

Sturminster Marshall

Neighbourhood Plan
Report to Inform Habitats Regulations Assessment

Sturminster Marshal Parish Council

9th June 2023

Quality information

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1. Introduction

- 1.1.1 AECOM was appointed by Sturminster Marshall Parish Council to undertake a Report to Inform the Habitats Regulations Assessment (HRA) of the Sturminster Marshall Neighbourhood Plan 2023 - 2033 (SMNP) Pre-Submission Draft – April 2023. This is to inform the planning group and local Dorset Council (DC), as competent authority) of the potential effects of Neighbourhood Plan (NP) development on Habitats Sites (Special Areas of Conservation, SACs, Special Protection Areas, SPAs, and Ramsar sites designated under the Ramsar convention), and how they are being, or should be, addressed in the Pre-Submission Draft NP.
- 1.1.2 The SMNP contains development management policies relating to design principles, delivery of infrastructure prior to occupation, housing mix and traffic management amongst others. The plan does not contain any specific site allocations for development or quantum of development and is therefore considered to be a ‘development management’ document.
- 1.1.3 The SMNP builds on the Parish Plan Review 2011, The Christchurch and East Dorset Local Plan Part 1 - Core Strategy adopted in April 2014 and the wide range of documents produced by Dorset Council in the preparation of the draft Dorset Council Local Plan and other guidance covering the Plan area.
- 1.1.4 East Dorset Council began preparing a new Local Plan and published the first draft in July 2018. This draft identified Sturminster Marshall as a relatively large rural village offering a small range of services and facilities. In contrast to the previous strategy, it proposed options for modest housing growth in the village, approximately 250 units, on land to the south (off Station Road and at Springfield Farm) where Green Belt impact would be lowest. Following the merger of the Dorset councils in 2019, Dorset Council made the decision to halt work on the separate Local Plans (with the exception of Purbeck) and instead press ahead with a new Dorset wide Local Plan.
- 1.1.5 For the purpose of informing this report, policies contained within the Christchurch and East Dorset Local Plan: Core Strategy (adopted 2014)² which is the current Local Plan that covers the SMNP area at the time of writing, has been referenced. It is understood that DC are in the process of preparing a new Local Plan.
- 1.1.6 The objective of this report is to identify if any policies proposed in the SMNP have the potential to cause Likely Significant Effects (LSEs) and, where identified, adverse effects on the integrity of Habitats Sites, either in isolation or in combination with other plans and projects, and to determine whether policy mitigation measures are required.

1.2 Local Context

- 1.2.1 Sturminster Marshall lies to the west of Wimborne in eastern Dorset. The Neighbourhood Plan area follows the parish boundaries, and is approximately

² <https://www.bcpccouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Christchurch/docs/christchurch-and-east-dorset-adopted-core-strategy.pdf>

20.85 square km (2,085ha). The parish includes the main village of Sturminster Marshall with the smaller settlements of Almer and Mapperton to the West, in the Winterborne valley, Henbury to the southeast and Jubilee Cross on higher ground along the southern boundary. Newton Peveril, Moorcourt Farm and Field Dairy Farm/New Buildings form part of the predominantly agricultural fringe to the main village.

- 1.2.2 Two main roads intersect in the parish: the A31, which is a primary trunk route running East-West; and the A350 which connects the port of Poole northwards towards the M4 and the Midlands. Formerly, the Somerset and Dorset Railway line also ran through the village, with a station at Bailey Gate, and was influential in the development of Sturminster Marshall village.

1.3 Legislative Context

- 1.3.1 The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 (“the Withdrawal Act”). This established a transition period, which ended on 31 December 2020. The Withdrawal Act retains the body of existing EU-derived law within our domestic law. During the transition period EU law applies to and in the UK. The UK is no longer a member of the European Union. However, Habitats Regulations Assessment will continue as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019³.
- 1.3.2 The HRA process applies the ‘Precautionary Principle’⁴ to Habitats Sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the Habitats Site(s) in question. Plans and projects with predicted adverse impacts on Habitats 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.
- 1.3.3 The need for Appropriate Assessment (Box 1) is set out in the Conservation of Habitats and Species Regulations 2017 (as amended).

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].”

³ these don't replace the 2017 Regulations but are just another set of amendments

⁴ 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”.

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

- To assist the Qualifying Body (Sturminster Marshall Neighbourhood Plan Steering Group for the Sturminster Marshall Parish Council) in preparing their plan by recommending (where necessary) any adjustments required to protect Habitats Sites, thus making it more likely their plan will be deemed compliant with the Conservation of Habitats and Species Regulations 2017 (as amended); and
- On behalf of the Qualifying Body, to assist the Local Planning Authority (Dorset Council) to discharge their duty under Regulation 105 (in their role as 'plan-making authority' within the meaning of that regulation) and Regulation 106 (in their role as 'competent authority') and undertake the formal Habitats Regulations Assessment decision.

1.3.5 As 'competent authority', the legal responsibility for ensuring that a decision of LSEs is made, an 'Appropriate Assessment' (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.

1.3.6 Over the years, the term 'Habitats Regulations Assessment' (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 in order to distinguish the overall process from the individual stage of "Appropriate Assessment". Throughout this report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.

1.3.7 In spring 2018 the 'Sweetman' European Court of Justice ruling⁵ clarified that 'mitigation' (i.e., measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats Site that would otherwise arise) should **not** be taken into account when forming a view on likely significant effects. Mitigation should instead only be considered at the Appropriate Assessment stage. This HRA has been cognisant of that ruling.

1.4 Scope of the HRA

1.4.1 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 SMNP boundary; and,
- Other sites shown to be linked to development within the SMNP boundary through a known impact 'pathway' (discussed below).

1.4.2 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

⁵ People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

Habitats Site. An example of this would be new residential development resulting in an increased population and thus increased recreational pressure, which could then affect Habitats Sites by, for example, disturbance of wintering or breeding birds.

- 1.4.3 Guidance from the former Ministry of Housing, Communities and Local Government (now Department for Levelling Up, Housing and Communities) states that the HRA should be '*proportionate to the geographical scope of the [plan policy]*' and that '*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*' (MHCLG, 2006, p.6). More recently, the Court of Appeal ruled that providing the Council (competent authority) was duly satisfied that the proposed mitigation could be 'achieved in practice' to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Core Strategy document). 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*'.

1.5 The Layout of this Report

- 1.5.1 **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 Habitats Sites, including conservation objectives and current pressures and threats. **Chapter 4** provides detailed background on the main impact pathways identified in relation to the Neighbourhood Plan and the relevant Habitats Sites. **Chapter 5** undertakes the screening assessment of Likely Significant Effects (LSEs) of the Plan's policies and site allocations. The conclusions arising from the HRA process so far are provided in **Chapter 6**.

1.6 Quality Assurance

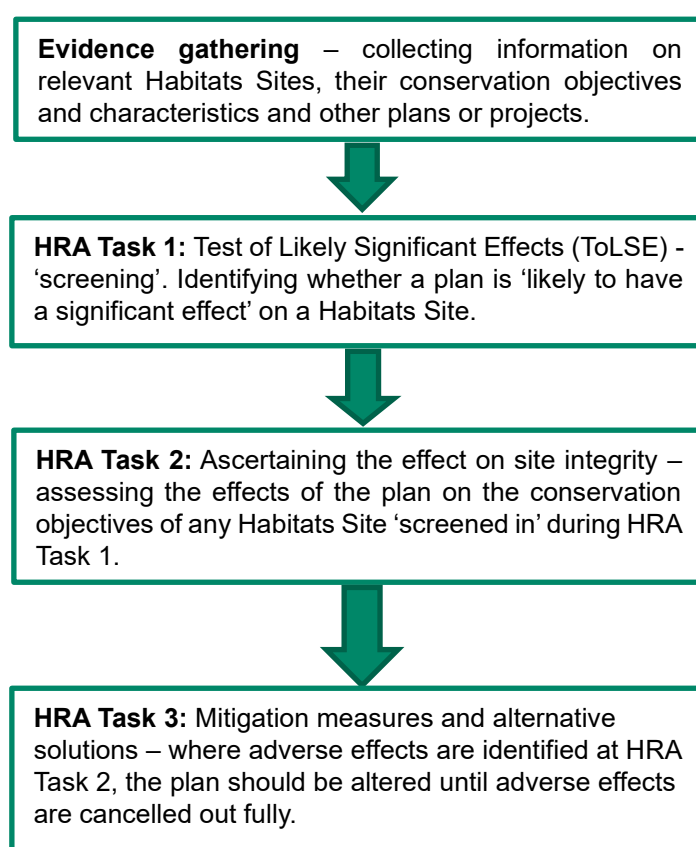
- 1.6.1 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification 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.
- 1.6.2 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

2.1 Introduction to HRA Methodology

- 2.1.1 The HRA will be carried out with reference to the general EC guidance on HRA⁶ and that of the UK government⁷.
- 2.1.2 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.

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



2.2 Description of HRA Tasks

2.3 HRA Task 1 – Test of Likely Significant Effects (ToLSE)/ Screening

- 2.3.1 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Test of Likely Significant Effects (ToLSE) test - essentially a brief, high-level assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

⁶ 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.

