



(Shadow) Habitats Regulations Assessment (HRA) Report

Land off Harts Farm Way,
Havant,
Portsmouth,

Prepared on behalf of
FPC Electric Land Ltd



CONTENTS

PART A: INTRODUCTION AND INFORMATION ABOUT THE PROJECT

- A1 Background and Commission
- A2 Site Description and Context
- A3 Proposed Development Project
 - Plan 1: Site Location (not to scale)*
 - Plan 2: Site Red Line Boundary (not to scale)*
 - Plan 3: Proposed Development Plan (supplied by Client, not to scale)*
- A4 Author's Qualifications
- A5 The HRA Process – Overview
 - Figure 1: How the HRA Process Influences Decisions*
- A6 Likely Significant Effect (LSE)
 - Figure 2: Overview of the Four-stage HRA Process*
- A7 The HRA Process Post-EU Exit

PART B: INFORMATION ABOUT DESIGNATED AND PROTECTED SITES WHICH COULD BE AFFECTED

- B1 Introduction and Data Sources
- B2 Selection of Potentially Affected Sites
 - Figure 3: Candidate Site for Solent Waders and Brent Goose Strategy*
 - Figure 4: Designated Sites and Ecological Receptor Points*
 - Table 1: Ecological Receptor Sites Detailed in Wood's AQA and TN*
 - Figure 5: Exceedance Envelope Predicted for Nitrogen Oxides (NO_x)*
 - Figure 6: Exceedance Envelope Predicted for Nitrogen Depositions*
 - Table 2: Potentially Affected Sites Selected for this HRA*
 - Plan 4: Locations of Potentially Affected Sites Selected for this HRA in relation to Project Site and Exceedance Envelopes of Nitrogen Oxides and Nitrogen Depositions*
- B3 Brief Description and Qualifying Features of the Protected Sites
 - B3.1 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar
 - Table 3: PAS01 Chichester and Langstone Harbours – Qualifying Species (SPA Designation)*
 - B3.2 PAS02 Solent Maritime SAC
 - Table 4: PAS02 Solent Maritime – Qualify features (SAC designation)*
 - B3.3 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy

PART C: SCREENING OF THE PROJECT FOR APPROPRIATE ASSESSMENT

- C1 Conservation Objectives
 - C1.1 Overview
 - C1.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar
 - C1.3 PAS02 Solent Maritime SAC
 - C1.4 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy
- C2 Threats and Vulnerabilities
 - C2.1 Overview
 - C2.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar; and PAS02 Solent Maritime SAC
 - C2.3 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy
- C3 Conditions Assessment
 - C3.1 Overview
 - C3.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar
 - Figure 7: Extract from Conditions Review for Chichester Harbour SSSI*
 - C3.3 PAS02 Solent Maritime SAC
 - C3.4 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy
- C4 Zones of Influence and SSSI Impact Risk Zones

C5 Screening and Assessment of Likely Significant Effects

C5.1 Overview

Figure 8: Flowchart for Deciding When a Project is Exempt, Excluded or Eliminated from further Assessment

C5.2 Potential Pathways of Impact

Table 5: Potential Pathways of Impact Identified

Table 6: Potential Pathways of Impact - Screening

C5.3 Potential Pathways relating to Air Pollution

C5.3.1 Overview

Table 7: Main sources and effects of pollutants on habitats and species

C5.3.2 Screening of Air Pollutants

C5.3.3 Significance Criteria

Figure 9: Impact Descriptors for Individual Receptors

C5.3.4 Mean Nitrogen Oxide (NO_x) Impacts – Daily and Annual

Plan 5: Distribution of Intertidal Mudflat Habitats within PAS01 and PAS02 in relation to Nitrogen Oxide Exceedance Envelope

C5.3.5 Acid Deposition

C5.3.6 Nitrogen Deposition

C6 Summary and Conclusion of No Likely Significant Effects**PART D: APPROPRIATE ASSESSMENT AND CONCLUSIONS ON SITE INTEGRITY**^{C1dDD}

D1 Appropriate Assessment

D2 Summary and Conclusions

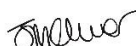
PART E: REFERENCES AND BIBLIOGRAPHY**APPENDICES**

Appendix 1 Notes on Designations, Protections and Overlap Between Them

Appendix 2 Qualifying Features, Conservation Objectives, Conditions and Management Recommendations of European Sites

Appendix 3 Natural England Guidance on Impact Risk Zones of SSSIs

QUALITY MANAGEMENT

Quality Management Approved prior to Issue			
Report Ref:	SE1000-01_G01_JO		
Site Address:	Harts Farm Way, Havant, Portsmouth PO1 1HU		
Doc Title:	Harts Farm Way, Havant Shadow HRA		
Issue Date:	18 th October 2022	Revision No:	First report issued
Prepared by:	Dr David Hackett <i>BSc (Hons) MLD PhD MCIEEM M.I. Soil Sci CEnv, Director</i>	Signature:	
Approved by:	Jenny Oliver , Managing Director	Signature:	

This report has been prepared with all reasonable skill, care and diligence, within the terms of the contract with the client. This report is confidential to the Client. Biora Limited accepts no responsibility of whatever nature to third parties to whom this report may be made known.

This report is based on survey data gathered in 2022 for this site at Harts Farm Way, Havant, Portsmouth, P01 1HU

Limitations of use and copyright: All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this site. It may not be sold, lent, hired out or divulged to any third party not directly involved in this site without the written consent of Biora Ltd.

PART A: INTRODUCTION AND INFORMATION ABOUT THE PROJECT

A1 Background and Commission

- A1.1 In August 2022, Biora were appointed to prepare a Shadow Habitats Regulations Assessment (HRA) in support of a planning application (Ref: Havant Borough Council, APP/21/00809) for Hermitage Park, Harts Farm Way, Havant, Portsmouth, PO1 1HU. This application by GFP II Limited is for a proposed gas-fuelled capacity mechanism embedded generation plant to support the National Grid at times of peak demand. This application is a resubmission of previously approved applications (APP/17/00511 as amended by APP/18/01281) to secure a further three years to commence development following transfer of ownership of the site.
- A1.2 No Preliminary Ecological Appraisal or desktop ecological study had been requested or undertaken for this site, for any of the above planning applications. However details of ecological receptor sites and air quality predictions were prepared in two documents by Wood Environmental to support this application:
- *Harts Farm Way, Air Quality Assessment*, Wood Group UK Limited, May 2022,(referred to throughout this HRA as Wood's AQA)
 - *Technical Note: GFP II Limited – Harts Farm Way Ecological Appraisal (Emissions)*, Wood Group UK Limited, June 2020 (referred to throughout this HRA as Wood's TN)
- A1.3 On reviewing the application, the Senior Ecologist for Hampshire County Council, requested a Habitats Regulations Assessment as follows:
- “In summary, there are predicted exceedances in air pollutants across an area containing habitats associated with the Solent Maritime SAC and Chichester & Langstone Harbours SPA. This exceedance may result in a Likely Significant Effect on qualifying features of these designated sites, such that the sites conservation objectives are undermined. No details of any mitigating actions are provided: the fact that only a small proportion of the sites are within the exceedance envelope is not sufficient to avoid a Likely Significant Effect. This AQA¹ needs to be developed into a Habitats Regulations Assessment (HRA) in order that the Local Planning Authority can understand the potential for effects on the internationally designated sites. This should include an assessment of the potential for impacts on the specific qualifying features of the designated sites within the exceedance envelope.”*
- A1.4 As air pollution within “the exceedance envelope” was the priority concern at this site, this HRA draws heavily on data provided within both of the Wood reports set out above, which should be read in conjunction with this Assessment. More details on the exceedance envelopes for nitrogen oxides and nitrogen depositions are provided at **Section B2** below.

A2 Site Description and Context

- A2.1 This site measures approximately 0.45 ha and is situated off Harts Farm Way, Havant, Portsmouth, PO1 1HU. The site lies within a small industrial estate and comprises hardstanding with areas of scrub and tree habitats toward the south and west. The site is bound by Harts Farm Way estate access road to the south, Global Marine Group buildings to the east, an access road, a small stream and Keyline Civils and Drainage to the north, and an access road and the Havant Household Waste Recycling Centre to the west.
- A2.2 The immediate landscape setting is industrial, with medium-density residential areas in the wider landscape to the north-east and east. There is green space to the north, beyond the A27; West Chalkdock Lake and Bridge Lake lie beyond the industrial estate to the south; and there is a small strip of green space beyond this site to the south-west and south-east, respectively.
- A2.3 The site is centred on OS grid reference **SU 70601 05830**. The location of the site within the wider landscape is set out at **Plan 1**; the application boundary is set out as a red line at **Plan 2**.

A3 Proposed Development Project

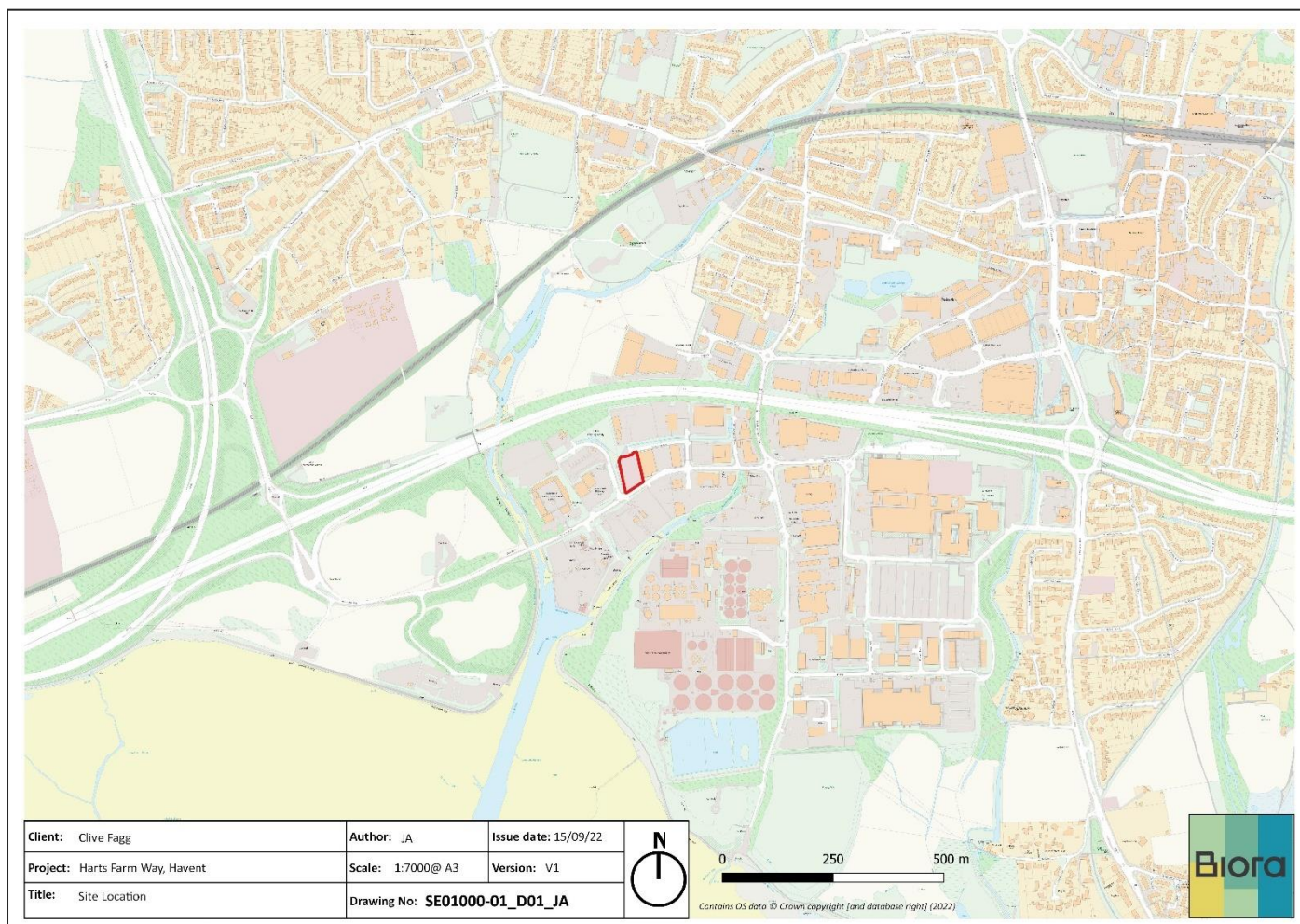
- A3.1 The planning application is for gas-fuelled capacity mechanism embedded generation plant to support the National Grid during periods of high demand. According to Wood's TN², the proposed installation consists of up to ten generators, each rated at 2,535kw. It will operate independently of a separate PeakGen installation of ten diesel engines (located approximately 170m north-west of this proposed generation plant, meaning that, at times, they will operate simultaneously).

