbance by human activity, especially in proximity to the conurbations of Poole and Bournemouth, has been a long-standing issue in the SPA, with particular significance for ground-nesting woodlark, nightjar and Dartford warbler (the latter primarily nesting low in gorse bushes). Frequent human disturbance can lead to changes in bird behaviour, including increased

energy expenditure, reduced chick provisioning and abandonment of preferred feeding areas / nests.

Qualifying Features¹⁰

3.5 Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1):

During the breeding season the SPA regularly supports

- Dartford warbler *Sylvia undata*
- Nightjar *Caprimulgus europaeus*
- Woodlark *Lullula arborea*

During the non-breeding season the SPA regularly supports

- Hen harrier *Circus cyaneus*
- Merlin *Falco columbianus*

Conservation Objectives¹¹

3.6 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;

3.7 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 Integrity¹²

3.8 The following threats and pressures to the integrity of the Dorset Heathlands SPA are specified in Natural England's Site Improvement Plan (SIP):

- Inappropriate scrub control
- Public access / disturbance
- Undergrazing
- Forestry and woodland management

¹⁰ Available at: <http://publications.naturalengland.org.uk/publication/5808199001178112> [Accessed on the 09/01/2023]

¹¹ Ibid

¹² Available at: <http://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed on the 09/01/2023]

- Drainage
- Water pollution
- Invasive species
- Habitat fragmentation
- Conflicting conservation objectives
- Wildfire / arson
- Air pollution: Impact of atmospheric nitrogen deposition
- Deer

Dorset Heathlands Ramsar

Introduction

3.9 The Dorset Heathlands Ramsar is an extensive and fragmented site, which is centred around the estuary of Poole Harbour and near the growth centres of Bournemouth and Poole. Among the habitats within the site are several examples of wet heath and acid valley mire, generally restricted to the Atlantic fringe of Europe. Transitions to coastal wetland and fen are also found. The wetland flora and fauna includes a diverse array of nationally rare and scarce species (e.g. invertebrates).

3.10 The high degree of fragmentation within the site is largely due to historic losses of heathland, estimated at 75% during the 20th century, due to development, agriculture and afforestation. Generally, areas of wet heath are concentrated in areas of impeded drainage and less steeply-sloping ground.

Qualifying Features¹³

3.11 The site is designated as a Ramsar under the following criteria:

Ramsar criterion 1

Contains particularly good examples of (i) northern Atlantic wet heaths with cross-leaved heath *Erica tetralix* and (ii) acid mire with *Rhynchosporion*.

Contains largest example in Britain of southern Atlantic wet heaths with Dorset heath *Erica ciliaris* and cross-leaved heath *Erica tetralix*.

Ramsar criterion 2

Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species.

Ramsar criterion 3

Has a high species richness and high ecological diversity of wetland habitat types and transitions, and lies in one of the most biologically-rich wetland areas of

¹³ Available at: <https://jncc.gov.uk/jncc-assets/RIS/UK11021.pdf> [Accessed on the 09/01/2023]

lowland Britain, being continuous with three other Ramsar sites: Poole Harbour, Avon Valley and The New Forest.

Threats and Pressures¹⁴

3.12 Natural England does not publish SIPs for Ramsars, but past and present factors affecting the ecological character of the site are listed in the Information Sheet on Ramsar wetlands:

- Acid rain
- Aquatic pollution – unspecified

Dorset Heaths SAC

Introduction

3.13 The Dorset Heaths SAC is a 5,719.54ha large site that comprises a range of habitats, including heath / scrub (86%), bogs / marshes (8%), inland water bodies (1%), dry grassland / steppes (1%), humid grassland (1%), broad-leaved deciduous woodland (1%), coniferous woodland (1%) and mixed woodland (1%). The site is important in sustaining and range of rare / scarce habitats and species.

3.14 Dry heath habitat typically occurs on infertile soils and is dominated by heather *Calluna vulgaris*, bell heather *Erica cinerea*, gorse *Ulex europaeus*, dwarf gorse *U. minor* and western gorse *U. gallii*. While the floral diversity in these habitats is not high, nationally scarce plants may occur, including mossy stonecrop *Crassula tillaea* and bilberry *Vaccinium myrtillus*. The dry heathland mosaic supports important and diverse faunal assemblages, such as grasshoppers (Orthoptera), bees and wasps (Hymenoptera), spiders (Arachnida) and all six British native reptile species.

3.15 Wet heaths develop over areas of less permeable soils and on gentler sloping ground (e.g. valley bottoms). These are dominated by cross-leaved heath *Erica tetralix*, heather *Calluna vulgaris*, purple moor-grass *Molinia* spp. and the bog-moss *Sphagnum compactum*. Furthermore, Dorset heath *Erica ciliaris* here has its principal location in the UK, often occurring in abundance. Wet heath often grades into acid mire communities (*Rhynchosporion* associated with depressions on peat).

3.16 Acid mire communities within the SAC support small pockets of wet woodland (e.g. downy birch *Betula pubescens*, greater tussock sedge *Carex paniculate* and purple moor-grass *Molinia* spp). Heathland wetlands support a range of invertebrate species, such as red damselfly *Ceriagrion tenellum*, southern damselfly *Coenagrion mercuriale*, large marsh grasshopper *Stethophyma grossum* and great-crested newt *Triturus cristatus*.

Qualifying Features¹⁵

3.17 Annex I habitats that are a primary reason for selection of this site:

¹⁴ Ibid

¹⁵ Available at: <https://sac.incc.gov.uk/site/UK0019857> [Accessed on the 09/01/2023]

- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Depressions on peat substrates of the *Rhynchosporion*

3.18 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*)
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (* priority feature)
- Alkaline fens
- Old acidophilous oak woods with *Quercus robur* on sandy plains

3.19 Annex II species that are a primary reason for selection of this site:

- Southern damselfly *Coenagrion mercuriale*

3.20 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Great-crested newt *Triturus cristatus*

Conservation Objectives¹⁶

3.21 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.22 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

¹⁶ Available at: <http://publications.naturalengland.org.uk/publication/5711678738006016> [Accessed on the 09/01/2023]

Threats / Pressures to Site Integrity¹⁷

3.23 The following threats and pressures to the integrity of the Dorset Heaths SAC are specified in Natural England's Site Improvement Plan (SIP):

- Inappropriate scrub control
- Public access / disturbance
- Undergrazing
- Forestry and woodland management
- Drainage
- Water pollution
- Invasive species
- Habitat fragmentation
- Conflicting conservation objectives
- Wildfire / arson
- Air pollution: Impact of atmospheric nitrogen deposition
- Deer

Avon Valley SPA

Introduction

3.24 The Avon Valley SPA stretches on a north-south axis along the border between Dorset and Hampshire, largely encompassing the lower reaches of the River Avon and its floodplain. It comprises a wide, flat valley bottom of derelict water meadows, pasture and arable land surrounding a meandering river. The valley sits predominantly on alluvial soils with subordinate deposits of sand. Much of the valley is open grassland fields with boundary ditches, small woodland parcels, fen areas and old gravel pits. Two species of designated overwintering birds occur within the site, including Bewick's swan and gadwall. Overall, the floodplain grassland and gravel pits support internationally and nationally important populations of five waterfowl species.

3.25 Bewick's swan are much smaller than both mute and whooper swan and have faster wingbeats. They undertake annual winter migrations between Siberia and the UK. The abundance of Bewick's swan has decreased markedly from 156 individuals (between 1988/89 to 1992/93) to a maximum of 1 individual (between 2014/15 and 2017/18). In two of the recent winters no Bewick's swans were recorded within the SPA. Bewick's swan rely on short, open wet grassland for foraging and open water and flooded grassland for roosting. The historic foraging utilisation within the SPA has been uneven, with some areas (grassland around Harbridge) used much more frequently than others.

¹⁷ Available at: <http://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed on the 09/01/2023]

3.26 Gadwall are medium-sized dabbling ducks, the abundance and distribution of which has increased markedly over the past 40 years. At classification, the SPA supported 667 individuals (five-year average between 1988/89 and 1992/93). The latest five-year average (2012/13 to 2017/18) indicates that the population abundance has increased to 829 individuals. Gadwall utilise freshwater lakes, gravel pits and reservoirs for foraging all year round. Feeding on water weeds, they require nutrient-rich waters. In the Avon Valley winter use mainly centres around Blashford Lakes.

Qualifying Features¹⁸

3.27 Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1):

During the non-breeding season the SPA regularly supports

- Bewick's swan *Cygnus columbianus bewickii*

3.28 Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2):

During the non-breeding season the SPA regularly supports

- Gadwall *Anas strepera*

Conservation Objectives¹⁹

3.29 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;

3.30 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 Integrity²⁰

3.31 The following threats and pressures to the integrity of the Avon Valley SPA are specified in Natural England's Site Improvement Plan (SIP):

- Physical modification
- Siltation

¹⁸ Available at: <http://publications.naturalengland.org.uk/publication/5741820348727296> [Accessed on the 09/01/2023]

¹⁹ Ibid

²⁰ Available at: <http://publications.naturalengland.org.uk/publication/6133502894407680> [Accessed on the 09/01/2023]

- Water pollution
- Water abstraction
- Changes in species distributions
- Invasive species
- Public access / disturbance
- Hydrological changes
- Inappropriate weed control
- Change in land management
- Habitat fragmentation

Avon Valley Ramsar

Introduction

3.32 The Avon Valley Ramsar encompasses the lower reaches of the River Avon and its associated floodplain between Bickton and Christchurch. It displays wide fluctuations in water levels with part of the site being regularly flooded in winter. The Ramsar supports a greater range of habitats, flora and fauna than any other chalk river in Britain. Of particular importance are its large expanses of unimproved floodplain grassland with large sections being managed as hay meadows.

3.33 The Information Sheet for the Avon Valley Ramsar lists an extensive list of habitat types for the site, including seasonally flooded mesotrophic grassland, dry acid grassland, standing freshwater and gravel pits.

Qualifying Features²¹

3.34 The site is designated as a Ramsar under the following criteria:

Ramsar criterion 1

The site shows a greater range of habitats than any other chalk river in Britain, including fen, mire, lowland wet grassland and small areas of woodland.

Ramsar criterion 2

The site supports a diverse assemblage of wetland flora and fauna including several nationally-rare species.

Ramsar criterion 6

Species / populations occurring at levels of international importance:

Species with peak counts in winter (as identified at designation)

- Gadwall *Anas strepera strepera*; 537 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/99 – 2002/3)

²¹ Available at: <https://jncc.gov.uk/jncc-assets/RIS/UK11005.pdf> [Accessed on the 09/01/2023]

Species with peak counts in winter (identified subsequent to designation for future possible consideration under criterion 6)

- Northern pintail *Anas acuta*; 715 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/99 – 2002/03)
- Black-tailed godwit *Limosa limosa islandica*; 1,142 individuals, representing an average of 3.2% of the population (5 year peak mean 1998/99 – 2002/03)

Threats and Pressures²²

3.35 Natural England does not publish SIPs for Ramsars, but past and present factors affecting the ecological character of the site are listed in the Information Sheet on Ramsar wetlands:

- Disturbance to vegetation through cutting / clearing
- Vegetation succession
- Drainage / land claim for agriculture
- Sedimentation / siltation
- Introduction / invasion of non-native plant species
- Pollution – domestic sewage and agricultural fertilisers
- Recreational / tourism disturbance
- Reservoir / barrage / dam impact: Flow regime

River Avon SAC

Introduction

3.36 The River Avon SAC is a 416.57ha large designated site, comprising inland water bodies (95%, i.e. the river feature itself), bogs / marshes (2%), heath / scrub (2%) and broad-leaved deciduous woodland (1%). The River Avon and its tributaries (R. Nadder, Wylye and Bourne) are chalk freshwater bodies converging in the cathedral city of Salisbury. Beyond the convergence of these rivers, the R. Avon becomes more strongly anastomosed and branching. It flows through a landscape of rolling chalk grassland, ancient woodland, chalk escarpment and downland hillsides. The R. Avon and its tributaries are included in the SAC designation due to their importance for water crowfoot, starwort, Atlantic salmon, sea lamprey, brook lamprey, bullhead and Desmoulin's whorl snail.

3.37 The SAC supports over 180 species of plants (including the water crowfoot and starworts that grow in clumps on the river bed), which in turn sustain a diverse assemblage of invertebrates (e.g. mayflies and snails), fish and birds. The Desmoulin's whorl snail is found in the associated floodplain wetlands. While some broadleaved woodland along the river corridor remains, large tracts of riparian woody vegetation have been lost in recent times. Both the R. Avon and the R. Bourne are highly managed and constrained in urban areas.

²² Ibid

3.38 Recreational fishing is a very popular activity along the entire river corridor, including salmon and coarse fishing in the lower reaches, as well as fishing for trout and grayling in the upper reaches. The hydrology in the river is sustained by productive aquifers (e.g. Upper Greensand, Limestone and Chalk), which result in stable river flow regimes (79-90% groundwater fed). Notably, these aquifers are also exploited for public water supply and some large non-consumptive water abstractions downstream from Salisbury. The Upper Greensand geology underlying the upper reaches of the SAC contributes to high baseline phosphorus levels in the rivers. While substantial improvements in water quality have been achieved over recent years (particularly due to technological improvements in Wastewater Treatment Works), the SAC is still impacted by effects from nutrient enrichment from diffuse and point sources.

Qualifying Features²³

3.39 Annex I habitats that are a primary reason for selection of this site:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

3.40 Annex II species that are a primary reason for selection of this site:

- Desmoulin's whorl snail *Vertigo moulinsiana*
- Sea lamprey *Petromyzon marinus*
- Brook lamprey *Lampetra planeri*
- Atlantic salmon *Salmo salar*
- Bullhead *Cottus gobio*

Conservation Objectives²⁴

3.41 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.42 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,

²³ Available at: <https://sac.jncc.gov.uk/site/UK0013016> [Accessed on the 09/01/2023]

²⁴ Available at: <http://publications.naturalengland.org.uk/publication/6048472272732160> [Accessed on the 09/01/2023]

- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity²⁵

3.43 The following threats and pressures to the integrity of the River Avon SAC are specified in Natural England's Site Improvement Plan (SIP):

- Physical modification
- Siltation
- Water pollution
- Water abstraction
- Changes in species distributions
- Invasive species
- Public access / disturbance
- Hydrological changes
- Inappropriate weed control
- Change in land management
- Habitat fragmentation

New Forest SPA

Introduction

3.44 The New Forest SPA is a 27,997.59ha large site that sits within the New Forest National Character Area and the New Forest National Park. It comprises the largest area of unsown vegetation in lowland England and mosaic of habitats shaped by an interplay of geology and traditional communing grazing system. The SPA sits in a dip of the surrounding chalk and is characterised by acid, nutrient-poor soils that have low permeability.

3.45 The great variation in soils is reflected in the New Forest's distinctive vegetation, which includes lowland heath, valley mire, ancient pasture woodland and several types of grassland. In turn the site supports an exceptionally rich bird fauna, including internationally important breeding and overwintering populations. During the breeding season, the SPA supports internationally important populations of Dartford warbler, nightjar, woodlark, honey buzzard, hobby and wood warbler. Hen harrier are supported in the overwintering period.

3.46 Given the site's proximity to two major urban areas, the National Park Authority estimates that it receives over 15 million annual day visits, making it an extremely attractive recreational resource. This recreational use places pressure on the designated bird species, particularly from dog walkers.

²⁵ Available at: <http://publications.naturalengland.org.uk/publication/6133502894407680> [Accessed on the 09/01/2023]

Qualifying Features²⁶

3.47 Qualifying individual species listed in Annex I of the Wild Birds Directive (Article 4.1):

During the breeding season the SPA regularly supports

- Dartford warbler *Sylvia undata*
- Honey buzzard *Pernis apivorus*
- Nightjar *Caprimulgus europaeus*
- Woodlark *Lullula arborea*

During the non-breeding season the SPA regularly supports

- Hen harrier *Circus cyaneus*

3.48 Qualifying individual species not listed in Annex I of the Wild Birds Directive (Article 4.2):

During the breeding season the SPA regularly supports

- Hobby *Falco Subbuteo*
- Wood warbler *Phylloscopus trochilus*

Conservation Objectives²⁷

3.49 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;

3.50 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 Integrity²⁸

3.51 The following threats and pressures to the integrity of the New Forest SPA are specified in Natural England's Site Improvement Plan (SIP):

- Drainage

²⁶ Available at: <http://publications.naturalengland.org.uk/publication/5816333400801280> [Accessed on the 09/01/2023]

²⁷ Ibid

²⁸ Available at: <http://publications.naturalengland.org.uk/publication/5174614971908096> [Accessed on the 09/01/2023]

- Inappropriate scrub control
- Fish stocking
- Deer
- Air pollution: Impact of atmospheric nitrogen deposition
- Public access / disturbance
- Change in land management
- Changes in species distributions
- Water pollution
- Forestry and woodland management
- Inappropriate ditch management
- Invasive species
- Vehicles
- Inappropriate cutting / mowing
- Direct impact from 3rd party

New Forest Ramsar

Introduction

3.52 The New Forest Ramsar is an area of semi-natural vegetation that encompasses a range of habitats, including valley mires, fens and wet heaths. Due to the largely uncultivated and undeveloped nature of their aquatic catchments, these habitats display high ecological quality (especially the suite of mires). Other wetland habitats include several ephemeral ponds of varying water chemistry. The plant communities in the valleys and seepage mires show considerable diversity, being fed primarily by nutrients from groundwater. In most nutrient-poor zones, dominant plants include *Sphagnum* bog-mosses, cross-leaved heath, bog asphodel and common cottongrass. More nutrient-rich areas support fen-like communities.

Qualifying Features²⁹

3.53 The site is designated as a Ramsar under the following criteria:

Ramsar criterion 1

Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain.

²⁹ Available at: <https://rsis.ramsar.org/RISapp/files/RISrep/GB622RIS.pdf?language=en> [Accessed on the 10/01/2023]

Ramsar criterion 2

The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plants are found on the site, as are at least 65 British Red Data Book species of invertebrate.

The higher plants *Cicendia filiformis*, *Illecebrum verticillatum* and *Myosurus minimus* are considered vulnerable by the GB Red Book; while *Mentha pulegium* and *Ranunculus tripartitus* are included as endangered; and *Pulicaria vulgaris* as critically endangered. The dark guest ant *Anergates atratulus* is also considered vulnerable by the IUCN Red List.

Ramsar criterion 3

The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England. The site contains a rich invertebrate fauna.

Threats and Pressures³⁰

3.54 Natural England does not publish SIPs for Ramsars, but past and present factors affecting the ecological character of the site are listed in the Information Sheet on Ramsar wetlands:

- Commercial scale forest exploitation
- Drainage / reclamation
- Introduction / invasion of exotic plant species
- Recreational / tourism disturbance

The New Forest SAC

Introduction

3.55 The New Forest SAC is a 29,213.57ha large site comprising a range of habitats, including heath / scrub (34%), broad-leaved deciduous woodland (29%), coniferous woodland (17%), dry grassland / steppes (10%), bogs / marshes (7%) and humid grassland (3%). It falls within the New Forest National Character Area and encompasses the largest area of unplanted vegetation in lowland England. Notable habitats include lowland heath, valley and seepage step mires, ancient pasture woodland and various types of grassland. Outstanding examples of thirteen habitats of European interest are present together with two priority habitat types. In turn, this complex habitat mosaic supports high diversity of fauna and flora. Traditional management techniques (grazing, heathland burning and cutting) maintain high structural diversity and niche availability.

3.56 One of the scarcest habitats within the SAC are oligotrophic waters containing very few minerals (as occurs in one of the ponds at Hatchet Pond). Oligotrophic waterbodies are usually very clear and have moderate acidity. The destruction of

³⁰ Ibid

lowland heathland, land drainage and nutrient enrichment have contributed to the rarity of this habitat type. These habitats are characterised by the presence of water lobelia *Lobelia dortmanna*, shoreweed *Littorella uniflora* and quillwort *Isoetes lacustris*.