⁷ <https://www.gov.uk/guidance/appropriate-assessment>

“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites [now referred to as Habitats Sites]?”

- 2.3.2 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 Habitats Sites, usually because there is no mechanism for an adverse interaction.
- 2.3.3 The ToLSE is based on identification of the impact source, the pathway of impact to receptors and then confirmation of the specific Habitats Sites receptors. These are normally designated features but also include habitats and species fundamental to those designated features achieving favourable conservation status (notably functionally linked land outside the Habitats Site boundary).
- 2.3.4 In the Waddenzee case⁸, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:
- An effect should be considered ‘likely’, *“if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site”* (para 44);
 - An effect should be considered ‘significant’, *“if it undermines the conservation objectives”* (para 48); and
 - *Where a plan or project has an effect on a site “but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned”* (para 47).
- 2.3.5 The ToLSE consists of two parts: Firstly, determining whether there are any policies that could result in negative impact pathways and secondly establishing whether there are any Habitats Sites that might be affected. It identifies Habitats Sites that could be affected by the Plan and also those impact pathways that are most likely to require consideration.
- 2.3.6 It is important to note that the ToLSE must generally follow the precautionary principle as its main purpose is to determine whether the subsequent stage of ‘Appropriate Assessment’ (i.e., a more detailed investigation) is required.

2.4 HRA Task 2 – Appropriate Assessment

- 2.4.1 Where it is determined that a conclusion of ‘no Likely Significant Effects’ cannot be drawn, the analysis must proceed to the next stage of HRA known as Appropriate Assessment. Case law has clarified that ‘Appropriate Assessment’ is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment rather than ToLSE. Appropriate Assessment refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (coherence of structure and function) of Habitats Sites in light of their conservation objectives.

⁸ Case C-127/02

- 2.4.2 By virtue of the fact that it follows the ToLSE process, there is a clear implication that the analysis will be more detailed than undertaken at the previous stage. One of the key considerations during Appropriate Assessment is whether there is available mitigation that would entirely address the potential effect. In practice, the Appropriate Assessment would take any policies or allocations that could not be dismissed following the high-level ToLSE analysis and evaluate the potential for an effect in more detail, with a view to concluding whether there would actually be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of the Habitats Site(s)).
- 2.4.3 In 2018 the Holohan ruling⁹ 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].
- 2.4.4 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 the SMNP on the Habitats Sites considered within this assessment.

2.5 HRA Task 3 – Mitigation

- 2.5.1 Where necessary, measures will be recommended for incorporation into the Plan in order to avoid or mitigate adverse effects on Habitats Sites. 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 Habitats Sites, for example. The implication of this precedent is that it is not necessary for all measures that will be deployed to be fully developed prior to the adoption of the Plan, but the Plan must provide an adequate policy framework within which these measures can be delivered.
- 2.5.2 In evaluating significance, AECOM has relied on professional judgment and the Core Strategy HRA regarding development impacts on the Habitats Sites considered within this assessment.
- 2.5.3 When discussing 'mitigation' for a Neighbourhood Plan 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 Local Development Plan document is a high-level policy document. A Neighbourhood Plan is a lower-level constituent of a Local Development Plan.

2.6 Geographical Scope of the HRA

- 2.6.1 There are no standard criteria for determining the ultimate physical scope of an HRA. Rather, the source-pathway-receptor model should be used to

⁹ Case C-461/17

determine whether there is any potential pathway connecting development to any Habitats Sites.

- 2.6.2 In the case of the SMNP, an area extending to 10 km from the NP area boundary was selected in which Habitats Sites were identified. Habitats Sites where there is a pathway by which hydrological impact might occur were also included. A search radius of 10 km has been used for this analysis on the basis that any potential for pollution effects at greater distances is likely to be negligible due to dilution factors.

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

- 2.7.1 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 Habitats Site(s) in question.
- 2.7.2 In considering the potential for combined regional housing development to impact on Habitats Sites the primary consideration is the impact of visitor numbers – i.e., recreational pressure and urbanisation.
- 2.7.3 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.
- 2.7.4 The following plans are considered to have the potential to act in-combination with the SMNP.
- Christchurch and East Dorset Local Plan: Core Strategy (adopted 2014)¹⁰
 - Bournemouth Local Plan: Core Strategy (adopted 2021)¹¹
 - Poole Local Plan (adopted 2018)¹²
 - Wessex Water – Water Resources Management Plan, 2019¹³ (at the time of writing this HRA report the Water Resource Management Plan – WRMP24, was published in draft¹⁴).
- 2.7.5 It should be noted that, while the broad potential impacts of these other projects and plans has been considered, we have not carried out full HRA on

¹⁰ Available at <https://www.bcpccouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Christchurch/docs/christchurch-and-east-dorset-adopted-core-strategy.pdf> [accessed 31/05/2023]

¹¹ Available at <https://www.bcpccouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Bournemouth/Docs/Core-Strategy-1.pdf> [accessed 31/05/2023]

¹² Available at <https://www.bcpccouncil.gov.uk/Planning-and-building-control/Planning-policy/Current-Local-Plans/Poole/Docs/Final-version-28.11.18.pdf-for-web.pdf> [accessed 31/05/2023]

¹³ Available at [final-water-resources-management-plan-aug-2019.pdf \(wessexwater.co.uk\)](https://www.wessexwater.co.uk/final-water-resources-management-plan-aug-2019.pdf) [accessed 31/05/2023]

¹⁴ Available at <https://corporate.wessexwater.co.uk/our-future/our-plans/water-resources-management-plan> [accessed 31/05/2023]

each of these plans – we have however drawn upon existing HRAs that have been carried out for surrounding authorities and plans.

- 2.7.6** Within this document, each policy within the Neighbourhood Plan is subjected to HRA screening and is summarised in Appendix B Table 5 Likely Significant Effects are then scrutinised in more detail in the main body of the report. If necessary, an Appropriate Assessment will then be undertaken.

2.8 Habitats Sites

- 2.8.1 In the case of the SMNP, it has been determined that the Habitats Sites identified in Table 1 require consideration. The locations of these Habitats Sites in relation to the SMNP boundary are illustrated in Appendix A, Figure 1A.

Table 1 Habitats Sites for consideration and their location in relation to SMNP boundary

Habitats Site	Location	Reason for Inclusion
Dorset Heathlands Ramsar	At its closest, located c. 0.2km southeast of the SMNP area within Corfe	Public Access/Disturbance Wildfire/arson
Dorset Heaths SAC	Mullen Parish (Corfe Mullen Pastures SSSI Unit 006 – Rushall Lane Mire)	Water Pollution Air Pollution: impact of atmospheric nitrogen deposition
Dorset Heathlands SPA	At its closest, located c. 1.1km southeast of the SMNP area within Lytchett Minster and Upton Parish (Upton Heath SSSI Unit 025 – Beacon Hill)	
Poole Harbour SPA	At its closest, located c.2.5km southeast of the SMNP area within Lytchett Minster and Upton Parish (Poole Harbour SSSI Unit 066 – Lytchett Fields)	Water Pollution Air Pollution: impact of atmospheric nitrogen deposition Public Access/Disturbance
Poole Harbour Ramsar	At its closest, located c.2.6km southeast of the SMNP area within Lytchett Minster and Upton Parish (Poole Harbour SSSI Unit 066 – Lytchett Fields)	
Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	At its closest, located c.4.8km southwest of the SMNP area within Wareham St Martin Parish (Holton and Sandford	Water Pollution Air Pollution: impact of atmospheric nitrogen deposition

Heaths SSSI Unit 014 – Public Access/Disturbance Sandford Main)

- 2.8.2 This was based upon a search of surrounding Habitats Sites and based on the vulnerabilities of the interest features of the Habitats Sites. All the above sites were subjected to the initial screening exercise. It should be noted that the presence of a conceivable pathway linking the NP area to a Habitats Site does not mean that likely significant effects will occur.
- 2.8.3 The reason for designation, conservation objectives and environmental vulnerabilities of the Habitats Sites are detailed in Appendix A.

3. Pathways of Impact

- 3.1.1 In carrying out an HRA it is important to avoid confining oneself to effectively arbitrary boundaries (such as Local Authority boundaries) but to use an understanding of the various ways in which Land Use Plans can impact on Habitats Sites to follow the pathways along which development can be connected with Habitats Sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a Habitats Site. It is also important to bear in mind CLG guidance which states that the AA should be '*proportionate to the geographical scope of the [plan policy]*' and that '*an AA need not be done in any more detail, or using more resources, than is useful for its purpose*' (CLG, 2006, p.6¹⁵).
- 3.1.2 Based upon Natural England Site Improvement Plans and professional judgement, there are several impact pathways that require consideration regarding increased development within the SMNP area and said Habitats Sites.
- 3.1.3 The following pathways of impact were considered relevant to the HRA of the SMNP.
- Public access/ recreational pressure/ disturbance;
 - Changes in air quality;
 - Changes in water quality

3.2 Background to Public Access/ Recreational Pressure/ Disturbance

- 3.2.1 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

¹⁵ Department for Communities and Local Government. 2006. *Planning for the Protection of European Sites: Appropriate Assessment*. <http://www.communities.gov.uk/index.asp?id=1502244>

reports have provided compelling links between changes in housing and access levels and impacts on Habitats Sites ^{16 17}.

