Knightsford Neighbourhood Plan

Habitats Regulations Assessment

Knightsford Group Parish Council

February 2024

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Quality information

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1. Introduction

Background to the Project

1.1 AECOM was appointed by Knightsford Group Parish Council to undertake a Report to Inform the Habitats Regulations Assessment (HRA) of the Knightsford Neighbourhood Plan (NP) March 2023 Pre-Submission (Regulation 14) version. This is to inform the Parish Council and Dorset Council (as competent authority) of the potential effects of the NP development on Habitat sites ((Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Ramsar sites (designated under the Ramsar convention)), formerly referred to as European sites, and how they are being or should be addressed in the NP.

1.2 The Knightsford Neigbourhood Plan contains policies on conserving local character, improving road safety and opportunities for walking, cycling and horse riding, retaining and improving local community facilities and meeting housing and employment needs.

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

Local Context

1.4 The Knightsford Neighbourhood Plan covers the four parishes of Tincleton, West Knighton, West Stafford and Woodsford. This area lies to the east side of the county town of Dorchester in Dorset.

1.5 The population of Knightsford is about 900 according to the 2021 Census data, West Knighton being the largest community, and Woodsford the smallest. Given its rural nature, the area has a limited range of community facilities and is mainly made up of three and four bedroom family homes.

1.6 The overall vision based on the input from the community is for the parishes to thrive whilst also providing a rural, tranquil, friendly, attractive and safe atmosphere. Development opportunities will be sustainable and in line with the needs and wishes of the parishes, respecting the area's historic and rural character.

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'[1] to Habitat sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitat site(s) in question. Plans and projects with predicted adverse impacts on Habitat sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Over-riding 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, Box 1) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended).

[1] 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".*

Box 1: The legislative basis for Appropriate Assessment

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']."

1.10 It is therefore important to note that this report has two purposes:

- To assist the Qualifying Body (Knightsford Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect Habitat 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 to discharge their duty under Regulation 105 (in their role as 'plan-making authority' within the meaning of that regulation) and 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 a 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 screening through to identification of IROPI. This has arisen 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 ruling[2] clarified that 'mitigation' (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a Habitat site that would otherwise arise) should not be considered 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 considering 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 international sites be included in the scope of assessment:

- All sites within the boundary of Knightsford; 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 Habitat site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could then affect Habitat sites by, for example, disturbance of wintering or breeding birds.

1.16 Guidance from the Department for Levelling Up, Housing and Communities (DLUHC) formerly 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)[3]. More recently, the Court of

[2] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)
[3] MHCLG (2006) Planning for the Protection of Habitat sites, Consultation Paper

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 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 Habitat sites, including Conservation Objectives and current pressures and threats. **Chapter 4** provides detailed background on the main impact pathways identified in relation to the RNP and the relevant Habitat sites. **Chapter 5** undertakes the screening assessment of LSEs of the Plan policies and sites potentially proposed for allocation. The Appropriate Assessment is contained in **Chapter 6**, while 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 HRA[4] and that of the UK government[5].

2.2 Figure 1 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.

[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

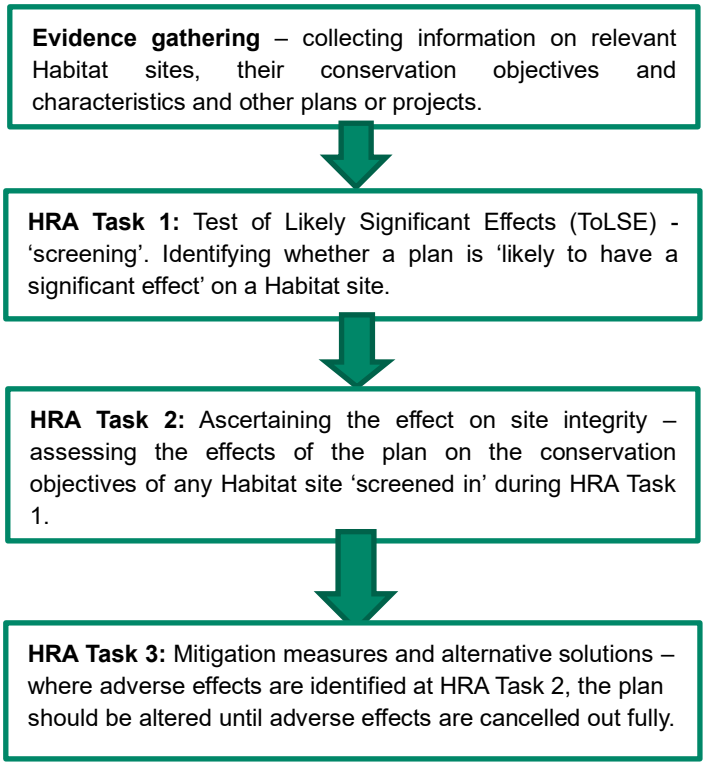

Figure 1: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2011.

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:

"Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon Habitat 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 Habitat 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 Habitat 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 Habitat site boundary).

2.6 In the Waddenzee case[6], 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).

[6] Case C-127/02

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 Habitat sites that might be affected. It identifies Habitat 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 Habitat 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 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 Habitat site(s)).

2.11 In 2018 the Holohan ruling[7] 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 Habitat 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 Habitat 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 Habitat 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 Habitat sites.

2.16 In the case of the Knightsford Neighbourhood Plan, an area extending to 10km from the Parish boundary was selected in which Habitat sites were identified. Habitat sites with hydrological sensitivities were also

[7] Case C-461/17

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.

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 Habitat site(s) in question.

2.18 In considering the potential for combined regional housing development to impact on Habitat 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 Knightsford Neighbourhood Plan:

- Emerging Dorset Local Plan (Options Consultation) (Dorset Council, 2021)
- West Dorset, Weymouth and Portland Adopted Local Plan (2015)

2.21 It should be noted that, while the broad potential impacts of these other projects and plans have 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.

3. Habitat sites

3.1 In the case of the Knightsford Neighbourhood plan, it has been determined that the Habitat sites identified in Table 1 require consideration.

Table 1. Habitat sites for consideration and their location in relation to the Knightsford Parish boundary.

Habitat site	Location (at its closest point) and reason for inclusion
Poole Harbour SPA	**Xxm south of the Knightsford Parish boundary** Susceptible in particular to water quality impacts through excessive nutrients.
Dorset Heathlands SPA/Ramsar Dorset Heaths SAC	**0.6km South-east of the Knightsford Parish boundary** Susceptible to 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 and deer.
Isle of Portland to Studland Cliffs SAC	**4.8km South of the Knightsford Parish Boundary** Susceptible to inappropriate undergrazing, inappropriate scrub control, invasive species, agricultural management practices, public access/disturbance, water pollution, habitat

fragmentation, inappropriate coastal management, natural changes to site conditions and managed rotational burning.

Source: Multi Agency Geographic Information for the Countryside www.magic.defra.gov.uk

3.2 This was based upon a search of surrounding Habitat 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 Habitat site does not mean that LSEs will occur.

3.3 The reason for designation, Conservation Objectives and environmental vulnerabilities of the Habitat sites are detailed below.

Dorset Heathlands SPA / Ramsar

Introduction

3.4 The Dorset Heathlands comprises a suite of heathland sites at the western edge of the Hampshire Basin. Extensive and fragmented, these heathland areas are centred around the estuary of Poole Harbour and are adjacent to the urban conurbation of Bournemouth and Poole. The heathland contains numerous examples of wet heath and acid valley mire, habitats that are restricted to the Atlantic fringe of Europe. These heath wetlands are among the best of their type in lowland Britain. There are also transitions to coastal wetland and fen habitat types. The wetland flora and fauna includes a large assemblage of nationally rare and scarce species, especially invertebrates.

Conservation Objectives[8]

3.5 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;

3.6 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 maintain 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.