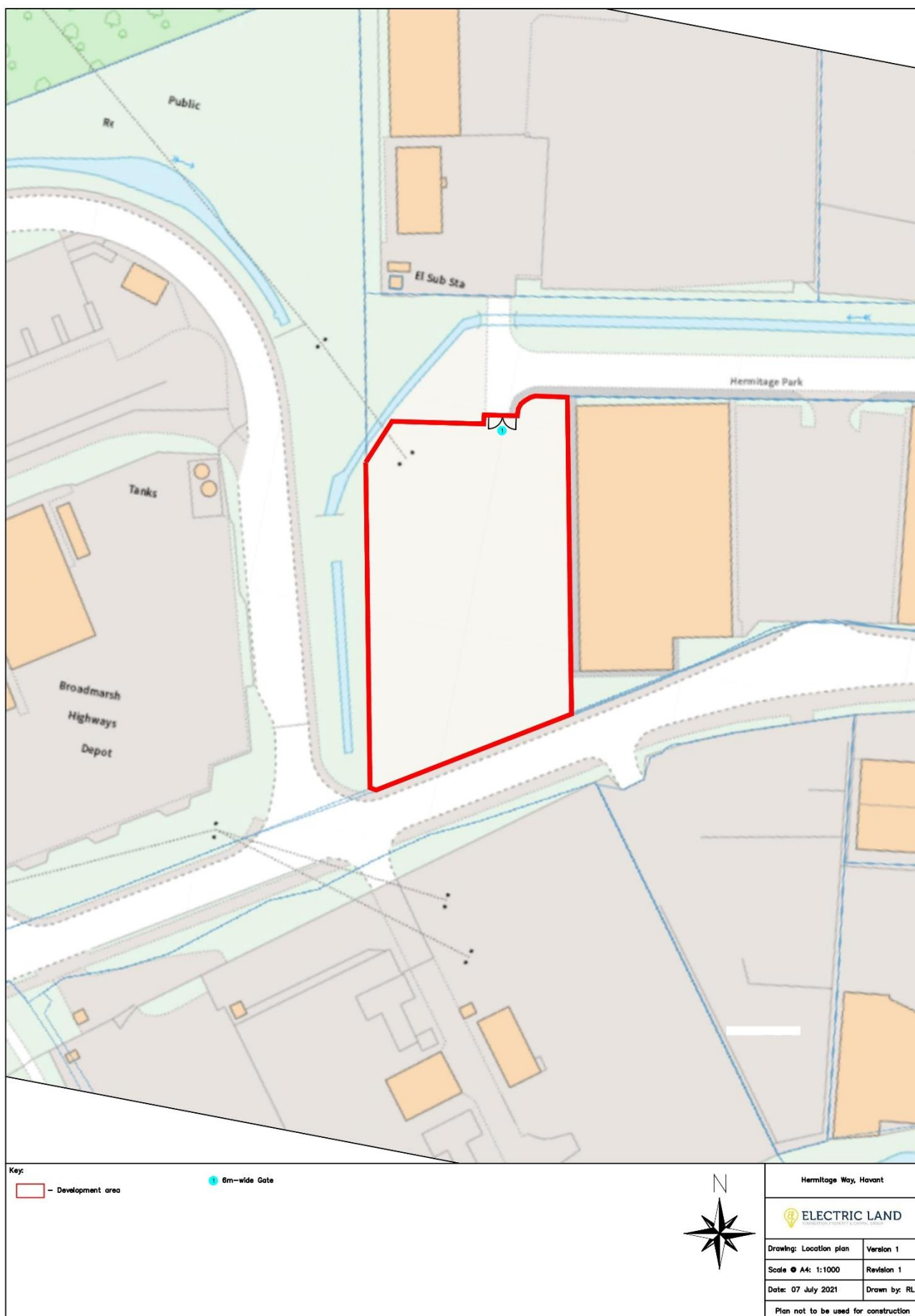
¹ Wood Group UK Limited, May 2022 *Harts Farm Way, Air Quality Assessment*

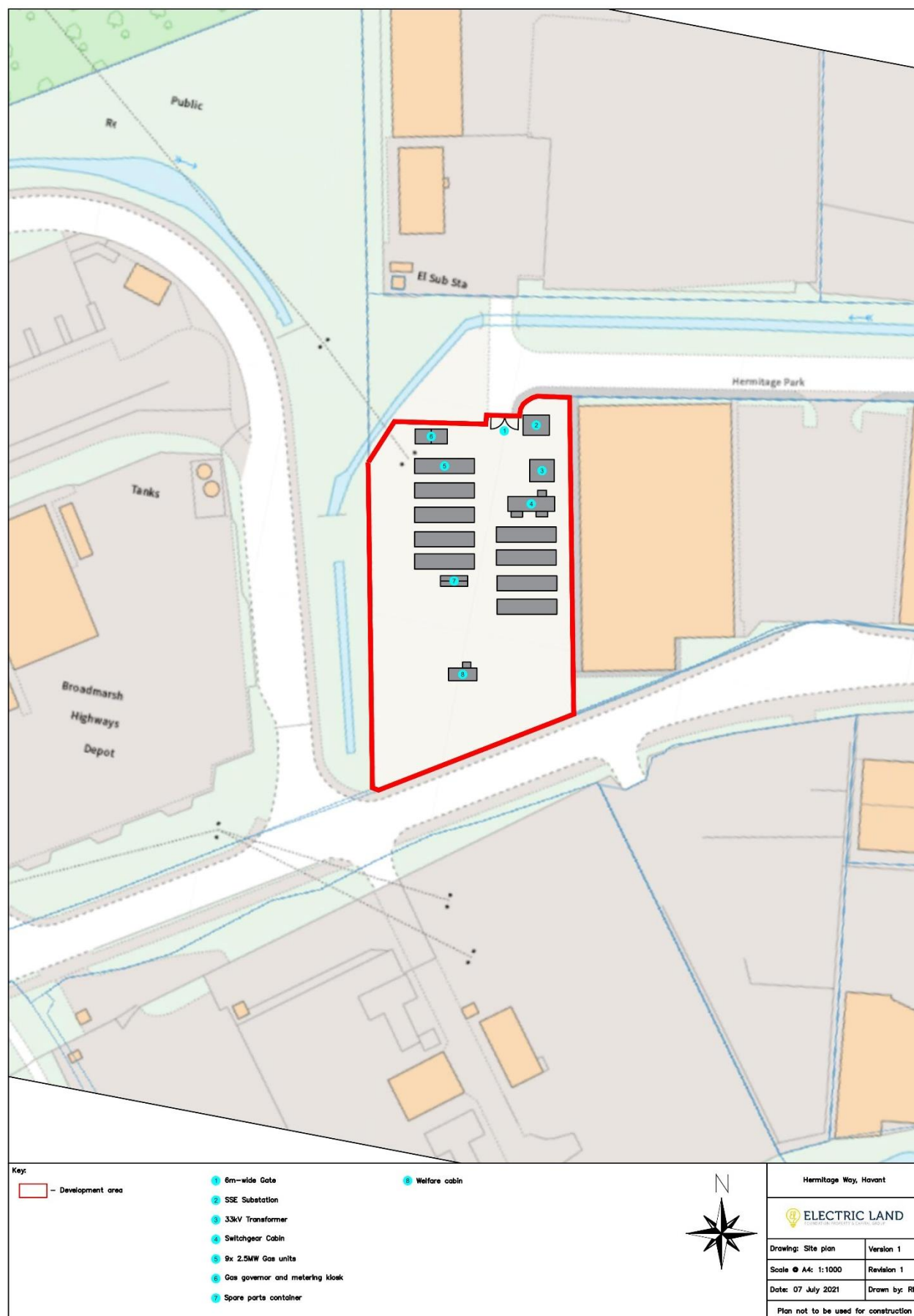
² Wood Group UK Limited, June 2020 *Technical Note: GFP II Limited – Harts Farm Way Ecological Appraisal (Emissions)*

A3.2 A plan of the proposed development was provided by the client, shown at **Plan 3**.

Plan 1: Site Location Plan (not to scale)



Plan 2 Site Red Line Boundary (not to scale)

Plan 3: Proposed Development Plan (supplied by Client, not to scale)

A4 Author's Qualifications

A4.1 **Dr David Hackett BSc (Hons) MLD PhD MCIEEM M.I. Soil Sci CEnv** co-founded Biora over fourteen years ago and has co-directed the company since that time. Dr Hackett is a highly-experienced ecologist, soil scientist (edaphologist), project manager and landscape architect with over 25 years' professional experience, who regularly project manages and co-ordinates teams of ecologists conducting surveys for multiple protected species to inform planning applications, Environmental Impact Statements, Natural England and Scottish Natural Heritage licences and conditions discharge. For over ten years David project managed the ecology for a 1000-ha brownfield redevelopment site in Bishopton, Renfrewshire, during a twenty-five-year phased re-development of this contaminated brownfield site to a new village with approximately 3,000 houses. During this time Dr Hackett worked with SNH to develop and subsequently held 5-year protected species licences for otters and badgers at this site. Dr Hackett is a full member of the Chartered Institute of Ecology and Environmental Management, a full member of the Institute of Soil Science and a Chartered Environmentalist. David has researched and written over fifteen Habitat Regulations Assessments.