3.2.2 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.

3.2.3 Different types of Habitats Sites (e.g., coastal, heathland, chalk grassland) are subject to different types of recreational pressures and have different vulnerabilities. Studies across a range of species have shown that the effects from recreation can be complex.

3.3 Birds

3.3.1 Disturbance effects for birds can have an adverse effect in various ways, with increased nest predation by natural predators 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 bird breeding found that 36 out of 40 studies reported reduced breeding success as a consequence of disturbance¹⁸. The main reasons given for the reduction in breeding success were nest abandonment and increased predation of eggs or young. Over years, studies of other species have shown that birds nest at lower densities in disturbed areas, particularly when there is weekday as well as weekend pressure¹⁹.

3.3.2 Studies have shown that birds are affected more by dogs and people with dogs than by people alone, with birds flushing more readily, 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 faeces²⁰.

3.3.3 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%.

3.3.4 However, these studies need to be treated with care. For instance, the effect of disturbance is not necessarily correlated with the impact of disturbance, i.e.,

¹⁶ 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.

¹⁷ 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.

¹⁸ 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.

¹⁹ Van der Zande, A.N., J.C. Berkhuisen, H.C. van Letesteyn, 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.

²⁰ 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.

the most easily disturbed species are not necessarily those that will suffer the greatest impacts. 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 impacts on their population²¹. A recent literature review undertaken for the RSPB²² also urges caution when extrapolating the results of one disturbance study because responses differ between species and the response of one species may differ according to local environmental conditions. These facts have to be taken into account when attempting to predict the impacts of future recreational pressure on international sites.

- 3.3.5 It should be emphasised that recreational use is not inevitably a problem. Many Habitats 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.
- 3.3.6 Where increased recreational use is predicted to cause adverse impacts on a site, avoidance and mitigation should be considered. Avoidance of recreational impacts at Habitats Sites involves locating new development away from such sites; Local Plans and other strategic plans, including Neighbourhood Plans, 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.

3.4 Bird Disturbance Study

- 3.4.1 A study was undertaken in 2010/2011 by Footprint Ecology²³, who looked at bird disturbance in North Kent. The study focused on recreational disturbance to wintering waterfowl on intertidal habitats and focused on part of the North Kent shoreline, stretching between Gravesend and Whitstable; encompassing three SPAs: the Thames Estuary and Marshes SPA, the Medway Estuary and Marshes SPA and the Swale SPA. The key findings of the study are as follows:
- 3.4.2 From 1,400 events (records of visitors in the bird survey areas) occurring within 200m of the birds, 3,248 species specific observations were noted of which:
- 74% resulted in no response.
 - 13% resulted in a major flight.
 - 5% resulted in a short flight.
 - 5% resulted in a short walk.
 - 3% resulted in an alert.
- 3.4.3 Dog walking accounted for 55% of all major flight observations with a further 15% attributed to walkers without dogs. After controlling for distance, major flights were more likely to occur when activities took place on the intertidal

²¹ Gill et al. (2001) - Why behavioural responses may not reflect the population consequences of human disturbance. *Biological Conservation*, **97**, 265-268

²² Woodfield & Langston (2004) - Literature review on the impact on bird population of disturbance due to human access on foot. *RSPB research report* No. 9.

²³ D. Liley & H. Fearnley (Footprint Ecology), 2011. Bird Disturbance Study North Kent.

zone (compared to events on the water or events on the shore), when dogs were present, and the probability of major flight increased with the number of dogs present within a group.

- 3.4.4 There were significant differences between species with curlew *Numenius arquata* the species with the highest probability of major flight and teal and black-tailed godwit *Limosa limosa* the lowest.
- 3.4.5 Tide state was also significant with major flights more likely at high tide, after controlling for distance. There was also a significant interaction between distance and tide, indicating that the way in which birds responded varied according to tide.

3.5 Habitats

- 3.5.1 Coastal habitats are particularly vulnerable to recreational impacts because these environments are highly dynamic and continually change in response to biotic and abiotic factors. Sand dune communities are worldwide characterized by high levels of biodiversity but are often affected by human-induced impacts such as those caused by trampling.
- 3.5.2 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.
- 3.5.3 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 years²⁴
- 3.5.4 A study was made of paths on a dune system at Winterton, Norfolk, by ground and aerial surveys and a map produced of the 35 km of major paths in 104 ha of dune²⁵. Experiments were carried out on the resistance to trampling of a tall *Festuca ovina-Carex arenaria* sward. Estimates were made of the comparative vulnerability of other plant communities. The range extended from *Ammophila arenaria*, which was 10 x as vulnerable, to a short rabbit-grazed sward, only 13-14 x as vulnerable. The more vulnerable habitats unfortunately attracted more people. 42% of the paths at Winterton occur on the steep slopes dominated by *Ammophila*. Comparisons were made with a similar site at Meijendel where greater recreational pressure necessitated laid-out paths and fencing to control visitors. It was suggested that if visitor pressure increased at Winterton, similar management may also be required there.
- 3.5.5 The degree of impact and sensitivity of SAC, SPA and Ramsar habitats and species are summarised below in Table 2 and Table 3²⁶. It shows that most habitats and bird species have a degree of direct negative impact resulting

²⁴ Santoro, R et.al. (2012) Effects of Trampling Limitation on Coastal Dune Plant Communities. Environmental Management DOI 10.1007/s00267-012-9809-6

²⁵ L.A. Boorman, R.M. Fuller. Studies on the impact of paths on the dune vegetation at Winterton, Norfolk, England, Biological Conservation, Volume 12, Issue 3, 1977, Pages 203-216.

²⁶ Anderson P (1990). Moorland Recreation and Wildlife in the Peak District. Peak Park Joint Planning Board, Bakewell. Taken from Calderdale Local Plan HRA and referenced in the Bradford Core Strategy HRA.

from recreational site users.

Table 2 Relative Sensitivity of Moorland Features to Recreation and Urban Impacts

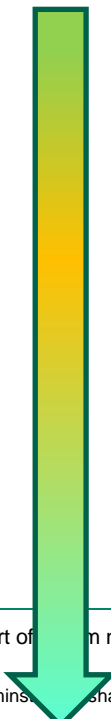
Habitats	Direct Impact		Indirect Impact	
	Trampling	Disturbance	Fire	Management
Dry dwarf-shrub heath	XX		XXX	
Wet dwarf-shrub heath	XXX		XX	
Blanket mire	XXX		XXX	
Mountain	XXX		X	
Acid grassland	XX		XX	
Calcareous grassland	XX			XX
Flushes/ springs	XXX			
Rock ledges	XX			
Screes	XX			
Breeding birds		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

Least Sensitive	Species	Notes	SAC/ SPA Presence
	Common bent/ crested dog's tail	As in some in-bye land ²⁷	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	Major component of Annex 1 dry heath



²⁷ In-bye land: part of common land not comprising the hill and rough grazings.

Least Sensitive	Species	Notes	SAC/ SPA Presence
		broken	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)

3.5.6 The Dorset Household Survey²⁸ 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 habitats and existing greenspace in the vicinity of where people live determines the amounts of visits people make to heaths.

3.5.7 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.

3.5.8 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.

3.5.9 Sturminster Marshall is located within c0.2km of the Dorset Heathland Ramsar, and Dorset Heaths SAC, c1.1km from the Dorset Heathland SPA, c2.5km from the Poole Harbour SPA, c2.6km from Poole Harbour Ramsar site, and c 4.8km from the Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC.

3.5.10 The following Habitats Sites is considered susceptible to recreational pressures within the context of the SMNP:

- Dorset Heathland SPA;
- Dorset Heath SAC;

²⁸ <https://www.footprint-ecology.co.uk/reports/Clarke%20et%20al.%20-%202008%20-%20Access%20patterns%20in%20south-east%20Dorset.%20The%20Dorset%20h.pdf>

- Poole Harbour SPA/Ramsar; and
- Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC

3.6 Nutrient enrichment (eutrophication)

- 3.6.1 A major concern for nutrient-poor terrestrial habitats such as dune and heathland systems is nutrient enrichment associated with dog fouling, which has been addressed in various reviews (e.g.,²⁹). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a spread-out distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually³⁰. While there is little information on the chemical constituents of dog faeces, nitrogen is one of the main components³¹. Nutrient levels are the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in the shift to plant communities that are more typical of improved grasslands.
- 3.6.2 Nitrate is believed to be the limiting nutrient in marine or estuarine waters (as phosphorus is in freshwaters). Eutrophication can lead to extensive weed and algal growth which can harm the natural habitat. Nitrate is a highly soluble, mobile compound which is readily used by plants but also leaches into groundwater or runs off the land into watercourses if over applied or following rainfall events.
- 3.6.3 The Dorset Household Survey³² also showed that dog owners visit greenspaces, and particularly heaths, more than non-dog owners. Dog owners make an average of 289.5 visits per year to any type of greenspace compared to an average of 119.5 annual visits by households without a dog (i.e., dog walkers make 2.4 times as many visits to green space as non-dog walkers). The ratio of dog owners to non-dog-owners is greatest for heaths, to which dog-owning households make over four times as many visits both on foot and by car.
- 3.6.4 As discussed in paragraphs 4.3 and 4.4 above, there is a preference to visit coastal greenspace when there is no heath within 500m of a household.
- 3.6.5 The following Habitats Sites is considered susceptible to nutrient enrichment within the context of the SMNP:
- Dorset Heathland SPA;
 - Dorset Heath SAC;
 - Poole Harbour SPA/Ramsar; and

²⁹ Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. 2005. Dogs, access and nature conservation. English Nature Research Report, Peterborough.