3.57 Depressions on peat substrates of the *Rhynchosporion* are another important qualifying habitat of the New Forest SAC. Their vegetation tends to be very open and is characterised by abundant white beak-sedge *Rhynchospora alba*, algal mats, the bog moss *Sphagnum denticulatum*, round-leaved sundew *Drosera rotundifolia* and brown mosses (the latter occurring where flushing with mineral-rich waters is present). The New Forest holds the largest aggregation of depressions on peat substrates in England, primarily in natural bog pools, flushes on the margins of valley mires and areas disturbed by peat-digging, trampling, tracks and ditches. The mosaics in which this habitat occurs are an important location for bog orchid *Hammarbya paludosa*.

Qualifying Features³¹

3.58 Annex I habitats that are a primary reason for selection of this site:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletalia uniflorae* and / or of the *Isoeto-Nanojuncetea*
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*)
- Depressions on peat substrates of the *Rhynchosporion*
- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Illici-Fagenion*)
- *Asperulo-Fagetum* beech forests
- Old acidophilous oak woods with *Quercus robur* on sandy plains
- Bog woodland (* priority feature)
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (* priority feature)

3.59 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Transition mires and quaking bogs
- Alkaline fens

3.60 Annex II species that are a primary reason for selection of this site:

³¹ Available at: <https://sac.incc.gov.uk/site/UK0012557> [Accessed on the 10/01/2023]

- Southern damselfly *Coenagrion mercurial*
- Stag beetle *Lucanus cervus*

3.61 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Great-crested newt *Triturus cristatus*

Conservation Objectives³²

3.62 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.63 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity³³

3.64 The following threats and pressures to the integrity of The New Forest SAC are specified in Natural England's Site Improvement Plan (SIP):

- Drainage
- Inappropriate scrub control
- Fish stocking
- Deer
- Air pollution: Impact of atmospheric nitrogen deposition
- Public access / disturbance
- Change in land management
- Changes in species distributions
- Water pollution

³² Available at: <http://publications.naturalengland.org.uk/publication/5727577884852224> [Accessed on the 10/01/2023]

³³ Available at: <http://publications.naturalengland.org.uk/publication/5174614971908096> [Accessed on the 10/01/2023]

- Forestry and woodland management
- Inappropriate ditch management
- Invasive species
- Vehicles
- Inappropriate cutting / mowing
- Direct impact from 3rd party

Prescombe Down SAC

Introduction

3.65 The Prescombe Down SAC is a 75.6ha large site comprising dry grassland / steppes (67%), improved grassland (30%) and heath / scrub (3%). Prescombe Down is a botanically rich downland site in south Wiltshire, situated in the Dorset Downs & Cranborne Chase National Character Area. Within the site, a deep forking coombe system has eroded into an escarpment of the Upper Chalk, giving rise to steep valley sides.

3.66 The main botanical component of the site is the NVC community *Festuca ovina* – *Avenula pratensis* grassland. However, there are also transitions to *Cynosurus cristatus* – *Centaurea nigra* assemblages. The SAC also supports one of the two largest populations of early gentian *Gentianella anglica* in Britain. Its rich butterfly community includes scarce species such as the Adonis blue *Polyommatus belargus* and marsh fritillary *Euphydryas aurinia*.

Qualifying Features³⁴

3.67 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco* – *Brometalia*) (* important orchid sites)

3.68 Annex II species that are a primary reason for selection of this site:

- Early gentian *Gentianella anglica*

3.69 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Marsh fritillary butterfly *Euphydryas aurinia*

Conservation Objectives³⁵

3.70 With regard to the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

³⁴ Available at: <https://sac.jncc.gov.uk/site/UK0012553> [Accessed on the 10/01/2023]

³⁵ Available at: <http://publications.naturalengland.org.uk/publication/5098278706216960> [Accessed on the 10/01/2023]

3.71 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity³⁶

3.72 The following threats and pressures to the integrity of the Prescombe Down SAC are specified in Natural England's Site Improvement Plan (SIP):

- Changes in species distributions
- Air pollution: Risk of atmospheric nitrogen deposition

Fontmell & Melbury Downs SAC

Introduction

3.73 The Fontmell & Melbury Downs SAC is a 263.09ha large site, comprising dry grassland / steppes (88%) and heath / scrub (12%). It is situated between Shaftesbury and Blandford Forum in Dorset, lying within the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty. The downs are considered to be some of the best areas in the United Kingdom for the endemic early gentian *Gentianella anglica* and support internationally significant semi-natural dry grasslands and scrubland facies on calcareous substrates.

3.74 Notably, the SAC constitutes an extensive, unimproved chalk grassland escarpment. The main grassland type is characterised by the dominance of sheep's-fescue *Festuca ovina* and meadow oat-grass *Helictotrichon pratense*. Frequent species associated with the turf include quaking-grass *Briza media*, crested hair-grass *Koeleria macrantha*, glaucous sedge *Carex flacca*, spring-sedge *Carex caryophyllea*, frog orchid *Coeloglossum viride*, fragrant orchid *Gymnadenia conopsea* and others.

Qualifying Features³⁷

3.75 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

³⁶ Available at: <http://publications.naturalengland.org.uk/publication/5787487116984320> [Accessed on the 10/01/2023]

³⁷ Available at: <https://sac.incc.gov.uk/site/UK0012550> [Accessed on the 10/01/2023]

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites)

3.76 Annex II species that are a primary reason for selection of this site:

- Early gentian *Gentianella anglica*

Conservation Objectives³⁸

3.77 With regard to the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.78 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Threats / Pressures to Site Integrity³⁹

3.79 The following threats and pressures to the integrity of the Fontmell & Melbury Downs SAC are specified in Natural England's Site Improvement Plan (SIP):

- Air pollution: Impact of atmospheric nitrogen deposition
- Inappropriate scrub control
- Agriculture: Agricultural operations
- Change in land management

Great Yews SAC

Introduction

3.80 The Great Yews SAC is a 29.09ha large site, comprising mixed woodland (95%), dry grassland / steppes (2%) and some developed land (3%). It is situated on gently sloping ground on the Upper Chalk south of Salisbury. The SAC encompasses an extensive area of relatively pure yew woodland with between

³⁸ Available at: <http://publications.naturalengland.org.uk/publication/5656053324709888> [Accessed on the 10/01/2023]

³⁹ Available at: <http://publications.naturalengland.org.uk/publication/4927257646727168> [Accessed on the 10/01/2023]

300-500 mature trees. Given that some yew trees are regenerating, the site shows the full structural and functional range expected of yew stands.

3.81 While yew is the dominant species within the site, there are also scattered trees of mature ash *Fraxinus excelsior* and pedunculate oak *Quercus robur*. Dense, species-rich shrubs occur on the edges of the wood. Few herbaceous plants (e.g. dog's mercury *Mercurialis perennis*) are able to survive under the dense canopy of the yew trees.

Conservation Objectives⁴⁰

3.82 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

3.83 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats
- The structure and function (including typical species) of qualifying natural habitats, and
- The supporting processes on which qualifying natural habitats rely.

Threats / Pressures to Site Integrity⁴¹

3.84 The following threats and pressures to the integrity of the Great Yews SAC are specified in Natural England's Site Improvement Plan (SIP):

- Deer
- Air pollution: Risk of atmospheric nitrogen deposition

⁴⁰ Available at: <http://publications.naturalengland.org.uk/publication/5712522950737920> [Accessed on the 10/01/2023]

⁴¹ Available at: <http://publications.naturalengland.org.uk/publication/6012398850801664> [Accessed on the 10/01/2023]

4. Background to Impact Pathways

- 4.1 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority or parish boundaries), but to use an understanding of the various ways in which Land Use Plans can impact European sites to evaluate whether development is connected with European sites, in some cases many kilometres distant. Briefly defined, impact pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site. As highlighted earlier, it is also important to bear in mind MHCLG guidance which states that the AA should be ‘*proportionate to the geographical scope of the [plan policy]*’ and that ‘*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*’ (CLG, 2006, p.6⁴²).
- 4.2 Based upon Natural England’s Site Improvement Plans (SIPs) and professional judgement, the following impact pathways require consideration regarding development proposals within the WSGNP area and the identified European sites:
- Recreational pressure;
 - Urban impacts;
 - Loss of functionally linked habitat;
 - Noise and visual disturbance from construction;
 - Atmospheric pollution;
 - Water quantity, level and flow; and
 - Water quality.

Background to Recreational Pressure

- 4.3 There is growing concern over 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. Various studies have provided compelling links between increases in housing development and access levels⁴³, and resulting impacts in European sites^{44 45}.
- 4.4 Recreational use of a site has the potential to:
- Cause disturbance to sensitive species such as ground-nesting birds and wintering wildfowl;

⁴² Department for Communities and Local Government. 2006. *Planning for the Protection of European Sites: Appropriate Assessment*. <http://www.communities.gov.uk/index.asp?id=1502244>

⁴³ Weitowitz D.C., Panter C., Hoskin R. & Liley D. 2019. The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* 5. <https://doi.org/10.1093/jue/juz019>

⁴⁴ 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.

⁴⁵ 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.

- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion, trampling and fragmentation; and
- Cause eutrophication due to dog fouling.

4.5 Different types of European sites (e.g., heathland, freshwater, chalk grassland) have a range of vulnerabilities and are sensitive to different types of recreational pressures. Studies across a range of species have shown that the effects from recreation can be complex.

Bird Disturbance

4.6 Disturbance effects can have negative impacts on qualifying birds in various ways, with reduced chick provisioning and increased nest predation due to adults being flushed from the nest and deterred from returning. A literature review on the effects of human disturbance on breeding birds found that 36 out of 40 studies reported reduced breeding success due to disturbance⁴⁶. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or young. Studies of other species have shown that birds nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure⁴⁷. Recreational disturbance effects on ground-nesting birds are particularly severe, with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar^{48 49}.

4.7 Furthermore, there are numerous parameters (e.g. seasonality, type of recreational activity) that may reduce or exacerbate the magnitude of bird disturbance. For example, disturbance in winter may be more impactful because food shortages make birds more vulnerable at this time of year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and lower overall sensitivity of birds outside the breeding season. 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 diversity and abundance compared to hiking⁵⁰. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers⁵¹. In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals. A literature review summarised data on the use of semi-natural habitat by dogs⁵², indicating that the proportion of dog walkers using sensitive sites tends to be high (54%)

⁴⁶ Hockin D.M., Oundsted M., Gorman D., Hill V. & Barker M.A. (1992). Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* **36**: 253-286.

⁴⁷ Van der Zande A.N., Berkhuisen J.C., van Letesteyn H.C., ter Keurs W.J. & Poppelaars A.J. (1984). Impact of outdoor recreation on the density of a number of breeding bird species in woods adjacent to urban residential areas. *Biological Conservation* **30**: 1-39.

⁴⁸ 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*. <https://doi:10.1371/journal.pone.0072984>.

⁴⁹ 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.

⁵⁰ Banks P.B. & Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* **3**: 14pp.

⁵¹ Miller S.G., Knight R.L. & Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* **29**: 124-132.

⁵² Ibid.

- 4.8 Direct evidence for bird disturbance has been collected in many field studies. For example, observations of bird disturbance were undertaken by Footprint Ecology in North Kent in 2010 / 2011. The study focused on recreational disturbance to wintering waterfowl on intertidal habitats along the North Kent shoreline, stretching between Gravesend and Whitstable, and encompassing three SPAs. From 1,400 events (records of visitors in the bird survey areas) occurring within 200m of the birds, 3,248 species-specific observations were noted, which included no response (74% of observations), major flight (13%), minor flight (5%), short evasive walks away from the stimulus (5%) and alertness (3%).
- 4.9 Dog walking accounted for 55% of all major flight observations, with a further 15% attributed to walkers without dogs. After controlling for distance, major flights were more likely to occur when activities took place on the intertidal zone (compared to water-based or onshore events), when dogs were present and a higher number of dogs were present in visitor groups. There were significant differences between species with curlew *Numenius arquata* the species with the highest probability of major flight and teal and black-tailed godwit *Limosa limosa* the lowest. Tide state was also significant with major flights more likely at high tide, after controlling for distance. There was a significant interaction between distance and tide, indicating that the way in which birds responded varied according to tide. Inter-species differences in responses to disturbance stimuli are also evident from other studies. For example, one study found that there was a significant negative correlation between the degree of urban development and the number of nightjar territories in Dorset heathland sites, but no such impacts were found for woodlark and Dartford warbler⁵³.
- 4.10 However, bird disturbance studies need to be treated with care. For instance, the magnitude of disturbance is not necessarily correlated with the impact of disturbance, i.e., the most easily disturbed species are not necessarily those that will suffer the greatest impacts. For example, it has been shown in some cases, that the most easily disturbed birds simply move to alternative feeding sites, while others remain (likely due to an absence of suitable alternative foraging areas) and thus suffer greater population-level impacts⁵⁴. A recent literature review undertaken for the RSPB⁵⁵ also urges caution when extrapolating the results of disturbance studies because responses differ between species and may be impacted by local environmental conditions. This should be considered when predicting the potential impacts of future recreational pressure on European sites.
- 4.11 It should also be emphasised that recreational use is not necessarily a problem. Many European sites are also National Nature Reserves or nature reserves managed by Wildlife Trusts and the RSPB. At these sites, access is encouraged and resources are deployed to ensure that recreational use is managed appropriately. Bird abundances in many of these sites remain stable or, in some cases, are increasing despite high visitor numbers.

⁵³ Liley D. & Clarke R.T. (2002). Urban development adjacent to heathland sites in Dorset: The effect on the density and settlement patterns of Annex I bird species. English Nature Research Reports, No 463. English Nature, Peterborough. 33pp.

⁵⁴ Gill et al. (2001). Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation* 97: 265-268.

⁵⁵ Woodfield & Langston. (2004). Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB Research Report* No. 9.

Trampling Damage

4.12 Most terrestrial habitats (including heathland, grassland and woodland) can be affected by trampling and other mechanical damage, which dislodges individual plants, leads to soil compaction and erosion. A general effect of trampling on vegetation is reduced species and structural diversity, since only dominant and tolerant plant species persist⁵⁶. However, many parameters (e.g. vegetation type, recreational activity, weather and ground conditions) can have marked impacts on the degree of trampling damage. The following provides a brief overview of the impacts of trampling associated with different recreational activities in different habitats:

- A study on experimental trampling of different heathland types under varying weather conditions in Brittany (France) showed that dry heath was more resistant to trampling damage than wet heath⁵⁷. Equally, both heathland habitats showed greater resilience to trampling under dry than wet conditions
- Wilson & Seney⁵⁸ examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 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 al⁵⁹ 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 a negative correlation with trampling intensity was discovered. This relationship was weaker after one year than two weeks, indicating some vegetation recovery. Differences in plant morphology was found to explain more variation in response 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, 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 considered least tolerant to regular trampling disturbance.
- Cole⁶⁰ conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were

⁵⁶ Santoro R. et.al. (2012). Effects of Trampling Limitation on Coastal Dune Plant Communities. Environmental Management DOI 10.1007/s00267-012-9809-6.

⁵⁷ Gallet S. & Roze F. (2002). Long-term effects of trampling on Atlantic heathland in Brittany (France): Influence of vegetation type, season and weather conditions. *Biological Conservation* **103**: 267-275.

⁵⁸ 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.

⁵⁹ 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

⁶⁰ 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.

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 differential impact on vegetation cover.

- Cole & Spildie⁶¹ experimentally compared the effects of off-track trampling by hikers and horse riders (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). Generally, it was shown that higher trampling intensities caused greater levels of disturbance. Horse trampling resulted in a larger reduction in vegetation cover than hiking. While the forb-dominated vegetation suffered greater disturbance impacts, it recovered rapidly.

4.13 In heathland sites, trampling damage can 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 invertebrates⁶². 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.

Nutrient enrichment

4.14 A major concern for nutrient-poor terrestrial habitats such as dune systems is nutrient enrichment associated with dog fouling, which has been addressed in various reviews (e.g.,⁶³). 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 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 annually⁶⁴. While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components⁶⁵. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical of improved grasslands.

4.15 A recent study has published further compelling evidence on the relative impact of N and phosphorus (P) deposition arising from dogs. Using 487 direct-count censuses from four peri-urban forests and nature reserves, the modelling data suggested that canine fertilisation rates amount to 11 kg N and 5 kg P per hectare per year respectively⁶⁶. These amounts are significant when compared to atmospheric nitrogen deposition rates and the offsetting achievable through

⁶¹ 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

⁶² 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.

⁶³ Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.

⁶⁴ 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.

⁶⁵ 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.

⁶⁶ De Frenne P., Cougnon M., Janssens G.P.J. & Vangansbeke P. (2022). Nutrient fertilization by dogs in peri-urban ecosystems. *Ecological Solutions and Evidence* 3, <https://doi.org/10.1002/2688-8319.12128>

traditional habitat management techniques (e.g. cutting and removal of hay). The nitrogen deposition by dogs is particularly significant given the nitrogen Critical Load of 10-20 kg N/ha/yr provided for European dry heath and Northern Atlantic wet heath (qualifying feature of the Dorset Heaths SAC) on the Air Pollution Information System (APIS). This implies that the minimum CL of a site may be exceeded by N nitrogen deposition from dogs alone, before atmospheric sources are considered. Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

Summary

4.16 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at European sites involves locating new residential development further away (where possible). Strategic plans, such as Local Plans and, to a lesser extent, NPs, provide the mechanism for this. Where avoidance of impacts is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space.

4.17 Overall, the following European sites are considered sensitive to potential recreational pressure impacts arising from the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- **Dorset Heathlands SPA / Ramsar**
- **Dorset Heaths SAC**
- **Avon Valley SPA / Ramsar**
- **River Avon SAC**
- **New Forest SPA / Ramsar**
- **The New Forest SAC**
- **Prescombe Down SAC**
- **Fontmell & Melbury Downs SAC**
- **Great Yews SAC**

Background to Urban Effects

Increased Fly-Tipping and Littering

4.18 Litter, whether large volumes of roadside fly tipping or a small number of individual litter items, are a ubiquitous problem in all publicly accessible spaces and may have significant ecological knock-on effects. Whilst fly-tipping is generally considered more of a nuisance, visual and localised problem, it may pose serious issues in the natural environment for both designated species and habitats.

4.19 For example, discarded litter (e.g. bottles, containers and fishing gear) can lead to the entrapment, injury and death of animals. One study noted that discarded

fishing equipment in intertidal areas resulting in entanglement around the legs of wading birds. Litter, such as plastic bags and contaminated foods, can be a serious issue to protected species and grazing livestock if ingested, potentially leading to disease or death. Fly-tipping of large amounts of waste can cause smothering and damage to plants of qualifying SAC habitats. However, in most instances, there is little evidence that littering is leading to population-level consequences of SPA / Ramsar species or SAC assemblages. Fortnightly bin collections and access to community services (e.g. recycling centres) reduce the incidence of fly-tipping events.

Cat Predation

4.20 Predation by free-roaming cats is regarded as a potential threat to the reproductive success of bird and invertebrate populations. Generally, cats freely roam from residential properties and, unlike dogs, are typically not kept on leads. A survey undertaken in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period⁶⁷. A large proportion of domestic cats is found in urban settings, and residential development is more likely to lead to increased cat predation if the development is located sufficiently close to European sites designated for sensitive bird species (particularly ground-nesting birds). The average roaming distance of domestic cats is approx. 40-200m from home⁶⁸ and LSEs due to cat predation may be an issue where allocated sites are within 200m of a SPA / Ramsar / SAC.

Wildfires / Arson

4.21 Wildfires caused by human activity, i.e. fires that are not controlled, are a potential threat across European sites and can be accidentally (e.g. from discarded cigarettes, fireworks and campfire / BBQ sparks) or deliberately caused through arson. Available research⁶⁹ identifies the principle causes of such fires to be deliberate fire-setting, campfires / bonfires and out-of-control planned fires (e.g., part of moorland management for grouse). There is evidence to suggest that a significant proportion of arson is caused by children of school age.