Qualifying Features

3.7 The reason for the designation of the SPA is for the following features.

3.8 Qualifying Annex I species:

- Hen harrier (*Circus cyaneus*) (Non-breeding)
- Merlin (*Falco columbarius*) (Non-breeding)
- European nightjar (*Caprimulgus europaeus*) (Breeding)
- Woodlark (*Lullula arborea*) (Breeding)
- Dartford warbler (*Sylvia undata*) (Breeding)

3.9 The reason for the designation of the Ramsar is for the following features[9].

[8] https://publications.naturalengland.org.uk/publication/5808199001178112 [Accessed 19 May 2023]
[9] https://jncc.gov.uk/our-work/ramsar-sites/ [Accessed 19 May 2023]

3.10 **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*.

3.11 **Criterion 2** – Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species.

3.12 **Criterion 3** – Has a high species richness and high ecological diversity of wetland habitat types and transitions, and lies in one of the biologically-rich wetland areas of lowland Britain, being continuous with three other Ramsar sites: Poole Harbour, Avon Valley and The New Forest.

Environmental Vulnerabilities[10]

3.13 Natural England's Site Improvement Plan identifies the following threats and pressure for the integrity of the SPA / Ramsar

- 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

Dorset Heaths SAC

Introduction

3.14 This site, with the Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC, covers an extensive complex of heaths that form one of the best developed and most significant tracts of heathland in the lowlands of the UK. There are fine transitions between dry heath, wet heath and acid mire vegetation types, as well as a high diversity of associated habitats such as acid grassland, sand dune, acid oak woods, bog woodland, base-rich mires, fen-meadow, reedswamp and small water bodies.

Conservation Objectives[11]

3.15 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;

3.16 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 maintain or restoring**;**

- The extent and distribution of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species

[10] https://publications.naturalengland.org.uk/publication/5181909839642624 [Accessed 19 May 2023]
[11] European Site Conservation Objectives for Dorset Heaths SAC - UK0019857 (naturalengland.org.uk) [Accessed 19 May 2023]

- 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.

Qualifying Features

3.17 The reason for the designation of the SAC is for the following features.

3.18 Qualifying Annex I priority habitats:

- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (Calcium-rich fen dominated by great fen sedge (saw sedge))

3.19 Qualifying Annex I habitats:

- Alkaline fens. (Calcium-rich springwater-fed fens)
- Depressions on peat substrates of the *Rhynchosporion*
- European dry heaths
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). (Purple moor-grass meadows)
- Northern Atlantic wet heaths with *Erica tetralix*. (Wet heathland with cross-leaved heath)
- Old acidophilous oak woods with Quercus robur on sandy plains. (Dry oak-dominated woodland)

3.20 Qualifying Annex II species:

- Great crested newt *Triturus cristatus*
- Southern damselfly *Coenagrion mercuriale*

Environmental Vulnerabilities[12]

3.21 Natural England's Site Improvement Plan identifies the following threats and pressure for the integrity of the SAC

- 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

[12] https://publications.naturalengland.org.uk/publication/5181909839642624 [Accessed 19 May 2023]

Isle of Portland to Studland Cliffs SAC

Introduction

3.22 Isle of Portland to Studland Cliffs, including the detached peninsula of Portland, with St Albans Head to Durlston Head, forms a single unit of cliffed coastline around 40 km in length. The cliffs are composed of hard Jurassic limestones, with chalk at the eastern end, interspersed with slumped sections of soft cliff made up of sands and clays. The cliffs support species-rich calcareous grassland that host species such as wild cabbage *Brassica oleracea var. oleracea* and early spider-orchid *Ophrys sphegodes*, which are rare in the UK.

Conservation Objectives[13]

3.23 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;

3.24 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.

Qualifying Features[14]

3.25 The reason for the designation of the SAC is for the following features.

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

- Vegetated sea cliffs of the Atlantic and Baltic Coasts
- Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (important orchid sites)

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

- Annual vegetation of drift lines

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

- Early gentian *Gentianella anglica*

Environmental Vulnerabilities[15]

3.29 Natural England's Site Improvement Plan identifies the following threats and pressure for the integrity of the SAC:

- Undergrazing
- Inappropriate scrub control
- Invasive species
- Agricultural management practices

[13] https://publications.naturalengland.og.uk/publication/5124023511941120 [Accessed 13 April 2023]
[14] https://sac.jncc.gov.uk/site/UK0019861 [Accessed April 14 2023]
[15] https://publications.naturalengland.org.uk/publication/6737802813243392 [Accessed April 14 2023]

- Public Access/Disturbance
- Water Pollution
- Habitat fragmentation
- Inappropriate coastal management
- Natural changes to site conditions
- Managed rotational burning

Poole Harbour SPA/ Ramsar

Introduction

3.30 Poole Harbour SPA is located on the coast of East Dorset and is bounded by the conurbation of Poole on its northern and eastern shores, and by the Isle of Purbeck on its western and southern shores. Poole Harbour is a large natural harbour comprising of extensive tidal mudflats and saltmarshes together with associated reedbeds, freshwater marshes and wet grasslands. It also includes seagrass beds located towards the north-east of the harbour and subtidal channels in which 68 seaweed species, 159 invertebrate species and 32 fish species have been recorded. The site is underpinned by parts of the following Sites of Special Scientific Interest (SSSI): Poole Harbour; Arne; Wareham Meadows; The Moors, Holton & Sandford Heaths; and Studland & Godlingston Heaths. It also overlaps with Poole Harbour Ramsar site.

Reason for Designation

3.31 The **SPA** is designated for[16]

Qualifying Annex I species:

- Common tern *Sterna hirundo*
- Sandwich tern *Sterna sandvicensis*
- Mediterranean gull *Larus melanocephalus*
- Little egret *Egretta garzetta*
- Spoonbill *Platalea leucorodia*
- Pied avocet *Recurvirostra avosetta*

Regularly occurring migratory species:

- Shelduck *Tadorna tadorna*
- Black-tailed godwit *Limosa limosa islandica*

Assemblage qualification: during the non-breeding season the area supports dunlin *Calidris alpina*, great cormorant *Phalacracorax carbo*, dark-bellied brent goose *Branta bernicla bernicla*, teal *Anas crecca*, goldeneye *Bucephala clangula,* red-breasted merganser *Mergus serrator*, curlew *Numenius arquata,* spotted redshank *Tringa erythropus*, greenshank *Tringa nebularia*, redshank *Tringa totanus*, pochard *Aythya farina* and black-headed gull *Chroicocephalus ridibundus*, all of which are present in nationally important numbers.

3.32 The **Ramsar** is designated for[17]:

Criterion 1: The site is the best and largest example of a bar-built estuary with lagoonal characteristics (a natural harbour) in Britain.

[16] http://publications.naturalengland.org.uk/publication/6625771074355200
[17] https://jncc.gov.uk/jncc-assets/RIS/UK11054.pdf

Criterion 2: The site supports two species of nationally rare plant and one nationally rare alga. There are at least three British Red data book invertebrate species

Criterion 3: The site includes examples of natural habitat types of community interest - Mediterranean and thermos Atlantic halophilous scrubs, in this case dominated by *Suaeda vera*, as well as calcareous fens with *Cladium mariscus*. Transitions from saltmarsh through to peatland mires are of exceptional conservation importance as few such examples remain in Britain.

The site supports nationally important populations of breeding waterfowl including common tern and Mediterranean gull. Over winter the site also supports a nationally important population of avocet.

Criterion 5: Assemblages of international importance - species with peak counts in winter.

Criterion 6: Species/populations occurring at levels of international importance.

Species with peak counts in winter:

- Shelduck
- Black-tailed godwit

Conservation Objectives[18]

"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 above), and subject to natural change;

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

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

Current Pressures and Threats

3.33 The Site Improvement Plan[19] identifies the following pressures and threats to the SPA:

- Water pollution
- Air Pollution: impact of atmospheric nitrogen deposition
- Fisheries: commercial marine and estuarine
- Coastal squeeze
- Public access/ disturbance
- Deer

3.34 The Information Sheet on Ramsar Wetlands (RIS)[20] identifies the following adverse factors:

- Eutrophication - Nutrient enrichment is an issue, compounded by the site's physical characteristic of poor flushing. This is evident from the extensive algal mats covering intertidal mudflats during the summer months.
- Introduction/invasion of non-native animal species

[18] http://publications.naturalengland.org.uk/publication/6625771074355200
[19] http://publications.naturalengland.org.uk/publication/6713862766198784
[20] https://jncc.gov.uk/jncc-assets/RIS/UK11054.pdf

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 on Habitat sites to evaluate whether development is connected with Habitat 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 Habitat site. As highlighted earlier, it is also important to bear in mind DLUHC (formerly MHCLG) guidance which states that the AA should be 'proportionate and sufficient to support the task of the competent authority in determining whether the plan or project will adversely affect the integrity of the site.' (DLUHC, 2019, paragraph 003 Reference ID: 65-003-20190722.[21]).