A5 The HRA Process - Overview

A5.1 Any proposed project or plan that *potentially* affects European sites in the UK requires a Habitats Regulations Assessment (HRA). In the UK the following European sites are protected by the Habitats Regulations³:

- Special Areas of Conservation (SACs); and
- Special Protection Areas (SPAs)

A5.2 In addition any proposed project or plan that affects the following, also requires an HRA:

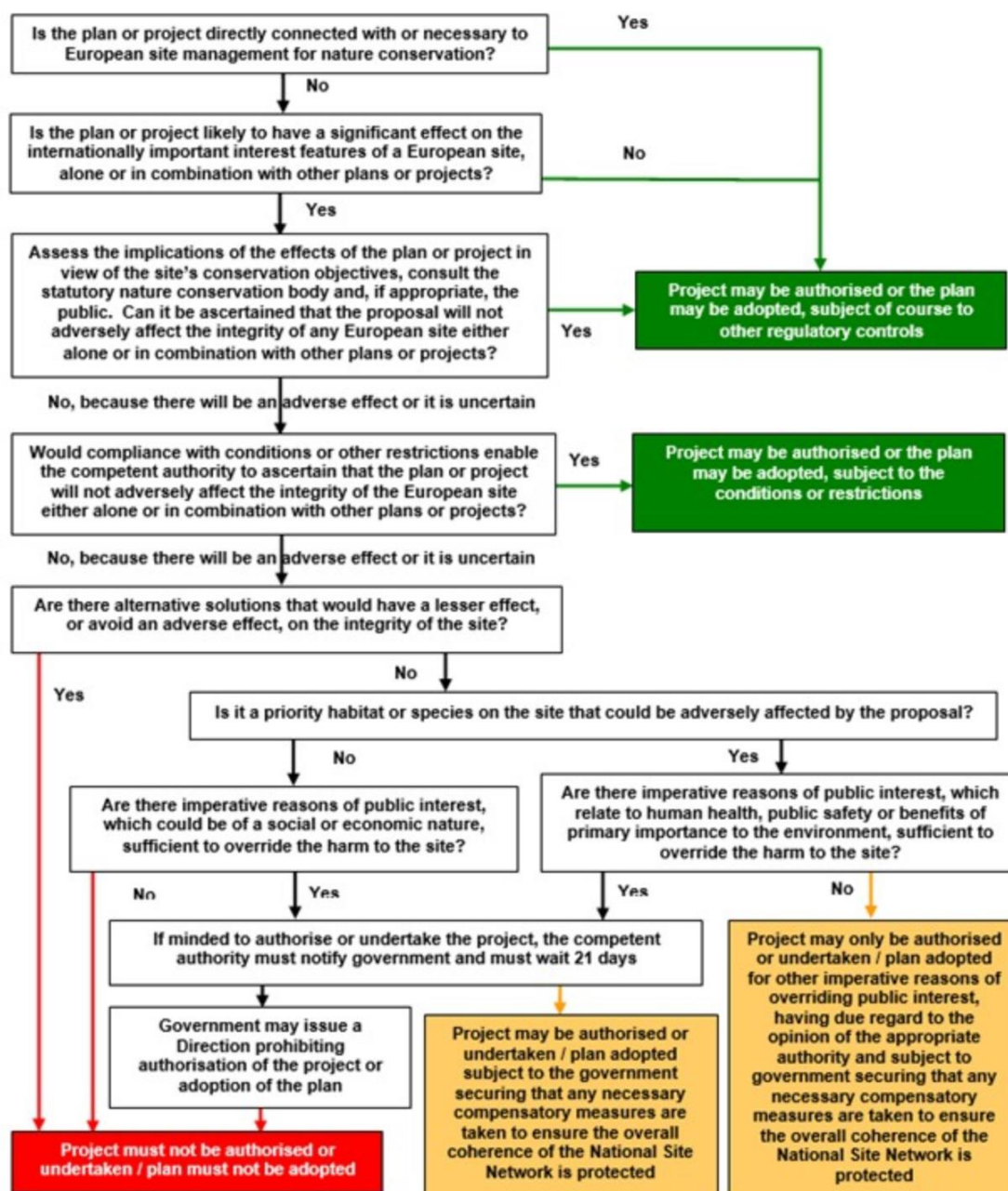
- Proposed SACs;
- Proposed SPAs;
- Ramsar sites (ie wetlands of international importance – both listed and proposed); and
- Areas secured as sites compensating for damage to a European site.

A5.3 The way in which statutory bodies use a shadow HRA to make decisions is described in [Figure 1](#) below, taken from the DTA Habitats Regulations Assessments Handbook⁴ in 2021.

³ The Conservation of Habitats and Species Regulations 2017 (SI No. 2017/1012), commonly referred to as 'the Habitats Regulations'

⁴ Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, (February), (2021) edition UK: DTA Publications Ltd

Figure 1: How the HRA process influences decisions (from DTA HRA Handbook, February 2021)



A5.4 The HRA screening stage examines the likely effects of the proposals alone or in combination with other projects and plans on the protected sites to answer the question: *can it be concluded that no likely significant effect will occur?* To determine whether the proposals are likely to have any significant effects on the designated site, the following are considered:

- Whether the proposals could affect the qualifying interest and whether they are sensitive/vulnerable to the effect;
- The probability of the effect happening;
- The likely consequences for the Site's Conservation Objectives if the effect occurred; and
- The magnitude, duration and reversibility of the effect.

A5.5 The screening stage seeks to conclude one of the following outcomes:

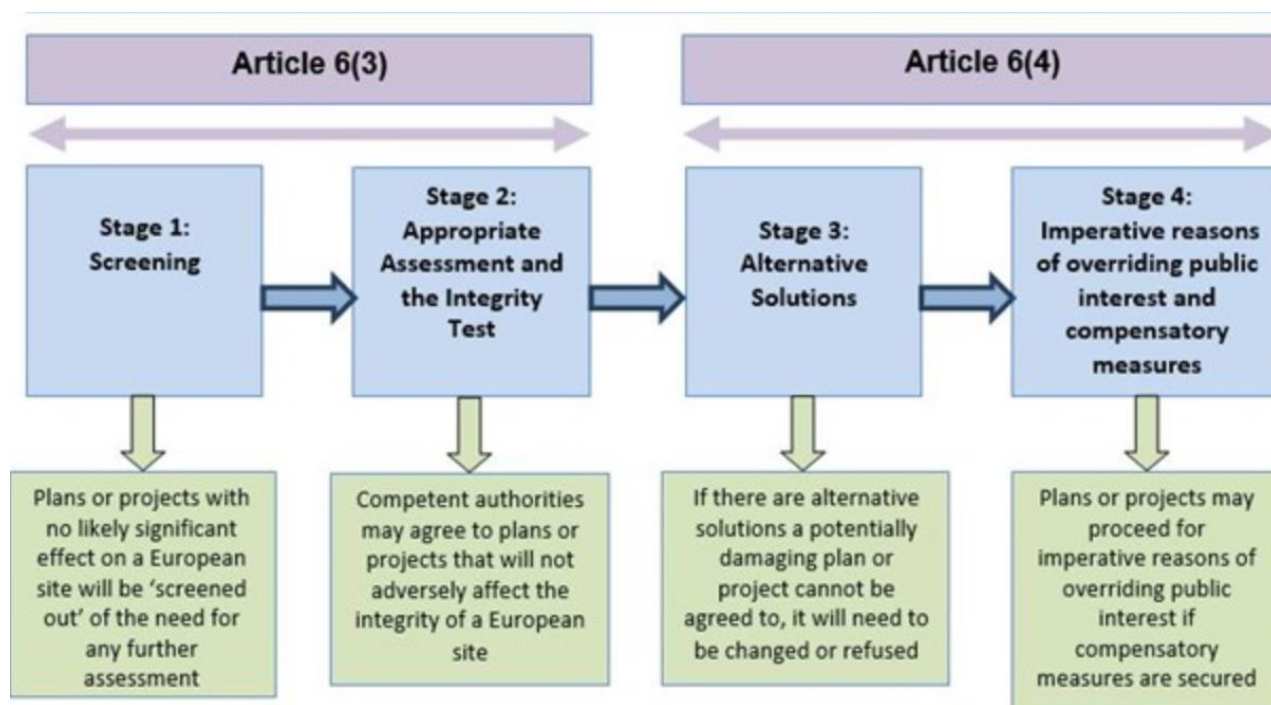
- No likely significant effect;
- A likely significant effect; or
- It cannot be concluded that there will be no significant effect.

A5.6 Where the assessment concludes that there is likely to be a significant effect or it cannot be concluded that there will be no significant effect, then, following the precautionary principle, an Appropriate Assessment is triggered.

A6 Likely Significant Effect (LSE)

- A6.1 This is an assessment of whether the proposal is *likely* to have a *significant effect* on the protected sites, either as an outcome of these proposals or in combination with other proposed works. Because effects can be cumulative/synergistic, each aspect of the proposal likely to have an impact must be considered individually and in combination.
- A6.2 Judgement of the significance of an effect must take account of factors such as temporal and physical extents and how they impact the site, including the conservation objectives. It is possible to have short-term or very limited damage within the site and not significantly affect the European site. Any judgement should also take account of the likely effects once avoidance measures have been applied. However, under current case law, only **measures intended to reduce or avoid impacts, and not the mitigation of impacts, can be considered in this assessment.**
- A6.3 Consultation with Natural England, who requested this assessment, is an important part of the process. The overall screening and assessment process of conducting an HRA is shown at [Figure 2](#) below.

Figure 2: Overview of the Four-stage HRA Process – Reproduced from DTA HRA Handbook, February 2021



A7 The HRA Process Post-EU Exit

- A7.1 The DTA HRA Guidebook was updated in February 2021 to provide the following assessment of how the HRA process should be conducted after the UK's exit from the European Union on 31st December 2020:

"All of these assessment procedures continue to apply, with appropriate modifications, following the UK leaving the European Union because the respective regulations are 'retained EU law'. Examples of the Statutory Instruments which give effect to the continuation of these assessment procedures include *The Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018*, SI 2018 No 1232; *The Environment, Food and Rural Affairs (Environmental Impact Assessment) (Amendment) (EU Exit) Regulations 2019* SI 2019/25; and *The Harbours and Highways (Environmental Impact Assessment) (Amendment) (EU Exit) Regulations 2020*."