³⁰ Barnard A. 2003. Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* 11:16-19.

³¹ Taylor K., Anderson P., Liley D. & Underhill-Day J.C. 2006. Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.

³² <https://www.footprint-ecology.co.uk/reports/Clarke%20et%20al.%20-%202008%20-%20Access%20patterns%20in%20south-east%20Dorset.%20The%20Dorset%20h.pdf>

- Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC

3.7 Wildfire and Arson

- 3.7.1 Wildfires are a periodic threat across the Habitats Sites and can adversely affect habitats through direct damage caused to the vegetation and soils, which results in loss of valuable habitat quality and associated wildlife alongside carbon release to atmosphere and to watercourses. Wildfires/ arson has been identified as a potential threat to the Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC, Dorset Heaths SAC and Dorset Heathlands SPA/ Ramsar.
- 3.7.2 The cause of ignition is generally accepted to be of human origin, with deliberate intent a pattern on some parts of the site and elsewhere careless behaviour near to footpaths and car parks appear to be the chief cause of ignition. Available research^{33, 34} identifies the principal causes of 'wild' fires to be: deliberate fire-setting; camp fires that have got out of control; planned fires that have got out of control (e.g. part of moorland management for grouse); and bonfires that have got out of control.
- 3.7.3 Kirby & Tantram concluded that fires occurred at higher densities on the fringes of larger conurbations and in sites within developed urban areas, where fire events present a serious risk to ecological integrity. Within the Kirby & Tantram research a zone of 500m was used, based on the maximum likely access distance for average users of greenspace^{35, 36}, and it was found that the degree of development within this zone correlated with incidence of fires (on Dorset Heathlands). There is also evidence to suggest that a significant proportion of deliberate fire setting is by children of school age.
- 3.7.4 Both the Dorset Heaths SAC and Dorset Heathlands Ramsar are located within the 500m buffer zone, with Dorset Heathlands SPA located c. 600m outside of the 500m buffer zone.
- 3.7.5 The following Habitats Sites is considered susceptible to wildfire and arson within the context of the SMNP:
- Dorset Heathland SPA; and
 - Dorset Heath SAC.

3.8 Background to Noise and Visual Disturbance

- 3.8.1 As detailed in the Recreational Pressure section above, human activity can affect birds either directly (e.g., through causing them to flee) or indirectly (e.g., through damaging their habitat). Human activity can also lead to behavioural changes (e.g., alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g., an increase in heart rate) that, although

³³ J. C. Underhill-Day, (2005) 'A literature review of urban effects on lowland heaths and their wildlife', English Nature Research Reports, Number 623

³⁴ J.S. Kirby & D.A.S Tantram (1999) 'Monitoring heathland fires in Dorset: Phase 1' Report to Department of the Environment, Transport and the Regions: Wildlife and Countryside Directorate

³⁵ Harrison, C, Burgess, J, Millward, A, Dawe, G. 1995. Accessible greenspace in towns and cities: A review of appropriate size and distance criteria. English Nature Research Report No. 153. English Nature, Peterborough.

³⁶ Box, J. & Harrison, C. 1993. Natural spaces in urban places. Town 19 Country Planning, 62(9): 231-235

less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death³⁷.

- 3.8.2 Recreational pressure is not the only potential source of disturbance. Construction work taking place immediately adjacent to the designated site or functionally linked land could cause disturbance and displacement of the designated birds. While any impact relating to demolition and construction activities will be temporary (in that birds would return once construction work ceased and the disturbance stimulus was removed) the resulting effect on population survival could be significant if it occurs during the winter/passage period and prevents birds from using feeding areas on which they rely. It should be noted that operational activities are unlikely to be temporary in nature and thus the impact of these activities could result in a more severe adverse reaction from designated bird features.
- 3.8.3 The degree of impact that varying levels of noise will have on different species of bird is poorly understood except that a number of studies have found that an increase in traffic levels on roads does lead to a reduction in the bird abundance within adjacent hedgerows - Reijnen et al (1995) examined the distribution of 43 passerine species (i.e., 'songbirds'), of which 60% had a lower density closer to the roadside than further away. By controlling vehicle usage they also found that the density generally was lower along busier roads than quieter roads³⁸.
- 3.8.4 A recent study on recreational disturbance on the Humber³⁹ assesses different types of noise disturbance on waterfowl referring to studies relating to aircraft (see Drewitt 1999⁴⁰), traffic (Reijnen, Foppen, & Veenbaas 1997)⁴¹, dogs (Lord, Waas, & Innes 1997⁴²; Banks & Bryant 2007⁴³) and machinery (Delaney et al. 1999; Tempel & Gutierrez 2003). These studies identified that there is still relatively little work on the effects of different types of water-based craft and the impacts from jet skis, kite surfers, windsurfers etc. (see Kirby et al. 2004⁴⁴ for a review). Some types of disturbance are clearly likely to invoke different responses. In very general terms, both distance from the source of disturbance and the scale of the disturbance (noise level, group size) will both influence the response (Delaney et al. 1999⁴⁵; Beale & Monaghan 2005⁴⁶). On UK estuaries and coastal sites, a review of WeBS data showed that, among the volunteer WeBS surveyors, driving of motor vehicles and shooting were

³⁷ Riley, J. 2003. Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

³⁸ Reijnen, R. et al. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202

³⁹ Helen Fearnley Durwyn Liley and Katie Cruickshanks (2012) Results of Recreational Visitor Survey across the Humber Estuary produced by Footprint Ecology

⁴⁰ Drewitt, A. (1999) Disturbance effects of aircraft on birds. English Nature, Peterborough.

⁴¹ Reijnen, R., Foppen, R. & Veenbaas, G. (1997) Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation*, 6, 567-581.

⁴² Lord, A., Waas, J.R. & Innes, J. (1997) Effects of human activity on the behaviour of northern New Zealand dotterel *Charadrius obscurus aquilonius* chicks. *Biological Conservation*, 82,15-20.

⁴³ Banks, P.B. & Bryant, J.V. (2007) Four-legged friend of foe? Dog-walking displaces native birds from natural areas. *Biology Letters*, 3, 611-613.

⁴⁴ Kirby, J.S., Clee, C. & Seager, V. (1993) Impact and extent of recreational disturbance to wader roosts on the Dee estuary: some preliminary results. *Wader Study Group Bulletin*, 68, 53-58.

⁴⁵ Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L.M. & Reiser, H. (1999) Effects of Helicopter Noise on Mexican Spotted Owls. *The Journal of Wildlife Management*, 63, 60-76.

⁴⁶ Beale, C.M. & Monaghan, P. (2005) Modeling the Effects of Limiting the Number of Visitors on Failure Rates of Seabird Nests. *Conservation Biology*, 19, 2015-2019.

the two activities most perceived to cause disturbance (Robinson & Pollitt 2002)⁴⁷.

- 3.8.5 Additionally, animals can be disturbed by the movement of ships. For instance, a DTI study of birds of the North West coast noted that: *“Divers and scoters were absent from the mouths of some busier estuaries, notably the Mersey... Both species are known to be susceptible to disturbance from boats, and their relative scarcity in these areas... may in part reflect the volume of boat traffic in these areas”*⁴⁸.
- 3.8.6 Three of the most important factors determining the magnitude of disturbance appear to be species sensitivity, proximity of the disturbance source and timing/ duration of the disturbance. Generally, the most disturbing activities are likely to be those that involve irregular, infrequent, unpredictable loud noise events, movement or vibration of long duration. Birds are least likely to be disturbed by activities that involve regular, frequent, predictable, quiet patterns of sound or movement or minimal vibration. The further any activity is from the birds, the less likely it is to result in disturbance.
- 3.8.7 An increasing amount of research on visual and noise disturbance of waterfowl from construction (and other activities) is now available. Both visual and noise stimuli may elicit disturbance responses, potentially affecting the fitness and survival of waterfowl and waders. Noise is a complex disturbance parameter requiring the consideration of multiple parameters, including the fact that it is not described on a linear scale, its nonadditive effect and the source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60 dB or prolonged noise of over 72 dB. Bird responses to high noise levels include major flight or the cessation of feeding, both of which might affect the survival of birds if other stressors are present (e.g., cold weather, food scarcity).
- 3.8.8 Generally, research has shown that above noise levels of 84 dB waterfowl show a flight response, while at levels below 55 dB there is no effect on their behaviour. These two thresholds are therefore considered useful as defining two extremes. The same authors have shown that regular noise levels should be below 70 dB at the bird, as birds will habituate to noise levels below this level. Generally, noise is attenuated by 6 dB with every doubling of distance from the source. For example, impact piling, which is a particularly noisy construction process of approximately 110 dB at 0.67 m from source, will therefore reduce to 67 – 68 dB by 100 m away from the source. The loudest construction noise will therefore have fallen to below disturbing levels by 100 m, and certainly by 200 m, away from the source even without mitigation.
- 3.8.9 Visual disturbance is generally considered to have a higher impact than noise disturbance as, in most instances, visual stimuli will elicit a disturbance response at much greater distances than noise. For example, a flight response is triggered in most species when they are approached to within 150 m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Some species are particularly sensitive to visual disturbance,

⁴⁷ Robinson, J.A. & Pollitt, M.S. (2002) Sources and extent of human disturbance to waterbirds in the UK: an analysis of Wetland Bird Survey data, 1995/96 to 1998/99: Less than 32% of counters record disturbance at their site, with differences in causes between coastal and inland sites. *Bird Study*, 49, 205.