4.2 Based upon Natural England's Site Improvement Plans (SIPs) and professional judgement, there are several impact pathways that require consideration regarding development proposals within the KNP area and the relevant Habitat sites.

4.3 The following impact pathways are considered relevant to the HRA of the Knightsford Neighbourhood Plan.

- Public access/ recreational pressure;
- Water pollution
- Air pollution: impact of atmospheric nitrogen deposition.

Background to Recreational Pressure

4.4 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 research reports have provided compelling links between changes in housing and access levels and impacts on European protected sites[22][23].

4.5 Recreational use of a site has the potential to:

- Cause disturbance to sensitive species such as wintering wildfowl;
- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion, trampling and fragmentation; and
- Cause eutrophication as a result of dog fouling.

4.6 Different types of Habitat sites (e.g., coastal, heathland, chalk grassland) have varying vulnerabilities and are sensitive to different types of recreational pressures. Studies across a range of species have shown that the effect from recreation can be complex.

Bird Disturbance

4.7 Disturbance effects can have negative impacts on qualifying birds in various ways, with reduced chick provisioning and increased nest predation as a result of adults being flushed from the nest and deterred from returning to it by the presence of people and dogs likely to be a particular problem. A literature review on the effects of human disturbance on breeding birds found that 36 out of 40 studies reported reduced breeding success as a consequence of disturbance[24]. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or young. Studies of other

[21] Available at: https://www.gov.uk/guidance/appropriate-assessment#what-must-an-appropriate-assessment-contain
[22] 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.
[23] 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.
[24] Hockin, D., M. Oundsted, M. Gorman, D. Hill, V. Keller and M.A. Barker (1992) – Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. Journal of Environmental Management, 36, 253-286.

species have shown that bird's nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure[25].

4.8 Studies have shown that birds are more significant affected by dog walkers that by people alone, with birds flushing more frequently, at greater distances and for longer (Underhill-Day, 2005). In addition, dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces[26].

4.9 Underhill-Day (2005) summarises the results of visitor studies that have collected data on the use of semi-natural habitat by dogs. In surveys where 100 observations or more were reported, the mean percentage of visitors who were accompanied by dogs was 54.0%.

4.10 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 that, in some cases, the most easily disturbed birds simply move to other feeding sites, whilst others may remain (possibly due to an absence of alternative sites) and thus suffer greater population-level impacts[27]. A recent literature review undertaken for the RSPB[28] also urges caution when extrapolating the results of disturbance studies because responses differ between species and may be impacted by local environmental conditions. These facts have to be taken into account when attempting to predict the impacts of future recreational pressure on international sites.

4.11 It should be emphasised that recreational use is not necessarily a problem. Many Habitat 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 available to ensure that recreational use is managed appropriately.

4.12 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at Habitat sites involves locating new development away from such sites; Local Plans and other strategic plans, including NPs, provide the mechanism for this. Where avoidance is not possible, mitigation will usually involve a mix of access management, habitat management and provision of alternative recreational space.

Recreational Pressure

4.13 In order to understand the effects of human frequentation, trampling, and other human-induced impacts, fencing experiments have been traditionally carried out on coastal dunes. Since in touristic areas dune systems are subjected to different intensities of human frequentations rather than to opening or fencing, studies have explored the effects of accessibility on vascular plants cover.

4.14 In general, plant communities subject to trampling tend to be poorer in species and less structured, since only dominant and tolerant plant species persist. Furthermore, limiting trampling appears to produce positive changes in the dune vegetation assemblage after a period of only two years

4.15 The degree of impact and sensitivity of SAC and SPA habitats and species are summarised below in Tables 2 and 3 shows that most habitats and bird species have a degree of direct negative impact resulting from recreational site users.

[25] Van der Zande, A.N., J.C. Berkhuizen, H.C. van Letesteijn, W.J. ter Keurs and A.J. Poppelaars (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.
[26] Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. The London Naturalist, 74, 77-82.
[27] Gill et al. (2001) - Why behavioural responses may not reflect the population consequences of human disturbance. Biological Conservation, 97, 265-268
[28] Woodfield & Langston (2004) - Literature review on the impact on bird population of disturbance due to human access on foot. RSPB research report No. 9.

Table 2. Relative sensitivity of moorland features to recreation and urban impacts

Habitats	Direct Impact		Indirect Impact	
	Trampling	Disturbance	Fire	Management
Dry dwarf-shrub heath	XX		XXX	
Wet dwarf-shrub heath	XXX		XX	
Blanket mire	XXX		XXX	
Mountain	XXX		X	
Acid grassland	XX		XX	
Calcareous grassland	XX			XX
Flushes/ springs	XXX			
Rock ledges	XX			
Screes	XX			
Breeding birds		XXX	XXX	XX
Wintering birds (raptor roosts)		X		
Invertebrates	XX		XX	X
Key (degree of negative effects):	Least	X XX XXX	Most	

Source: Adapted from Anderson (1990)

Table 3. Relative sensitivity of moorland plants

	Species	Notes	SAC/ SPA Presence
Least Sensitive			
	Common bent/ crested dog's tail	As in some in-bye land[29]	Not major component of SAC Annex 1 habitats
	Wavy hairgrass/ sheep's fescue	On mineral soils	Often minor component of SAC dry heath habitat
	Heather	Young	Major component of Annex 1 dry heath and blanket bog habitats
	Mat-grass	Usually on drier, thin peats or peaty mineral soils	Often component of heavily grazed dry heath
	Purple moor-grass	Usually on wetter flushed peaty soils	Major component of wetter heath and blanket bog habitats
	Bracken	Young plants	Can be invasive on drier heath and acid grassland habitats
	Heather	Old – old plants are brittle and easily broken	Major component of Annex 1 dry heath and blanket bog habitats. Important for nesting SPA birds
	Crowberry/ bilberry	On peat	Major component of Annex 1 dry heath and blanket bog habitats
	Cotton-grass spp.	Cotton-grass mire on peat	Major component of Annex 1 blanket bog habitats
Most Sensitive	***Sphagna***	Flushes, mire on peat	Major component of blanket bogs and transition mire habitats

Source: Adapted from Anderson (1990)

[29] In-bye land: part of a farm not comprising the hill and rough grazings.

1.1 The Dorset Household Survey[30] considered how different factors influence visitor rates to heathlands in south-east Dorset. The survey focused on the extent to which the presence or extent of different types of habitat and existing greenspace in the vicinity of where people live determines the amounts of visits people make to heaths.

4.16 The annual number of visits made per household to heaths correlated with the amount of heathland surrounding the home postcode, i.e., those people living in locations surrounded by lots of heathland visit heaths more often than those surrounded by less heathland. For those travelling to heaths on foot, the highest correlations were found with the area of heath within a distance of 1.5km. For car-borne visitors the highest correlation occurred using the area of heath within 5km and especially within 1.5km-5km.

4.17 There was an indication that people living close to the coast visit heaths less. When there is no heath within 500m of a household, the presence of coastal greenspace within any distance limit from 500m outwards up to 15km has a statistically significant reduction on both the likelihood of visiting any heath and the number of heath visits made in a year.

Summary

4.18 Overall, the following Habitat site is considered susceptible to recreational pressure within the context of the Knightsford Neighbourhood Plan:

- Dorset Heathlands SPA/ Ramsar
- Dorset Heaths SAC
- Isle of Portland to Studland Cliffs SAC

Background to Changes in Air Quality

4.19 The main pollutants of concern for Habitat sites are oxides of nitrogen (NOx), ammonia (NH3) and sulphur dioxide (SO2) and are summarised in Table 5.

Table 5. Main sources and effects of air pollutants on habitats and species[31].

Pollutant	Source	Effects on habitats and species
Sulphur dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980's. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 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.
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, 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.	Gaseous precursors (e.g., SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. Can affect habitats and species through both wet (acid rain) and dry deposition.