4.22 Most wildfires occur in close proximity to conurbations due to easier and more frequent access from housing developments. For example, previous research indicates that wildfires occur more frequently on heathland SSSIs on the fringes of urban areas with higher housing densities within 500m of site boundaries⁷⁰. This study used a buffer zone of 500m, based on the maximum likely access distance for average users of greenspaces^{71,72}. Wildfires result in the direct destruction of designated vegetation, reduction of soil quality and the death of associated wildlife (e.g. invertebrates and bird chicks). In turn this can result in medium- to long-term impacts on the integrity of plant assemblages (depending on their recovery period). Furthermore, wildfires also release carbon into the atmosphere and watercourses.

⁶⁷ Woods, M. et al. (2003). Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* **33**: 2 174-188.

⁶⁸ <https://www.petplan.co.uk/pet-information/cat/advice/roaming/>

⁶⁹ Underhill-Day J.C. (2005). A literature review of urban effects on lowland heaths and their wildlife. English Nature Research Reports No. 623. 56pp. English Nature, Peterborough.

⁷⁰ Kirby J.S. & Tantram D. (1999). Monitoring heathland fires in Dorset: Phase 1a. Meteorological triggers and the evaluation of fire danger. Terra Environmental Consultancy. Report to DEFRA, Northampton.

⁷¹ Harrison C, Burgess J, Millward A, Dawe G. (1995). Accessible greenspace in towns and cities: A review of appropriate size and distance criteria. English Nature Research Report No. 153. English Nature, Peterborough.

⁷² Box J. & Harrison C. (1993). Natural spaces in urban places. *Town & Country Planning* **62**: 231-235.

Introduction of Invasive Non-Native Species (INNS)

4.23 The introduction of invasive non-native species (INNS) can have catastrophic impacts on native plant communities, resulting in the rapid replacement of resident species towards alien, more competitive species. Globally, INNS are the second most important threat to biodiversity after habitat loss. Introduced species increase competition for ecological niches, space, light, nutrients and water, and are often at a competitive advantage due to an absence of natural controls. There is a wide array of mechanisms by which human activity facilitates the distribution of INNS, including the transport of plant seeds on shoes and in horse faeces. Invasive plants can also colonise from garden waste that is dumped in the countryside (see earlier section on fly-tipping). Where residential housing and gardens are located in the immediate vicinity of designated habitats, invasive plants can spread readily via natural seed dispersal mechanisms.

Summary & Conclusion

4.24 All designated sites considered in this HRA are sensitive to urban effects, including the Dorset Heathlands SPA / Ramsar and Dorset Heaths SAC (the European sites closest to Wimborne St Giles Parish). All identified urban impact pathways pose the biggest concern if new development is delivered within easy walking distance of European sites. For this reason, many mitigation frameworks adopt a 400m exclusion zone for new residential development surrounding relevant European sites, on the basis that negative impacts (in particular urban effects) cannot be adequately mitigated to prevent adverse effects.

4.25 Generally, the following European sites are considered sensitive to potential urban impacts arising from the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- Dorset Heathlands SPA / Ramsar
- Dorset Heaths SAC
- Avon Valley SPA / Ramsar
- River Avon SAC
- New Forest SPA / Ramsar
- The New Forest SAC
- Prescombe Down SAC
- Fontmell & Melbury Downs SAC
- Great Yews SAC

4.26 However, even the closest section of the Dorset Heathlands SPA and Dorset Heaths SAC lies over 400m from Wimborne St Giles Parish. All potential site allocations included in the WSGNP lie considerably further (more than 5km from both European sites). It is also to be noted that this is beyond the core recreational catchment adopted for the Dorset Heathlands SPA / Ramsar and Dorset Heaths SAC (see LSEs of recreational pressure). It is concluded that there is no potential for the WSGNP to contribute to urban effects in any of the

identified European sites and this impact pathway is not considered further in this HRA.

Background to Loss of Functionally Linked Habitat

- 4.27 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 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.
- 4.28 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 part of the formal designation, this habitat is still integral to the maintenance of the structure and function of bird populations in the designated site and, therefore, land use plans that may affect such areas should be subject to further assessment. This has been underlined by a recent European Court of Justice ruling (C-461/17, known as the Holohan ruling⁷³) which in paragraphs 37 to 40 confirms the need for an AA to consider the implications of a plan or project on habitats and species outside the European site boundary, provided that those implications are liable to affect the Conservation Objectives of the site. Furthermore, there is now an abundance of authoritative examples of HRA cases of plans affecting bird populations, where Natural England recognised the potential importance of functionally linked habitat⁷⁴.
- 4.29 Regarding designated birds, functionally linked habitats typically provide habitat for foraging or other ecological functions essential for the maintenance of the designated population e.g., high-tide roosts for coastal waders and waterfowl. Functionally linked habitats may extend up to the maximum foraging distances established for relevant bird species. However, the number of birds foraging will tend to decrease further away from the protected site and thus the importance of the land to the maintenance of the designated population will decrease.
- 4.30 Natural England’s Impact Risk Zones (IRZs)⁷⁵ identify the core foraging distances that breeding and wintering birds will travel from their SPAs / Ramsars and this evidence will be utilised in this HRA. The relevant IRZs are shown in Table 2 below.

Table 2. Natural England’s Impact Risk Zones (IRZs) for different groups of designated bird species.

Assemblage	Impact Risk Zone (IRZ, based on core foraging distance)
Breeding ground-nesting heathland species (e.g. nightjar, woodlark and Dartford warbler ⁷⁶)	Maximum foraging distance of 2km. For some heathland SPAs / Ramsars, most supporting habitat will be designated (although this is not always the case). Areas surrounding the sites are largely built up

⁷³ The Holohan ruling also requires all the interest features of the European sites discussed to be catalogued (i.e., listed) in the HRA. That is the purpose of Appendix A.

⁷⁴ Chapman C. & Tyldesley D. (2016). Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. Natural England Commissioned Reports 207. 73pp.

⁷⁵ Knight M. (2019). Impact Risk Zones Guidance Summary – Sites of Special Scientific Interest Notified for Birds. Version 1.1. 8pp.

⁷⁶ This species typically nests low in gorse bushes, but is considered ‘ground-nesting’ for purposes of this impact assessment.

Assemblage

Impact Risk Zone (IRZ, based on core foraging distance)

	and connectivity to non-designated supporting habitats will be low. Individual nightjar may have maximum foraging distances of up to 4km, but this is unlikely to include habitats beyond 2km from designated site boundaries.
Breeding and non-breeding birds of prey (e.g. hen harrier, merlin, hobby, honey buzzard)	Maximum foraging distance of 500m. While it is noted that individual birds may forage up to 4km from their nesting and roosting sites, it is unlikely that significant usage of farmland (and population-level impacts) would occur at this distance
Wintering dabbling ducks (e.g. gadwall, pintail)	Maximum foraging distance of 500m. Home ranges of dabbling ducks can extend beyond site boundaries at coastal sites, but this is less likely at inland waterbodies. Therefore, impacts of the WSGNP on functionally linked habitat of gadwall (qualifying species of the Avon Valley SPA / Ramsar) can be excluded.
Wintering waders (e.g. black-tailed godwit)	Maximum foraging distance of 2km. It is to be noted that black-tailed godwit (the only wader species relevant to the WSGNP, qualifying feature of the Avon Valley Ramsar) is also known to visit inland wetland sites, wet meadows and marshes. However, usage of estuaries and coastal lagoons is much more important.
Wintering geese and swans (e.g. Bewick's swan; but excluding Brent goose, pink-footed goose and barnacle goose)	Maximum foraging distance of 10km, although studies have shown that some pink-footed geese will fly up to 20km from their roosting site to feed ⁷⁷ . The IRZ is based on GIS distribution records of feeding pink-footed geese obtained in a study by the Wildfowl & Wetlands Trust ⁷⁸ and British Trust for Ornithology WeBS and BirdTrack data.

4.31 Generally, there are agreed parameters for identifying areas that potentially act as functionally linked habitat. For example, a site should encompass suitable supporting and foraging habitat to have viable potential for functional linkage. Furthermore, it is reasonable to assume that a site <2 ha in size is unlikely to support a large enough population of birds (taking sightlines etc. into account) to constitute 1% of a SPA / Ramsar population. However, the importance of non-designated land parcels may not be immediately apparent and could require the analysis of existing data sources to be firmly established. In some instances, data may not be available at all, requiring further survey work.

⁷⁷ Available at: <https://monitoring.wwt.org.uk/wp-content/uploads/2018/12/Mapping-feeding-Pinkfeet-in-England-Final-report-vFinal-Jan15-2.pdf> [Accessed on the 13/01/2023]

⁷⁸ Ibid

4.32 The following European sites are considered sensitive to the potential loss of functionally linked habitat arising from the implementation of the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- **Dorset Heathlands SPA / Ramsar**
- **Avon Valley SPA / Ramsar**
- **New Forest SPA / Ramsar / SAC**

Background to Visual and Noise Disturbance - Construction

4.33 As detailed in the section on recreational pressure above, human activity can affect birds either directly (e.g., by causing them to flee) or indirectly (e.g. by damaging their habitat). Human activity can also lead to behavioural changes (e.g., alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g., an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects⁷⁹.

4.34 Recreational pressure is not the only potential source of disturbance. Construction work taking place immediately adjacent to the designated site or functionally linked habitats could cause disturbance and displacement of designated birds. While any impact relating to demolition and construction activities will be temporary (birds would likely return once construction work ceases and the disturbance stimulus is removed) the resulting effect on population survival could be significant if it occurs during the winter / passage period and prevents birds from using feeding areas on which they rely. It should be noted that any operational activities are likely to be permanent and thus their impact could result in a more severe negative impacts on designated bird features.

4.35 The degree of impact that varying levels of noise will have on different species of bird is relatively poorly understood. Several studies have found that an increase in traffic levels on roads leads to a reduction in the bird abundance within adjacent hedgerows - Reijnen et al (1995) examined the distribution of 43 passerine species (i.e., 'songbirds'), of which 60% had a lower density closer to the roadside than further away. By controlling vehicle usage, they also found that the density generally was lower along busier roads than quieter roads⁸⁰.

4.36 A recent review on recreational disturbance on the Humber⁸¹ assessed different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999⁸²), traffic (Reijnen, Foppen, & Veenbaas 1997)⁸³, dogs (Lord, Waas, & Innes 1997⁸⁴; Banks & Bryant 2007⁸⁵) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still

⁷⁹ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

⁸⁰ Reijnen, R. et al. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202

⁸¹ Helen Fearnley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

⁸² Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

⁸³ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

⁸⁴ Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82,15-20.

⁸⁵ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004⁸⁶ for a review). Some types of disturbance are clearly likely to invoke different responses. In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will influence the response (Delaney et al. 1999⁸⁷; Beale & Monaghan 2005⁸⁸). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)⁸⁹.

4.37 Additionally, animals can be disturbed by the movement of ships. For instance, a DTI study of birds of the North West coast noted that: *“Divers and scoters were absent from the mouths of some busier estuaries, notably the Mersey... Both species are known to be susceptible to disturbance from boats, and their relative scarcity in these areas... may in part reflect the volume of boat traffic in these areas”*⁹⁰.

4.38 Three of the most important factors determining the magnitude of disturbance appear to be species sensitivity, proximity of the disturbance source and timing / duration of the disturbance. Generally, the most disturbing activities are likely to be those that involve irregular, infrequent and unpredictable loud noise events, movements or vibrations. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound, movement and vibration. The further any activity is from the birds, the less likely it is to result in disturbance.

4.39 An increasing amount of research on visual and noise disturbance of waterfowl from construction (and other activities) is now available⁹¹. Both visual and noise stimuli may elicit disturbance responses, potentially affecting the fitness and survival of waterfowl and waders. Noise is a complex disturbance parameter requiring the consideration of multiple parameters, including its non-linear scale, non-additive effect and the source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60dB or prolonged noise of over 72dB. Bird responses to high noise levels include major flight or the cessation of feeding, both of which might affect the survival of birds particularly if other stressors are present (e.g., cold weather, food scarcity).

4.40 Generally, research has shown that above noise levels of 84dB waterfowl show a flight response, while at levels below 55dB there are no behavioural effects. These two thresholds are therefore considered useful as defining two extremes. The same authors have shown that regular noise levels should be below 70dB at the bird, as birds will habituate to noise levels below this level. Generally, noise is attenuated by 6dB with every doubling of distance from the source. For example, impact piling, which is a particularly noisy construction process of approx.. 110dB at 0.67m from source, will therefore reduce to 67 – 68dB by 100m

⁸⁶ Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. Wader Study Group Bulletin, 68, 53-58.

⁸⁷ Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. The Journal of Wildlife Management, 63, 60-76.

⁸⁸ Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. Conservation Biology, 19, 2015-2019.

⁸⁹ Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. Bird Study, 49, 205.

⁹⁰ DTI (2006). Aerial Surveys of Waterbirds in Strategic Wind Farm Areas: 2004/05 Final Report

⁹¹ Institute of Estuarine & Coastal Studies (IECS), University of Hull. (2013). Waterbird Disturbance Mitigation Toolkit – Informing Estuarine Planning & Construction Projects. 36pp.

from the source. Overall, the loudest construction noise will have fallen to below disturbing levels by 100m, and certainly by 200m, from the source even without mitigation.

4.41 Visual disturbance is generally considered to have a higher impact than noise disturbance as, in most instances, visual stimuli will elicit a disturbance response at greater distances than noise. For example, a flight response is triggered in most species when they are approached to within 150m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Some species are particularly sensitive to visual disturbance, including curlew (taking flight at 275m), redshank (at 250m), shelduck (at 199m) and bar-tailed godwit (at 163m).

4.42 For the purpose of this assessment, a precautionary buffer of 300m has been used for visual and noise disturbance impacts. The following European sites are considered sensitive to potential visual and noise disturbance arising from the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- Dorset Heathlands SPA / Ramsar
- Avon Valley SPA / Ramsar
- New Forest SPA / Ramsar

4.43 At its closest, the Dorset Heathlands SPA lies approx. 531m from the Wimborne St Giles Parish boundary (and any sites considered for potential allocation lie significantly further away), with the Avon Valley SPA / Ramsar and New Forest SPA / Ramsar being considerably more distant. Adopting a precautionary 300m buffer for visual and noise disturbance indicates that the implementation of the WSGNP will not result in visual and noise disturbance to any qualifying bird species. Therefore, this impact pathway is not considered further in this HRA.

Background to Atmospheric Pollution

4.44 The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂) and are summarised in Table 3.

Table 3. Main sources and effects of air pollutants on habitats and species.

Pollutant	Source	Effects on habitats and species
Sulphur dioxide (SO ₂)	<p>The main sources of SO₂ are electricity generation, and industrial and domestic fuel combustion. However, total SO₂ emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of sulphur dioxide is the shipping industry and high</p>	<p>Wet and dry deposition of SO₂ acidifies soils and freshwater and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p>

Pollutant	Source	Effects on habitats and species
	<p>atmospheric concentrations of SO₂ have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO₂ emissions in the UK.</p>	<p>However, SO₂ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.</p>
Acid deposition	<p>Leads to acidification of soils and freshwater via atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p> <p>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.</p>	<p>Gaseous precursors (e.g., SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.</p> <p>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.</p>
Ammonia (NH ₃)	<p>Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes and from some chemical processes and vehicle exhausts. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.</p>	<p>The negative effect of NH₄⁺ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath</p>

Pollutant	Source	Effects on habitats and species
	<p>Ammonia reacts with acid pollutants such as the products of SO₂ and NO_x emissions to produce fine ammonium (NH₄⁺) - containing aerosol. Due to its significantly longer lifetime, NH₄⁺ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type</p>	<p>species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>
Nitrogen oxides (NO _x)	<p>Nitrogen oxides are mostly produced in combustion processes. Half of NO_x emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.</p>	<p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO_x for all vegetation types has been set to 30 ug/m³.</p> <p>Deposition of nitrogen compounds (nitrates (NO₃), nitrogen dioxide (NO₂) and nitric acid (HNO₃)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.</p>
Nitrogen deposition	<p>The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_x) or reduced (e.g. NH₃) nitrogen</p>	<p>All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.</p>

Pollutant	Source	Effects on habitats and species
	<p>emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>	<p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>
Ozone (O ₃)	<p>A secondary pollutant generated by photochemical reactions involving NO_x, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40 ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.</p>	<p>Concentrations of O₃ above 40 ppb can be toxic to both humans and wildlife and can affect buildings.</p> <p>High O₃ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.</p>

Source: Information summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

4.45 SO₂ emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. As such, it is unlikely that material increases in SO₂ emissions will be associated with the WSGNP. NH₃ emissions are dominated by agriculture, with some chemical processes also making notable contributions.

4.46 NH₃ can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges⁹². NO_x can also be toxic at high

⁹² http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.

concentrations (far above the annual average Critical Level) but generally only in the presence of elevated SO₂ which is very rare in the UK.

- 4.47 NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a ‘typical’ housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁹³. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use due to the WSGNP. High levels of NO_x and NH₃ are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This often has adverse effects on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats^{94, 95}.
- 4.48 According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³. In addition, ecological studies have determined ‘Critical Loads’ (CLs)⁹⁶ of atmospheric N deposition (that is, NO_x combined with ammonia NH₃) for key habitats within European sites.
- 4.49 According to the Department of Transport’s Transport Analysis Guidance, “Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant”⁹⁷ (see Figure 3).

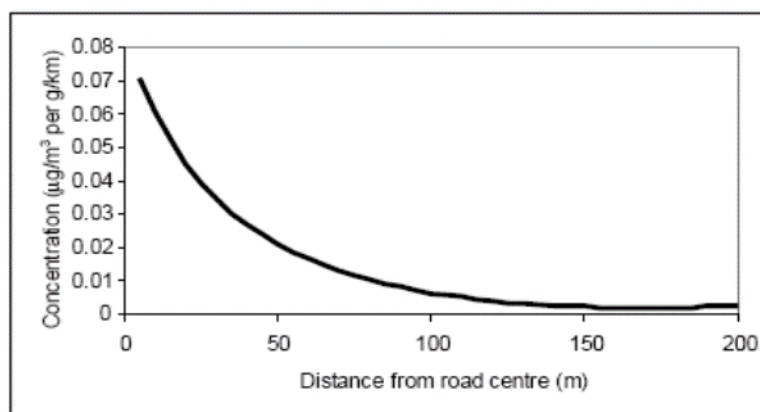


Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf)

4.50 This is the distance that has been used in this HRA to determine whether European sites are likely to be significantly affected by development coming forward under the WSGNP. The following European sites are considered sensitive to atmospheric pollution arising from the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- **Dorset Heathlands SPA / Ramsar**

⁹³ Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. <http://www.airquality.co.uk/archive/index.php>

⁹⁴ Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. 2006. Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. Lichenologist 38: 161-176

⁹⁵ Dijk, N. 2011. Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation Global Change Biology 17: 3589-3607

⁹⁶ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

⁹⁷ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

- **Dorset Heaths SAC**
- **New Forest SPA / Ramsar**
- **The New Forest SAC**
- **Fontmell & Melbury Downs SAC**
- **Prescombe Down SAC**
- **Great Yews SAC**

Background to Water Quantity, Level and Flow

4.51 The water level, its flow rates and the mixing conditions are important determinants of the condition of European sites and their qualifying features. Hydrological processes are critical in influencing habitat characteristics in rivers, wetlands and for water-dependent plant species. Habitat parameters that may be impacted include water cycling, water depth, dissolved oxygen levels, salinity, current velocity and water temperature (noting that not all parameters will be relevant to all qualifying habitats / species). In turn these parameters determine the short- and long-term condition, viability and reproductive success of plant and animal species, as well as overall ecosystem composition.

4.52 The unique nature of wetlands combines shallow water and conditions that are ideal for the growth of organisms at the basal level of food webs, which feed many species of birds, mammals, fish and amphibians. Migrating and breeding wetland species are particularly reliant on these food sources, as they need to build up enough nutritional reserves to sustain their long migration routes or feed their hatched chicks.