PART B: INFORMATION ABOUT THE DESIGNATED AND PROTECTED SITES WHICH COULD BE AFFECTED

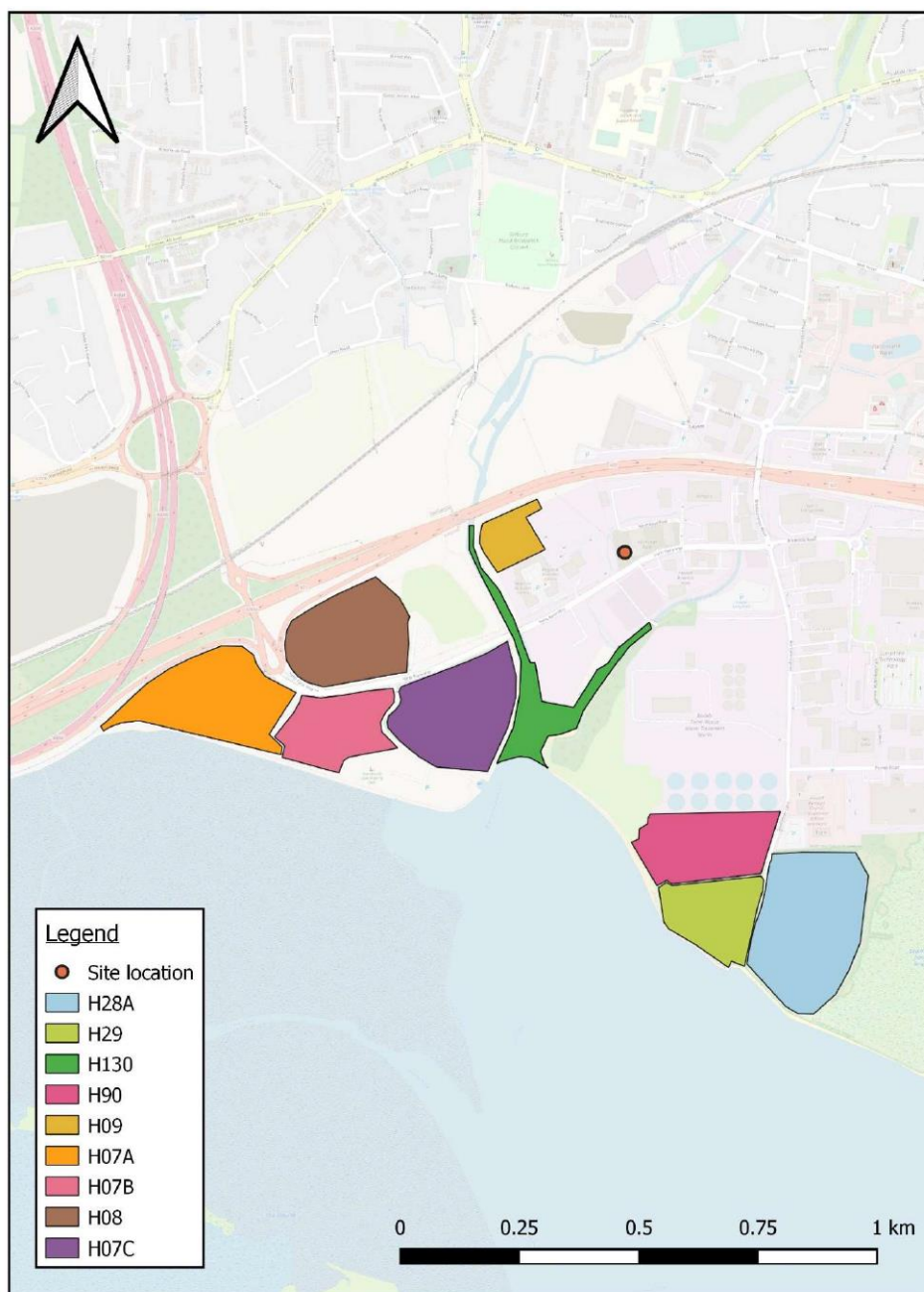
B1 Introduction and Data Sources

- B1.1 No ecological desktop or field survey had been requested by the LPA or undertaken for either this planning application or the previous applications for this site.
- B1.2 Wood's AQA and the TN which accompany the planning report contained useful and highly relevant information on nearby protected habitats and species for this site, that would normally be included in an Ecological Desktop Survey (this would normally be completed as part of the Preliminary Ecological Appraisal process). This HRA draws heavily on data extracted from both reports by Wood's, given the critical importance of air quality modelling in predicting impacts on protected wildlife sites.
- B1.3 The first step in the HRA process is to determine sites which have potential to be affected by the project. For this project, this critical first step has been complex given:
- the lack of ecological desktop and field survey data and results requested to support the planning application;
 - the critical importance of air modelling results by a third-party (Wood); and
 - the (assumed) selection of ecological receptor sites for this air modelling by a non-professional ecology team.
- B1.4 These complexities represent a constraint to this HRA, however sufficient robust technical research and assessment has been undertaken by the Biora team to effectively overcome this constraint. The results of this HRA are deemed sufficient to fully inform the predicted impacts of the project on nearby protected sites and species.
- B1.5 In total the following data sources were used to select Potentially Affected Sites for this project (further details are provided at Section E):
- Wood Group UK Limited, May 2022 *Harts Farm Way, Air Quality Assessment* – referred to throughout this report as "Wood's AQA"
 - Wood Group UK Limited, June 2020 *Technical Note: GFP II Limited – Harts Farm Way Ecological Appraisal (Emissions)*– referred to throughout this report as "Wood's TN"
 - Hampshire County Council Senior Ecologist *Consultee Comments for Planning Application APP/21/00809*, undated
 - Multi-agency Geographic Information for the Countryside (MAGIC) map, interrogated August 2022;
 - JNCC website, retrieved August 2022;
 - Natural England website, retrieved August 2022;
 - DEFRA website, retrieved August 2022;
 - DEFRA Marine Conservation Zone information sheets;
 - Natural England SSSI information sheets;
 - Natural England SSSI – IRZ information sheets; and
 - Ramsar information sheets.

B2 Selection of Potentially Affected Sites

- B2.1 The HRA is only concerned with impacts on European protected sites.
- B2.2 There are no standard criteria for determining the geographical scope of an HRA – rather the source-pathway-receptor model is used to determine whether there is any potential pathway connecting development to any European sites. In this instance, the HRA benefitted from a detailed assessment of potential air quality impacts by Wood, which was able to identify specific pathways and potential receptors.
- B2.3 In their ecological consultation response letter, Hampshire's County Ecologist requested that, as well as European sites, a number of candidate sites for the Solent Waders and Brent Goose Strategy (SWBGS) be considered within the scope of the HRA. The location of these sites is provided at **Figure 3** below.

Figure 3: Candidates Sites for Solent Waders and Brent Goose Strategy – Reproduced from Strategy Document⁵



⁵ Whitfield, D (2020) Solent Waders and Brent Goose Strategy Hampshire and Isle of Wight Wildlife Trust. Curdridge

B2.4 In their AQA Wood identified a number of designated sites which could be affected by the project and, from these, identified a number of ecological receptor points for air quality modelling. Designated sites and ecological receptor points identified by Wood are illustrated at **Figure 4** and detailed at **Table 1** below. More detail of this air modelling is provided later in this HRA at **Section 5.3**

Figure 4: Designated Sites and Ecological Receptor Points - Reproduced from Wood's AQA

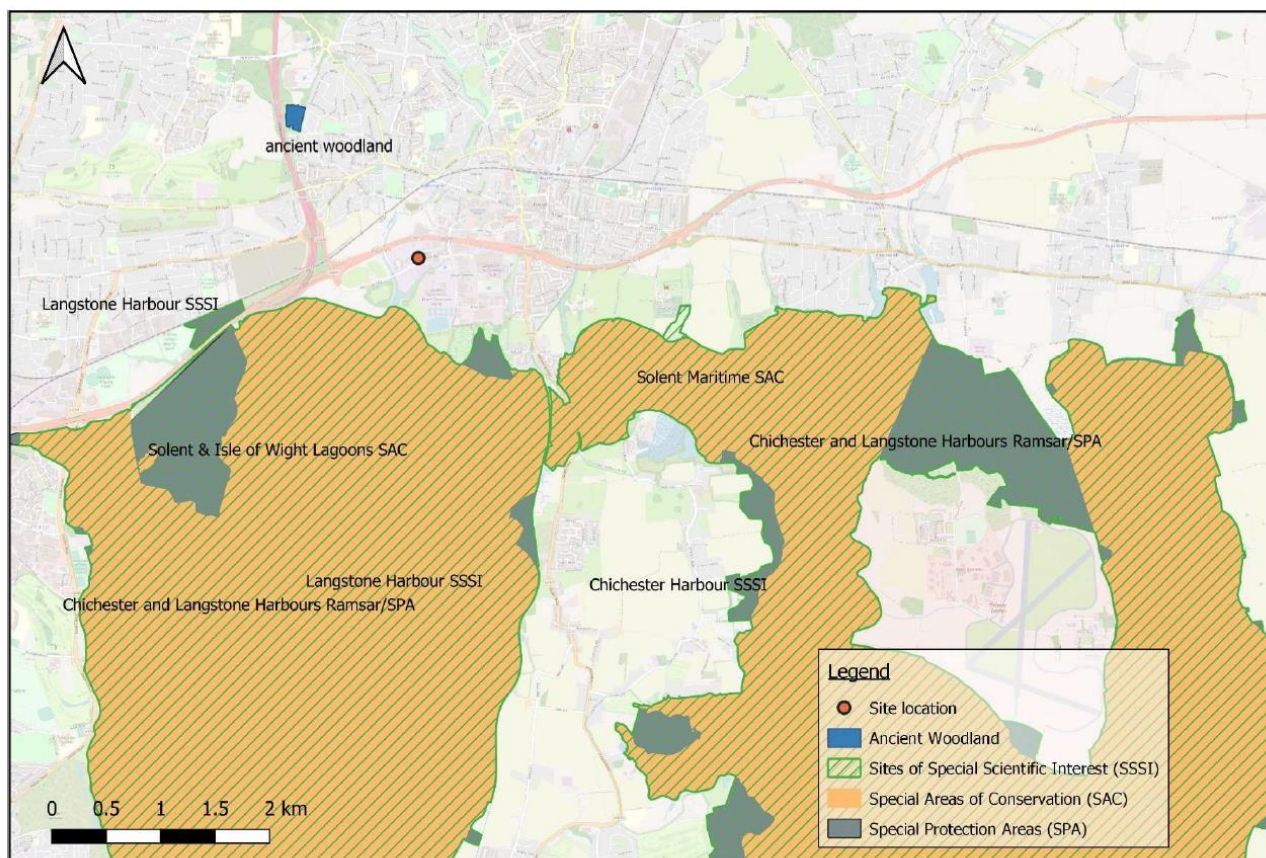


Table 1: Ecological Receptor Sites Detailed in Wood's AQA

ID	Y(m)	X(m)	Description
E1	469532	106992	Ancient Woodland
E2	468990	105431	Chichester and Langstone Harbours Ramsar/SPA, Farlington Marshes LNR
E3	470389	105382	Chichester and Langstone Harbours Ramsar/SPA, Solent Maritime SAC
E4	471184	105177	Chichester and Langstone Harbours Ramsar/SPA
E5	472097	105106	Chichester and Langstone Harbours Ramsar/SPA, Solent Maritime SAC
E6	465249	104568	Portsmouth Harbour Ramsar/SPA
E7	468508	104709	Perennial vegetation of stony banks feature of Chichester and Langstone Ramsar/SPA
E8	469191	105314	Atlantic salt meadows (coastal saltmarsh) feature of Solent Maritime SAC
E9	470386	105686	H130 Candidate site
E10	470368	105726	H130 Candidate site
E11	470611	105632	H130 Candidate site
E12	470667	105678	H130 Candidate site
E13	470414	105621	H130 Candidate site
E14	470432	105565	H130 Candidate site
E15	470444	105512	H130 Candidate site
E16	470497	105498	H130 Candidate site
E17	470542	105536	H130 Candidate site
E18	470576	105584	H130 Candidate site
E19	470640	105222	H90 Candidate site
E20	470657	105251	H90 Candidate site
E21	470669	105275	H90 Candidate site

ID	Y(m)	X(m)	Description
E22	470697	105127	H29 Candidate site
E23	470736	105129	H29 Candidate site
E24	470759	105131	H29 Candidate site
E25	470376	105641	H07C Candidate site
E26	470382	105608	H07C Candidate site
E27	470335	105621	H07C Candidate site
E28	470389	105564	H07C Candidate site
E29	470130	105535	H07B Candidate site
E30	470131	105510	H07B Candidate site
E31	470134	105427	H07B Candidate site
E32	470105	105471	H07B Candidate site
E33	470086	105757	H08 Candidate site
E34	470132	105736	H08 Candidate site
E35	470152	105712	H08 Candidate site
E36	470162	105662	H08 Candidate site
E37	470161	105620	H08 Candidate site
E38	470140	105577	H08 Candidate site
E39	469910	105532	H07A Candidate site
E40	469838	105609	H07A Candidate site
E41	469862	105565	H07A Candidate site
E42	470566	105896	H09 Candidate site
E43	470558	105937	H09 Candidate site
E44	470505	105956	H09 Candidate site
E45	470452	105942	H09 Candidate site
E46	470922	105148	H28 Candidate site
E47	470928	105176	H28 Candidate site
E48	470941	105194	H28 Candidate site
E49	470967	105196	H28 Candidate site

- B2.5 Wood's AQA predicted exceedances in nitrogen oxides across an area containing nine of the above protected ecological sites (more detail is provided at **Table 2** below). The area in which nitrogen oxides exceedance was predicted is described throughout this HRA as "the nitrogen oxides exceedance envelope" and is illustrated in relation to these protected sites at **Figure 5** below.
- B2.6 In addition Wood's AQA predicted exceedances in nitrogen depositions across a smaller area containing three of these protected ecological sites. The area in which nitrogen depositions exceedances were predicted is described throughout this HRA as "the nitrogen deposition exceedance envelope" and is illustrated in relation to these protected sites at **Figure 6** below.