[30] https://www.footprint-ecology.co.uk/reports/Clarke%20et%20al.%20-%202008%20-%20Access%20patterns%20in%20south-east%20Dorset.%20The%20Dorset%20h.pdf
[31] Source: Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/)

Pollutant	Source	Effects on habitats and species
	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.	The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants. 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.
Ammonia (NH_3)	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. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type	The negative effect of NH_4+ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation. 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 species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	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.	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 NOx for all vegetation types has been set to 30 ug/m^3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NOx contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. 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

Pollutant	Source	Effects on habitats and species
	The N pollutants together are a large contributor to acidification (see above).	assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). 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.	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife and can affect buildings. High O_3 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.

4.20 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 WntSNP.NH3 emissions are dominated by agriculture, with some chemical processes also making notable contributions.

4.21 NH3 can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[32]. NOx can also be toxic at high concentrations (far above the annual average Critical Level) but generally only in the presence of elevated SO2 which is very rare in the UK.

4.22 NOx 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 NOx (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[33]. Emissions of NOx could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the WntSNP. High levels of NOx 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[34,35].

4.23 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 µgm-3. In addition, ecological studies have determined 'Critical Loads' (CLs)[36] of atmospheric N deposition (that is, NOx combined with ammonia NH3) for key habitats within Habitat sites.

4.24 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*"[37] (see Figure 2).

[32] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[33] 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
[34] 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
[35] 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
[36] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[37] TAG unit A3 environmental impact appraisal (publishing.service.gov.uk) [Accessed 10/10/2023

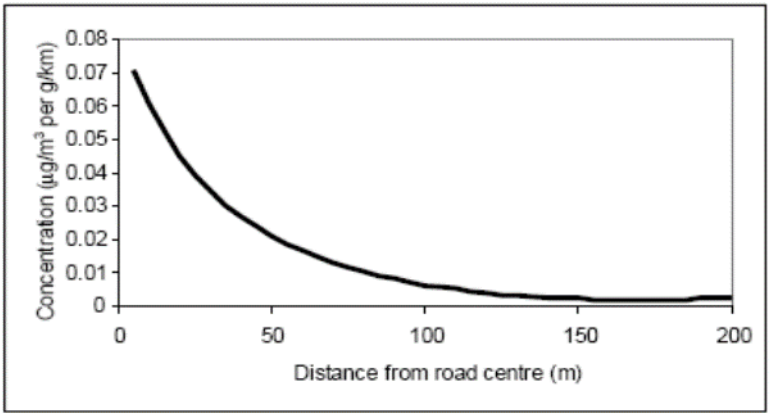

Figure 2: Traffic contribution to concentrations of pollutants at different distances from a road (Source: www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf)

4.25 The following Habitat sites are considered sensitive to atmospheric pollution arising from the Knightsford Neighbourhood Plan:

- Dorset Heathlands SPA/ Ramsar
- Dorset Heaths SAC

Background to Water Pollution

4.26 Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients and toxic contaminants in Habitat sites leading to unfavourable conditions.

4.27 The quality of the water that feeds Habitat 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.

4.28 One European site within the catchment of Knightsford Group Parish or linked to it hydrologically is considered sensitive to negative water quality changes arising from the Knightsford Neighbourhood Plan. This is the Poole Harbour SPA for which a nutrient neutrality requirement exists.

Summary of Impact Pathways to be Taken Forward

4.29 Having considered the impact pathways identified at paragraph 4.3, those shown in Table 6 will be taken to the next stage in the HRA process, the LSEs screening.

Table 6. Impact pathways and relevant Habitat sites.

Impact pathway	Habitat site (s) potentially affected
Recreational Pressure	Dorset Heathlands SPA/ Ramsar Dorset Heaths SAC Isle of Portland to Studland Cliffs SAC
Water Quality	Poole Harbour SPA
Air Pollution	Dorset Heathlands SPA/ Ramsar Dorset Heaths SAC

5. Likely Significant Effects (LSEs) Screening

5.1 When seeking to identify relevant Habitat 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. In order 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 possibility for an effect. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e., those which undermine the Conservation Objectives of a Habitat site).

5.2 The likely zone of impact (also referred to as the likely Zone of Influence, ZoI) of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The ZoI 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 Habitat 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 Knightsford Neighbourhood Plan Policy Screening

5.3 There are 17 policies within the Knightsford Neighbourhood Plan. Policies were screened out of having LSEs on a Habitat 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 Habitat site. This can be because there is no pathway between the policy and the qualifying features or a Habitat site, or because any effect would be positive;
- they make provision for change but could have no significant effect on a Habitat site (i.e., the effect would not undermine the conservation objectives of a Habitat site); or,
- the effects of a policy on any particular Habitat 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 Habitat 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 Habitat site (due to distance, for example);
- there are no Habitat 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 Knightsford HRA are presented in Table 7. Where a policy is shaded green, there are no linking impact pathways to Habitat 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 17 Knightsford Neighbourhood Plan policies, one policy, Policy 17 Land north of Yoah Cottage is considered to have the potential to result in LSEs, either alone or in combination with other plans and projects, as there are impact pathways linking it to Habitat sites, therefore Appropriate Assessment is required.