4.53 Maintaining a steady water supply is of critical importance for many hydrologically dependent SPAs, SACs and Ramsars. For example, in many wetlands winter flooding is essential in sustaining a mosaic of foraging habitats for SPA / Ramsar wader and waterfowl species. However, species have varying requirements with regard to specific water levels. For example, some duck species (e.g. wigeon) have optimum water depth requirements of under 0.3m for successful foraging. In contrast, Bewick's swan require deeper water to enable their natural roosting and loafing behaviours.

4.54 A constant supply of freshwater is fundamental in maintaining the ecological integrity of water-dependent European sites. While the natural fluctuation of water levels within narrow limits is desirable (and indeed often the reason why nature conservation interests are present in a site), excess or too little water supply might cause the water level to be outside of the required range of qualifying birds, invertebrates or plant species. There are two mechanisms through which urban development can negatively impact the water level in European sites:

- The supply of new housing with potable water may require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in a geographic region, this may reduce the water levels in European sites that lie in the same catchment as new abstractions.

- The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface water runoff. As traditional drainage systems often cannot cope with the volume of stormwater, Combined Sewer Overflows (CSOs) are designed to discharge excess water directly into watercourses to protect human assets. Such pluvial flooding may result in downstream inundation of watercourses and flooding in wetland habitats.

4.55 It is noted that Wimborne St Giles Parish does not lie within an area of serious water stress (see Figure 4), meaning that the demand for water typically does not exceed the amount of water available in a given period. However, this does not imply that additional abstractions would not have negative impacts on water-dependent European sites.

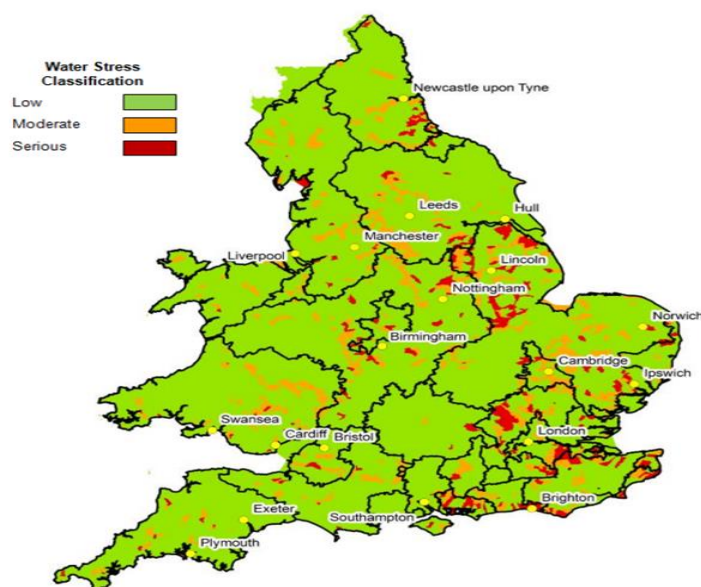


Figure 4: Areas of water stress in England and Wales⁹⁸

4.56 The following European sites are considered sensitive to potential changes in water quantity, level and flow arising from the WSGNP:

- **Dorset Heathlands SPA / Ramsar**
- **Dorset Heaths SAC**
- **Avon Valley SPA / Ramsar**
- **River Avon SAC**
- **New Forest SPA / Ramsar**
- **The New Forest SAC**

Background to Water Quality

4.57 Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial

⁹⁸ Figure adapted from Environment Agency. 2013. Water stressed areas – final classification https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244333/water-stressed-classification-2013.pdf.

effluent discharges can contribute to increased nutrients and toxic contaminants in European sites leading to unfavourable conditions.

4.58 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour. Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.
- Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.
- For sewage treatment works close to capacity, further development may increase the risk of effluent escape into aquatic environments. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

4.59 The following European sites are considered sensitive to negative water quality changes arising from the WSGNP (sites in **bold** are taken forward to the LSEs screening stage in the next chapter):

- **Dorset Heaths SAC**
- **River Avon SAC**
- **Avon Valley SPA / Ramsar**
- **New Forest SAC / Ramsar**

Summary of Impact Pathways to be Taken Forward

4.60 Having considered the impact pathways identified in this chapter, those listed in Table 4 will be taken to the next stage in the HRA process, the LSEs screening.

Table 4. Impact pathways and relevant European sites.

Impact pathway	European site (s) potentially affected
Recreational pressure	Dorset Heathland SPA / Ramsar Dorset Heaths SAC

Impact pathway	European site (s) potentially affected
	Avon Valley SPA / Ramsar River Avon SAC New Forest SPA / Ramsar The New Forest SAC Prescombe Down SAC Fontmell & Melbury Downs SAC Great Yews SAC
Loss of functionally linked habitat	Dorset Heathlands SPA / Ramsar Avon Valley SPA / Ramsar New Forest SPA
Visual and noise disturbance - construction	Dorset Heathlands SPA / Ramsar Avon Valley SPA / Ramsar New Forest SPA
Atmospheric pollution	Dorset Heathland SPA / Ramsar Dorset Heaths SAC New Forest SPA / Ramsar The New Forest SAC Prescombe Down SAC Fontmell & Melbury Downs SAC Great Yews SAC
Water quantity, level and flow	Dorset Heaths SAC River Avon SAC Avon Valley SPA / Ramsar The New Forest SAC / Ramsar
Water quality	Dorset Heaths SAC River Avon SAC Avon Valley SPA / Ramsar New Forest SAC / Ramsar

5. Likely Significant Effects (LSEs) Screening

Introduction

- 5.1 When seeking to identify relevant European sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting purely a 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment. For an effect to occur, all three elements of this mechanism must be in place, whereas the absence of one or more of the elements means there is no potential for an effect. Furthermore, even where an impact may occur, it may not result in significant effects (i.e., those which undermine the Conservation Objectives of a European site).
- 5.2 The likely zone of impact (also referred to as the likely Zone of Influence, Zol) of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The Zol of a plan or project will vary depending on the specifics of a particular proposal and must be determined on a case-by-case basis with reference to a variety of criteria, including:
- the nature, size / scale and location of the plan;
 - the connectivity between the plan and European sites, for example through hydrological connections or because of the natural movement of qualifying species;
 - the sensitivity of ecological features under consideration; and,
 - the potential for in-combination effects.

Approach to Wimborne St Giles Neighbourhood Plan Policy Screening

- 5.3 There are 25 policies within the WSGNP. Policies were screened out of having LSEs on a European site where any of the following reasons applied:
- they are environmentally positive;
 - they will not themselves lead to any development or other change;
 - they make provision for change but could have no conceivable effect on a European site. This can be because there is no pathway between the policy and the qualifying features or a European site, or because any effect would be positive;
 - they make provision for change but could have no significant effect on a European site (i.e., the effect would not undermine the conservation objectives of a European site); or,
 - the effects of a policy on any particular European site cannot be ascertained because the policy is too general. For example, a policy may

be screened out if, based on absence of detail in the policy, it is not possible to identify where, when, or how the policy may be implemented, where effects may occur, or which sites, if any, may be affected.

- 5.4 Any ‘criteria-based’ policy (i.e., those that simply list criteria with which development needs to comply) or other general policy statements that have no spatial element were also screened out. Likewise, policies that simply ‘safeguard’ an existing resource (e.g., existing green infrastructure or mineral resources) by preventing other incompatible development, were also screened out.
- 5.5 The appraisal therefore focussed on those policies with a definable spatial component. Having established which policies required scrutiny by virtue of being spatially defined, consideration was given as to whether LSEs could be dismissed due to a lack of connectivity to any European site for one of the following reasons:
- a potentially damaging activity may occur as a result of the policy but there is no pathway connecting it to a European site (due to distance, for example);
 - there are no European sites vulnerable to any of the activities that the policy will deliver; or,
 - the policy will not result in any damaging activities.

Results of Policy Screening

- 5.6 The results of the LSEs screening of policies included in the WSGNP are presented in Table 5. Where a policy is shaded green, there are no linking impact pathways to European sites and LSEs can be excluded. Where the screening outcome is shaded orange, LSEs cannot be excluded, and the policy is screened in for AA.
- 5.7 Of the 25 WSGNP policies, ten policies are considered to have the potential to result in LSEs, in-combination with other plans and projects, as they are associated with impact pathways linking to European sites. In addition, while no specific policy in the Neighbourhood Plan references windfall, there is the potential for windfall to come forward in the Neighbourhood Area, and this could be located in relevant impact zones for European sites.
- 5.8 Consideration was given to the qualifying features of identified European sites, including their ecology, vulnerabilities, the site Conservation Objectives, and the way in which development may prevent a site from meeting its Conservation Objectives. On this basis, European sites which could be subject to LSEs from each proposed site were identified.
- 5.9 Where a clear or potential pathway was identified by which impacts could give rise to LSEs on the qualifying features of a European site, in the absence of any mitigation, a site proposed for potential allocation was screened in for AA. Furthermore, since the purpose of HRA screening is to constitute an initial sift without undertaking detailed technical analyses, the assessment erred on the side of caution and screened in LSEs unless there was a high degree of confidence that they could be dismissed.

Table 5: Screening table of the policies included in the Wimborne St Giles Neighbourhood Plan (WSGNP).