⁴⁸ DTI (2006). *Aerial Surveys of Waterbirds in Strategic Wind Farm Areas: 2004/05 Final Report*

including curlew (taking flight at 275 m), redshank (at 250 m), shelduck (at 199 m) and bar-tailed godwit (*Limosa lapponica*) (at 163 m).

3.8.10 For the purpose of this assessment, a buffer of 300m has been used for visual and noise disturbance effects. The following Habitats Sites is considered susceptible to visual and noise disturbance within the context of the SMNP:

- Dorset Heathlands SPA/SAC

3.9 Changes in Air Quality

3.9.1 Current levels of understanding of air quality effects on semi-natural habitats are not adequate to allow a rigorous assessment of the likelihood of significant effects on the integrity of key Habitats Sites.

3.9.2 The main pollutants of concern for Habitats Sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂) and are summarised in Table 4. NO_x can have a directly toxic effect upon vegetation. In addition, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.^{49 50.}

Table 4. Main Sources and Effects of Air Pollutants on Habitats and Species

Pollutant	Source	Effects on habitats and species
Sulphur dioxide (SO ₂)	<p>The main sources of SO₂ are electricity generation, and industrial and domestic fuel combustion. However, total SO₂ emissions in the UK have decreased substantially since the 1980's.</p> <p>Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO₂ have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO₂ emissions in the UK.</p>	<p>Wet and dry deposition of SO₂ acidifies soils and freshwater and may alter the composition of plant and animal communities.</p> <p>The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species.</p> <p>However, SO₂ background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.</p>
Acid deposition	<p>Leads to acidification of soils and freshwater via atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.</p>	<p>Gaseous precursors (e.g., SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition.</p> <p>Can affect habitats and species through both wet (acid rain) and dry</p>

⁴⁹ 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

⁵⁰ 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

Pollutant	Source	Effects on habitats and species
	<p>Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.</p>	<p>deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants.</p> <p>Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.</p>
Ammonia (NH ₃)	<p>Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes and from some chemical processes and vehicle exhausts. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock.</p> <p>Ammonia reacts with acid pollutants such as the products of SO₂ and NO_x emissions to produce fine ammonium (NH₄⁺) - containing aerosol. Due to its significantly longer lifetime, NH₄⁺ may be transferred much longer distances (and can therefore be a significant trans-boundary issue).</p> <p>While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type</p>	<p>The negative effect of NH₄⁺ may occur via direct toxicity when uptake exceeds detoxification capacity and via N accumulation.</p> <p>Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen.</p> <p>As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.</p>
Nitrogen oxides (NO _x)	<p>Nitrogen oxides are mostly produced in combustion processes. Half of NO_x emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes.</p>	<p>Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NO_x for all vegetation types has been set to 30 ug/m³.</p> <p>Deposition of nitrogen compounds (nitrates (NO₃), nitrogen dioxide (NO₂) and nitric acid (HNO₃)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification.</p> <p>In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of</p>

Pollutant	Source	Effects on habitats and species
		plant communities at the expense of sensitive species.
Nitrogen deposition	<p>The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_x) or reduced (e.g. NH₃) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices.</p> <p>The N pollutants together are a large contributor to acidification (see above).</p>	<p>All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally.</p> <p>Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species.</p> <p>N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.</p>
Ozone (O ₃)	<p>A secondary pollutant generated by photochemical reactions involving NO_x, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above).</p> <p>Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40 ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.</p>	<p>Concentrations of O₃ above 40 ppb can be toxic to both humans and wildlife and can affect buildings.</p> <p>High O₃ concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.</p>

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

- 3.9.3 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO₂ emissions will be associated with the SMNP.
- 3.9.4 Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges⁵¹. NO_x can also be toxic at high concentrations (far above the annual average critical level) but generally only in the presence of elevated sulphur dioxide which is very rare in the UK. High levels of NO_x and NH₃ are likely to increase the total N deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This often has adverse effects

⁵¹ http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.

on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats^{52, 53}.

- 3.9.5 NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison⁵⁴. Emissions of NO_x could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the SMNP.
- 3.9.6 According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³; In addition, ecological studies have determined 'critical loads'⁵⁵ of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH₃) for key habitats within Habitats Sites.
- 3.9.7 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*"⁵⁶ (Figure 2).

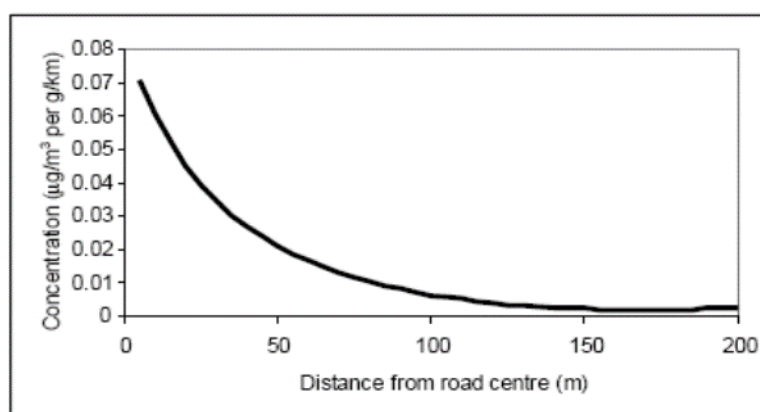


Figure 2: Traffic contribution to concentrations of pollutants at different distances from a road (Source: www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf)

- 3.9.8 This is therefore the distance that has been used throughout this HRA in order to determine whether Habitats Sites are likely to be significantly affected by development under the SMNP.
- 3.9.9 Sturminster Marshall lies on the A350 Poole Road which, south of the parish, passes adjacent to Dorset Heaths SAC and Dorset Heathlands SPA. Working in partnership, Dorset Council and BCP Council have produced the Dorset Heathlands Interim Air Quality Strategy (2020 – 2025)⁵⁷. The aim of the strategy is "*to address the adverse effect of airborne nitrogen upon the Dorset Heathlands designated sites by contributing to the achievement of the conservation objectives for air quality and in doing so, facilitate the delivery of*

⁵² 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

⁵³ 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

⁵⁴ 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>

⁵⁵ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur

⁵⁶ www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

⁵⁷ <https://democracy.bcpccouncil.gov.uk/documents/s22089/Enc.%201%20for%20Dorset%20Heathlands%20Air%20Quality%20Strategy.pdf>

planned development.” The Councils can partially address air quality issues by using developer contributions to fund targeted management of heathland but measures to actively reduce emissions are also required. The Councils have already implemented, or are already implementing, projects that will improve air quality on heathlands.

3.10 Water Quality

3.10.1 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 on Habitats Sites leading to unfavourable conditions.

3.10.2 The quality of the water that feeds Habitats 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.

3.10.3 Poole Harbour SPA/ Ramsar is tidal and is also fed by the rivers Frome and Piddle. Nitrogen (nitrates) in the harbour, through a process known as eutrophication, is encouraging the growth of widespread algal mats. These mats restrict the growth, distribution and variety of important food (invertebrates) available for wading birds and affect other important features and processes. The presence of algal mats has increased since the 1960s with an expansion from Holes Bay to become widespread across the harbour.

3.10.4 Nitrates enter Poole Harbour from inflowing rivers (73%), from the sea (19%) and from direct discharges to the harbour (8%). Nitrogen entering Poole Harbour from the land comes from either a combination of widespread places known as ‘diffuse sources’, which are mainly losses from agriculture such as nitrogen fertilisers and livestock manure (85%), or from concentrated point

sources such as sewage treatment works (STWs) (15%). The time it takes nitrates to reach the harbour from the source varies from very quickly where waste-water is piped from STWs to very slowly where nitrates from agriculture percolate through soil into the rivers which takes an average of about 30 years to reach the harbour. In 2009 nitrogen stripping was incorporated in Poole STW reducing the nitrate concentration in the waste-water entering the harbour significantly.