Table 7. Screening table of the policies included in the Knightsford Neighbourhood Plan.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Conserving Local Character		
Policy 1. Development set in rural landscapes	Development should: • Retain and increase opportunities for small-scale broadleaved woodlands / copses, and native trees and hedgerows, particularly along the valley floors, settlement edges and locations where it would soften the landscape and visual impact of intrusive development; • conserve watercourses / ditches, incorporating them into new designs in a natural (rather than overly engineered) form; • retain the rural character of the roads running around and between the villages, which are well-vegetated, lacking pavements, and in places offer views towards open fields and surrounding countryside, enhancing the feel of openness in the area; • minimise the impact on dark night skies by restricting external lighting schemes as far as possible (taking into account any health and safety needs), avoiding light spill that would be directed upwards, and using warmer colours with a CCT not exceeding 3000K.	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead informs how developments should be designed to in keeping with the rural landscape. This includes retaining or increasing areas of native vegetation, conserving watercourses/ditches, retaining the rural character of roads and minimising light pollution. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Policy 2. Wildlife corridors and biodiversity	Development should aim to strengthen the wildlife corridors in the Neighbourhood Plan area, and avoid measures that would impede the movement of species. Existing mature trees and hedges should where practicable be incorporated into the landscape design of public areas, and any landscaping schemes should include a maintenance programme. Where new trees are to be planted, suitable native, climate change tolerant species should have priority, with a mix of species reflecting the local landscape character. Species typical of the area include oak, ash, beech, sweet chestnut, yew, lime, birch / silver birch, hawthorn, blackthorn, field maple, spindle and willow in riverside locations. Fruiting trees should also be considered to help achieve a net gain for pollinators. Tree pits, if required, must be designed carefully responding to the needs of the particular species providing sufficient soil volume and ensuring that trees can easily flourish. Opportunities should be taken where possible to link the small and isolated woodlands in the parish, to help connect these habitats and improve biodiversity. Proposals to facilitate public access to wildlife areas should be considered and encouraged where compatible with the nature conservation interests of those areas. • the orientation of the development, inclusion of paths and green space / corridors to draw attention to, and raise awareness of, the heritage asset; • the use of architectural details and materials that compliment that used on the heritage asset.	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead informs how developments should be designed to include wildlife corridors and improve biodiversity. This policy could potentially have a positive affect by encouraging public access to local wildlife areas drawing people away from visiting designated sites. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 3. Plot formation, building set-back, orientation and boundary treatments	Development should complement and, where appropriate, enrich the streetscape into which it will be inserted. To achieve this, the following principles should be adhered to in considering plot formation, building set-back, orientation and boundary treatments: • the size and pattern of plots should be irregular, reflecting the variety found within that village; • building lines and setbacks should be irregular, retaining the sense of informality and reinforcing the rural character of the villages, but without blocking views of important local landmarks or harming the important sequenced views along the village lanes. Careful consideration should also be	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how developments should be designed with certain plot formation, building set-back, orientation and boundary treatments as to in keep with the rest of the village. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	given to ensuring that streets and public spaces have good levels of natural surveillance. Where the character is generally uniform, subtle variations in terms of the degree of form of recesses, protrusions and rotations, should be used; • the majority of buildings should front onto streets, providing good levels of natural surveillance and opportunities for social interaction. Where buildings are side-on, their design should ensure that the front entrance is clearly identifiable from the street, and the street-facing façade complements the streetscape. The design of corner buildings (on junctions) should similarly ensure that all façades overlooking the street or public space are treated as primary façades, providing good levels of natural surveillance and visual interest along both streets / public spaces. Buildings at important intersections should be designed to provide a local landmark (unless there is a landmark building already on the junction); • the rural character of the lanes should be preserved, including the retention and continuation of native hedgerows and grass verges where possible. Boundary treatments should help define the street and public realm. Natural boundary treatments (hedges / shrub borders) should prevail over the hard surfaces, with low-height brick or stone / rubble walls (and, to a lesser extent, railings and wooden post and rail or picket fencing) otherwise used. Where space allows, street tree planting should also be included; • boundary treatments on the village edges should use hedges, shrubs and trees, to help integrate the village within its rural setting. Where fencing is needed, this should be post and rail or otherwise perforated so as to avoid creating a harsh edge, and allow wildlife to move along this green corridor more freely.	
Policy 4. Incorporating the car in developments – parking guidelines	There should be adequate on-plot parking provision to avoid issues of parking overflow along the characteristically narrow lanes. Parking spaces and garaging should be well integrated into design so as not to dominate the public realm. Where parking is to the front of the plot, soft landscaping should be used to soften the visual impact and retain the rural character of the lane. Parking positioned to the side, whether simply surface or within garaging, should be set back behind the building line if feasible. If garaging is proposed, open car barns are preferred to enclosed garages. The	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how developments should incorporate car parking spaces. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	placement of any such garaging should seek to retain gaps between buildings in keeping with the character of the area. Mounted charging points and associated services should be integrated into the design of new developments, where possible within the garaging or on a side elevation, to avoid being overly prominent. Where possible, waste storage and cycle parking should be incorporated within any garaging, and designed so that these can be easily accessed without having to move the vehicle. Where there is no garaging, covered and secured cycle storage should be provided within the domestic curtilage; using materials in keeping with the character of the building and not overly prominent from the street. Hard standing must be constructed from porous materials, to minimise surface water run-off and therefore, help mitigate potential flooding	
Policy 5. Density, building heights and rooflines	Development should complement and, where appropriate, enrich the streetscape into which it will be inserted. To achieve this, the following principles should be adhered to in considering density, building heights and mix: • the generally low density character of the villages should be respected, with the retention of gaps and views between properties enabling the rural character of the area to be retained, and densities reduced towards the edge of the village in order to create a gradual transition towards the countryside; • the scale of the building should be a maximum height of 2 storeys, with storey heights designed so as to ensure that, other than in exceptional circumstances, the overall scale of the building does not notably exceed the surrounding rooflines, taking into account the varied topography; • the design should create variation in the roofline as seen from the street, through the building form, potential use of dormer windows and use of chimneys. Flat roofs are not characteristic of the area and should be avoided. In general, chimneys should be incorporated on all new residential properties unless the design is based on non-domestic forms such as agricultural barns.	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how developments should be designed with in keeping density, building heights and rooflines. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 6. Building mix	New development should propose a mix of building types and sizes, providing opportunities for households with varying	**No LSEs, screened out from AA.**

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	needs and supporting a more balanced population profile. The quality and architectural design of any affordable housing should be comparable with open market housing, in order to ensure that its occupants have pride in belonging to and living in our Neighbourhood Plan area.	This policy does not itself lead to development but instead informs how developments should have a mix of building types and sizes. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 7. Materials and architectural details	Development should complement and, where appropriate, enrich the streetscape into which it will be inserted. To achieve this, the following principles should be adhered to in considering the built forms, materials and architectural details used: • the built form and design should reflect references in both the natural and built environment and make a positive contribution to the rural character of the village; • the choice of materials used should reflect the local vernacular and colour palette within that village, avoiding light or intense colours where these would be prominent in the streetscape and wider views. The use of traditional, natural, and locally sourced, materials is preferred. Synthetic, pre-coloured materials, should be avoided unless there is no viable alternative; • the level of architectural detailing should be appropriate to the character of the building and be applied proportionately to all potentially visible elevations; • The use of lintels and sills, drip-moulding, and decorative ridge tiles and edge treatments should be considered where appropriate to the character of the building. • Care needs to be taken in incorporating services and utilities within the design, such as manhole covers and meter boxes. These should be shown on the design drawings, with trenches and pipework grouped together where feasible to facilitate easy maintenance. Chimneys can be used to disguise flues / ventilation needs or incorporate wildlife-friendly features where they do not serve as a working fireplace, and meter boxes and similar requirements should be designed into a scheme from the outset to avoid cluttering the elevations, where possible placed on the side rather than front elevations and in a colour that blends in with the surrounding wall.	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how developments should utilise certain materials and architectural details in keeping with the rural character of the village. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
Policy 8. Extensions and conversions – general principles	Proposals to extend or alter existing buildings should respect the original building and streetscape in which it is situated. Features and other factors that relate to the historic working of farm buildings and/or contribute to its character need to be retained. Features that would be inappropriate to the heritage of that building (such as domestic chimneys and dormer windows on working barns) should be avoided. Extensions should be subordinate in terms of scale and form, and the roof (including any dormer windows) should harmonise with that of the original building, through similar pitch, form, rhythm and materials. Loft conversion incorporating dormers which are out of scale and do not consider existing window rhythm nor frequency should be resisted. Side extensions should be set back slightly from the building line if possible, and not result in the gaps between dwellings being filled. Rearward extensions will need careful consideration of roof form, avoiding flat roofs and ensuring the ridgeline is lower than the main ridge of the building. Materials and details should match the existing building, although consideration may be given to contrasting materials and details with a contemporary design approach of this would not overwhelm the character of the original building, and create a harmonious composition overall.	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how extensions and conversions of existing buildings should be carried out. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 9. Sustainability in design	Where sustainable drainage systems are proposed, preference should be given to those using vegetation to help slow and clean the water, linked to surrounding wetland habitat if possible. Rainwater / greywater harvesting systems should be considered and where practicable included in the design. Planning conditions may be necessary to secure the ongoing management / maintenance arrangements, to ensure these are achievable and will remain effective. Hard surfacing should be designed to be permeable, with the choice of material and colour to reflect the colour palette for that area. The choice of building fabric should give preference to locally produced and sourced materials, including the re-use of materials, or otherwise achieve high standards of the sustainability, where these will be in keeping with local character. The design and layout should consider:	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs that developments should incorporate sustainability into their design. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	• orientation and window size in relation to heat gain and loss; • the use of roof overhangs and window reveals to reduce potential for overheating on southerly-facing rooms; • the integration of solar panels, and whether these can be part of (rather than added to) the roof; • the integration of air source heat pumps, sited to minimise adverse impacts on the streetscape. Wildlife-friendly features should be included within the design of new buildings, extensions and alterations, such as bee bricks, swift, swallow and house martin bricks, bird boxes and bat habitats (typically tubes and boxes within lofts). Barn owl nest spaces / boxes should be included in properties in outbuildings and barns in the wider countryside whenever possible;	
Policy 10. Local Green Spaces	The following local green spaces should be protected from inappropriate development that would harm their character and reason for designation: • West Knighton Village Green and Playpark • West Stafford Play Area • The Green, West Stafford • Land east of Wynd Close, West Stafford	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead protects four specific green spaces from inappropriate development. This policy could potentially have a positive affect by keeping the character of local green spaces and making locals more likely to visit them instead of designated sites. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 11. Important local views and landmarks	Locally valued views are to be respected. Development that would significantly degrade these views and significance of local landmarks, by virtue of scale, massing, design or poor location, will be resisted.	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead informs that developments should not significantly degrade locally valued views or landmarks. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 12. Development in proximity to heritage assets	New development in proximity to a heritage asset should look to minimise harm to its significance in line with national planning policy, and where feasible and appropriate,	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead informs how developments in proximity to