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Preserving the special character of Wimborne St Giles		
<p>Policy 1: Physical and visual connections</p>	<p>The layout of development should, where feasible, create a permeable network of routes, particularly for cyclist and pedestrians, that facilitate trips to the services and facilities within the settlement and also link into the wider public rights of way network to enable access to the surrounding countryside. These should be readily visible, safe and attractive to use – where possible, accessible to all, aligned with views of local landmarks, and overlooked by development.</p> <p>Plot widths should allow for views out the wider countryside to maintain the areas’ attractive rural character. The complete infilling of these gaps (either through new buildings or extensions) will be resisted.</p>	<p>No LSEs, screened out from AA.</p> <p>Policy 1 is a development management policy that relates to physical and visual connections in the parish. For example, the layout of development should facilitate a permeable network of routes, particularly for cyclists and pedestrians.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 1 is screened out from AA.</p>
<p>Policy 2: Aspect and orientation, building and roof lines</p>	<p>In general, buildings should front onto the lanes, with the rooflines running parallel to the road and incorporating subtle variations and detailing in keeping with the character of the area. In areas where there is consistency within the building line, this should be respected. The application of a uniform building type throughout a development is unlikely to be supported.</p>	<p>No LSEs, screened out from AA.</p> <p>Policy 2 is a development management policy that specifies the aspect, orientation, building and roof lines. However, these parameters have no bearing on European sites.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
		<p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 2 is screened out from AA.</p>
<p>Policy 3: Boundary treatments</p>	<p>Boundary treatments should be in keeping with the existing character of the area (normally hedging or low brick walls). Close boarded fencing and high boundary walls should be avoided, particularly immediately adjoining the highway or other public areas. Where walls or close boarded fencing is proposed, these should include holes/ gaps to allow for safe passage for hedgehogs.</p> <p>Development must avoid abrupt edges to development with little vegetation or landscape on the edge of the settlement and, instead, aim for a comprehensive landscape buffering.</p>	<p>No LSEs, screened out from AA.</p> <p>Policy 3 is a development management policy that addresses boundary treatments within the parish, including hedging and low brick walls. However, these characteristics have no bearing on European sites.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 3 is screened out from AA.</p>
<p>Policy 4: Scale and massing</p>	<p>New buildings should be sympathetic in mass, height, and scale to the existing context, taking into account the setting and importance of nearby heritage assets, as well as the expectation for privacy and amenity of adjoining land uses.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that specifies the scale and massing of new development. For example, planning proposals should be</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>Extensions should be subordinate in term of scale and form and shall not be visually dominant or taller than the existing building, and safeguard the privacy and daylight amenity of neighbouring properties. Side extensions should be set back from the main building and the roof of the extension should harmonise with that of the original building. Rear extensions should normally be below any first-floor windows (or in the case of a double storey rear extension, the roof form and pitch should reflect the original building and sit slightly lower than the main ridge of the building).</p> <p>Heights should generally not exceed two storeys other than in exceptional circumstances. The height of new buildings should be in keeping with building heights in the immediate area. Subtle variation in height is encouraged to add visual interest, such as altering eaves and ridge heights. The bulk and pitch of roofs, however, must remain sympathetic to the tree canopy and local vernacular.</p>	<p>sympathetic in mass, height and scale to the existing context. Building heights should not exceed two storeys.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 4 is screened out from AA.</p>
<p>Policy 5: Architectural composition and detailing, materials and colour palette</p>	<p>New development, extensions and alterations should aim to closely align with the materials and colour palette and complement the architectural styles and detailing found in that area.</p> <p>The primary façade/s of a building should include architectural detailing and windows to provide both visual interest and outlook onto the public lanes and footpaths. Particular attention will need to be paid to corner plots, where in effect there will be two such facades facing onto the lanes (and the same will also apply to where pedestrian / cycle links may be routed along the side of a plot).</p>	<p>No LSEs, screened out from AA.</p> <p>Policy 5 is a development management policy that addresses the architectural composition, materials and colour palette used in new developments. However, these parameters have no bearing on European sites.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
		Therefore, Policy 5 is screened out from AA.
<p>Policy 6: Incorporating low carbon energy solutions</p>	<p>New buildings, and alterations and extensions to existing buildings, should seek to minimise the carbon footprint of the development, and address inefficiencies where opportunities exist. The development should not have an unacceptable detrimental impact on the historic character of the area when weighed against the public benefit (which includes the positive role that low carbon and renewable projects play in the mitigation of climate change, the delivery of energy security and the urgency of meeting the net zero target).</p> <p>Sustainable technology (such as solar panels and external equipment associated with heat pumps), clearly shown on the planning application drawings to demonstrate how these are successfully integrated into the property.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that provides for low carbon energy solutions within Wimborne St Giles Parish. For example, new development should seek to minimise its carbon footprint (e.g. by using solar panels and heat pumps) where possible. While positive for the environment, these approaches have no direct relevance to European sites.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 6 is screened out from AA.</p>
<p>Policy 7: Accommodating the motor vehicle</p>	<p>On-plot and layby parking should be positioned and designed (in combination with soft landscaping and boundary treatments), and garages designed and positioned behind the primary façade, to avoid a car-dominated character. Larger (family homes with 3+ bedrooms should seek to include at least 3 off-road parking spaces. The configuration of parking spaces should be designed to be readily accessible, to reduce the likelihood of overspill parking in the rural lanes. Car charging points</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that specifies how private motor vehicles should be accommodated in new development, including car-</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>to meet Building Regulations should be integrated into the design of new developments and not detract from the character of the property or street scene.</p> <p>The impact on parking provision through extensions and additional outbuildings / structures within the curtilage should be considered, to ensure that sufficient provision is retained to accommodate the anticipated needs of the whole development.</p> <p>Driveways and parking areas should be constructed from porous materials to minimise surface water run-off, and in keeping with the local colour palette of buffs / beige / light brown / greys.</p>	<p>charging ports, parking provision and drainage. Supporting an increase in the electric vehicle fleets and utilising porous surfaces to minimise surface water run-off is considered to be positive for the environment.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 7 is screened out from AA.</p>
<p>Policy 8: Storage for waste, recycling etc</p>	<p>Bin stores, meter boxes and similar utility requirements should be clearly shown on the planning application drawings to demonstrate how these are successfully integrated into the property.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that promotes the adequate storage of waste and provision of utility requirements. These parameters have no direct bearing on European sites.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 8 is screened out from AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
<p>Policy 9: Incorporating landscape features, wildlife and sustainable drainage</p>	<p>Development should seek to retain mature trees and native hedgerows within the layout and where feasible include further planting of native trees and hedgerows within open spaces and along the lanes. Where it is shown that their removal would achieve a significantly better design, replacement planting to compensate for their loss must be provided, preferably on-site where the opportunity exists. The loss of ancient or veteran trees and native hedgerows that form part of a wider wildlife corridor will be resisted.</p> <p>Applicants will be expected to demonstrate how they will incorporate biodiversity and sustainable drainage measures to reduce flood risk and enhance the biodiversity value of the site (to help achieve a net gain in biodiversity) without harming the area’s character. This should include provision of bat boxes/ roosting tubes, bird boxes/ bricks and bee bricks in new buildings whenever possible.</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that addresses the retention of important biodiversity features (e.g. mature trees, hedgerows, wildlife corridors) and incorporation of sustainable drainage in new developments. Thereby, this policy seeks to preserve and, where possible improve, the ecological quality within the parish.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 9 is screened out from AA.</p>
<p>Policy 10: The Watermeadows and other important Green Spaces</p>	<p>The open landscape character, views across, and wildlife interest of the watermeadows will be respected, recognising the critical importance of this open space within the heart of Wimborne St Giles.</p> <p>The following areas as shown on Map XXX are designated as Local Green Spaces, that will be protected from inappropriate development that would reduce their open character or otherwise harm their reason for designation:</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that seeks to protect important Green Spaces within the parish, including the Watermeadows. Furthermore, it supports the improvement and expansion of the Public Rights of Way (PRoW) network to</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<ul style="list-style-type: none"> - Green in front of The Terrace - Orchard in front of Mill House - Village Green - The Triangle - All Hallows Cemetery - All Hallows Church site <p>The improvement and expansion of the existing public rights of way network, including through the introduction of permissive paths, will be supported, and should:</p> <ul style="list-style-type: none"> - allow the quiet enjoyment of the countryside - provide circular routes of varying length where feasible, - include options that are suitable for use of people with mobility difficulties, wheelchairs or buggies, and options suitable for horseriders where feasible; - avoid adverse impact on the landscape character of the area, its biodiversity and the amenity of local residents. 	<p>provide circular routes (where feasible), without resulting in adverse impacts on biodiversity.</p> <p>By ensuring that Green Spaces are preserved, this policy provides an important contribution to the upkeep of local recreational spaces. This is important in reducing recreational impacts in more sensitive ecosystems, such as European sites.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 10 is screened out from AA.</p>
Policy 11: Dark skies and external lighting	<p>Development should be designed to conserve and enhance the quality of the dark night skies and prevent glare affecting the Cranborne Chase National Landscape. Roof lights and large expanses of glazing should be avoided if possible. Light sources should be fully shielded and measures taken to ensure any light spillage is directed downwards. External lighting should be avoided unless required for security or safety reasons. Where lighting is considered necessary, its design should minimise its impact to a level appropriate to the Cranborne Chase National Landscape’s Dark Sky status, and in relation to the presence of bats within the local area, including:</p>	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that preserves dark skies and reduces potential impacts of external lighting within the parish. For example, light sources should be fully shielded and any light spillage directed downwards.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<ul style="list-style-type: none"> - retention of a suitable network of dark corridors for bat movements; - avoidance of roof lights and large expanses of glazing within the design of buildings, unless blinds/ shutters or other measures are included and controlled to limit light pollution; - shielding of exterior lighting to avoid direct light being emitted above the horizontal; - restriction on the colour of any light sources to no more than 2,700K. 	<p>Minimising the extent of glare and light spillage is important for a range of species, including bats and birds. However, it is noted that there are no European sites within sufficiently close distance to the parish for which disturbance from lighting could be an issue.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p> <p>Therefore, Policy 11 is screened out from AA.</p>
<p>Policy 11b: Features of local historic importance</p>	<p>Care should be taken to retain and, where possible, reveal the many historic buildings that contribute to the historic character of Wimborne St Giles. This includes the many Estate cottages and traditional farm buildings that may not be statutorily Listed but would qualify as non-designated heritage assets.</p>	<p>No LSEs, screened out from AA.</p> <p>This policy relates to the identification and retention of non-designated heritage assets within the Wimborne St Giles Parish.</p> <p>The policy does not allocate any housing or employment development with impact pathways linking to European sites.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Development Needs		Therefore, Policy 11b is screened out from AA.
<p>Policy 12: Location and types of new housing</p>	<p>Ten sites are allocated in the Neighbourhood Plan to provide at least 20 dwellings that should meet the identified local housing needs over the plan period. Given the rural nature and incremental growth of the village historically, the deliver of these sites should be phased, as far as possible, to avoid more than 2 sites being constructed at any one time.</p> <p>The mix of dwelling types should seek to deliver:</p> <ul style="list-style-type: none"> – affordable homes for rent, in line with identified local need (as demonstrated through the affordable housing register or a local housing needs survey) – starter and shared-ownership affordable homes, suitable for single adults, couples and families with dependent children; – open market homes, primarily for two and three bedroom properties, including homes for rent, homes specifically designed for older residents with more limited mobility and potentially requiring an element of care, and live-work units compatible with the rural character of the area (with dedicated employment space that would remain available for business use). <p>On sites of 5 or more dwellings, at least 35% and up to 50% of the dwellings provided should be a form of affordable housing, and at least 10% of the total number of homes should be a form of affordable home ownership (although the exact level and mix will depend on housing</p>	<p>No LSEs, screened out from AA.</p> <p>This policy relates to the location and types of new housing in Wimborne St Giles Parish. It ensures that sufficient land is available to meet the identified local housing needs over the plan period. Furthermore, it also specifies the housing mix that is to be provided, including affordable homes and open market homes.</p> <p>However, while the policy ensures sufficient land is allocated to meet housing needs (20 dwellings), it does not specifically provide the locations. Also, the housing quantum is below that set by the overarching Dorset Local Plan allocations and a windfall allowance. This housing growth (estimated to be a minimum of 30 dwellings) will be adequately assessed in the HRA accompanying the Local Plan, prior to its adoption.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>need and viability). Where affordable housing is provided, this should be tenure-blind and made on the basis of prioritising people in housing need who have a local connection to the Neighbourhood Plan area (based on the local connection criteria of the Dorset Housing Allocations Policy), cascading out to the adjoining parishes if there is no local need.</p>	<p>For the above reason, Policy 12 is screened out from AA.</p>
<p>Policy 13: Employment opportunities</p>	<p>New employment proposals for offices, workshops, retail, equestrian, tourism, leisure or similar uses, will be supported, provided they are small-scale (appropriate to the rural character of the area) and all of the following criteria are met:</p> <ul style="list-style-type: none"> - any development would use previously developed land or redundant farm buildings / yards, or would support the small-scale expansion or diversification of an existing land-based rural business in the area; - the site can be safely accessed, and the potential increase in vehicular traffic would not have a significant adverse impact on the rural character of the local highway network; - the proposal would support the vitality and viability of the local community; - any new buildings would be located outside of the Green Belt (unless they would comprise limited infilling or redevelopment of previously developed land in line with national policy) and would be of a modest scale compared to other buildings in the locality and to the settlement to which it relates; - any lighting requirements, parking and external storage are carefully considered to ensure these are not unduly prominent from wider public views or likely to harm important wildlife corridors; - noise levels likely to arise from the development would not unduly impact on the tranquil nature of the area, taking into account typical noise levels in a farming community; and 	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that provides general support for new employment opportunities within the parish, provided that a range of criteria are met. For example, development should use previously developed land or redundant buildings and there should be no adverse impact on wildlife.</p> <p>However, while the policy provides general support for employment development, it does not allocate specific employment sites. It follows that there are no linking impact pathways to European sites.</p> <p>Therefore, Policy 13 is screened out from AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<ul style="list-style-type: none"> - there would be no significant adverse impact upon local landscape character, wildlife or heritage assets as a result of the development or proposed use, with any harm being clearly outweighed by the benefits of the proposal. 	
<p>Policy 14: Valued Community Facilities</p>	<p>The following community facilities should be retained:</p> <ul style="list-style-type: none"> - Church - First School (including Nursery provision), with associated playing fields and play area - Public House - Village Hall - Village Convenience Store and Post Office <p>Proposals that provide new facilities, allow existing facilities to modernise and adapt for future needs, or to diversify in a manner that would support a new or improved community facility to become viable, will be supported. This could include:</p> <ul style="list-style-type: none"> - The plans for the Wood Yard, that could include a restaurant / café with some retail - Parking provision, primarily to address the needs of the school but potentially available for other users - Village Hall refurbishment, including additional storage capacity 	<p>No LSEs, screened out from AA.</p> <p>This is a development management policy that specifies the retention of valued community facilities. Furthermore, it also supports proposals for new and / or modernised facilities and provides examples of potential projects.</p> <p>However, while the policy provides general support for the development of community facilities, no projects are firmly committed to. Any projects to be taken forward at a later stage will be subject to their own consenting process (including HRA, where relevant), which will ensure that no adverse effects on the integrity of European sites will occur.</p> <p>Overall, Policy 14 is screened out from AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
<p>Policy 15: Land east of Bottlebush Lane (White Cottages)</p>	<p>Land east of Bottlebush Lane (marked WSG001 on Map 6) is allocated for up to two dwellings.</p> <p>The scale, design and layout will need to reflect the linear development pattern of this end of the village, facing onto the lane to the south-west (that links Bottlebush Lane to the school).</p> <p>The dwellings should be designed as a pair reflecting the many Estate cottages in the village. They should be of a scale and design subservient to the nearby Listed Manor House, and located and designed sensitively in relation to the other heritage assets in the surrounding area and views of the site from across the watermeadows.</p> <p>Vehicular access will be onto the lane to the south-west, retaining the roadside hedge as far as practical, with new hedgerow planting along the site perimeter to the north and east sides.</p> <p>Gaps should be designed in to allow glimpses through the site from the Hardy Way and footpath E57/40 to the fields beyond. There should also be a gap / buffer between the development and the woodland copse to the south-east, as well as retaining an undeveloped gap between the residential curtilages and Bottlebush Lane.</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 15 allocates up to two dwellings on Land east of Bottlebush Lane. While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 15 on European sites cannot be excluded, and it is screened in for AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
<p>Policy 16: Plot in front of the Terrace, adjoining No. 13</p>	<p>Land adjoining No.13, in front of The Terrace (marked WSG003 on Map 6) is allocated for a single dwelling.</p> <p>The scale, design and layout will need to conserve and enhance the character of this part of the Conservation Area. It is expected the principal façade and front door will face onto the Lane, and also provide a positive frontage onto the green space in front of The Terrace.</p> <p>Vehicular access should be provided from the existing access towards the rear of the site.</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 16 allocates a single dwelling on a Plot in front of the Terrace, adjoining No. 13. While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 16 on European sites cannot be excluded, and it is screened in for AA.</p>
<p>Policy 17: Land adjoining the Playing</p>	<p>Land adjoining the Playing Fields, opposite Park Lane (marked WSG006 on Map 6) is allocated for a residential development. It is anticipated that</p>	<p>Potential for LSEs, screened in for AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Fields, opposite Park Lane	<p>the site could accommodate up to 10 dwellings, of which up to 50% would be a form of affordable housing to meet local needs, and including homes designed for older residents' needs.</p> <p>A design-led approach should be taken on this site, with the scale, design and layout needing to respect the setting of the Conservation Area and historic buildings, including intervisibility with the Grade 1 Listed church and the row of Estate cottages along Park Lane.</p> <p>The site should be accessed by either one or two new vehicular entrance points, otherwise retaining the roadside hedge as far as practical (and if necessary translocating it slightly back from the lane) to provide for adequate visibility splays. Safe and attractive pedestrian access should be achieved through the site to allow connection into the village (exploring the potential to link through the school site to avoid walking on the lane).</p> <p>The site layout and boundary treatment at the western end of the site will need to take into account its proximity to the school playing field, to avoid concerns from future occupants about potential damage from stray balls.</p> <p>The pattern of development, including the internal lanes and spacing between built development, should be in keeping with the village character and rural context. An appropriate approach would be to position buildings around a central courtyard, to reflect farmstead arrangements in the area, incorporating a variety of built form and footprint sizes appropriate to the hierarchy of buildings and variety of functionality typical of a local farmstead.</p>	<p>Policy 17 allocates up to 10 dwellings on Land adjoining the Playing Fields, opposite Park Lane (50% to be delivered as affordable homes). While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the relatively small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 17 on European sites cannot be excluded, and it is screened in for AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Policy 18: Barn at Glebe Farm	The barn at Glebe Farm (marked WSG007 on Map 6) is allocated for residential use for up to two dwellings, with optional ancillary workspace. The design and layout will need to conserve and enhance the character of these traditional rural barns.	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 18 allocates up to two dwellings at a Barn at Glebe Farm. While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 18 on European sites cannot be excluded, and it is screened in for AA.</p>
Policy 19: Infill plot on Park Lane	Land between No.s 4 and 5 Park Lane (marked WSG005 on Map 6) is allocated for a single dwelling.	<p>Potential for LSEs, screened in for AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>The scale, design and layout will need to conserve and enhance the character of this part of the Conservation Area, with the principal façade facing onto the lane, and giving particular consideration to its relationship with the former Estate Offices (No.5) and the rhythm of gaps / spacing along the lane, as well views from St Giles Estate, the Church, the play area and along Park Lane.</p>	<p>Policy 19 allocates a single dwelling on an infill plot on Park Lane. While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 19 on European sites cannot be excluded, and it is screened in for AA.</p>
<p>Policy 20: Infill plot on Baileys Hill</p>	<p>Land to the east of No. 1 Baileys Hill (marked WSG004 on Map 6) is allocated for a single dwelling.</p>	<p>Potential for LSEs, screened in for AA.</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>The scale, design and layout will need to conserve and enhance the character of this part of the Conservation Area, with buildings set back from the road with soft boundary treatment to the front.</p> <p>The scale, design and layout will need to reflect the informal linear pattern and more eclectic mix of development at this end of the village, whilst reinforcing the general character provided by the use of brick and tiled roofs.</p>	<p>Policy 20 allocates a single dwelling on an infill plot on Baileys Hill. While this will result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 20 on European sites cannot be excluded, and it is screened in for AA.</p>
<p>Policy 21: Land off Coach Road</p>	<p>Land north of Harley Cottage on Coach Road (marked WSG002 on Map 6) is allocated for up to two dwellings.</p> <p>The resulting plot pattern, and the scale, design, set-back and layout within the plots will need to reflect the informal linear pattern and more</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 21 allocates up to two dwellings on Land off Coach Road. While this will</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>eclectic mix of development at this end of the village, whilst reinforcing the general character provided by the use of brick and tiled roofs.</p> <p>Vehicular access will be directly access onto Coach Road, retaining the roadside hedge as far as practical, supplemented with soft landscaping to retain the rural character of the lane, with new hedgerow planting along the site perimeter to the north and west sides.</p> <p>The design, layout and boundary treatment should respect the privacy and amenity of the occupants of Harley Cottage and views from the surrounding footpaths and across the watermeadows, including those from Listed buildings in the surrounding area.</p>	<p>result in the growth of the local population, LSEs of this policy alone can be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 21 on European sites cannot be excluded, and it is screened in for AA.</p>
<p>Policy 22: Land at North Barn</p>	<p>The land adjoining North Barn (marked WSG008 on Map 7) is allocated for residential or business use (or mix/ live work) for up two dwellings, to be achieved primarily through the sensitive conversion of these historic barns.</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 22 allocates up to two dwellings on Land at North Barn. While this will result in the growth of the local population, LSEs of this policy alone can</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	<p>The conversion of the buildings and design and layout of its curilagewill need to ensure that the character of these traditional rural barns is retained.</p> <p>An up-to-date survey by a qualified ecologist will be required to consider the potential presence of barn owls, bats and other protected species, and confirm the measures needed to ensure that these are not harmed by the development.</p>	<p>be excluded due to the small number of dwellings proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 22 on European sites cannot be excluded, and it is screened in for AA.</p>
Policy 23: Framptons	<p>The site containing the barns at Framptons (marked WSG0014 on Map 7) is allocated for either residential or employment use (or mixed), for up two dwellings, to be achieved primarily through the sensitive conversion of these historic barns.</p> <p>An up-to-date survey by a qualified ecologist will be required to consider the potential presence of barn owls, bats and other protected species, and confirm the measures needed to ensure that these are not harmed by the development.</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 23 allocates up to two dwellings or unspecified employment use at Framptons. While this will result in the growth of the local population or the extent of employment opportunities within the parish, LSEs of this policy</p>

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
		<p>alone can be excluded due to the small quantum of development proposed.</p> <p>However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:</p> <ul style="list-style-type: none"> • Recreational pressure • Water quality • Water quantity, level and flow • Atmospheric pollution <p>Overall, LSEs of Policy 23 on European sites cannot be excluded, and it is screened in for AA.</p>
<p>Policy 24: Former chicken sheds, Monkton Up Wimborne</p>	<p>The site containing the former chicken sheds in Monkton Up Wimborne (marked WSG009 on Map 7) is allocated for two dwellings, associated with the removal of the chicken sheds.</p> <p>A design and heritage-led approach should be taken on this site, with the scale, design and layout needing to respect the setting and significance of the Grade 2 Listed Manor Farmhouse and avoid areas at higher risk of flooding based on likely groundwater levels, and informed by the results of an archaeological evaluation.</p>	<p>Potential for LSEs, screened in for AA.</p> <p>Policy 24 allocates two dwellings on Former chicken sheds (Monkton Up Wimborne). While this will result in the growth of the local population or the extent of employment opportunities within the parish, LSEs of this policy</p>

Policy number / name

Policy summary (full policy details can be found in the NP document)

Likely Significant Effects Screening Assessment

alone can be excluded due to the small quantum of development proposed.

However, a potential for impact pathways linking to European sites is present in-combination with other regional development. The policy may contribute to the following impact pathways:

- Recreational pressure
- Water quality
- Water quantity, level and flow
- Atmospheric pollution

Overall, LSEs of Policy 24 on European sites cannot be excluded, and it is screened in for AA.

Recreational Pressure

Dorset Heathlands SPA / Ramsar

- 5.10 The designated bird populations in the Dorset Heathlands SPA / Ramsar are sensitive to recreational pressure during the breeding and non-breeding season. This applies particularly to the three species of ground-nesting birds (nightjar, Dartford warbler and woodlark), which are at heightened risk from disturbance impacts. Natural England's SIP for the SPA specifies that recreational pressure is affecting most parts of the site, notably around the conurbations of Poole and Bournemouth⁹⁹. It states that '*disturbance of breeding SPA birds, mostly by dogs, can affect their breeding success, with implications for population level effects e.g. nightjar and woodlark.*'
- 5.11 Due to the ongoing, significant pressure from residential development surrounding the Dorset Heathlands SPA / Ramsar, authorities in south-east Dorset have been operating a strategy for the protection of designated heathland since 2007. The most recent update to this inter-authority strategy is The Dorset Heathlands Planning Framework Supplementary Planning Document (SPD), which covers the years between 2020 and 2025¹⁰⁰. The SPD identifies key geographic zones surrounding the SPA / Ramsar, based on data from visitor surveys, in which additional residential development is likely to result in LSEs regarding recreational pressure. This encompasses a 400m exclusion zone (in which additional dwellings are not permissible) and a 400m to 5km mitigation zone (in which LSEs of additional dwellings cannot be excluded). Therefore, this impact pathway is taken forward to appropriate assessment.

Dorset Heaths SAC

- 5.12 The Dorset Heaths SAC encompasses a range of habitats that are sensitive to recreational usage, including from pathways such as trampling damage and nutrient enrichment. Trampling may lead to injury of individual plants, soil compaction and changes in nutrient cycling. Nutrient enrichment, primarily due to fertilisation with dog faeces and urine, is a significant concern for the vegetation that is adapted to the nutrient-poor soil conditions in heathland habitats. Natural England's SIP covering the SAC¹⁰¹ highlights that public access and disturbance leads to '*habitat change from nutrients in dog faeces*', illustrating that designated SAC habitats are under existing pressure from recreation effects.
- 5.13 There is an existing mechanism, the Dorset Heathlands Planning Framework SPD, which has been adopted to protect the SAC from recreational impacts. This identifies a 400m to 5km zone surrounding the SAC in which LSEs from new housing development cannot be excluded. The SAC largely overlaps with the Dorset Heathlands SPA / Ramsar and the closest component part to Wimborne St Giles Parish is the Cranborne Common SSSI, approx. 5.2km from potential allocation WSG005. Overall, the WSGNP does not allocate any new residential development within the 5km core recreational catchment zone surrounding the Dorset Heaths SAC. However, following discussion with Dorset Council, the possibility of windfall development within the 5.2km impact zone around the SAC

⁹⁹ Available at: <http://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed on the 11/01/2023]

¹⁰⁰ Dorset Council. (April 2020). The Dorset Heathlands Planning Framework 2020 – 2025 Supplementary Planning Document. 33pp. Available at: <https://www.dorsetcouncil.gov.uk/documents/35024/309543/Dorset+Heathlands+2020-2025+SPD+Adopted.pdf/bda03d74-cbc9-57c9-b3be-6253ba2825fb> [Accessed on the 11/01/2023]

¹⁰¹ Available at: <http://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed on the 11/01/2023]

has been identified Therefore, LSEs of the WSGNP regarding recreational pressure are carried forward to appropriate assessment as a precaution.

Avon Valley SPA / Ramsar

- 5.14 The Avon Valley SPA / Ramsar is designated for Bewick's swan and gadwall, both interest features in the valley in the non-breeding season. Recreational use may result in a range of impacts to these waterfowl species, including reduced foraging time, increased energetic expenditure, avoidance of high-quality foraging habitat, shift to qualitatively poorer sites and increased physiological stress responses. Furthermore, species undertaking long migrations and relying on the wintering period to replenish their nutritional reserves (e.g. Bewick's swan), are likely to be more sensitive than true resident species (e.g. gadwall). Regarding recreational disturbance, Natural England's SIP highlights that '*dog walkers disturbing wildfowl in areas outside public rights of way is a concern*' for the SPA / Ramsar. Additionally, the Supplementary Advice on Conservation Objectives (SACO)¹⁰² highlights a target of restricting the frequency, duration and / or intensity of disturbance affecting the roosting, foraging, feeding, moulting and / or loafing behaviour of both Bewick's swan and gadwall.
- 5.15 A determination of whether a development plan will result in LSEs regarding recreational pressure is typically made by considering the Zone of Influence (Zoi) or core recreational catchment of a European site. Core recreational catchments are the geographic zones from which the majority of visitors to a site originate, which are typically derived from the distance that 75% of interviewees have travelled¹⁰³. However, no bespoke visitor data or core recreational catchment zone is available for the Avon Valley SPA / Ramsar. Consulting examples from other European sites across England¹⁰⁴, most inland terrestrial and freshwater sites have core recreational catchments of between 5-7 km (notable exceptions being some estuarine and heathland habitats with particular draws).
- 5.16 At its closest point, Wimborne St Giles Parish lies approx. 6.7km to the west of the Avon Valley SPA / Ramsar. Moreover, the closest site potentially allocated in the WSGNP (WSG005) lies approx. 10.9km from the Avon Valley. Therefore, it is considered that the relatively small housing growth in the parish will not have meaningful implications for the recreational burden in the SPA / Ramsar, even in combination. Therefore, LSEs of the WSGNP on the Avon Valley SPA / Ramsar regarding recreational pressure can be excluded and this site is screened out from AA in relation to this impact pathway.

River Avon SAC

- 5.17 Some of the qualifying features in the River Avon SAC are sensitive to recreational pressure, particularly from canoeing / kayaking (abrasion leading to direct damage of aquatic macrophytes, such as the five resident *Ranunculus* spp. Furthermore, boating can also lead to the disturbance of important spawning gravels (e.g. of sea lamprey and Atlantic salmon). Recreational fishing can

¹⁰² Available at: <http://publications.naturalengland.org.uk/publication/5741820348727296> [Accessed on the 11/01/2023]

¹⁰³ It should be noted that the choice of the 75% cut-off point is essentially arbitrary and pragmatic. However, it includes the area which most visitors come from (particularly those undertaking frequent visits), while excluding tourist outliers that may have travelled disproportionately long distances.