- 3.10.5 The Water Framework Directive defines Poole Harbour as a 'Protected Area' and is classed as having poor chemical status due to elevated nitrogen concentrations. The objective for Protected Areas is to achieve Good Ecological Status where this is technically feasible and would not result in disproportionate cost. For Poole Harbour, the Environment Agency and Natural England have recognised that there will be a significant time delay in achieving Good status, as historic leaching of nitrates across the catchment will take many years to be flushed through the groundwater and into the Harbour (on average 30 years across the catchment).
- 3.10.6 The Environment Agency and Natural England published a nutrient management plan (NMP), entitled the 'Strategy for Managing Nitrogen in the Poole Harbour Catchment To 2035' (June 2013)⁵⁸. The NMP provides the most comprehensive and up to date scientific knowledge and understanding of the complex underlying processes causing eutrophication. The NMP also sets out different options for reducing nutrients entering Poole Harbour in a sustainable and considered manner. The NMP is flexible in its approach, considering measures across the whole harbour catchment. It recommends that the representatives of the agricultural sector prepare a plan for reducing the impact of nitrates from agriculture. It also recommends that the local planning authorities that share the catchment prepare a plan to ensure that future residential development is nitrogen neutral. In response to the NMP, the Nitrogen Reduction in Poole Harbour Supplementary Planning Document was prepared. This was adopted by Purbeck District Council, the Borough of Poole, West Dorset District Council and North Dorset District Council in 2017.
- 3.10.7 Waste-water treatment within Sandbanks is currently handled by Wessex Water through their Drainage and Waste Water Management Plan 202259 (currently in draft for consultation with a view to adopt in March 2023). The Plan sets out how Wessex Water aims to deliver resilient drainage and wastewater infrastructure for the next 25 years.
- 3.10.8 In addition to this, under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses. Individual planning proposals will undergo Preliminary Ecological Appraisal (PEA) or Environmental Impact Assessment (EIA), if identified as Schedule 1 or Schedule 2 proposals by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. As such, water quality protection measures must by law be introduced on any scheme that could affect the water quality of the river or coastal environment, irrespective of whether part of that environment is designated as an SAC or SPA.

⁵⁸ <http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/research/library/publications/148450.aspx>

⁵⁹ <https://www.wessexwater.co.uk/environment/drainage-and-wastewater-management-plan>

3.10.9 Sturminster Marshall itself lies just beyond the Poole Harbour surface water catchment area. However, wastewater treatment works that service Sturminster Marshall may discharge into tributaries of the SPA. As such, the following Habitats Sites is considered susceptible to changes in water quality within the context of the SMNP:

- Poole Harbour SPA/ Ramsar

3.11 Summary of Impact Pathways to be Taken Forward

3.11.1 Having considered the impact pathways identified at paragraph 4.3, those shown in Table 5 will be taken to the next stage in the HRA process, the ‘Test of Likely Significant Effects’ (ToLSEs).

Table 5. Impact pathways and relevant Habitats Sites

Impact pathway	Habitats Sites (s) potentially affected
Recreational pressure	Dorset Heathlands SAC/SPA Poole Harbour SPA/Ramsar Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC
Noise and visual disturbance	Dorset Heathlands SPA/ Ramsar
Changes in water quality	Poole Harbour SPA/ Ramsar

4. Test of Likely Significant Effects

4.1.1 Each Policy within the Sturminster Marshall Neighbourhood Plan has been subject to an assessment to determine whether it poses a potential mechanism for negative effects on the interest features of European sites. This assessment is presented below.

Table 5: Likely Significant Effects Test of SMNP Polices (Both Alone and In Combination)

Policy Number & Name	Policy Text	Test of Likely Significant Effects (Alone)	Test of Likely Significant Effects
<p>Policy SMNP1 Sustainable Development Standards</p>	<p>– Proposals for new buildings must demonstrate they have integrated or considered the following within their design process:</p> <ul style="list-style-type: none"> ▪ Energy efficiency - ▪ Conservation of water resources - ▪ Flexible and adaptable buildings - ▪ Sustainable materials – ▪ Climate change adaption -. 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy. By definition, sustainable development will not result in a Likely Significant Effect on any Habitats Sites. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP2 Control of Flooding</p>	<p>– All developments must be undertaken in such a way that they do not increase flooding risk within the parish or beyond its limits. To achieve this, the following measures need to be taken:</p> <ul style="list-style-type: none"> ▪ A site specific and proportionate Flood Risk Assessment (FRA) is to be submitted in support of all development proposals in the areas identified at risk of flooding as shown in Map XX. This should include an assessment of site characteristics / ground conditions, identify any prevailing flood risk from all potential sources (i.e., fluvial, surface and ground water / springs, and sewers), and outline the mitigation measures that are to be adopted. ▪ The specific use of infiltration measures and soakaways is to be substantiated by appropriate investigation and testing according to the ground conditions and potential groundwater levels. 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to control of flooding. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>

	<ul style="list-style-type: none"> There will be presumption against proposed developments with a significant risk of increased runoff, unless accompanied by a demonstrably efficient SUDS system. <p>Any development will need to demonstrate that it would not compromise water quality in groundwater or the river system.</p> <p>Where practical, SuDS should be vegetated and use natural processes to slow and clean the water whilst increasing the biodiversity and landscape value of the area.</p>		
Policy SMNP3 – Sewage Treatment Works	Major development will be required to demonstrate that any necessary upgrades to the sewage treatment works (as advised by Wessex Water) will be in place prior to the site's occupation.	No Likely Significant Effects in isolation. This is a protective development management policy that ensures the provision of any upgrades to WTW prior to occupation. There are no linking impact pathways present.	No Likely Significant Effects. There are no linking impact pathways.
Policy SMNP4 – Maintaining Local Character	Development should retain the rural character of the area, paying particular regard to the retention, and where practical the enhancement, of landscape features that contribute to that area's character	No Likely Significant Effects in isolation. This is a development management policy in relation to maintaining character. There are no linking impact pathways present.	No Likely Significant Effects. There are no linking impact pathways.
Policy SMNP5 – Valued Views	Development should retain and where possible enhance access to the wider countryside. The scale, design and layout of development (including any landscaping) should minimise	No Likely Significant Effects in isolation.	No Likely Significant Effects.

	<p>adverse impacts on publicly accessible views over open countryside, and towards key landmarks</p>	<p>This is a development management policy in relation to valued views. There are no linking impact pathways present.</p>	<p>There are no linking impact pathways.</p>
<p>Policy SMNP6 – Local Green Spaces</p>	<p>The local green spaces listed below, and identified on Map XX, are given special protection, and inappropriate development that would harm their reason for designation will not be permitted. Development within these areas must preserve their openness and not conflict with the purposes for which they were designated.</p> <ul style="list-style-type: none"> ▪ Bartons Ground ▪ Charborough Green ▪ Churchill Close including approaches ▪ Market Place: Maypole Green, Stocks Green and Timber Green ▪ The Old Railway Line ▪ Trafalgar Green ▪ Walnut Tree Field <p>Development adjoining these areas must also respect their reason for designation and should not significantly detract from their enjoyment.</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to Local Green Spaces. It provides protection from inappropriate development. Green spaces have the potential to divert recreational pressures away from sensitive Habitats Sites. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP7 – Protecting and Enhancing our Local Wildlife and Habitats</p>	<p>Development must protect and, wherever practicable, enhance biodiversity, starting with a thorough understanding of the existing wildlife areas and corridors (such as existing field hedgerow boundaries and streams) that are in the vicinity of the site, and the wildlife that may be affected by the development (this can be demonstrated through the submission of a completed biodiversity checklist and any necessary supporting ecological surveys). In line</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to the protection and enhancement of local wildlife and habitats. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>

	<p>with national policy, a net gain in biodiversity will be sought.</p> <p>Measures to support the improvement of wildlife habitats, including their resilience to climate change, will be supported.</p> <p>Any development (other than householder applications, changes of use, or development that due to its limited scale and location would have a minimal impact on existing habitats) will be expected to include a biodiversity gain plan which demonstrates how a minimum 10% net biodiversity gain will be achieved, including measures taken to avoid harm to, and where practical strengthen, the network of ecological sites in the parish, through the provision of wildlife corridors and habitat enhancement. This could include:</p> <ul style="list-style-type: none"> • Use of grass / sedum roofs where this would be compatible with the character of the area; • Planting native hedgerow and tree species on site boundaries and within the public realm, where possible reinforcing and linking existing green corridors • Use of bee bricks, bird and bat boxes within new buildings and extensions / alterations; • Use of ponds, swales and other vegetated and wild-life friendly flood-mitigation features. 		
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<p>Policy SMNP8 – Undesignated Heritage Assets and other Locally Important Buildings</p>	<p>Development should conserve and respect the contribution made by the many locally important buildings and features, as described in Appendix XXX, to the character of the area, taking into account the balanced judgement on non-designated heritage assets required under national policy. Proposals which enhance or would lead to a better appreciation of these assets will be looked on favourably.</p>	<p>No Likely Significant Effects in isolation. This is a development management policy in relation to heritage. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects. There are no linking impact pathways.</p>
<p>Policy SMNP 9 – Key Design Principles</p>	<p>Development is expected to follow the key design principles of the character area in which it is based, together with the general design principles set out in Policies SMNP10 - 13. Where a design and access statement is required, this should explain how these principles have been followed.</p>	<p>No Likely Significant Effects in isolation. This is a development management policy in relation to design principles. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects. There are no linking impact pathways.</p>
<p>Policy SMNP10 – Design Principles: Layout</p>	<p>As a general rule, the street layout and plot patterns should conform to the following principles:</p> <ul style="list-style-type: none"> ▪ Strong linear development following the main routes; ▪ Clear indication of safe pedestrian routes, through the use of dedicated footways within the highway where feasible; ▪ Street trees should be included where feasible. These should be placed with at least a 1m clearance of the footway or carriageway, away from below-ground utilities, and should not block key view corridors or sight lines; ▪ Existing mature broadleaf trees should be incorporated into the layout of development as 	<p>No Likely Significant Effects in isolation. This is a development management policy in relation to design principle: layout. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects. There are no linking impact pathways.</p>