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	raise awareness of that asset, through consideration of: • how the heritage assets would have been experienced in the wider landscape; • the scale and extent of setback required to retain views of the asset and ensure the proposed development is less dominant in the streetscape; • the orientation of the development, inclusion of paths and green space / corridors to draw attention to, and raise awareness of, the heritage asset; • the use of architectural details and materials that compliment that used on the heritage asset.	heritage assets should look to minimise harm to their significance. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Improving Road Safety and Opportunities for Walking, Cycling and Horse Riding		
Policy 13. Village roads and Quiet Lanes	Development accessing onto or extending village roads which do not have a separate footway, should ensure that the safety and comfort of pedestrians using these routes is not compromised. Transport assessments will be required to consider the impact of increased motorised traffic on the network of Quiet Lanes. Mitigation measures may be necessary to ensure that the routes remain safe and attractive for recreational use by walkers, cyclists or horse riders.	**No LSEs, screened out from AA.** This policy does not itself lead to development, but instead informs how village roads and quiet lanes will be maintained for road users and pedestrians. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Policy 14. Prioritising walking, cycling and horse riding	Where possible, development should retain and create reasonably direct, safe and attractive walking, cycling and horse riding links with nearby lanes, footpaths and bridleways. In assessing the design of such routes within and adjoining development sites, care should be taken to ensure that the routes are, wherever possible, overlooked by properties, and suitably wide and open with good visibility and avoid unnecessary barriers, so that they feel safe to be in. Opportunities to promote walking, cycling and horse riding in the area through the provision of new or improved routes. Where feasible and related to a potential development site, the development should enable these routes to be provided or improved. Their feasibility should also be considered as potential mitigation to address adverse impacts of traffic arising from development arising within the local area. Development that would adversely impact on the enjoyment of walkers, cyclists and horse riders using the rights of way network will not	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how development should prioritise retaining routes and areas for walking, cycling and horse riding. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	be supported. Particular regard will be given to the importance of the long distance trails (the Frome Valley Trail, Hardy Way and Jubilee Trail) that run through the parish.	
Policy 15. Supporting community facilities	Community facilities listed below should be retained, and every effort should be made to work with the local community to investigate potential solutions to avoid any unnecessary closures, and consider alternative services that may benefit the community. • Churches and burial grounds (in all four parishes) • Pubs (in West Knighton and West Stafford) • Village Halls (in Tincleton and West Stafford) Proposals that would allow such facilities to modernise and adapt for future needs, including complementary facilities that would support their long-term viability, are encouraged. Proposals for new small-scale facilities that can help meet local needs will in principle be supported, provided the site is within or readily accessible from the built-up areas of Tincleton, West Knighton, West Stafford and Woodsford, and subject to consideration of environmental, road safety and amenity concerns.	**No LSEs, screened out from AA.** This policy does not itself lead to development but instead informs how community facilities should be retained or improved. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.
Meeting our Housing and Employment Needs		
Policy 16. Meeting local housing needs in the Plan area	The housing target (6 dwellings over the plan period) is expected to be met through: • sensitive infill development within the defined development boundary for West Knighton; • the site allocation on land north of Yoah Cottage, West Knighton; • small-scale affordable housing exceptions sites, subject to identifying a suitable site adjoining the villages of West Knighton, or as infill development within the village of West Stafford; • sensitive conversion, replacement, or subdivision of existing rural buildings; and • the provision of rural workers dwellings where such a functional need is demonstrated. The mix of dwelling types should seek to deliver: • affordable homes for rent, in line with identified local need (as demonstrated	**No LSEs, screened out from AA.** This policy does not itself allocate development but instead informs how local housing needs in the plan area will be met. There are no pathways linking this policy to any Habitat sites. Developments will be considered at the planning stage to ensure they comply with this policy, the NPPF and other relevant policies.

Policy number / name	Policy summary (full policy details can be found in the NP document)	Likely Significant Effects Screening Assessment
	through the affordable housing register), where possible as social rented tenure; • first and shared-ownership affordable homes, where possible based on a 50% discount or 10% equity share; • open market homes, primarily for smaller, one or two bedroom, properties unless such homes would not be appropriate to the site and local character. 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. Mechanisms should be used to ensure that affordable housing remains so in perpetuity.	
Policy 17. Land north of Yoah Cottage	Land north of Yoah Cottage is allocated for up to three dwellings, based on a mix of dwelling types in Policy 16. The scale, design and layout should conform with Policies 4 – 11, and in particular will need to: • respect the pattern and scale of development at this end of the village, and the setting of Yoah Cottage and The Cottage (as Grade II Listed buildings) that should not be overwhelmed through development in this location; • retain the mature trees within the site, including consideration of their root protection zones; • create / reinforce the cluster of buildings (including Yoah Cottage and The Cottage) as the gateway into the village; • accommodate sufficient parking to service the dwellings and any residual need in respect of Yoah Cottage; • provide for safe access onto the lane, and encourage slow traffic speeds and driver awareness of pedestrian / cycle movements • compensate for the loss (in whole or part) of the roadside hedge, through reinforcing the hedgerow planting along the rear boundary and further measures as may be required to achieve a 10% biodiversity net gain.	**Potential for LSE** This policy provides the location and quantum of development and has the potential to result in the following adverse effects on Habitat sites: • Public access/disturbance • Water quality • Air pollution: impact of atmospheric nitrogen deposition The allocated site is 1.9km away from Dorset Heaths (SAC, SPA and Ramsar) and 5.8km away from Isle of Portland to Studland (SAC), which are susceptible to the above-mentioned adverse effects.

6. Appropriate Assessment In-combination

Introduction

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 7 indicates that one policy, Policy 17 Land north of Yoah Cottage, is considered to pose LSEs to Habitats sites, either alone or in combination with other projects and plans, due to contributing to the following impact pathways: recreational pressure, air pollution and water pollution.

Recreational Pressure

Dorset Heathlands

6.1 Policy 17, Land north of Yoah Cottage states that “Land north of Yoah Cottage is allocated for up to three dwellings”. This policy specifies a location within 5km of the Dorset Heaths for residential development. This policy therefore has the potential to result in an increase in recreational pressure on the Dorset Heathlands Habitats sites.

6.2 The Dorset Heathlands Planning Framework 2020-2025 Supplementary Planning Document[38] was prepared jointly by Bournemouth, Christchurch and Poole Council (BCP Council) and Dorset Council with the advice of Natural England.

6.3 The purpose of this SPD is to set out the approach to avoid or mitigate harm arising from increased urban related pressures on the Dorset Heathlands. This SPD accords with the principles of the National Planning Policy Framework (NPPF) (2019) and it is a result of the co-operative approach to partnership working between the Councils, statutory bodies and other organisations. It is the purpose of the document to set out the approach that, together, the two Councils will follow. This forms a basis for how harm to the heathlands can be avoided.

6.4 As discussed in Section 4 of this report, various studies, have found that public access to lowland heathland, from nearby development, has led to an increase in wild-fires, damaging recreational uses, the introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets amongst other factors have an adverse effect on the heathland ecology.

6.5 Some of these effects are direct impacts on the designated sites but many, such as recreational use, will be ongoing for the duration of the development. In the case of additional housing, the effects arising are considered to be permanent requiring ongoing mitigation measures.

6.6 On the basis of the evidence, the proposed increase in residential development within 5 km of the Dorset Heathlands will inevitably result in greater urban pressures upon the heathlands. Therefore Natural England advises that the cumulative effect of a single dwelling up to 5 km from the Dorset Heathlands would have a likely significant effect on those designated sites.

6.7 The Councils are in agreement that avoidance or mitigation measures are required to enable the Councils to continue to grant permission for residential development within 5 km of these designated sites.

6.8 In order to enable development, the SPD puts forward ‘The Dorset Heathlands Avoidance and Mitigation Strategy’. The strategy consists of two mutually dependent and supporting policy mechanisms:

- Restrictions on development within the 400 metres heathland area; and

[38] Available at: https://www.dorsetcouncil.gov.uk/documents/35024/309543/Dorset+Heathlands+2020-2025+SPD+Adopted.pdf/bda03d74-cbc9-57c9-b3be-6253ba2825fb

- Mitigation associated with some types of development within the 400 metres to 5km heathland area.