¹⁰⁴ A useful summary of core recreational catchment zones is provided in Hoskin R., Liley D. & Panter C. (2019). Habitats Regulations Assessment Recreational Disturbance Avoidance and Mitigation Strategy for Ipswich Borough, Babergh District, Mid Suffolk District and East Suffolk Councils – Technical Report. 139pp. Available at: <https://www.footprint-ecology.co.uk/reports/Hoskin%20et%20al.%20-%202019%20-%20Habitats%20Regulations%20Assessment%20Recreational%20Distu.pdf> [Accessed on the 11/01/2023]

contribute to the depletion of designated fish stocks, although this activity is only undertaken by a very small proportion of the general population and cannot be directly linked to local housing growth.

- 5.18 However, the closest part of the River Avon SAC lies approx. 6.7km to the east of Wimborne St Giles Parish, with all potential site allocations being more than 10km distant. As highlighted in relation to the Avon Valley SPA / Ramsar, this is well beyond a typical core recreational for inland European sites. Therefore, LSEs of the WSGNP in-combination on the River Avon SAC regarding recreational pressure can be excluded and this site is screened out from AA in relation to this impact pathway.

New Forest SPA / Ramsar

- 5.19 The vast majority of bird species will display behavioural responses if disturbed by people in close proximity. The SACO highlights potential disturbance as a key threat to breeding and wintering bird populations in the New Forest SPA. Recreational disturbance is concerning for the qualifying breeding birds (e.g. honey buzzard, wood warbler, hobby), and in particular for those that are ground-nesting (i.e. nightjar, woodlark and Dartford warbler). Nests of ground-nesting species are sensitive to trampling damage and the predation of eggs / chicks by free-roaming dogs. Breeding raptors are large birds that are known to flush at greater distances and are more sensitive to people in the proximity to nests.
- 5.20 A recent visitor survey undertaken by Footprint Ecology¹⁰⁵ indicates that the New Forest SPA / Ramsar has a large core recreational catchment of 13.8km (using the 75th percentile of all day visitors travelling from home), which is considerably greater than the typical catchments of 5-7km for inland terrestrial sites. At its closest, Wimborne St Giles Parish lies approx. 6.7km from the SPA / Ramsar, while the closest potential allocation is approx. 13.1km distant. This means that expected residential growth in the parish sits just within the catchment from which the majority of visitors travel to the SPA / Ramsar. Moreover, windfall housing could come forward within the 13.8km impact zone around the SPA/Ramsar site.

The New Forest SAC

- 5.21 Many of the SAC's qualifying habitats are sensitive to impacts from recreation, particularly those arising from trampling damage. Heather-dominated communities (particularly those encompassing Northern Atlantic wet heath) are especially sensitive to repeated, long-term trampling, potentially resulting in conversion to grassland. Bog mosses (such as *Sphagnum dentriculatum* found in the qualifying habitat 'depressions on peat substrates') are some of the species most likely to be negatively affected by trampling¹⁰⁶. Excessive trampling is likely to affect ancient and veteran trees of all designated woodland habitats within the SAC, potentially leading to injury of sensitive roots, exacerbating soil compaction, reducing the diversity of soil fungi and changing nutrient cycling.

¹⁰⁵ Liley D., Panter C., Caals Z. & Saunders P. (2019). Recreation use of the New Forest SAC / SPA / Ramsar; New Forest visitor survey 2018 / 19. Unpublished report by Footprint Ecology. 113pp. Available at: <https://www.footprint-ecology.co.uk/reports/Liley%20et%20al.%20-%202020%20-%20Recreation%20use%20of%20the%20New%20Forest%20SACSPARamsar%20N.pdf> [Accessed on the 12/01/2023]

¹⁰⁶ For example, only 80 passes are needed to destroy *Sphagnum* plants with no evident recovery after 23 months. For a review see: Liley D., Lake S., Underhill-Day J., Sharp J., White J., Hoskin R., Cruickshanks K. & Fearnley H. (2010). Welsh Seasonality Habitat Vulnerability Review. Report by Footprint Ecology for the Countryside Council Wales. 150pp. Available at: <https://www.footprint-ecology.co.uk/reports/Liley%20et%20al.%20-%202010%20-%20Welsh%20Seasonal%20Habitat%20Vulnerability%20Review.pdf> [Accessed on the 12/01/2023]

5.22 As highlighted in 5.20, the New Forest SAC has a large core recreational catchment which includes Wimborne St Giles Parish and some of the small residential sites potentially allocated in the WSGNP. Therefore likely significant effects from this and windfall development cannot be dismissed.

Prescombe Down SAC

5.23 The Prescombe Down SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (which are also important orchid sites) and early gentian. Generally, grassland is more resilient to trampling pressure than woodland ground flora and heathland. This is partly because these habitats harbour a high proportion of grasses and rosette-forming herbs, which have naturally adapted to a degree of grazing pressure. Notwithstanding this, at moderate to high levels of trampling, even more resilient grassland species will be affected. It is to be noted that calcareous grassland is likely to be more sensitive to trampling damage than other types of grassland (e.g. mesotrophic grassland). Designated species of high conservation interest (e.g. early gentian) will have relatively low tolerance of trampling pressure.

5.24 Despite a general sensitivity of the site to recreational pressure, the SIP for the Prescombe Down SAC does not specify recreational pressure as a current threat to site integrity. Moreover, Wimborne St Giles Parish lies approx. 6.4km to the south-east of the SAC, which is beyond the typical core recreational catchment of 5km for small inland, terrestrial European sites. Therefore, LSEs of the WSGNP on the Prescombe Down SAC regarding recreational pressure are excluded. The site is screened out from AA in relation to this impact pathway.

Fontmell & Melbury Downs SAC

5.25 The Fontmell & Melbury Downs SAC is designated for its semi-natural grasslands and scrubland facies on calcareous substrates, and early gentian population. As discussed in the previous section, both features are potentially sensitive to recreational pressure as a result of trampling damage and nutrient enrichment. However, neither the SIP¹⁰⁷ nor the SACO¹⁰⁸ for the SAC specify recreation-related impacts as a concern for the Site. Furthermore, the SAC lies approx. 9.4km to the west of Wimborne St Giles Parish (and even further from the proposed allocations), well beyond the distance that visitors would be expected to travel to the site. Therefore, LSEs of the WSGNP on the Fontmell & Melbury Downs SAC regarding recreational pressure can be excluded. The site is screened out from AA in relation to this impact pathway.

Great Yews SAC

5.26 The *Taxus baccata* woods in the Great Yews SAC are sensitive to recreational trampling, particularly the root systems of the ancient trees within the site. Furthermore, additional damage can arise because visitors preferentially approach more impressive individuals and from climbing. The SIP for the SAC¹⁰⁹ does not specify recreation-related threats to the site, but the SACO¹¹⁰ highlight the importance of soil properties (e.g. structure, density and nutrient status) to the integrity of this habitat, all of which can be impacted by trampling pressure.

¹⁰⁷ Available at: <http://publications.naturalengland.org.uk/publication/4927257646727168> [Accessed on the 12/01/2023]

¹⁰⁸ Available at: <http://publications.naturalengland.org.uk/publication/5656053324709888> [Accessed on the 12/01/2023]

¹⁰⁹ Available at: <http://publications.naturalengland.org.uk/publication/6012398850801664> [Accessed on the 13/01/2023]

¹¹⁰ Available at: <http://publications.naturalengland.org.uk/publication/5712522950737920> [Accessed on the 13/01/2023]

5.27 However, at its closest, the boundary of Wimborne St Giles Parish lies approx. 9.9km from the Great Yews SAC, indicating that the parish is unlikely to meaningfully contribute to the visitor pool of the site. Furthermore, it is noted that this relatively small site lies in a very undeveloped location with limited residential development nearby. Therefore, LSEs of the WSGNP on the Great Yews SAC regarding recreational pressure can be excluded. The site is screened out from AA in relation to this impact pathway.

Loss of Functionally Linked Habitat

Dorset Heathlands SPA / Ramsar

5.28 The Dorset Heathlands SPA / Ramsar supports a range of mobile bird species, including nightjar, Dartford warbler and woodlark, with the following general habitat requirements:

- Nightjar show a preference for bare patches or areas of very short or sparse vegetation with widely scattered trees, enabling them to see approaching predators. These patches may be on open heath, in patchy scrub and at the interface between heath and woodland, and 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 foraging areas in lowland heathland with gorse and heather. They prefer unobstructed sightlines from nesting, feeding or roosting sites to enable early detection of predators and increasing visibility during displays. However, they will utilise enclosed features such as clearings in conifer plantations¹¹¹.

5.29 These qualifying species forage in a range of different habitats, including common and widespread ones, and the remainder of this section centres on nesting habitat for which they have 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 woodlark¹¹². Whilst a large portion of woodland and heathland in the area is located within the Dorset Heathlands SPA / Ramsar, various parcels lie outside the designated site boundary and could be functionally linked to the site.

5.30 The most suitable nesting habitats for 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

¹¹² 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 *Caprimulgus europaeus* and Woodlark *Lullula arborea* – recovering species in Britain? *Ibis* 149: 250-260.

forestry is generally unsuitable, unless it encompasses large, sparsely vegetated clearings. Development that would impact these habitats outside the designated site boundary, may result in knock-on effects on these species. Research undertaken in Breckland Forest¹¹³ shows 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 plantations during the first seven years (including the initial 2 year felled unplanted period), particularly the restock phase (plantation age of 0-5 years).

5.31 However, a review of online imagery indicates that the sites proposed for allocation in the WSGNP do not comprise heathland, acid grassland or plantation woodland, the preferred nesting habitats of nightjar, woodlark and Dartford warbler. Therefore, it is concluded that the WSGNP will not result in LSEs on the Dorset Heathlands SPA / Ramsar regarding the loss of functionally linked habitat. This site is screened out from AA in relation to this impact pathway.

Avon Valley SPA / Ramsar

5.32 As established in the associated background to impact pathway section, the qualifying bird species of the Avon Valley SPA / Ramsar (i.e. Bewick’s swan, gadwall, pintail and black-tailed godwit) are expected to regularly forage or roost beyond the designated site boundary. The closest point of the parish lies approx. 6.6km to the west of the SPA / Ramsar site boundary. This is well beyond the maximum foraging distance for black-tailed godwit (2km), gadwall and pintail (both 500m). Therefore, LSEs of the WSGNP in relation to these species can be screened out from AA.

5.33 Bewick’s swan forage up to 10km from their roosting sites, placing the parish within the IRZ for this species. However, it is considered that there is no risk of the WSGNP to impact potential functionally linked habitat for the following reasons:

- The closest site potentially allocated in the NP (WSG005) lies approx. 10.9km from the SPA / Ramsar placing it beyond the maximum foraging distance for Bewick’s swan;
- None of the potential allocations comprise farmland, the preferred foraging habitat for these swans; and
- The wintering population of Bewick’s swan has decreased greatly in recent years, with a maximum of one individual using the SPA / Ramsar between 2014/15 and 2017/18 (in line with general trends for south-east England). Given the low competition for off-site foraging habitats, it is likely that the small number of swans potentially using the SPA / Ramsar would focus on agricultural parcels much closer to the Avon Valley.

5.34 Therefore, LSEs of the WSGNP on Bewick’s swan in the Avon Valley SPA / Ramsar regarding functionally linked habitat loss can be excluded on that basis. The species is screened out from AA in relation to this impact pathway.

¹¹³ Dolman P.M. & Morrison C. (2012). Temporal change in territory density and habitat quality for Breckland Forest SSSI woodlark and nightjar populations, Unpublished report for the Forestry Commission and Natural England.

New Forest SPA

- 5.35 The New Forest SPA is designated for a range of mobile bird species, all of which may utilise land beyond the designated site boundary. The ecological requirements of some of the qualifying species have been discussed in detail in the earlier section on the Dorset Heathlands SPA / Ramsar.
- 5.36 However, the New Forest SPA lies approx. 8.7km to the east of Wimborne St Giles Parish, which is far beyond the maximum foraging distance of all qualifying species. Furthermore, individuals that are a part of the qualifying SPA population are not expected to nest this far from the site boundary. In conclusion, LSEs of the WSGNP on the New Forest SPA regarding functionally linked habitat loss can be excluded. The site is screened out from AA in relation to this impact pathway.

Visual and Noise Disturbance – Construction

Dorset Heathlands SPA / Ramsar

- 5.37 Due to the presence of a range of breeding and non-breeding species, the Dorset Heathlands SPA / Ramsar is sensitive to visual and noise disturbance across all seasons. Generally, it is considered that the primary non-recreational visual and noise disturbance would arise from construction activities, particularly where noisy construction techniques (e.g. impact piling) are utilised. Visual and noise disturbance stimuli can elicit a wide range of behavioural bird responses, including cessation of foraging, increased alertness, minor or major flight and displacement to other roosting / foraging sites until disturbance ceases. Scientific evidence indicates that visual and noise disturbance is a greater risk for birds of prey that respond to disturbance stimuli much further away, particularly around nesting and roosting sites.
- 5.38 Construction activities have the potential for disturbance impacts at 300m (for visual stimuli) and 200m (for noise stimuli) from designated site boundaries. However, even if windfall development in the south-eastern part of Wimborne St Giles Parish was to come forward, the closest part of the Dorset Heathlands SPA / Ramsar lies over 500m from the parish boundary. Any construction-related activities due to the WSGNP will, therefore, not result in increased disturbance to breeding or non-breeding SPA / Ramsar birds. LSEs of the WSGNP on the Dorset Heathlands SPA / Ramsar can be excluded and the site is screened out from AA in relation to this impact pathway.

Avon Valley SPA / Ramsar

- 5.39 The Avon Valley SPA / Ramsar is designated for two non-breeding wildfowl species, including Bewick's swan and gadwall. These species are sensitive to visual and noise disturbance such as that potentially arising from construction activities. Disturbance in the SPA / Ramsar is a seasonal issue with both species only being present in the site between November and March. The SIP for the Avon Valley specifies that human disturbance is a major driver of undesired behavioural responses and explicitly sets a target of '*minimising disturbance caused by human activity.*'
- 5.40 However, as discussed in the previous section, construction activities will only cause significant disturbance if they occur within 300m of designated site

boundaries or identified bird roosting / foraging locations. At its closest, the Avon Valley SPA / Ramsar lies approx. 6.6km to the east of Wimborne St Giles Parish, well beyond the screening distance for construction-related disturbance impacts. Therefore, LSEs of the WSGNP on the Avon Valley SPA / Ramsar can be excluded and the site is screened out from AA in relation to this impact pathway.

New Forest SPA

- 5.41 The New Forest SPA is designated for breeding (e.g. Dartford warbler, honey buzzard, nightjar, woodlark, hobby, wood warbler) and non-breeding (e.g. hen harrier) species, making visual and noise disturbance an issue across all seasons. While all bird species are sensitive to disturbance, population-level effects may be particularly severe for breeding birds. Disturbance in the breeding season may lead to reduced chick provisioning and nest abandonment, with potential direct effects on two generations of birds. The SACO for the SPA¹¹⁴ highlight that human disturbance encompasses a variety of forms, including noise, light, sound, vibration and the presence of structures. Research gathered since the 1990s indicates that honey buzzards may be more sensitive to disturbance than other raptors and functional groups of birds¹¹⁵.
- 5.42 While the New Forest SPA is sensitive to visual and noise disturbance, it lies well beyond the precautionary screening distance of 300m from the parish boundary (approx. 8.7km). Therefore, there is not potential for construction activities in the parish to trigger disturbance responses in qualifying birds. Overall, LSEs of the WSGNP on the New Forest SPA can be excluded and the site is screened out from AA in relation to this impact pathway.

Atmospheric Pollution

Dorset Heaths SAC & Dorset Heathlands SPA / Ramsar

- 5.43 Allocating a maximum of 39 dwellings and some potential employment development, implies that the WSGNP will increase the number of commuter journeys associated with the parish. Several of the qualifying habitats and species within the site are sensitive to atmospheric nitrogen deposition, such as depressions on peat substrates (nitrogen CL of 10-15 kg N/ha/yr), Northern Atlantic wet heaths (CL of 10-20 kg N/ha/yr), European dry heaths (CL of 10-20 kg N/ha/yr). An Interim Air Quality Strategy has been devised to address these issues. Given the sensitivity of both sites to nitrogen impacts, a high-level assessment of the road network was undertaken to establish whether the additional traffic volume generated is likely to pass within 200m of the Dorset Heaths SAC and Dorset Heathlands SPA / Ramsar, the standard screening distance applied to road traffic emissions.
- 5.44 The majority of heathland parcels (including those that constitute habitat for ground-nesting birds) lie relatively from major roads, such that impacts from road traffic will not occur. A few component SSSIs, especially to the south of the parish, adjoin major roads including the Slop Bog and Uddens Heath SSSI (next to the A31) and Ferndown Common SSSI (adjoining the A348). The APIS mapping tool indicates that the minimum nitrogen CL is exceeded in heathland along these roads, ranging between 16.6 and 17 kg N/ha/yr. However, a review of the location

¹¹⁴ Available at: <http://publications.naturalengland.org.uk/publication/5816333400801280> [Accessed on the 18/01/2023]

¹¹⁵ Roberts S. & Law C. (2014). Honey buzzards in Britain. *British Birds* **107**: 668-691.

of major settlements (e.g. Poole) indicates that most journey-to-work routes (certainly if the fastest routes are chosen) would not pass within 200m of these SSSIs. Notwithstanding this, future residents of Wimborne St Giles Parish may commute to the Ferndown area, which would involve driving on the A348.

5.45 The amount of development delivered by the WSGNP is relatively small (up to 39 dwellings). Very small changes in 24hr Annual Average Daily Traffic (AADT) flows (e.g. 10 AADT or below) will not materially alter the Local Plan air quality modelling results, and would thus be essentially nugatory, for two reasons:

- Firstly, daily traffic flows are not fixed numerals but fluctuate from day to day. The AADT for a given road is an annual average (specifically, the total volume of traffic for a year, divided by 365 days). It is this average number that is used in air quality modelling, but the 'true' flows on a given day will vary around this average figure. Small changes in average flow will lie well within the normal variation (known as the standard deviation or variance) and would not make a statistically significant difference in the total AADT.
- Secondly, when converted into NO_x concentrations, NH₃ concentrations or N deposition rates, AECOM's experience is that very small changes in AADT (tens of AADT) would only affect the third decimal place. The third decimal place is never reported in air quality modelling to avoid false precision. For this reason, pollution is generally not reported to more than 2 decimal places (0.01). Anything smaller is simply reported as less than 0.01 (< 0.01) i.e. probably more than zero but too small to model with precision.

5.46 Furthermore, the imperceptible contribution of the WSGNP to these deposition rates (too small to reliably model) likely means that LSEs can be excluded even in-combination. Based on such assessments in other areas of the UK, an individual plan or project with a very small contribution can be dismissed on the following basis:

- In Advocate-General Sharpston's Opinion in European Court of Justice Case C-258/11, she specified in Paragraph 48 that *'the requirement for an effect to be 'significant' exists in order to lay down a de minimis threshold. Plans and projects that have no appreciable effect on the site can therefore be excluded. If all plans and projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.'*; and
- In *Wealden v SSCLG* [2017] EWHC 351 (Admin) (2017), which specifically concerned the need for in combination assessment in air quality modelling for European sites, Mr. Justice Jay accepted that if the contribution of an individual plan or project to traffic growth or resulting air quality effects was *'very small indeed'* (quoting a notional 20 AADT), it could be legitimately and legally excluded from in combination assessment. This is in agreement with the opinion of Advocate-General Sharpston.'

5.47 Given this, it is concluded that the WSGNP will not result in LSEs on the Dorset Heaths SAC and Dorset Heathlands SPA / Ramsar regarding atmospheric

pollution. This impact pathway is screened out from Appropriate Assessment in relation to this site.