	<p>part of the landscape design, using them as accents and landmarks where appropriate;</p> <ul style="list-style-type: none">▪ Buildings face towards the road creating an active frontage. The orientation and internal layout will also need to consider the placement of solar panels and glazing to reduce heating demands;▪ Variety of plot patterns and subtle variations in the building line (with the exception of the Churchill Close character area). The degree of set-back will depend on the character of the area and provision of parking, but should include sufficient space for planting / front gardens so that the character of the area remains green;▪ Gaps between dwellings retain glimpsed views to the wider countryside. <p>Particularly care should be taken in the design and layout of buildings at key junctions / approaches to the villages, to create a distinctive and inviting space that should be attractive and welcoming to visitors.</p> <p>Consideration should be given to the use of landmark elements (for example, a distinctive building, public art, or sizable trees within an area of green space) together with fingerposts (in character with local signage) to help visitors find key route connections and community facilities. Given the relatively flat nature of land within and around the village, such view are likely to be relatively short, but can be connected as a sequence.</p>		
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<p>Policy SMNP11 – Design Principles: Building Form and Scale</p>	<p>As a general rule, the scale and form of buildings should conform to the following principles:</p> <ul style="list-style-type: none"> ▪ Building heights should be between 1 and 2 storeys (with 2½ storey buildings being the exception), at an equivalent height to similar buildings found in that character area. ▪ Where development is proposed within an existing character area, its form and scale should reflect the characteristics and variety found in that area. ▪ The scale and form of extensions must not overwhelm, unbalance or otherwise detract from the original design of the host building, and its relationship with adjoining buildings 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to design principle: building form and scale. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP12 – Design Principles: Boundary Treatment and Public Realm</p>	<p>The design of boundary treatments and the public realm in Sturminster Marshall should generally conform to the following principles:</p> <ul style="list-style-type: none"> ▪ Boundary treatment of road frontages should be used to reinforce the linear form and rural character of the street layout, through the retention and use of native hedgerows, traditional low boundary walls and metal railings. Close-boarded wooden fences and high boundary walls should be avoided adjoining the highway, public realm and settlement edge (with the countryside). Verges with planting strips should be used to enable shrubs and climbing plants to be used to screen features such as garages, blank walls and 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to design principle: boundary treatment and public realm. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>

	<p>fences where these cannot be avoided in the street scene.</p> <ul style="list-style-type: none"> ▪ Arrangements for waste storage and collection should be clearly set out and integrated within the plans in a manner that does not detract from the vegetated, rural character of the street scene. ▪ Green spaces for amenity and informal recreation should be included within residential areas in line with <p>the open space standards covering recreation grounds and public gardens, children and young people's space and amenity green space as set in the Local Plan. These should be designed as a central part of the development, and where practical combined to enable the incorporation of large tree species and flood attenuation / drainage features as part of their design.</p>		
<p>Policy SMNP13 – Design Principles: Materials and Architectural Design</p>	<p>As a general rule, the materials and architectural design of buildings should conform to the principles detailed with in the policy</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to design principles: material and architectural design. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP14 – Housing Types</p>	<p>New housing developments should seek to meet the housing needs priorities of Sturminster Marshall parish</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to housing types. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p>

			There are no linking impact pathways.
Policy SMNP15 – Rural exception sites for affordable housing	Rural exception sites within the Green Belt adjoining the village of Sturminster Marshall and within the built-up area at Jubilee Cross will be supported, provided policy provision is adhered to	No Likely Significant Effects in isolation. This is a development management policy in relation to rural exception sites for affordable housing. There are no linking impact pathways present.	No Likely Significant Effects. There are no linking impact pathways.
Policy SMNP16 – Supporting Local Employment Opportunities	The retention and small-scale expansion of existing employment sites allowed through the Local Plan will apply to sites shown on Map 11, subject to Green Belt restrictions. Within the Bailie Gate Industrial Estate, Use Class E, B2 and B8 employment uses are supported , but typical ‘High Street’ uses (Use Class E (a – f)) should be located on land fronting onto the High Street and be of a scale appropriate to Sturminster Marshall village as a rural service centre, with B2 and B8 or otherwise unneighbourly employment uses located away from this frontage. The expansion of the Bailie Gate Industrial Estate, as envisaged in Policy RA1 of the Local Plan and identified in Fig. 18, should: ▪ Be limited to Use Class E(g) (Office, Research and Light Industry), B2 (General Industry) and B8 (Warehousing and Distribution) employment uses (through the imposition of appropriate conditions);	No Likely Significant Effects in isolation. This is a development management policy in relation to supporting local employment opportunities There are no linking impact pathways present.	No Likely Significant Effects. There are no linking impact pathways.

	<ul style="list-style-type: none"> ▪ Incorporate significant landscape buffers on the north, west and southern boundaries abutting the countryside; ▪ Be accompanied by a Flood Risk Assessment in accordance with Policy SMNP2; ▪ Be in accordance with design Policies SMNP9-12 ▪ Provide for safe and attractive pedestrian and cycle links in accordance with Policy SMNP19; ▪ Be accompanied by a Transport Assessment in accordance with Policy SMNP20; ▪ Improve traffic management including, if feasible, the delivery of a new link road connecting onto the A350 in accordance with Policy SMNP21. <p>Employment premises should be designed to be adaptable, with the arrangement of doors, windows and parking provision, and the relationship between units, designed to enable future sub-division into smaller units (and combining into larger units) without the need to re-build. Explanation of flexibility in the design should be included within the sustainability statement.</p>		
<p>Policy SMNP17 – Supporting and Improving Community Facilities</p>	<p>Development proposals to improve the provision of community facilities in a manner in keeping with the character of the area will be supported. Every effort should be made to work with the local community and relevant authorities to investigate potential solutions to avoid any loss of valued assets</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to supporting and improving community facilities. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>

<p>Policy SMNP18 – Sports and Recreation area – land at Station Road</p>	<p>Land at Station Road, as identified in Saved Policy SM3 an shown in Fig. 19, is reserved for public open space for the sport and recreation needs of the community, which may include:</p> <ul style="list-style-type: none"> ▪ sports pitches ▪ allotments ▪ a Multi Use Games Area ▪ a skate park ▪ a small building containing changing rooms and pavilion ▪ car parking to serve the sports and recreation area. 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to the sports and recreational area at Land at Station Road. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP19 – Infrastructure needs of large scale development</p>	<p>Large scale development should demonstrate that the Parish Council, education and healthcare services providers have been actively involved in assessing the infrastructure needs to accompany such development, and a comprehensive package to deliver anticipated community infrastructure needs should be included as part of the development proposals.</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to infrastructure needs of large scale developments. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP20 – Rights of Way, Walking & Cycling</p>	<p>Development should not result in an adverse impact on the safety of users of the key pedestrian and cycle route network shown on Map XXX. Any development that would adjoin or incorporate these routes should seek to improve their safety and amenity, and retain and where possible enhance their rural character, so that more people are encouraged to walk and cycle.</p> <p>The delivery of the improvements identified in Table XXX will be supported. Where development includes any part of proposed new routes,</p>	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to Rights of Way and walking and cycling. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>

	<p>including the Trailway extension, these routes should be safeguarded and measures taken to link into them from the development where appropriate.</p> <p>New development should be planned to be permeable, promoting active travel at all times, and where practical include options for onward walking and cycling connections</p> <p>Pedestrian / cycle routes should be designed to be attractive, safe and convenient, and meet standards</p>		
<p>Policy SMNP21 – Transport Assessments</p>	<p>Transport assessments, where required, should demonstrate:</p> <ul style="list-style-type: none"> ▪ how the development will alter the size and volume of the vehicles accessing the site; ▪ how the adequacy of the routes (in terms of their functional width given on-street parking levels within the village) has been taken into account in assessing safety and traffic flows; ▪ how likely growth in traffic (including the cumulative impact of development planned on the A350 corridor up to and including Blandford Forum and proposed expansion of the Bailie Gate Industrial Park) has been taken into account; ▪ how findings arising from the A350 study have been taken into account. 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to transport assessments. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects.</p> <p>There are no linking impact pathways.</p>
<p>Policy SMNP22 – Traffic Management and Transport Improvements</p>	<p>Traffic management proposals will be supported, particularly where these will help achieve the following objectives:</p> <ul style="list-style-type: none"> ▪ the reduction of traffic congestion / queuing for vehicles accessing onto the A350 from the village 	<p>No Likely Significant Effects in isolation.</p> <p>This is a development management policy in relation to traffic management and transport</p>	<p>No Likely Significant Effects.</p>