6.9 Natural England advise that in order for an appropriate assessment to be able to conclude that there is no adverse effect on the integrity of the Dorset Heathlands it is necessary certain types of development, including new residential dwellings, require avoidance or mitigation measures to be implemented to allow development to be approved.

6.10 The mitigation element of the strategy is in two parts:

- Part 1: Strategic Access, Management and Monitoring (SAMM); and
- Part 2: Heathland Infrastructure Projects (HIPs).

6.11 SAMM focuses on wardening, raising awareness and monitoring the effectiveness of the strategy. SAMMs contributions secure the day-to-day costs of helping local people to behave in ways less harmful to the local heathlands they access. This is through raising awareness of the issues and value of the protected sites and includes (i) employing wardens to manage visitor pressures on the heathland; and (ii) delivering awareness and education programmes in local schools, on the heaths and through local communities. SAMMs also pay for the ongoing monitoring of a sample of heathland birds, visitor access patterns and the effects of new development and crucially whether this strategy is effective.

6.12 The SAMMs charge is calculated by dividing the total cost of providing SAMMs by the number of planned homes within the 5km heathland area for each respective Council over the period 2020-2025. This currently stands at £406 per house and £277 per flat.

6.13 Heathland Infrastructure Projects (HIPs) are physical infrastructure projects that provide facilities to attract people away from the protected heathland sites. SANGs (Suitable Alternative Natural Greenspaces) are the most significant element of provision, having a key role in providing an alternative destination to the Dorset Heathlands.

6.14 Any additional residential development within 400 metre to 5km heathland area is likely to have a significant effect on the Dorset Heathlands either alone or in combination with other proposals. Therefore in accordance with the Habitats Regulations, the Councils will undertake a project level appropriate assessment when considering all planning applications where there is a net gain in homes within the 400 metre to 5km heathland area.

6.15 In this case a very small number of dwellings are allocated which will not have an adverse effect on the integrity of the Dorset Heathlands in itself but only in combination with all net new housing growth within the 5km catchment around the SPA/SAC. There are areas of mitigation already planned which could serve this housing development and draw residents away from the SAC/SPA. For example, the development at Silverlakes for up to 1000 holiday homes includes SANGs which are reasonably close and partly within the parish[39]. There is also a resolution to agree up to 80 dwellings on a site at Broadmayne that would deliver a 8.9ha SANG[40].

6.16 Given the small number of dwellings proposed a bespoke Heathland Infrastructure Project or SANG would not be appropriate or deliverable. It is therefore considered appropriate that this development contributes through financial payments to delivery of strategic HIPs or SANG and to SAMM.

6.17 Based on the evidence discussed in this HRA, several additions to policy wording in the Knightsford NP are needed to ensure that the nature conservation interest in the Dorset Heathlands SPA/ Ramsar and Dorset Heaths SAC is protected. It is recommended that wording is included in the Knightsford NP to clearly reference the requirements of the Dorset Heathlands SPD. The following wording could be included in an appropriate policy of the NP: ***'To avoid adverse effects on the Dorset Heathlands SPA/ Ramsar/ SAC all residential development will need to satisfy the requirements of The Dorset Heathlands SPD. This will include a project level Habitats Regulations Assessment, provision of adequate Heathland Infrastructure Projects and adequate financial contributions towards the mitigation measures identified in the SPD.'***

[39] https://planning.dorsetcouncil.gov.uk/plandisp.aspx?recno=65526
[40] https://planning.dorsetcouncil.gov.uk/plandisp.aspx?recno=377934

6.18 Provided that the above policy recommendations are included in the next iteration of the Knightsford NP, there will be no adverse effects of the Plan on the Dorset Heathlands SPA/ Ramsar and Dorset Heaths SAC.

Isle of Portland to Studland Cliffs SAC

6.19 Policy 17, Land north of Yoah Cottage states that "Land north of Yoah Cottage is allocated for up to three dwellings". This policy specifies a location within 5km of the Isle of Portland to Studland Cliffs SAC for residential development. This policy therefore has the potential to result in an increase in recreational pressure on the Isle of Portland to Studland Cliffs.

6.20 However, there is no indication from work undertaken for the existing adopted Local Plan or the emerging Dorset Plan that recreational pressure is considered a particular concern on this site and three dwellings on a single allocation will make a negligible impact on recreational pressure even when considered in combination with growth elsewhere in Dorset.

6.21 Overall, it is considered that there will be no adverse effect on the integrity of the Isle of Portland to Studland Cliffs SAC.

Air Quality

Dorset Heathlands and the Isle of Portland to Studland Cliffs SAC

6.22 Policy 17 has the potential to cause an in combination effect upon the European sites within 200m of major roadways.

6.23 According to the Department of Transport's Transport Analysis Guidance '*Beyond 200m, the contribution of vehicular emissions from the roadside to local pollution levels is not significant*.' This is because traffic exhausts are located only a few inches above ground, sitting horizontally to it. Therefore, the vast majority of emitted pollutants are never dispersed far and are very quickly deposited. This limited impact distance is also related to the mix of the exhaust gases, small dimension of exhausts and velocity of the exhaust gases emitted.

6.24 The Policy allocates 3 dwellings which is relatively small in comparison to housing in Dorset as a whole. The Adopted Local Plan was concluded to not cause significant effect upon European sites for the planned 15,880 dwellings within West Dorset. In all the number of dwellings allocated is likely to result in an increase of less than 1 Annual Average Daily Traffic on roads within 200m of Dorset Heaths SPA/SAC or other European sites. Forecast single figure changes in AADT are essentially nugatory, even 'in combination' with other projects and plans, 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. Very 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 to the total AADT.

- Secondly, when converted into NOx concentrations, NH_3 concentrations or N deposition rates, AECOM's experience is that very small changes in AADT 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.

1.2 Furthermore, the imperceptible contribution of the Neighbourhood Plan to these deposition rates (too small to reliably model) adverse effects on integrity 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 traffic-related 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.

6.25 Therefore, it can be concluded that the Knightsford NP will not contribute to a significant adverse effect on the integrity of European sites in-combination with other plans and projects due to changes in air quality.

Water Quality

Poole Harbour SPA / Ramsar

6.26 As identified in the ToLSEs screening section, the Knightsford NP has the potential to result in negative impacts on the Poole Harbour SPA regarding water quality, primarily in relation to the discharge of treated sewage effluent from Wastewater Treatment Works (WwTWs) serving the allocated six dwellings. Due to the relatively small quantum of allocated growth and long distance between the NP area and the SPA, it is considered that any impacts would only arise in combination with other development allocated in the surface water catchment of Poole Harbour.

6.27 The Poole Harbour SPA is a tidal harbour that is fed by two major freshwater sources, the River Frome and R. Piddle. Recent scientific data indicate that the harbour experiences high nitrogen loading, which in turn promotes widespread growth of macroalgal mats through a process known as eutrophication. Algal mats are well documented to reduce dissolved oxygen (DO) concentrations and restrict the abundance, diversity, distribution and overall health of invertebrate assemblages. The SPA is designated for a range of non-breeding and breeding bird species, some of which obtain their nutritional intake by probing for invertebrates in mud (e.g. avocet, black-tailed godwit, shelduck) or hunting for fish (e.g. little egret, spoonbill). The additional nitrogen in treated sewage effluent from future housing development, therefore, has the potential to negatively impact these qualifying bird species at the population level.

6.28 Overall, most nitrogen reaches the Poole Harbour SPA via inflowing rivers (73%), compared to inflows from the sea (19%) and direct discharges to the harbour (8%). As is the case for most European sites, nitrogen from the terrestrial environment primarily originates from diffuse agricultural sources such as fertilisers and livestock manure (85%), with points sources such as WwTWs only being accountable for 15%. Generally, diffuse agricultural sources are more difficult to address and do not fall under the remit of development plans. Notwithstanding this, over recent years there have been increasing efforts to reduce negative impacts of point sources on European sites, especially those that are under pressure of eutrophication and for which adverse effects on site integrity are likely.