The New Forest SAC and New Forest SPA / Ramsar

- 5.48 The New Forest SAC and New Forest SPA / Ramsar are designated for a range of habitats and species that are sensitive to atmospheric nitrogen deposition, some of which are attributed with low nitrogen CLs. For example, bog woodland (5-10 kg N/ha/yr), oligotrophic to mesotrophic standing waters (3-10 kg N/ha/yr) and oligotrophic waters with very few minerals (5-10 kg N/ha/yr) all have very low minimum nitrogen CLs. However, most of these habitats only have very localised distributions and lie beyond 200m from major roads. However, some of the more widely distributed habitats such as European dry heaths (10-20 kg N/ha/yr) and Northern Atlantic wet heaths (10-20 kg N/ha/yr) are also susceptible to the fertilisation effect from nitrogen deposition. The qualifying ground-nesting birds of the New Forest SPA / Ramsar (e.g. nightjar, woodlark and Dartford warbler) rely on the integrity of supporting habitats for successful breeding.
- 5.49 The closest portions of both European sites lie approx. 8.6km from Wimborne St Giles Parish, placing them within a typical distance for commuter journeys. According to Census 2011 data, the largest proportion of commuter journeys associated with East Dorset (the authority that encompasses the parish) is to / from Poole and these journeys will not involve driving within 200m of the New Forest SPA / Ramsar / SAC. While some commuter traffic from East Dorset links with the New Forest National Park authority, it is considered very unlikely that the WSGNP will make a meaningful contribution to traffic flows through the New Forest. Any commuter journeys from the parish will most likely be to the town of Ringwood, which will not involve traversing the SPA / Ramsar / SAC. Furthermore, as discussed in the previous section, the limited additional traffic arising from the WSGNP (likely limited to no more than tens of AADT) will not make a meaningful contribution to pollutant deposition within these sites even in combination, both from a modelling and a de minimis perspective. Given this, it is concluded that the WSGNP will not result in LSEs on The New Forest SAC and New Forest SPA / Ramsar regarding atmospheric pollution. This impact pathway is screened out from Appropriate Assessment in relation to these sites.

Fontmell & Melbury Downs SAC

- 5.50 Both qualifying features in the Fontmell & Melbury Downs SAC, semi-natural dry grassland and scrubland facies and early gentian, are sensitive to atmospheric nitrogen deposition (15-25 kg N/ha/yr). Calcareous grasslands occur in low productivity conditions, where both nitrogen and phosphorus are limited. An exceedance of the minimum CL may lead to an overall reduction in species richness and changes in ecosystem composition. For example, subordinate vascular plants, rare species (e.g. early gentian) and characteristic mosses / lichens are likely to be lost.
- 5.51 The SAC lies approx. 9.4km from Wimborne St Giles Parish, within a typical commuter distance for UK residents. However, the only major road within 200m of the site boundary is the A350 along its western edge. This road provides north-south connectivity between the urban settlements of Shaftesbury and Blandford Forum. The A350 is extremely unlikely to encompass commuting routes from / to the parish, as even a direct route between Wimborne St Giles and Shaftesbury runs along smaller rural roads rather than the A350. Given the available

evidence, it is concluded that the WSGNP will not result in LSEs on the Fontmell & Melbury Downs SAC regarding atmospheric pollution. This impact pathway is screened out from Appropriate Assessment in relation to this site.

Prescombe Down SAC & Great Yews SAC

5.52 The Prescombe Down SAC and Great Yews SAC are both sensitive to atmospheric pollution. This is primarily due to the presence of semi-natural dry grassland and scrubland facies (nitrogen CL of 15-25 kg N/ha/yr) and *Taxus baccata* woods (CL of 5-15 kg N/ha/yr) within the designated site boundaries. However, both European sites lie in relatively remote locations and considerably further than 200m from any major roads. Therefore, there is no pathway through which an increase in commuter traffic could lead to elevated nitrogen deposition on these sensitive habitats. Overall, it is concluded that the WSGNP will not result in LSEs on Prescombe Down SAC and Great Yews SAC regarding atmospheric pollution. This impact pathway is screened out from Appropriate Assessment in relation to these sites.

Water Quantity, Level and Flow

Dorset Heaths SAC

5.53 The Dorset Heaths SAC encompasses a diverse array of habitats, including some that are reliant on adequate freshwater supply. Habitats dependent on reliable water supplies include Northern Atlantic wet heaths with *Erica tetralix*, depressions on peat substrates of the *Rhynchosporion*, calcareous fens with *Cladium mariscus* and alkaline fens. Additionally, southern damselfly and great-crested newt directly depend on freshwater habitats, at least during part of their life cycle.

5.54 In some instances (e.g. wet heathland, depressions on peat substrates), it is difficult to identify whether particular habitats are sustained by surface water and groundwater sources, or recharge occurs predominantly via precipitation. For example, wet heathland tends to form on valley floors with impeded drainage where rainwater accumulates and results in a high degree of wetting. However, they are also found in areas with perched water tables where groundwater reaches the surface in springs and flushes. Increased abstraction to supply urban development would affect wet heathland fed by groundwater, but not hydrologically isolated heaths. This HRA adopts a precautionary approach by assuming that the wet heathland in the Dorset Heaths SAC have at least some connectivity to the water table. Overall, due to the presence of several hydrology-dependent habitats, LSEs of the WSGNP on the Dorset Heaths SAC regarding water quantity, level and flow cannot be excluded. The site is screened in for AA in relation to this impact pathway.

River Avon SAC

5.55 The River Avon SAC is designated for one aquatic habitat (i.e. water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation) and several faunal species that depend on in-river flows. These include sea lamprey, river lamprey, Atlantic bullhead and Desmoulin's whorl snail. Natural England's SIP for the SAC states that '*water abstraction causes lower than natural river flows that affects a range of habitat factors including current*

velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. The maintenance of both flushing flows and base flows, based on natural hydrological processes, is vital to the sustaining the SAC chalk stream habitat as a whole and to fish species at low flows in particular.'

- 5.56 The River Avon SAC represents a riverine freshwater body that is subject to direct abstraction pressures. Therefore, LSEs of the WSGNP on the River Avon SAC regarding water quantity, level and flow cannot be excluded. The site is screened in for AA in relation to this impact pathway.

Avon Valley SPA / Ramsar

- 5.57 The Avon Valley SPA / Ramsar is designated for Bewick's swan and gadwall, both of which rely on freshwater habitats in the non-breeding season. Bewick's swan utilise wet grassland and freshwater lakes / reservoirs for roosting. Gadwall use freshwater habitats (e.g. flooded grassland, lakes and reservoirs) all year round, mostly found on Blashford Lakes in the Avon Valley. The Avon Valley SPA / Ramsar is primarily influenced by water flows in the River Avon, which will determine a range of habitat characteristics in the floodplain (e.g. ground saturation level, wetted area, water depth and turbidity).
- 5.58 Natural England's SIP¹¹⁶ specifies water abstraction from the R. Avon as a pressure in the Avon Valley (see following section), which would also extend to the Avon Valley SPA / Ramsar. Overall, due to a direct dependence on seasonal hydrological inputs, LSEs of the WSGNP on the Avon Valley SPA / Ramsar regarding water quantity, level and flow cannot be excluded. The site is screened in for AA in relation to this impact pathway.

The New Forest SAC / Ramsar

- 5.59 The New Forest SAC encompasses a complex habitat mosaic, comprising many assemblages of flora and fauna with a strong dependency on freshwater inputs. Habitats with a hydrological dependency include oligotrophic waters of sandy plains, oligotrophic to mesotrophic standing waters, Northern Atlantic wet heaths, *Molinia* meadows, depressions on peat substrates of the *Rhynchosporion*, bog woodland, alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, transition mires and alkaline fens. Furthermore, southern damselfly and great-crested newt also depend on freshwater bodies during at least part of their life cycle.
- 5.60 Natural England's SIP¹¹⁷ specifies drainage as the primary pressure to The New Forest SAC. Over the past 150 years drainage activities to improve grazing have been carried out on mires, wet heathlands, wet grasslands and streams. These activities have led to a significant loss of peat and reduction in habitat condition. While habitat restoration has resulted in improvements over the past ten years, 3,500ha of mire still require intervention. Furthermore, the SIP states that '*the impact of drainage on the Molinia meadows and wet heaths will require investigation to balance the ecological needs against grazing needs...*'
- 5.61 Overall, due to a direct dependence on regular hydrological inputs and historic pressures relating to reduced hydrological inputs, LSEs of the WSGNP on The New Forest SAC regarding water quantity, level and flow cannot be excluded. The site is screened in for AA in relation to this impact pathway.

¹¹⁶ Available at: <http://publications.naturalengland.org.uk/publication/6133502894407680> [Accessed on the 16/01/2023]

¹¹⁷ Available at: <http://publications.naturalengland.org.uk/publication/5174614971908096> [Accessed on the 16/01/2023]

Water Quality

Dorset Heaths SAC

- 5.62 The Dorset Heaths SAC is designated for several habitats that are dependent on freshwater input and the maintenance of adequate water quality, including calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*, alkaline fens, Northern Atlantic wet heaths and depressions on peat substrates. Furthermore, both southern damselfly and great-crested newt may be impacted by inadequate water quality. Southern damselflies are typically associated with shallow streams and ditches, which have a higher risk of silting up than larger watercourses (e.g. due to water surface runoff from urban areas). This species tends to prefer watercourses with relatively low nitrogen and phosphorus concentrations, indicating that nutrient enrichment also poses a population-level threat¹¹⁸. Great-crested newts rely on aquatic habitats (primarily ponds) for successful breeding. While water quality does not appear to be a primary factor for this species, high nutrient concentrations may render ponds unsuitable by causing excessive vegetation cover or reducing invertebrate populations, the primary food source for developing larvae.
- 5.63 Natural England's SIP¹¹⁹ highlights that aquatic pollution is impacting several areas of the SAC. Pollution stems from a variety of sources, including agricultural runoff, leaching from landfill sites, urban surface runoff and foul drainage (both from septic tanks and point-source WwTWs). Regarding all pollution sources, Natural England identifies any remedial work as being very difficult.
- 5.64 The closest part of Wimborne St Giles Parish lies approx. 504m from the Dorset Heaths SAC, with all potential site allocations lying considerably further away. At this distance it is considered that any surface runoff would be sufficiently attenuated (e.g. via dilution or adsorption into plant tissue) that it would not impact on the water quality in the Verwood Heaths SSSI (closest component part of the SAC to the parish). Therefore, LSEs of the WSGNP on the Dorset Heaths SAC regarding water surface runoff can be excluded.
- 5.65 Depending on the final site allocations, the WSGNP will result in an increase in the local population and volume of treated sewage effluent discharged by Wastewater Treatment Works (WwTWs). The parish is served by the Wimborne St Giles WwTW that discharges to the Stour Dorset Operational Catchment, the same catchment that encompasses the part of the Dorset Heaths SAC near Verwood. However, the WwTW discharges to the Allen Headwaters, a waterbody that is not in hydrological continuity with the Verwood Heaths SSSI. Therefore, given the absence of hydrological connection, LSEs of the WSGNP on the Dorset Heaths SAC regarding treated sewage effluent can be excluded. Overall, this site is screened out from AA in relation to this impact pathway.

River Avon SAC & Avon Valley SPA / Ramsar

- 5.66 The River Avon SAC and Avon Valley SPA / Ramsar are interdependent and hydrologically connected sites, and discussed together in this section. The qualifying features in the River Avon SAC are critically dependant on hydrology including water quality. This includes the habitat 'water courses of plain to

¹¹⁸ Thompson D.J, Rouquette J.R. & Purse B.V. (2003). Ecology of the southern damselfly. Conserving Natura 2000 Rivers Ecology Series No. 8. English Nature, Peterborough. 26pp.

¹¹⁹ Available at: <http://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed on the 17/01/2023]

montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation' and a range of species, such as Desmoulin's whorl snail, sea lamprey, brook lamprey, Atlantic salmon and bullhead. For example, Atlantic salmon are known to have specific habitat requirements, including very good water quality typical of that found in upland and spring-fed chalk streams¹²⁰. High dissolved oxygen concentrations (over 9 mg/l) are particularly important for maintaining healthy salmonid populations. Siltation of spawning gravels from surface runoff is a substantive threat to the reproductive success, as many rivers are now exceeding the 5 mg/l concentrations of suspended sediments.

- 5.67 The Avon Valley SPA / Ramsar, designated for Bewick's swan and gadwall, is also sensitive to declining water quality, primarily as a result of indirect effects on their foraging resources. The SIP for the Avon Valley¹²¹ highlights that elevated phosphorus concentrations are already causing shifts from macrophyte- to algae-dominated communities (e.g. in Blashford Lakes), which may result in poorer feeding conditions for gadwall. Moreover, *'small point discharges and sewage treatment work (STW) discharges are contributing to elevated levels of nutrients (by 10-50 ug/l P) and reduced dissolved oxygen levels in parts of the SAC... Whilst nearly all Sewage Treatment Works (STWs) within the catchment have been limited to 1 mg/l P, and the locations in the Avon catchment that show improving water quality trends generally coincide with improvements to STWs in that reach of river, it is likely that further reductions of P will be necessary from STWs and also small point sources.'*
- 5.68 Wimborne St Giles Parish lies approx. 6.6km to the west of the Avon Valley complex, indicating that water surface runoff from impermeable surfaces will not impact on the Conservation Objectives of the site. Furthermore, Wimborne St Giles WwTW, the works responsible for treating sewage in the parish, discharge to the Stour Dorset Operational Catchment. The relevant sections of the River Avon SAC and Avon Valley SPA / Ramsar lie in the Hampshire Avon Operational Catchment, which is not in hydrological continuity with the WwTW in the parish.
- 5.69 Several European sites, including the River Avon SAC, are in unfavourable condition due to excessive nutrient concentrations. Until the necessary technological improvements at relevant WwTWs are secured and delivered, Natural England have imposed a requirement for phosphorus neutrality for developments in the identified catchment of the River Avon SAC¹²². However, a review of Natural England mapping¹²³ indicates that Wimborne St Giles Parish, including its WwTW, lies outside the hydrological catchment of the River Avon SAC.
- 5.70 Overall, LSEs of the WSGNP on these European sites regarding water quality can be excluded. The River Avon SAC and Avon Valley SPA / Ramsar are screened out from AA in relation to this impact pathway.

New Forest SAC / Ramsar

- 5.71 Owing to its underlying geology, which has low permeability, the New Forest SAC / Ramsar encompasses a range of habitats and species with specific water

¹²⁰ Hendry K. & Cragg-Hine D. (2003). Ecology of the Atlantic salmon. Conserving Natura 2000 Rivers Ecology Series No.7. English Nature, Peterborough. 36pp.

¹²¹ Available at: <http://publications.naturalengland.org.uk/publication/6133502894407680> [Accessed on the 17/01/2023]

¹²² Natural England. (2022). Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites. Letter to Local Planning Authorities. 25pp.

¹²³ Available at: <http://publications.naturalengland.org.uk/publication/4982167238344704> [Accessed on the 17/01/2023]

quality requirements, including oligotrophic and mesotrophic standing waters, Northern Atlantic wet heaths, depressions on peat substrates of the *Rhynchosporion*, bog woodland, alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (typically found in nutrient-richer and eutrophic habitats), transition mires and quaking bogs, and alkaline fens. Some habitats (e.g. oligotrophic waters) are characterised by very low nutrient concentrations and, therefore, are highly sensitive to nutrient enrichment. Furthermore, southern damselfly and great-crested newt populations may also be influenced by changes in water quality (see section on the Dorset Heaths SAC).

5.72 Natural England's SIP¹²⁴ lists water pollution as a threat to the Conservation Objectives of the SAC, particularly as a result of domestic treatment units (e.g. septic tanks). It states that '*Many villages have properties that are not on mains sewerage and have domestic treatment units which discharge into ditches and streams that are either within or flow into the SAC. The ditches and streams have seasonal flow and this in combination with a number of properties all discharging into the same channel could lead to an increase in nutrient levels impacting on the habitats they flow through, reducing species richness and diversity.*'

5.73 Wimborne St Giles Parish lies approx. 8.9km from the closest part of The New Forest SAC, implying that there is no realistic pathway of surface runoff from the parish reaching the SAC. The Wimborne St Giles WwTW discharges into the Allen (Headwaters) waterbody, which sits in a different Operational Catchment (Stour Dorset) than the SAC (Hampshire Avon). In conclusion, there is no hydrological connection between the WwTW serving the parish and sensitive habitats within the SAC. Therefore, LSEs of the WSGNP on the New Forest SAC / Ramsar regarding water quality can be excluded. These European sites are screened out from AA in relation to this impact pathway.

Summary of Policies Screened in for Appropriate Assessment (AA)

5.74 Having completed the LSEs screening process, the following policies proposing site allocations will be taken forward to the AA stage in the HRA process.

Policies proposing sites for potential allocation:

- Policy 15 (Land east of Bottlebush Lane, White Cottages) – allocated for up to two dwellings
- Policy 16 (Plot in front of the Terrace, adjoining No. 13) – allocated for one dwelling
- Policy 17 (Land adjoining the Playing Fields, opposite Park Lane) – allocated for up to 10 dwellings
- Policy 18 (Barn at Glebe Farm) – allocated for up to two dwellings
- Policy 19 (Infill plot on Park Lane) – allocated for one dwelling
- Policy 20 (Infill plot on Baileys Hill) – allocated for one dwelling
- Policy 21 (Land off Coach Road) – allocated for up to two dwellings

¹²⁴ Available at: <http://publications.naturalengland.org.uk/publication/5174614971908096> [Accessed on the 17/01/2023]

- Policy 22 (Land at North Barn) – allocated for up to two dwellings
- Policy 23 (Framptons) – allocated for up to two dwellings or employment use
- Policy 24 (Former chicken sheds, Monkton Up Wimborne) – allocated for up to two dwellings

6. Appropriate Assessment (AA)

- 6.1 The law does not prescribe how an AA should be undertaken or presented, but it must consider all impact pathways that have been screened in, whether they arise alone or in combination with other projects and plans. That analysis is the purpose of this section. The law does not require the different effects to be examined separately provided all effects are discussed.
- 6.2 The HRA screening exercise undertaken in Table 5^{Error! Reference source not found.} indicates that ten site allocation policies were considered to pose LSEs to European sites, either alone or in combination with other projects and plans, due to contributing to one or more impact pathways.

Recreational Pressure

Dorset Heathlands SPA / Ramsar

- 6.3 The closest site considered for potential allocation in the WSGNP (WSG005) lies approx. 5.2km to the west of the closest part of the Dorset Heathlands SPA / Ramsar, the Cranborne Common SSSI and is therefore beyond the 5km mitigation zone. It follows that the population increase due to the WSGNP will not significantly add to the recreational burden in the SPA / Ramsar. Therefore, impacts of the WSGNP allocations regarding recreational pressure can be excluded and this site will not result in an 'in combination' effect on European site integrity in relation to this impact pathway.
- 6.4 However, it is possible that windfall sites may come forward for consideration during the lifetime of the WSGNP. By definition the location of any such sites is, at the current time, unknown and therefore it is not possible to rule out the possibility that a windfall site will fall within the mitigation area for the Dorset Heaths. To address this, it is recommended that additional wording, accompanied by a map of the catchment, is added to Policy 9 or Policy 12 of the WSGNP to state that *'Site developers should be aware that net new windfall housing within the 5 km catchment of Dorset Heaths SAC/Dorset Heathlands SPA will require a separate report to inform HRA, for submission to the local planning authority In line with the Dorset Heathlands Planning Framework 2020-2025: Supplementary Planning Document¹²⁵. Depending on the details, mitigation for recreational pressure impacts may also be required'*.

Dorset Heaths SAC

- 6.5 The SAC largely overlaps with the Dorset Heathlands SPA / Ramsar and the closest component part to Wimborne St Giles Parish is the Cranborne Common SSSI, approx. 5.2km from potential allocation WSG005. Overall, the WSGNP does not allocate any new residential development within the 5km core recreational catchment zone surrounding the Dorset Heaths SAC. Therefore, adverse effects of allocations in the WSGNP regarding recreational pressure will not arise on the integrity of this SAC.