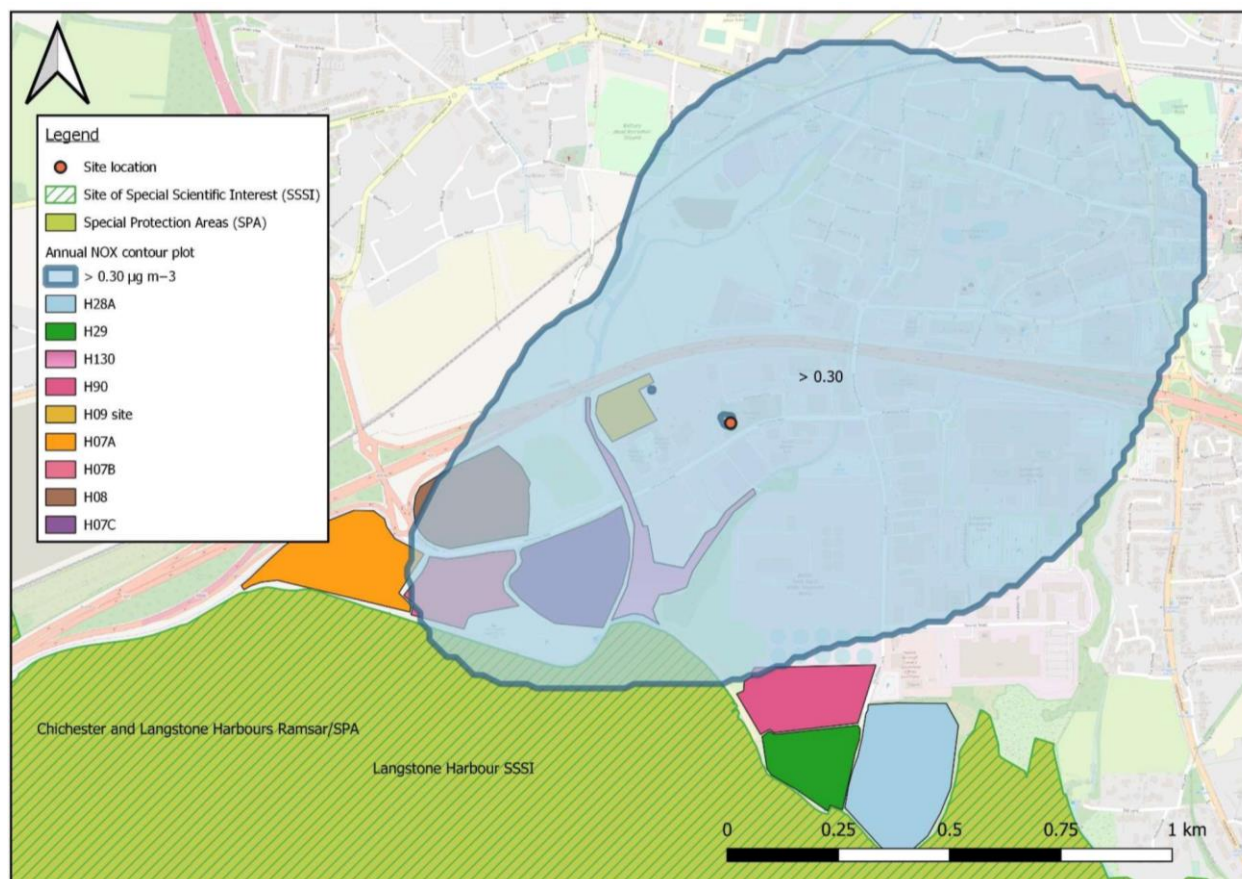
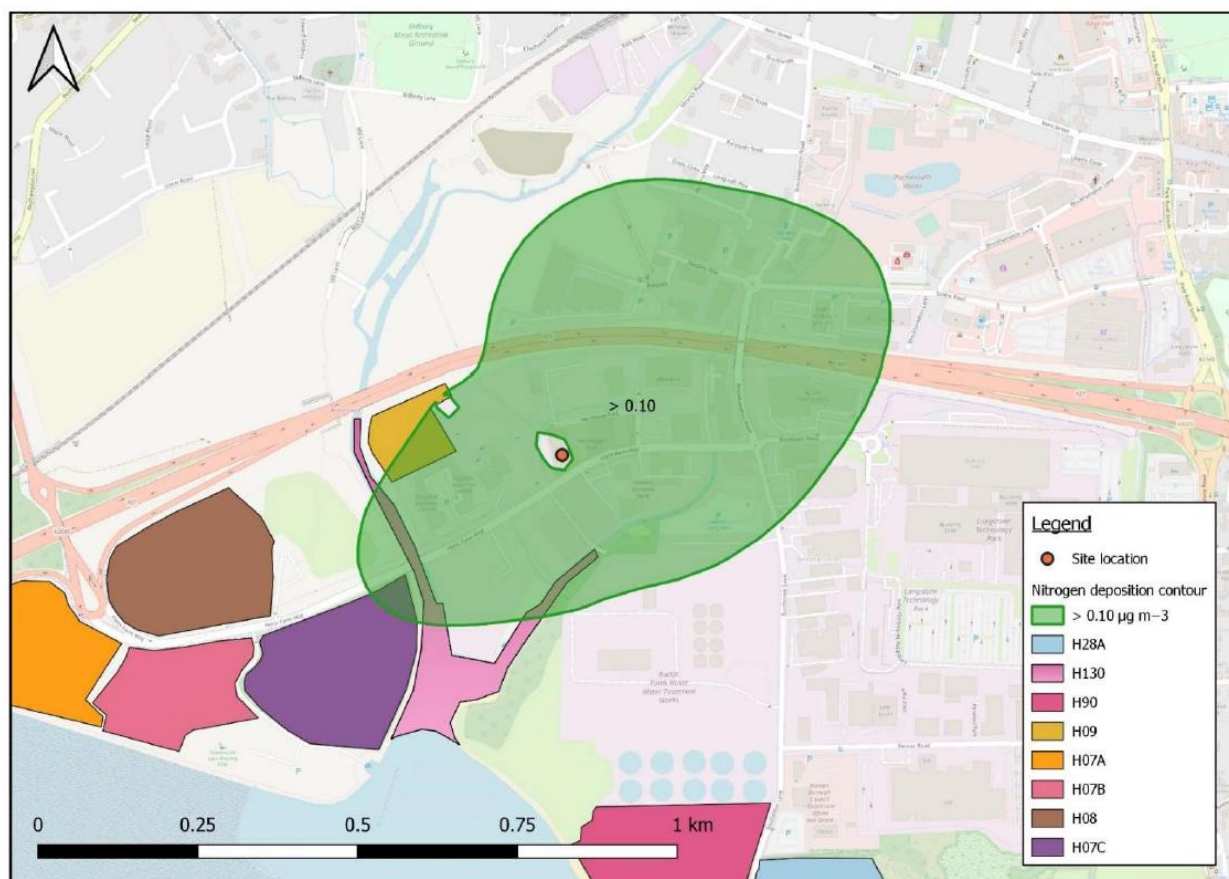
Figure 5: Exceedance Envelope Predicted for Nitrogen Oxides (NO_x) – Reproduced from Wood's AQA

Figure 6: Exceedance Envelope Predicted for Nitrogen Depositions – Reproduced from Wood's AQA



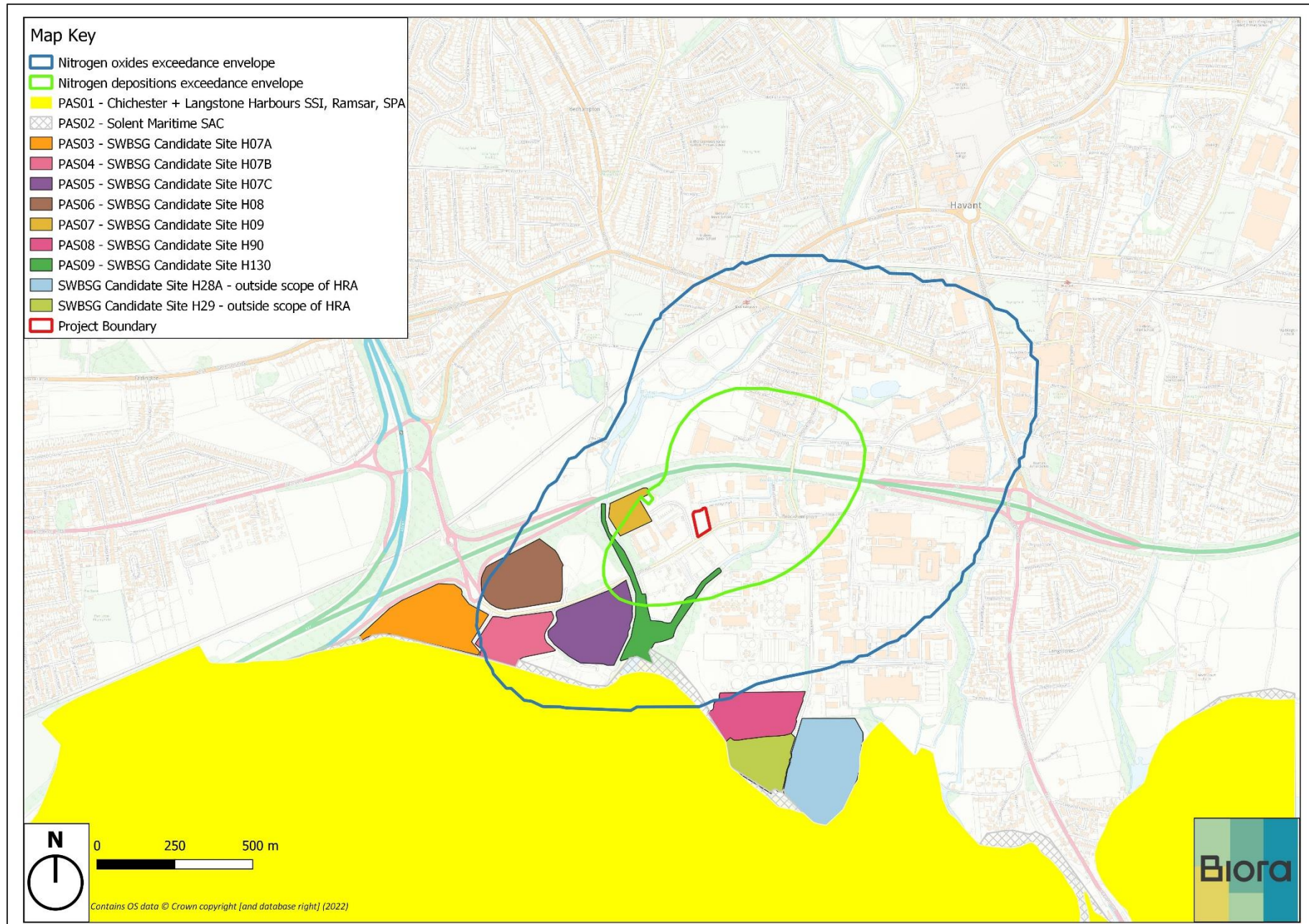
- B2.6 As part of this HRA exercise, and to determine the Potentially Affected Sites (PAS) for this HRA, Biora's ecologists drew up an HRA – Potentially Affected Sites Plan using GIS software. To create this plan, the team:
- interrogated the Multi-agency Geographic Information for the Countryside (MAGiC) website in September 2022 for precise boundaries for all European designations within 5km of the project site (including any overlapping designations);
 - converted the boundaries for each European designated site to GIS and mapped them;
 - mapped the boundaries of each of the nine candidate sites for the SWBSG;
 - converted and GIS mapped each of Wood's ecological receptor points for air modelling;
 - removed any ecological receptor points that did not relate to European designated sites (such as Ancient Woodland designations); and
 - converted and GIS mapped both the nitrogen oxides and the nitrogen depositions exceedance envelopes identified in Wood's AQA.
- B2.7 The resulting GIS Plan (see **Plan 4** below) showed that nine European or SWBSG candidate sites lie within the exceedance envelopes. Subsequently this HRA is concerned with these nine Potentially Affected Sites (PAS). Each has been assigned a reference prefixed "PAS" for the sake of clarity. Descriptions are set out in **Table 2**, with corresponding Ecological Receptor Site references from Wood's AQA and TN also provided for cross-referencing.