6.29 In collaboration with other Local Planning Authorities, West Dorset District Council, the competent authority under the Habitats Regulations and which represents the overarching tier in the planning hierarchy, developed a Supplementary Planning Document (SPD) to achieve nitrogen reduction in Poole Harbour in 2017[41]. The SPD set out that on average each resident produces sewage containing 0.0035 tonnes (3.5kg) of nitrogen per year. In turn, Wessex Water would be required to remove 75% of nitrogen from sewage effluent to be in compliance with the Urban Waste Water Treatment Regulations 1994 (Section 5(3)). Furthermore, the SPD also set out calculations to determine the amount of nitrogen generated by new development, impacts of land use changes (in many cases from agriculture to urban) and the amount of land required to offset the nitrogen produced (generally through conversion of intensive agricultural to other

[41] Purbeck District Council, Borough of Poole, West Dorset District Council & North Dorset District Council. (April 2017). Nitrogen reduction in Poole Harbour Supplementary Planning Document – How residential and commercial development in the catchment of Poole Harbour will achieve nitrogen neutrality. 14pp. Available at: https://www.dorsetcouncil.gov.uk/documents/35024/302701/Nitrogen+Reduction+in+Poole+Harbour+SPD+Adopted.pdf/cec34d74-836e-0078-eda3-dd316635cacb [Accessed on the 15/03/2024]

land uses). However, in March 2022 Natural England published new advice for development proposals with the potential to affect water quality in European sites[42]. This advice note identified that nutrients in treated sewage effluent were contributing to adverse effects on the integrity of several European sites. Therefore, Natural England adopted nutrient neutrality requirements for these sites, including the Poole Harbour SPA. The updated Natural England advice was accompanied by evidence packs and, in many cases, bespoke nutrient budget calculators for each European site. Standing Natural England guidance and calculation methodologies supersede the approach set out in the 2017 SPD. In essence, nutrient neutrality dictates that there must be no net increase in nitrogen (and / or phosphorus) in treated sewage effluent from newly proposed residential development until such a time that adequate technological improvements at relevant WwTWs are delivered.

6.30 To determine the overall nitrogen budget associated with the Knightsford NP, the bespoke calculator for the Poole Harbour SPA / Ramsar available on the Dorset Council website was used. This tool comprises several stages and calculates the wastewater nutrient loading (kg N/yr) arising from allocated residential development, reduction in nitrogen input (kg N/yr) due to 'loss' of current land use and nutrient loading associated with future land use. The final stage determines the overall nitrogen budget including a 20% uncertainty buffer. Overall, it is estimated that the Knightsford NP will result in an annual TN load of 22.63 kg/N/yr and TP load of 6.29 kg/P/yr. **This implies that mitigation measures will be needed to allow development under the Knightsford NP to come forward without causing adverse effects on the Poole Harbour SPA / Ramsar regarding water quality.** It should be noted that these calculations are based on reasonable assumptions and would require updating in support of individual planning applications. For example, of the six dwellings expected to be delivered under the NP, only three dwellings are formally allocated in Policy 17 (Land north of Yoah Cottage). The remaining three dwellings are likely to be delivered as infill development in West Knighton village, but no red line boundary is available to identify site size and existing land use. For purposes of this HRA, it has been assumed that this infill development would be delivered on 0.1ha[43] of existing urban land.

6.31 At the time of writing, a Local Plan covering Dorset is still being prepared by Dorset Council. Until this is completed, the adopted Local Plans covering the former unitary authorities provide the policy framework to which development in constituent parishes must adhere to. The West Dorset, Weymouth and Portland Local Plan 2011-2031 covers the geographic area of the parishes of Tincleton, West Knighton, West Stafford and Woodsford. **Policy ENV2 (Wildlife and Habitats)** represents the main framework protecting European sites. It states that '*i) Internationally designated wildlife sites… will be safeguarded from development that could adversely affect them, unless there are reasons of overriding public interest why the development should proceed and there is no alternative acceptable solution. ii) Development that is likely to have an adverse effect upon the integrity of the Poole Harbour and Dorset Heaths International designations will only be permitted where there is provision to avoid, or secure effective mitigation of, the potential adverse effects…*' The Local Plan also makes specific reference to the issue of nitrogen loading in Poole Harbour that is primarily the result of sewage treatment and disposal. Provision of adequate WwTW infrastructure is also discussed in **Policy COM10 (The Provision of Utilities Service Infrastructure)**, which stipulates that '*Development will not be permitted where the problems associated with the lack of necessary utilities service infrastructure, including energy supplies, drainage, sewerage, sewage treatment and water supply, cannot be overcome.*'

6.32 As highlighted by the nutrient budget and the legal framework set by the overarching Local Plan, mitigation will be required to allow the six dwellings allocated in the Knightsford NP to come forward. A broad range of measures are available to mitigate potential adverse effects of nutrients in treated sewage effluent, both within development sites and off-site. Generally, it is considered that the most effective approach is to create / restore semi-natural habitats (e.g. woodland, grassland, wetland) by taking existing agricultural land out of production. Agricultural practices are the major contributor of diffuse nutrient pollution and associated with significantly higher nutrient loadings than semi-natural habitats. Existing Natural England guidance further identifies the following measures as suitable mitigation interventions:

- Treatment wetlands for agricultural land, diverted river water and WwTWs (e.g. Integrated Constructed Wetlands);

[42] Natural England. (March 2022). Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites. 30pp. Available at: https://publications.naturalengland.org.uk/publication/4792131352002560 [Accessed on the 15/03/2024]

[43] The estimated area required to deliver the three additional dwellings is based on a typical housing density of 30 dwellings per hectare, equating to 0.03ha per dwelling.

- Retrofitting SuDS into existing development;
- Replacing existing inefficient septic tanks and Package Treatment Plants (PTPs) with improved PTPs; and
- Temporary agricultural management measures (e.g. fallowing of land, planting of cover crops, provision of buffer strips).

7. Conclusions

7.1 This HRA undertook ToLSEs screening of the Knightsford Neighbourhood Plan March 2023 Pre-Submission (Regulation 14) version. All NP policies were assessed in relation to the following Habitat sites:

- Dorset Heathlands SPA/Ramsar
- Dorset Heaths SAC
- Isle of Portland to Studland Cliffs SAC

7.2 Following ToLSEs screening, it was concluded that one policy, Policy 17 Land north of Yoah Cottage, had the potential to cause a likely significant effect to designated sites and was discussed with regards to recreational pressures, air quality and water pollution.

7.3 It has been concluded that the Knightsford Neighbourhood plan will not affect the integrity of European sites in relation to recreational pressure take due to the overarching provisions in the West Dorset, Weymouth and Portland Adopted Local Plan (2015) and the Local Plan Review (Preferred Options Stage, 2018) with which all new housing in the Neighbourhood Plan will need to comply. **It is recommended that a policy is included within the Neighbourhood Plan which supports the Local Plan policies for the protection of European sites such as "Any development bought forward must ensure that it can be implemented without any adverse effect upon the integrity of the European sites. Proposals that will adversely affect the integrity of European sites will not be supported."**

7.4 As highlighted by the nutrient budget and the legal framework set by the overarching Local Plan, mitigation for water quality impacts on Poole Harbour SPA will be required to allow the six dwellings allocated in the Knightsford NP to come forward. A broad range of measures are available to mitigate potential adverse effects of nutrients in treated sewage effluent, both within development sites and off-site. The details of mitigation will need to be identified for each application. **However, it is recommended that the Neighbourhood Plan includes text flagging the nutrient neutrality requirement that exists for the Poole Harbour SPA.**

7.5 Finally, with regard to air quality, the Adopted Local Plan was concluded not to cause a significant adverse effect upon the integrity of European sites for the planned 15,880 dwellings within West Dorset. As the 3 dwellings allocated in Knightsford, within the Local Plan and supported by the Neighbourhood Plan are a very small fraction of 15,880 allocated for West Dorset as a whole, it can be concluded that the potential increase in road use through an increase in housing will not contribute to a significant adverse effect on the integrity of nearby European sites in combination with other plans and projects.

7.6 Provided the above recommendations are included within the Neighbourhood Plan it can be concluded that the Plan document will not result in an adverse effect on the integrity of any European sites either alone or in combination.