¹²⁵ Dorset Council. (April 2020). The Dorset Heathlands Planning Framework 2020 – 2025 Supplementary Planning Document. 33pp. Available at: <https://www.dorsetcouncil.gov.uk/documents/35024/309543/Dorset+Heathlands+2020-2025+SPD+Adopted.pdf/bda03d74-cbc9-57c9-b3be-6253ba2825fb> [Accessed on the 11/01/2023]

6.6 It is possible that windfall sites may come forward for consideration during the lifetime of the WSGNP. By definition the location of any such sites is, at the current time, unknown and therefore it is not possible to rule out the possibility that a windfall site will fall within the mitigation area for the Dorset Heaths. It is recommended that additional wording, accompanied by a map of the catchment, is added to Policy 9 or Policy 12 of the WSGNP to inform developers that *'Site developers should be aware that net new windfall housing within the 5 km catchment of Dorset Heaths SAC/Dorset Heathlands SPA will require a separate report to inform HRA, for submission to the local planning authority In line with the Dorset Heathlands Planning Framework 2020-2025: Supplementary Planning Document¹²⁶. Depending on the details, mitigation for recreational pressure impacts may also be required'*.

New Forest SPA / Ramsar

6.7 At its closest, Wimborne St Giles Parish lies approx. 6.7km from the SPA / Ramsar, while the closest potential allocation is approx. 13.1km distant. This means that expected residential growth in the parish sits just within the catchment from which the majority of visitors travel to the SPA / Ramsar. WSGNP is expected to make a very small contribution to recreational pressure for the following reasons:

- Visitor survey data indicate that only 3% to the SPA / Ramsar derive from East Dorset, the former authority (now amalgamated into Dorset Council) within which Wimborne St Giles Parish sits; and
- The core recreational catchment for dog walkers and daily visitors, i.e. those visitor groups with the highest impact potential, are significantly smaller (8km and 5.7km respectively) and do not include growth potentially allocated in the parish.

6.8 However, even that small effect may need to be addressed, and it is possible that windfall sites may come forward for consideration during the lifetime of the WSGNP. By definition the location of any such sites is, at the current time, unknown and therefore it is not possible to rule out the possibility that a windfall site will fall within the mitigation area for the New Forest Habitats Sites.

6.9 It is therefore recommended that additional wording, accompanied by a map of the catchment, is added to Policy 9 or Policy 12 of the WSGNP to inform developers that *'Site developers should be aware that net new housing (including windfall) within the 13.8km catchment of New Forest SAC/SPA will require a separate report to inform HRA, for submission to the local planning authority. Depending on the details, mitigation for recreational pressure impacts may also be required in line with the emerging New Forest Mitigation Strategy.*

The New Forest SAC

6.10 While it is considered that growth in WSGNP will make a very small contribution to any 'in combination' recreational pressure effect on the SAC, for the same reasons that apply to the SPA. it is possible that mitigation may be needed and

¹²⁶ Dorset Council. (April 2020). The Dorset Heathlands Planning Framework 2020 – 2025 Supplementary Planning Document. 33pp. Available at: <https://www.dorsetcouncil.gov.uk/documents/35024/309543/Dorset+Heathlands+2020-2025+SPD+Adopted.pdf/bda03d74-cbc9-57c9-b3be-6253ba2825fb> [Accessed on the 11/01/2023]

windfall sites may come forward for consideration during the lifetime of the WSGNP.

- 6.11 As with the SPA, it is therefore recommended that additional wording, accompanied by a map of the catchment, is added to Policy 9 or Policy 12 of the WSGNP to inform developers that *'Site developers should be aware that net new housing (including windfall) within the 13.8km catchment of New Forest SAC/SPA will require a separate report to inform HRA, for submission to the local planning authority. Depending on the details, mitigation for recreational pressure impacts may also be required in line with the emerging New Forest Mitigation Strategy.'*

Water Quantity, Level and Flow

Dorset Heaths SAC & Dorset Heathlands Ramsar

- 6.12 Many qualifying habitats in the Dorset Heaths SAC are closely dependent on adequate hydrological regimes, which are typically impacted by both precipitation and surface water / groundwater supply. As applies to many lowland habitats in the UK, historic drainage activities have had an impact on water levels in key SAC habitats. The SIP for the Dorset Heaths SAC states that *'drainage is generally the result of ditches made within the site to endeavour to drain wet heath or mire. These drains invariably result in adverse changes to wet heath and mire communities in the vicinity.'* Therefore, historic drainage to enable agriculture and grazing have already deteriorated hydrological conditions, exacerbating potential impacts of water abstraction for the public water supply.
- 6.13 Supplying clean potable water to new residential developments is a statutory requirement in the UK and falls under the responsibility of water companies. These publish cyclic Water Resources Management Plans (WRMPs) that outline the approach to meeting public water demand within defined geographic areas. It is to be noted that the primary concern regarding new development is whether any increased water demand would require **additional** abstraction from groundwater and / or surface water resources. Any historic increases to abstraction volumes would have already required Environment Agency (EA) consent and undergone HRA.
- 6.14 The company responsible for the public water supply to Wimborne St Giles Parish is South West Water (SWW), which merged with Bournemouth Water in 2016. Its most recent WRMP was published in 2019, covering the period between SWW provides drinking water to 1.7 million people across Devon, Cornwall, Dorset, Somerset and Bournemouth. Water demand in their supply area equates to approx. 445 million litres per day (Ml/d), which is largely sourced from rivers and reservoirs (90%) and groundwater sources. Wimborne St Giles Parish is situated in the Bournemouth Water Resource Zone (WRZ; effectively the largest possible zone in which water resources can be shared and all customers experience the same risk of supply failure). The principal water sources in this WRZ are the Hampshire Avon and Dorset Stour, with two small lakes providing bankside storage. Groundwater abstractions provide potable water to the more rural parts of the WRZ, including Wimborne St Giles Parish.
- 6.15 The key parameter in WRMPs that helps determine whether additional water sources may need to be exploited is the baseline supply-demand balance predicted for different WRZs. This is a complex modelling approach that accounts

for climate change, environmental protection, system outages and cumulative demand due to new development (both household and industrial). If the supply-demand balance is in deficit within the WRMP planning horizon, addressing this deficit may have environmental implications. A review of SWW's WRMP 2019 indicates that the baseline supply-demand balance for the Bournemouth WRZ will remain in surplus for the entire plan period between 2017/18 and 2044/45. The balance for the Dry Year Critical Period is predicted to be in surplus of approx. 7.5 Ml/d in 2017/18, rising to approx. 10 Ml/d in 2044/45. Notably, the Water Available For Use (WAFU) increases in 2025/26 due to improvements at key Water Treatment Works (WTWs) to reduce raw water losses and increase overall capacity.

- 6.16 Being in surplus for the entire WRMP period means that no additional water abstraction will be required to meet demand in the Bournemouth WRZ. In turn, remaining within existing abstraction consents (which will have been consented by the EA) implies that the integrity of European sites will be protected, including the hydrological conditions in the Dorset Heaths SAC. SWW's overall strategy going forward focuses on demand reduction (with leakage reduction at its core), ensuring the future availability of existing sources (considering drought impacts and changing environmental sensitivities) and developing planning tools (including potential future resource options). Therefore, the WRMP considers potential supply-side options (including river abstractions, new reservoirs and groundwater sources) to increase the WAFU in preparation for PR24. However, none of these options are confirmed and, in any case, they would not be undertaken to meet demand identified in this WRMP period.
- 6.17 Overall, following a detailed review of SWW's WRMP, it is concluded that there is no potential for growth in Wimborne St Giles Parish to affect the hydrology in the Dorset Heaths SAC. Therefore, adverse effects of the WSGNP on the SAC can be excluded and no mitigation in relation to this impact pathway is required.

River Avon SAC & Avon Valley SPA / Ramsar

- 6.18 Any species living in the aquatic environment depends on sufficient water levels to enable sufficient foraging, breeding success and long-term survival. However, for the qualifying anadromous fish species survival also depends on adequate longitudinal connectivity between marine areas and preferred spawning grounds. Importantly, adult Atlantic salmon also prefer returning to their own spawning gravels and many individuals that are prevented from reaching these locations (e.g. due to in-river barriers or low river flows) fail breeding altogether. Low flow regimes, such as those exacerbated by water abstraction and transfer, may fail to trigger the salmonid homing instinct at key times in the year or provide plunge pools of sufficient depth beneath obstacles¹²⁷. Reduced in-river water volumes may also negatively impact other key habitat characteristics, such as by causing reduced wetted areas around spawning gravels, reduced dissolved oxygen concentrations and increased water temperatures. Furthermore, very low water levels can also negatively impact upstream migration and spawning success in sea lamprey, brook lamprey and bullhead. The Desmoulin's whorl snail is primarily associated with emergent vegetation in river floodplains and fens. High groundwater tables, with water levels at or above the surface throughout the year,

¹²⁷ Hendry K. & Cragg-Hine D. (2003). Ecology of the Atlantic salmon. Conserving Natura 2000 Rivers Ecology Series No. 7. English Nature, Peterborough. 36pp.

are one of the most important factors determining their distribution¹²⁸. Consequently, changes in hydrology due to water abstraction are regarded as one of the major threats to this species.

- 6.19 The SACO for the Avon Valley SPA / Ramsar¹²⁹ highlight that the qualifying species in the Avon Valley SPA / Ramsar depend on habitats that are sustained by flows from the River Avon. They are at indirect risk from reduced water supplies, which may lead to lower availability and suitability of foraging and roosting habitats. Reducing the extent of optimal supporting habitats may lead to increased competition for alternative habitats and displace birds to lower quality foraging sites. Reduced freshwater input has the potential to reduce the availability of water weeds, the preferred foraging resource for gadwall, and lead to the dominance of algal communities.
- 6.20 The closest part of the River Avon SAC to Wimborne St Giles Parish falls within the Hampshire Avon Operational Catchment. The EA Abstraction Licensing Strategy (ALS) for the Hampshire Avon sets out the management approach towards existing and new abstractions and impoundments in this part of the river catchment. The ALS is designed to protect the habitats and species of all designated sites in hydrological continuity with their wider catchment. Water resource availability is calculated for different flow scenarios, including Q95 (the flow of a river that is exceeded 95% of the time; i.e. low flow), Q70, Q50 and Q30 (high flow). Data presented in the ALS, indicates that this catchment is already under considerable pressure from insufficient flows. For example, no water is available for licensing under below moderate (Q70) and low flows (Q95), due to river flows being below the requirements for supporting a healthy ecological status. Furthermore, groundwater resource availability mapping indicates that only limited groundwater is available for licensing in this area. The EA has the right to impose additional constraints to abstraction licenses to protect the environment, in particular European sites. Hands-off flows and Hands-off levels may be issued to abstraction license holders, meaning that water supply from any given source is not guaranteed.
- 6.21 As highlighted in the previous section on the Dorset Heaths SAC and Dorset Heathlands Ramsar, SWW's WRMP shows that meeting the potable water demand due to the forecast in-combination growth across Dorset District (which includes growth in Wimborne St Giles Parish) will not require increased abstractions from existing or new water sources. The parish is located in the Bournemouth WRZ, which has a positive baseline supply-demand balance throughout the entire WRMP period. Therefore, there is no potential for growth in Wimborne St Giles Parish to affect the hydrology in the Avon Valley complex. Adverse effects of the WSGNP on the River Avon SAC and Avon Valley SPA / Ramsar can be excluded and no mitigation in relation to this impact pathway is required.

New Forest SAC / Ramsar

- 6.22 The New Forest SAC is designated for a range of habitats that are in potential hydrological connectivity with groundwater or surface waterbodies, including oligotrophic waters, Northern Atlantic wet heaths, depressions on peat substrates, bog woodland, alluvial forests, transition mires and alkaline fens. The

¹²⁸ Killeen I.J. (2003). Ecology of the Desmoulin's whorl snail. Conserving Natura 2000 Rivers Ecology Series No. 6. English Nature, Peterborough. 27pp.

¹²⁹ Available at: <http://publications.naturalengland.org.uk/publication/5741820348727296> [Accessed on the 17/01/2023]

southern damselfly and great-crested newt also rely on aquatic habitats, at least during part of their life cycle. The New Forest Ramsar supports diverse assemblages of wetland plants and animals, including several nationally rare species and 65 British Red Data Book species of invertebrates. Valley mires and wet heaths in the site are of high ecological quality and scientific interest.

- 6.23 Hydrological connections between terrestrial habitats and waterbodies are not always easy to discern. The EA ALS for the New Forest catchment¹³⁰ identifies that the clay and sand deposits underlying the New Forest have low permeability, indicating that streams and wetlands within the site only receive limited input from groundwater sources. However, in line with a precautionary approach, this AA assumes that freshwater bodies are important in supporting the hydrological condition in SAC / Ramsar habitats. Due to the low productivity of the underlying aquifers, there is limited abstraction in this area. It is thought that rainfall is the primary freshwater source contributing to flows within streams and, therefore, the potential for water abstractions to affect the ecological integrity of the SAC / Ramsar is relatively low. Except for very low flow conditions (Q95), additional water is available for licensing, based on the criterion that there is more water than is required to meet environmental needs. Equally, groundwater is available for licensing depending on potential impacts on other abstractions and connected surface waters.
- 6.24 As was important in relation to the other European sites, any growth in Wimborne St Giles Parish can be supplied with potable water under the existing abstraction consents in the Bournemouth WRZ. SWW's WRMP specifies that due to the surplus in the baseline supply-demand balance, no additional water resource options are required to meet the increased water demand in the WRZ. Adverse effects of the WSGNP on the New Forest SAC / Ramsar can be excluded and no mitigation in relation to this impact pathway is required.

¹³⁰ Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793435/New_Forest_Abstraction_Licensing_Strategy.pdf [Accessed on the 18/01/2023]

7. Conclusions and Recommendations

7.1 This HRA undertook LSEs screening and, where required, AA of the WSGNP. All NP policies and sites proposed for potential allocation were assessed in relation to the following European sites:

- Dorset Heathlands SPA / Ramsar
- Dorset Heaths SAC
- Avon Valley SPA / Ramsar
- River Avon SAC
- New Forest SPA / Ramsar
- The New Forest SAC
- Prescombe Down SAC
- Fontmell & Melbury Downs SAC
- Great Yews SAC

7.2 A range of impact pathways were considered in relation to these European sites, including recreational pressure, loss of functionally linked habitat, visual and noise disturbance (during construction), atmospheric pollution, water quantity level and flow, and water quality. LSEs were excluded regarding all impact pathways except for impacts on water quantity, level and flow (in relation to the Dorset Heathlands Ramsar, Dorset Heaths SAC, River Avon SAC, Avon Valley SPA / Ramsar and New Forest SAC / Ramsar). This impact pathway was taken forward to AA.

Recreational pressure

7.3 The AA discussed potential recreational pressure effects on the integrity of Dorset Heathlands SAC/SPA and The New Forest SAC/SPA from windfall and (for the New Forest) some allocations in the WSGNP, though only when considered in combination with other projects and plans. It was therefore recommended that additional wording, accompanied by a map of the relevant recreational catchment, is added to Policy 9 or Policy 12 of the WSGNP to inform developers of the need for project level HRA and potentially the need for mitigation regarding both European sites. For Dorset Heathlands SAC/SPA this should include a reference to the relevant mitigation SPD.

Water Quantity, Level and Flow

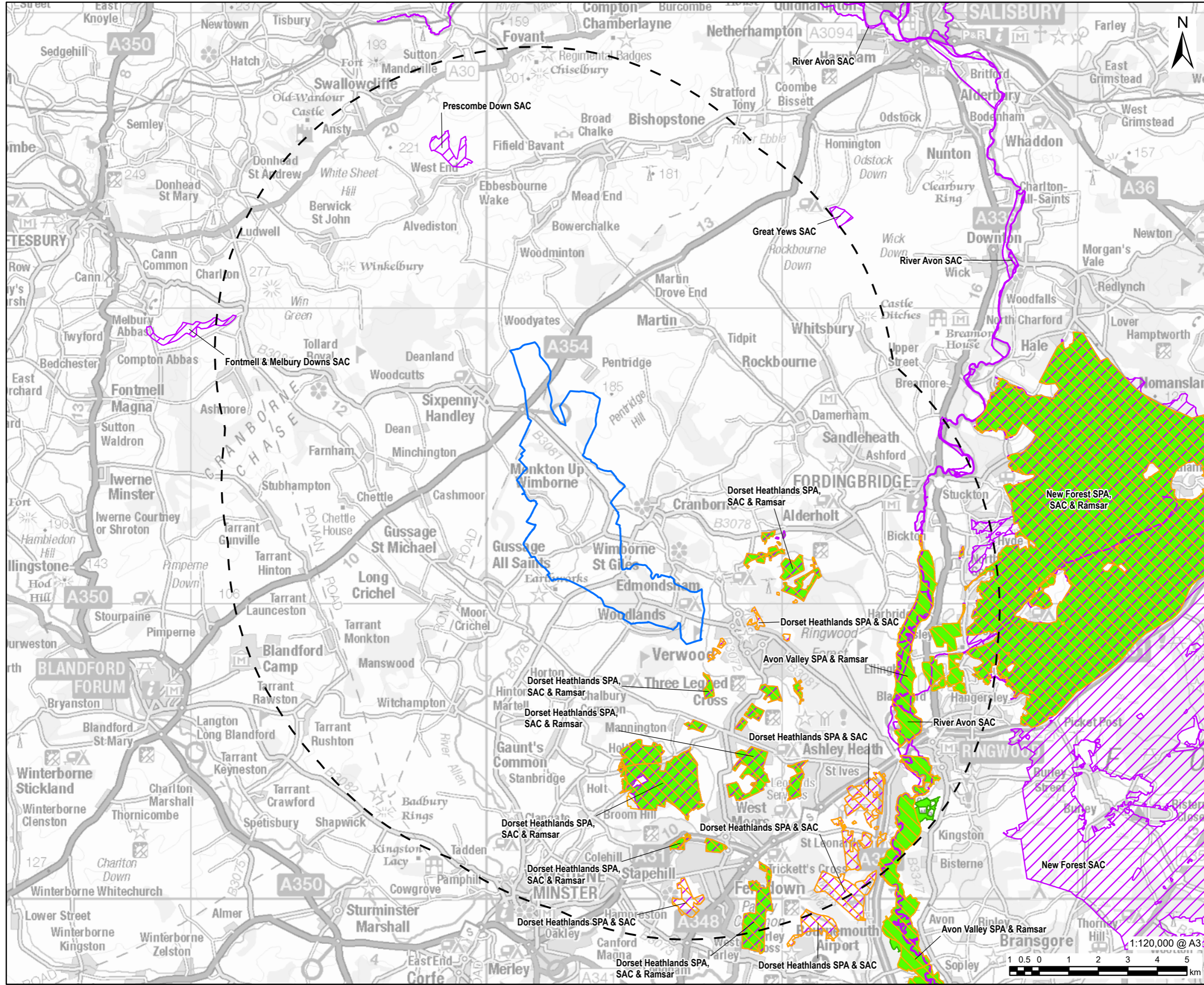
7.4 The AA discussed the sensitivity of relevant designated habitats and species to changes in hydrological conditions, primarily due to increased abstraction from surface water and groundwater sources. However, a detailed review of the South West Water WRMP showed that the baseline supply-demand balance in the Bournemouth WRZ (in which Wimborne St Giles Parish lies) is in surplus during the entire WRMP period. Therefore, no additional water resources will be needed

to support the growth allocated in the WSGNP. Adverse effects on the integrity of all relevant European sites, alone and in-combination, are excluded. No policy mitigation is required.

- 7.5 With the recommended changes introduced to the WSGNP it can be concluded that an adequate policy framework would exist to ensure that adverse effects on the integrity of European sites would not arise.

Appendix A

A.1 Map of European sites in Relation to Wimborne St Giles Parish



PROJECT
 Wimborne St Giles
 Neighbourhood Plan

CLIENT
 Wimborne St Giles Parish
 Council

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LEGEND

- Wimborne St Giles Parish Boundary
- 10km Study Area
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar

NOTES
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ISSUE PURPOSE
 FINAL

PROJECT NUMBER
 60571087

FIGURE TITLE
 Habitats sites within 10km of Wimborne St Giles Parish

FIGURE NUMBER
 Appendix A

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