Table 2: Potentially Affected Sites Selected for this HRA

Protected Site Ref	Site Name	Designation	Corresponding Wood's Site Ref ⁶	Further Assessment Required?
PAS01	Chichester and Langstone Harbours	SSSI, SPA, Ramsar	E4	Yes
PAS02	Solent Maritime	SAC	E3, E5	Yes
PAS03	H07A Candidate Site	SWBSG candidate site	E39 to E41	Yes
PAS04	H07B Candidate Site	SWBSG candidate site	E29 to E32	Yes
PAS05	H07C Candidate Site	SWBSG candidate site	E25 to E28	Yes
PAS06	H08 Candidate Site	SWBSG candidate site	E33 to E38	Yes
PAS07	H09 Candidate Site	SWBSG candidate site	E42 to E45	Yes
PAS08	H90 Candidate Site	SWBSG candidate site	E19 to E21	Yes
PAS09	H130 Candidate Site	SWBSG candidate site	E9 to E18	Yes

⁶ Wood Group UK Limited, May 2022 *Harts Farm Way, Air Quality Assessment*

Plan 4: Locations of Potentially Affected Sites Selected for this HRA in relation to Project Site and Exceedance Envelopes of Nitrogen Oxides and Nitrogen Depositions



B3 Brief Description and Qualifying Features of the Protected Sites

The qualifying features of Special Protection Areas (SPAs – ie the features for which each site has been designated) are bird species or aggregations of birds as directed by the Birds Directive⁷ and interpreted by JNCC selection guidelines⁸. Ramsar sites are selected on internationally agreed criteria including flora or fauna associated with wetland habitats. Ramsar sites may be declared with criteria that include waterbirds and so many overlap SPAs⁹.

Full details of citations for each designated site are provided at **Appendix 2**.

B3.1 PAS01 Chichester and Langstone Harbours SSSI, SPA, Ramsar

B3.1.1 “Chichester Harbour is a large estuarine basin in which at low water extensive mud and sandflats are exposed, drained by channels which unite to make a common exit to the sea. The site is of particular significance for wintering wildfowl and waders and also breeding birds both within the Harbour and in the surrounding permanent pasture fields and woodlands. There is a wide range of habitats which have important plant communities.”¹⁰

B3.1.2 “Langstone Harbour is a tidal basin which at high water resembles an almost land-locked lake. At low water extensive mud flats are exposed, drained by three main channels which unite to make a common and narrow exit to the sea. The harbour includes one of the largest areas of mixed saltmarsh on the south coast, and extensive cord-grass *Spartina anglica* marsh in an advanced state of degeneration. The Site of Special Scientific Interest including Farlington Marshes, a peninsula of grassland and marsh on reclaimed tidal silt protected by a sea wall; and a similar but much smaller area at Southmoor in the north-east of the harbour. The harbour is of international importance as a rich intertidal system supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl, dependent upon them and upon the extensive beds of eelgrass *Zostera* species.”¹¹

B3.1.3 Qualifying species for Chichester and Langstone Harbours SPA are set out at **Table 3** below.

Table 3: PAS01 Chichester and Langstone Harbours – Qualify species (SPA designation)

Species	Breeding status
<i>Branta bernicla bernicla</i> ; Dark-bellied brent goose	Non-breeding
<i>Anas penelope</i> ; Eurasian wigeon	Non-breeding
<i>Tadorna tadorna</i> ; Common shelduck	Non-breeding
<i>Anas crecca</i> ; Eurasian teal	Non-breeding
<i>Anas acuta</i> ; Northern pintail	Non-breeding
<i>Anas clypeata</i> ; Northern shoveler	Non-breeding
<i>Mergus serrator</i> ; Red-breasted merganser	Non-breeding
<i>Charadrius hiaticula</i> ; Ringed plover	Non-breeding
<i>Pluvialis squatarola</i> ; Grey plover	Non-breeding
<i>Calidris alba</i> ; Sanderling	Non-breeding
<i>Calidris alpina alpina</i> ; Dunlin	Non-breeding
<i>Limosa lapponica</i> ; Bar-tailed godwit (Non-breeding)	Non-breeding
<i>Numenius arquata</i> ; Eurasian curlew (Non-breeding)	Non-breeding
<i>Tringa totanus</i> ; Common redshank (Non-breeding)	Non-breeding
<i>Arenaria interpres</i> ; Ruddy turnstone (Non-breeding)	Non-breeding
<i>Sterna sandvicensis</i> ; Sandwich tern (Breeding)	Breeding

⁷ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds – retrieved August 2022 from [Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds \(codified version\) \(legislation.gov.uk\)](#)

⁸ JNCC online, updated 3rd December 2020.

⁹ JNCC online, updated 13th January 2020.

¹⁰ Chichester harbour SSSI citation, see Appendix 2

¹¹ Langstone harbour SSSI citation, see Appendix 2

Species	Breeding status
<i>Sterna albifrons</i> ; Little tern (Breeding)	Breeding
<i>Sterna hirundo</i> ; Common tern	Breeding
Waterbird assemblage	Non-breeding

B3.1.4 The Chichester and Langstone Harbours qualify as a Ramsar¹² site under the following criteria:

- **Criterion 1:** Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, and shingle splits and sand dunes.
- **Criterion 5 – Assemblages of International Importance:** species with peak counts in winter. 76,480 waterfowl (5 year peak mean 1998/99 – 2002/2003)
- **Criterion 6 – Species/populations occurring at levels of international importance; qualifying species/populations (as identified at designation):**

Species with peak counts in spring/autumn:

- Ringed plover *Charadrius hiaticula*, Europe / Northwest Africa: 853 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9 – 2002/3)
- Black-tailed godwit *Limosa limosa islandica*, Iceland / W Europe: 906 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9 – 2002/3)
- Common redshank *Tringa totanus totanus*: 2,577 individuals, representing an average of 1% of the population (5 year peak mean 1998/9 – 2002/3)

Species with peak counts in winter:

- Dark-bellied brent goose *Branta bernicla bernicla*: 12,987 individuals, representing an average of 6% of the population (5 year peak mean 1998/9 – 2002/3)
- Common shelduck *Tadorna tadorna*, NW Europe: 1,468 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9 – 2002/3)
- Grey plover *Pluvialis squatarola*, E Atlantic / W Africa – wintering: 3,043 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9 – 2002/3)
- Dunlin *Calidris alpina alpina*, W Siberia / W Europe: 33,436 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9 – 2002/3)

Species/populations identified subsequent to the designation for possible future consideration under Criterion 6.

Species regularly supported during the breeding season:

- Little tern *Sterna albifrons albifrons*, W Europe: 130 apparently occupied nests, representing an average of 1.1% of the breeding population

B3.2 PAS02 Solent Maritime SAC

B3.2.1 “The Solent encompasses a major estuarine system on the south coast of England with four coastal plain estuaries (Yar, Medina, King’s Quay Shore, Hamble) and four bar-built estuaries (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The Solent and its inlets are unique in Britain and Europe for their hydrographic regime with its double tides, as well as for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, intertidal areas that support eelgrass *Zostera* spp., sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. As well as occurring within the estuaries, mudflats and sandflats are found throughout the Solent and form the predominant intertidal substrates.”¹³

B3.2.2 Qualifying species for Solent Maritime SAC are set out at **Table 4** below.

¹² JNCC Ramsar Information Sheet: :UK11013 Chichester and Langstone Harbours, Version 3.0, 13/06/2008

¹³ Solent Maritime SAC Citation – retrieved September 2022 from

<http://publications.naturalengland.org.uk/publication/5762436174970880>

Table 4: PAS02 Solent Maritime – Qualify features (SAC designation)

Qualifying Features
Sandbanks which are slightly covered by sea water all the time
Estuaries
Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats
Coastal lagoons
Annual vegetation of drift lines
Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves
Salicornia and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand
Spartina swards <i>Spartinion maritimae</i> ; Cord-grass swards
Atlantic salt meadows <i>Glauco-Puccinellietalia maritimae</i>
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes"); Shifting dunes with marram
<i>Vertigo moulinsiana</i> ; Desmoulin's whorl snail

B3.3 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy

B3.3.1 The Solent Waders and Brent Goose Strategy candidate sites (**Figure 3** above) were identified to resolve conflicts between Brent geese, which feed in the area, and the public: the lack of open space in this area for new development puts pressure on those areas that Brent geese use for feeding. The aim of the strategy is to ensure that sufficient feeding resources continue to be available to ensure the survival of the Brent goose population. To achieve this, the strategy aims to reduce pressures by promoting an integrated approach to land use and management, together with a programme of raising awareness and understanding. Also, the strategy identifies the most important sites for wintering Brent geese and outlines policies and proposals to minimise human impact on such sites. The Strategy is used to help determine planning applications.

B3.3.2 Seven of the nine SWBGS candidate sites lie within the Exceedance envelope identified in Wood's AQA.

B3.3.3 The SWBGS Strategy document explains why the species needs further protection in this location:

"There are three races of Brent Geese, the dark-bellied *Branta bernicla bernicla*, the pale-bellied *Branta bernicla hrota* and the black *Branta bernicla nigrans*. Only the dark-bellied race occurs regularly in the Solent, therefore this strategy is concerned only with *Branta b. bernicla*, although for ease the text states simply brent geese. The dark-bellied brent goose *Branta bernicla bernicla* is a winter visitor to the Solent from its breeding grounds in Siberia. Virtually the entire world population winters in north-western Europe. In nature conservation terms the species is of high international importance and is regarded as vulnerable because of the relatively small size of the world population, which has a highly variable breeding success. Numbers have fluctuated over time. After decades of low numbers following a major population crash in the 1930s, numbers have steadily increased but are yet to reach the previous peaks recorded in 1993/94, possibly due to changing conditions in their breeding grounds in Siberia."¹⁴

¹⁴ Whitfield, D (2020) *Solent Waders and Brent Goose Strategy* Hampshire and Isle of Wight Wildlife Trust. Curdridge.