	<ul style="list-style-type: none"> ▪ improvements to the pedestrian and cycle route network, including the (missing) link along the A350 between Station Road and Newton Road; ▪ the alleviation of problems associated with on-street parking pressures; ▪ the reduction of traffic speeds, including measures such as implementing 20mph traffic speed restrictions or calming measures within the village, and the extension and reinforcement (through speed indicator devices or other measures) of the existing 30mph limit on the A350. <p>Large scale development within or to the south side the Bailie Gate Industrial Estate up to the A350 must consider the feasibility of providing a new link road connecting onto the A350, and safeguard such a route if practical and deliver it if it is viable to do so.</p>	<p>improvements. There are no linking impact pathways present.</p>	<p>There are no linking impact pathways.</p>
<p>Policy SMNP23 Parking standards –</p>	<p>Development should be designed to meet or exceed the number of car parking spaces set out in the adopted car parking standards, taking into account the latest data on car ownership levels. Unallocated on-street parking as part of this provision will only be supported where there are safe crossing points and traffic flows would not be impeded. The design of parking should not result in development that is unsightly or in which parked motor vehicles will dominate the street scene. Garages should be at least 6m x 3m to provide sufficient room for cars to park inside them as well as providing some room for storage.</p>	<p>No Likely Significant Effects in isolation. This is a development management policy in relation to parking standards. There are no linking impact pathways present.</p>	<p>No Likely Significant Effects. There are no linking impact pathways.</p>

	Opportunities must be created for unallocated electric vehicle charging points for visitors and residents, designed to integrate without detriment to the public and private realm.		
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4.2 Other plans and projects

- 4.2.1 It can be seen from the preceding table that no likely significant effects have been identified for the SMNP because no impact pathways actually exist linking plan policies to negative impacts on European sites. The SMNP does not contain any policies seeking to deliver or allocate development but rather seeks to manage development proposals as they come forward. Since no impact pathways exist, there is no mechanism for an effect in combination with other plans or projects.

5. Conclusion

- 5.1.1 Although there are potential impact pathways linking housing and employment growth in Sturminster Marshall to SACs and SPAs, no likely significant effects have been identified for the SMNP because no impact pathways actually exist linking plan policies to negative impacts on European sites. The SMNP does not contain any policies seeking to deliver or allocate development but rather seeks to manage development proposals as they come forward. Since no impact pathways exist, there is no mechanism for an effect in combination with other plans or projects.

Appendix A Habitats Sites Background Information

A.1 Dorset Heathlands SPA / Ramsar

Introduction

5.1.2 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 include a large assemblage of nationally rare and scarce species, especially invertebrates.

Conservation Objectives⁶⁰

'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;

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

5.1.3 The reason for the designation of the **SPA** is for the following features.

5.1.4 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)

⁶⁰ <https://publications.naturalengland.org.uk/publication/5808199001178112> [Accessed 19 May 2023]

- 5.1.5 The reason for the designation of the **Ramsar** is for the following features⁶¹.
- 5.1.6 **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*.
- 5.1.7 **Criterion 2** – Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species.
- 5.1.8 **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 Vulnerabilities⁶²

- 5.1.9 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

A.2 Dorset Heaths SAC

Introduction

- 5.1.10 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.

⁶¹ <https://jncc.gov.uk/our-work/ramsar-sites/> [Accessed 19 May 2023]

⁶² <https://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed 19 May 2023]

Conservation Objectives⁶³

'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;

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*
- *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

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

5.1.12 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))
- 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)

5.1.13 Qualifying Annex II species:

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

Environmental Vulnerabilities⁶⁴

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

⁶³ [European Site Conservation Objectives for Dorset Heaths SAC - UK0019857 \(naturalengland.org.uk\)](https://publications.naturalengland.org.uk/publication/5181909839642624) [Accessed 19 May 2023]

⁶⁴ <https://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed 19 May 2023]

- 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

A.3 Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC

Introduction

5.1.15 This site, with the Dorset Heaths 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

‘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;

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 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

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

5.1.17 Qualifying Annex I priority habitats:

- Bog woodland
- Atlantic decalcified fixed dunes (Calluno-Ulicetea). (Coastal dune heathland)
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (Calcium-rich fen dominated by great fen sedge (saw sedge))
- Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*. (Wet heathland with Dorset heath and cross-leaved heath)
- Qualifying Annex I habitats:
- Alkaline fens. (Calcium-rich springwater-fed fens)
- Depressions on peat substrates of the *Rhynchosporion*
- Embryonic shifting dunes
- European dry heaths
- Humid dune slacks
- 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)
- Oligotrophic waters containing very few minerals of sandy plains: *Littorelletalia uniflorae*. (Nutrient-poor shallow waters with aquatic vegetation on sandy plains)
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes). (Shifting dunes with marram)

5.1.18 Qualifying Annex II species:

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

Environmental Vulnerabilities⁶⁵

5.1.19 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

⁶⁵ <https://publications.naturalengland.org.uk/publication/5181909839642624> [Accessed 19 May 2023]

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

A.4 Poole Harbour SPA / Ramsar

Introduction

5.1.20 Poole Harbour is a bar-built estuary covering an area of nearly 4000 hectares. The Harbour occupies a shallow depression in the acidic, tertiary deposits towards the south-western extremity of the Hampshire Basin and has been formed over the last 5000 years by a rise in sea level. The unusual micro-tidal regime means that a significant body of water is retained throughout the tidal cycle. The site therefore exhibits many of the characteristics of a lagoon. There are extensive intertidal mudflats supporting internationally important numbers of waterfowl in winter. These are fringed on the landward side by saltmarshes or reedbeds. The river valleys of the lower Frome and Piddle support grazing marsh which is also important for wintering waterfowl. Much of the catchment along the western and southern shores comprises the internationally important Dorset heathlands and there are unusual transitions from saltmarsh to valley mire. The Harbour is separated from Poole Bay by the internationally important Studland dunes and the site includes Littlesea, a large dune slack lake also important for wintering wildfowl.

Conservation Objectives⁶⁶

‘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;

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.’*

⁶⁶ <https://publications.naturalengland.org.uk/publication/6625771074355200> [Accessed 19 May 2023]

Qualifying Features

5.1.21 The reason for the designation of the **SPA** is for the following features.

5.1.22 Qualifying Annex I species:

- Little egret (*Egretta garzetta*) (Non-breeding)
- Eurasian spoonbill (*Platalea leucorodia*) (Non-breeding)
- Pied Avocet (*Recurvirostra avosetta*) (Non-breeding)
- Mediterranean gull (*Larus melanocephalus*) (Breeding)
- Sandwich tern (*Sterna sandvicensis*) (Breeding)
- Common tern (*Sterna hirundo*) (Breeding)

5.1.23 Qualifying regularly occurring migrant species not listed in Annex I:

- Common shelduck (*Tadorna tadorna*) (Non-breeding)
- Black-tailed godwit (*Limosa limosa islandica*) (Non-breeding)

5.1.24 The reason for the designation of the **Ramsar** is for the following features⁶⁷.

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

5.1.26 **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.

5.1.27 **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.

5.1.28 The Site supports nationally important populations of breeding waterfowl including Common tern, *Sterna hirundo* and Mediterranean gull *Larus melanocephalus*. Over winter the site also supports a nationally important population of Avocet *Recurvirostra avosetta*.

5.1.29 **Criterion 5** – Assemblages of international importance

5.1.30 **Criterion 6** – Species populations occurring at levels of international importance.

5.1.31 Qualifying Species/populations (as identified at designation):

5.1.32 Species with peak counts in winter:

- Common shelduck (*Tadorna tadorna*)
- Black-tailed godwit, (*Limosa limosa islandica*)

5.1.33 Species/populations identified subsequent to designation for possible future consideration under criterion 6.

⁶⁷ <https://jncc.gov.uk/our-work/ramsar-sites/> [Accessed 19 May 2023]

5.1.34 Species with peak counts in winter:

- Pied avocet, (*Recurvirostra avosetta*)

Environmental Vulnerabilities

5.1.35 Natural England's Site Improvement Plan identifies the following threats and pressure for the integrity of the SPA / Ramsar⁶⁸

- Water Pollution
- Air Pollution: impact of atmospheric nitrogen deposition
- Fisheries: Commercial marine and estuarine
- Coastal squeeze
- Public Access/Disturbance
- Deer

⁶⁸ <https://publications.naturalengland.org.uk/publication/6713862766198784> [Accessed 19 May 2023]