PART C: SCREENING OF THE PROJECT FOR APPROPRIATE ASSESSMENT

C1 Conservation Objectives

C1.1 Overview

- C1.1.1 Natural England has a duty to communicate the conservation objectives for a European site to the relevant/ competent authority responsible for that site. The information provided under Regulation 35 must also include advice on any operations which may cause deterioration of the features for which the site is designated.
- C1.1.2 Within these conservation objectives, habitats and species of European importance should be maintained or restored to 'favourable conservation status' (FCS).
- C1.1.3 A habitat's conservation status is considered 'favourable' when:
- Its natural range, and the area it covers within that range, are stable or increasing
 - The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
 - Conservation status of typical species is favourable as defined in Article 1(i).
- C1.1.4 A species' conservation status is considered 'favourable' when:
- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
 - The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
 - There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.
- C1.1.5 Conservation objectives are available for all SPAs and SACs. Although there are no conservation objectives for Ramsar sites, many of the qualifying features of Ramsar sites will also be qualifying features of an SPA or an SAC – the objectives are therefore the same.
- C1.1.6 For some SAC and SPA sites in the UK, Supplementary Advice¹⁵ is also available and should be referred to during the process of HRA. Where this exists, Supplementary Advice gives a more comprehensive description of each site's ecological attributes, together with defined target(s) for each attribute.
- C1.1.7 The conservation objectives of the Chichester and Langstone Harbours site and Solent Maritime are set out below.

C1.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar

- C1.2.1 Conservation objectives for these protected sites¹⁵ are to:
- "Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:*
- *The extent and distribution of habitats of qualifying features;*
 - *The structure and function of habitats of qualifying features;*
 - *The supporting processes on which the habitats of qualifying features rely;*
 - *The populations of the qualifying features, and*
 - *The distribution of the qualifying features within the site."*

C1.3 PAS02 Solent Maritime SAC

- C1.3.1 Conservation objectives for this protected site¹⁶ are to protect:
- *"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"*

C1.4 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy

¹⁵ <http://publications.naturalengland.org.uk/file/4661175359111168>

¹⁶ <http://solentems.org.uk/resources/pdf/Solent%20Maritime%20SAC%20Condition%20Assessment%20and%20water%20quality%20200918.pdf>

C1.4.1 Conservation objectives for these candidate sites are set out in the SWBGS Strategy document¹⁷:

“support the Solent Special Protection Areas (SPA) from land take and recreational pressure associated with new development”.

C2 Threats and Vulnerabilities

C2.1 Overview

C2.1.1 Natural England provides a Site Improvement Plan (SIP) for each European site. This identifies the qualifying features for each site (ie the sensitive biodiversity features for which the site has been granted SPA or Ramsar status). Each individual qualifying feature will be vulnerable to various threats and pressures, so these are also identified in the SIP for each site. The conservation status of the site can be undermined where these threats and pressures on qualifying features are exacerbated – ie there could be a Likely Significant Effect (LSE) on the European site.

C2.1.2 SIPs present the best available evidence in support of actions required to achieve and maintain sites in a good condition and contribute to favourable conservation status. They provide a prioritised list of issues (pressures and threats) affecting each site, which are not already being addressed by existing provisions.

C2.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar; and PAS02 Solent Maritime SAC

C2.2.1 The Solent Site Improvement Plan (SIP) covers the Solent Maritime SAC, Solent and Southampton Water SPA, Portsmouth Harbour SPA and Chichester and Langstone Harbours SPA. The threats and vulnerabilities for each of these protected sites are as follows:

- *“Public access / disturbance;*
- *Coastal squeeze;*
- *Fisheries: Commercial marine and estuarine;*
- *Water pollution;*
- *Changes in species distribution;*
- *Climate change;*
- *Change to site conditions;*
- *Invasive species;*
- *Direct land take from development;*
- *Biological resource use;*
- *Change in land management;*
- *Inappropriate pest control;*
- *Air pollution: Impact of atmospheric nitrogen deposition;*
- *Hydrological changes; and*
- *Extraction: Non-living resources”*

C2.3 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy

C2.3.1 Threats and vulnerabilities for this protected site are described as:

“Current pressures from development, recreation, coastal re-alignment, climate change, sea level rise and coastal squeeze”¹⁸

C3 Conditions Assessment

C3.1 Overview

C3.1.1 Since 2016 Natural England has been rolling out a new condition assessment methodology, which follows a standardised approach to assess whether feature- and site-specific targets have been met.

C3.2 PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar

C3.2.1 A Conditions Review was published for all of the Chichester Harbours sites in February 2021¹⁹. This review includes the following conditions assessments:

- *“Saltmarsh – unfavourable, declining condition;*
- *Birds – unfavourable, declining condition;*
- *Other intertidal habitats – unfavourable; and*

¹⁷ Whitfield, D (2020) *Solent Waders and Brent Goose Strategy* Hampshire and Isle of Wight Wildlife Trust. Curdridge.

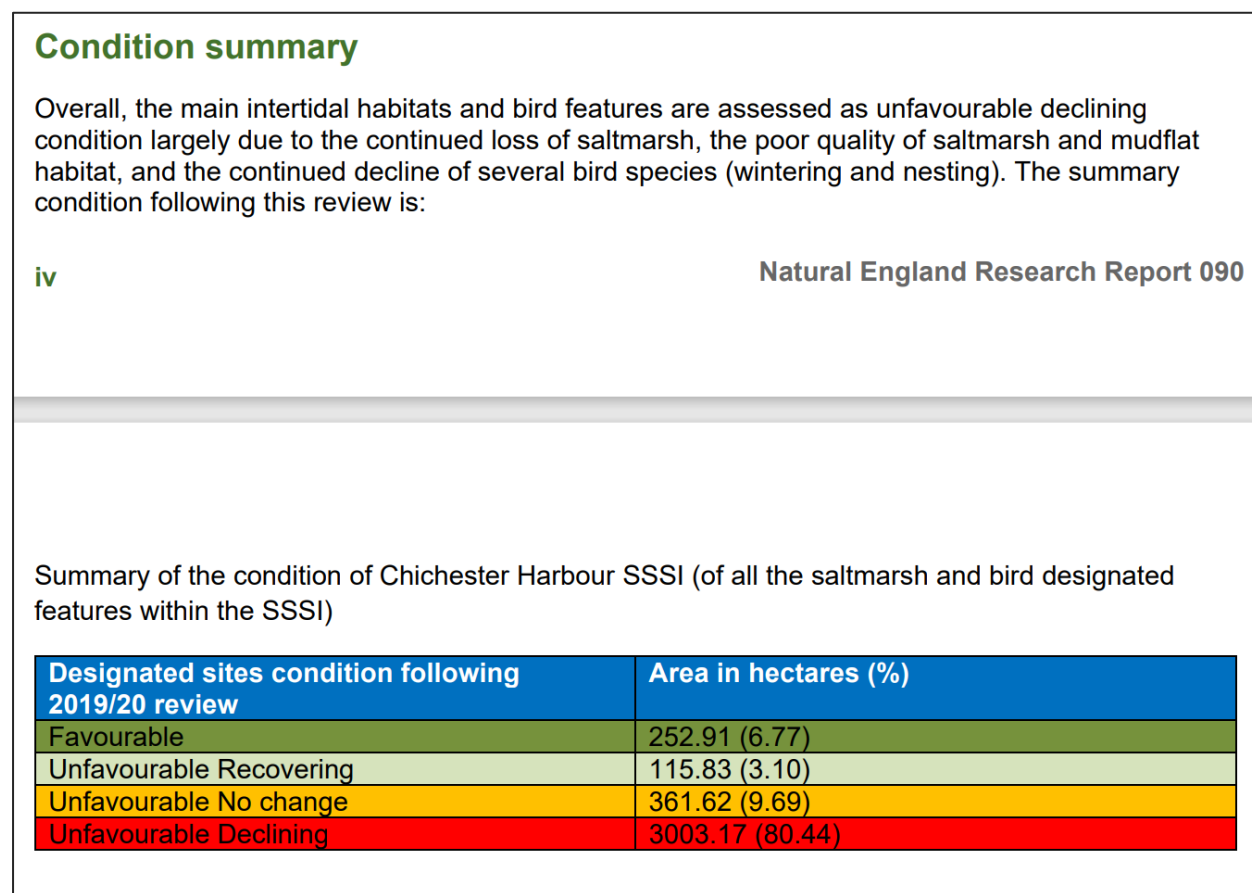
¹⁸ Whitfield, D (2020) *Solent Waders and Brent Goose Strategy* Hampshire and Isle of Wight Wildlife Trust. Curdridge.

¹⁹ <http://publications.naturalengland.org.uk/publication/5535304204419072> accessed September 2022

- *Water quality – picture is complex and localised reductions not sufficient for wildlife to recover.”*

C3.2.2 Within the same document, a Conditions Review specific to Chichester Harbour SSSI (including all of the saltmarsh and bird designated features within this SSSI) is summarised as follows:

Figure 7: Extract from Conditions Review for Chichester Harbour SSSI²⁰



C3.2.3 In 2016 a separate Conditions Review was published into three SSSIs:

- Langstone Harbour SSSI;
- Ryde Sounds and Wootton Creek SSSI; and
- Newton Harbour SSSI²¹

C3.2.4 Taking the three SSSIs together, this review found that:

- *“the intertidal areas within the SSSIs were found to be reasonably diverse, with some impoverished areas;*
- *abundance of individuals was relatively high, but most deriving from a relatively small number of taxa, with the majority of taxa present in low abundance;*
- *benthic invertebrate communities were therefore relatively rich, but not evenly distributed across sampling stations.”*

C3.3 PAS02 Solent Maritime SAC

C3.3.1 An updated Conditions Review for Solent Maritime SAC²² provides the following assessment of qualifying features:

- *“Estuaries – unfavourable - **water quality nutrients**; reduced extent of saltmarsh;*
- *Mudflats and sandflats not covered by seawater at low tide - unfavourable: **water quality nutrients**;*
- *Sandbanks which are slightly covered by sea water all the time - unfavourable – **water quality nutrients, TBT, slipper limpet, infaunal index**;*
- *Coastal Lagoons – favourable – but decline of lagoonal cockle and non native species.”*

²⁰ Condition Review of Chichester Harbour Sites: retrieved September 2022 from

Condition review of Chichester Harbour sites: intertidal, subtidal and bird features - NERR090 (naturalengland.org.uk)

²¹Natural England *Intertidal sediment surveys of Langstone Harbour SSSI, Ryde Sounds and Wootton Creek SSSI and Newton Harbour SSSI 2015 (RPO2533)*, 29 July 2016

²² Environment Agency *Solent Maritime SAC Condition Assessment and improving water quality in the Solent*

C3.4 PAS03 to PAS09 Seven Candidate Sites for Solent Waders and Brent Goose Strategy

C3.4.1 There is currently no formal conditions assessment for candidate sites within the Strategy document.

C4 Zones of Influence and SSSI Impact Risk Zones

- C4.1 Many factors affect the determination of whether zones of influence are relevant and appropriate to any individual HRA and, where they are, how they should be defined and used. The appropriate area/ distance of any 'zone of influence' to be defined should be based on a site-by-site analysis, in light of all available evidence.
- C4.2 It is generally recognised as good practice to use and rely on the research and evidence base of other competent authorities dealing with similar cases and situations – however this also carries two real risks:
- Taking an over-precautionary approach – this puts a greater constraint on development – or adds significant costs to it over and above what is required to achieve compliance; and
 - Taking an under-precautionary approach – where an under-estimation of significant parameters can cause unintentional but significant adverse effects on sites.
- C4.3 To this end it is also important that standard distances used in other plans/ projects are not automatically transferred to each new project/ plan. Rational explanation is needed for how each parameter is relevant and/ or how it needs to be adjusted for the site in question.
- C4.4 To simplify and aid the identification of development activities that are likely to represent risk for SSSI IRZs, Natural England provide specific guidance to govern specific activities.²³ This information is provided as a screening tool within Magic Map at 1:10,000 scale.
- C4.5 For the purposes of this assessment the primary parameters were set as the Impact Risk Zones (IRZs) of the Chichester and Langstone Harbours SSSI, SPA and Ramsar.

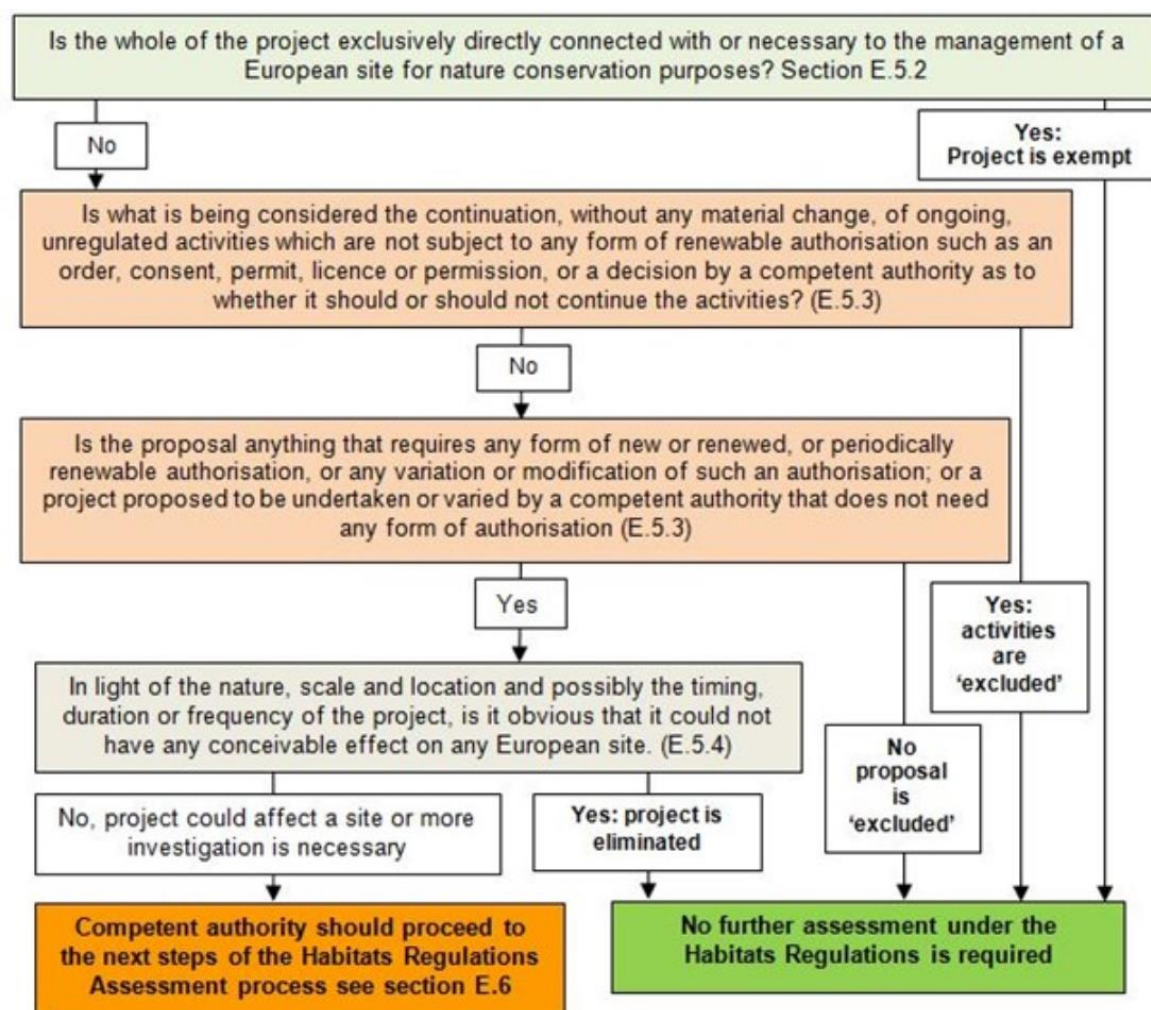
C5 Screening and Assessment of Likely Significant Effects

C5.1 Overview

- C5.1.1 Stage of 1 of the HRA process is the assessment of likely significant effect (LSE), or the screening stage. The aim of this screening exercise is to determine whether, alone or in combination with other relevant projects and plans, the project is likely to result in a significant adverse effect on the conservation objectives, designation features and integrity of the identified protected sites.
- C5.1.2 The process outlined at **Figure 8** below can be used to determine the first level of screening – identifying projects/ plans that may be exempted, excluded or eliminated from further screening. To determine likely significant effects, the screening process identifies and considers potential impact pathways/ mechanisms by which the project could have an LSE on protected sites.
- C5.1.3 In the C-323/17 People Over Wind ruling²⁴, the Court of Justice of the European Union (CJEU) ruled that proposed mitigation cannot be taken into consideration at this screening stage (Stage 1). Subsequently the project must be examined at this screening stage without any ecological mitigation plans.

²³ Natural England's *Impact Risk Zones for Sites of Special Scientific Interest*, v4.0, Issued 27 April 2021

²⁴ Case C-323/17: *Reference for a preliminary ruling from the High Court (Ireland)* made on 30 May 2017 — People Over Wind, Peter Sweetman v Coillte Teoranta

Figure 8: Flowchart for Deciding When a Project is Exempt, Excluded or Eliminated from further Assessment²⁵

C5.2 Potential Pathways of Impact

C5.2.1 **Table 5** below identifies the potential impact pathways via which the (unmitigated) project could potentially impact on the qualifying features of the identified protected sites. These nineteen potential impact pathways include all threats and vulnerabilities to each of the PAS as set above (see **Section C2** above).

Table 5: Potential Pathways of Impact

Potential Pathway Ref	Potential Impact Pathway
PP01	Public access/ disturbance
PP02	Coastal squeeze
PP03	Fisheries: Commercial marine and estuarine
PP04	Water pollution
PP05	Changes in species distribution
PP06	Climate change
PP07	Change to site conditions
PP08	Invasive species
PP09	Direct land taken from development
PP10	Biological resource use
PP11	Change in land management
PP12	Inappropriate pest control

²⁵ DTA HRA Handbook, February 2021

Potential Pathway Ref	Potential Impact Pathway
PP13	Air pollution: Impact of atmospheric nitrogen deposition
PP14	Hydrological changes
PP15	Extraction of non-living resources
PP16	Development
PP17	Recreation
PP18	Coastal realignment
PP19	Sea level rise

C5.2.2 Each of the potential pathways identified has been assessed in relation to each of the PAS identified. In **Table 6** any potential pathways highlighted in grey are **scoped in** as requiring further assessment in **Section D** below.

Table 6: Potential Pathways of Impact - Screening

Potential Pathway Ref	Potential Impact Pathway	Assessment of Likely Significant Effect (LSE) unmitigated	Likely Significant Effect – alone or in combination with other projects?
PP01	Public access/ disturbance	The project will have no impact on public access/ disturbance in relation to PASs.	No Likely Significant effect either alone or in combination.
PP02	Coastal squeeze	The project will have no impact on coastal squeeze in relation to PASs.	No Likely Significant effect either alone or in combination.
PP03	Fisheries: Commercial marine and estuarine	The project will have no impact on fisheries within PASs.	No Likely Significant effect either alone or in combination.
PP04	Water pollution	The proposed development is predicted to potentially result in a minor nitrous oxide exceedance in a geographical area which encompasses these PASs. Any significant air pollution could potentially contribute to water pollution within these PASs. Section 5.3 below considers the extent of this exceedance and concludes that a Likely Significant Effect can be ruled out.	No Likely Significant effect either alone or in combination.
PP05	Changes in species distribution	The proposed development is predicted to potentially result in a minor nitrous oxide exceedance in a geographical area which encompasses these PASs. Any significant air pollution could potentially contribute to a change in the distribution of protected and priority bird species in these PASs. Section 5.3 below considers the extent of this exceedance and concludes that a Likely Significant Effect can be ruled out.	No Likely Significant effect either alone or in combination.
PP06	Climate change	The project will have no significant impact On climate change in relation to PASs.	No Likely Significant effect either alone or in combination.

Potential Pathway Ref	Potential Impact Pathway	Assessment of Likely Significant Effect (LSE) unmitigated	Likely Significant Effect – alone or in combination with other projects?
PP07	Change to site conditions	The proposed development is predicted to potentially result in a minor nitrous oxide exceedance in a geographical area which encompasses these PASs. Any significant air pollution could potentially contribute to a change in site conditions within the PASs. Section 5.3 below considers the extent of this exceedance and concludes that a Likely Significant Effect can be ruled out.	No Likely Significant effect either alone or in combination.
PP08	Invasive species	The project will have no impact on invasive species within PASs.	No Likely Significant effect either alone or in combination.
PP09	Direct land taken from development	The project will not take any direct land from PASs.	No Likely Significant effect either alone or in combination.
PP10	Biological resource use	The project will have no impact on biological resource use within PASs.	No Likely Significant effect either alone or in combination.
PP11	Change in land management	The project will have no impact on land management within PASs.	No Likely Significant effect either alone or in combination.
PP12	Inappropriate pest control	The project will have no impact on pest control within Potentially Affected Sites.	No Likely Significant effect either alone or in combination.
PP13	Air pollution: Impact of atmospheric nitrogen deposition	The proposed development is predicted to potentially result in a minor nitrous oxide exceedance in a geographical area which encompasses these PASs. Section 5.3 below considers the extent of this exceedance and concludes that a Likely Significant Effect can be ruled out.	No Likely Significant effect either alone or in combination.
PP14	Hydrological changes	The project will have no impact on hydrological changes in relation to Potentially Affected Sites.	No Likely Significant effect either alone or in combination.
PP15	Extraction of non-living resources	The project will have no impact on extraction of non-living resources within Potentially Affected Sites.	No Likely Significant effect either alone or in combination.
PP16	Development	The proposed development is predicted to potentially result in a minor nitrous oxide exceedance in a geographical area which encompasses these PASs. Section 5.3 below considers the extent of this exceedance and concludes that a Likely Significant Effect can be ruled out.	No Likely Significant effect either alone or in combination.
PP17	Recreation	The project will have no impact on recreation in relation to Potentially Affected Sites.	No Likely Significant effect either alone or in combination.
PP18	Coastal realignment	The project will have no impact on coastal realignment in relation to Potentially Affected Sites.	No Likely Significant effect either alone or in combination.

Potential Pathway Ref	Potential Impact Pathway	Assessment of Likely Significant Effect (LSE) unmitigated	Likely Significant Effect – alone or in combination with other projects?
PP19	Sea level rise	The project will have no impact on sea level rise in relation to within Potentially Affected Sites.	No Likely Significant effect either alone or in combination.

C5.3 Potential Pathways relating to Air Pollution

C5.3.1 Overview

C5.3.1.1 Five Potential Pathways were identified in the screening exercise which require further consideration of the project's predicted air pollution.

C5.3.1.2 The main atmospheric pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂), see **Table 7**. Ammonia can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges. Nitrogen oxides can also be toxic at very high concentrations (far above the annual average critical level). However, in particular, high levels of nitrogen oxides and ammonia are likely to increase the total nitrogen (N) deposition to soils, potentially leading to deleterious knock-on effects in resident ecosystems. Increases in nitrogen deposition from the atmosphere are widely known to enhance soil fertility and to lead to eutrophication, which often has adverse effects on the community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats. In aquatic habitats this may lead to algal blooms, which may impact local ecosystems by cutting out light and subsequently in the removal of oxygen when the algae die and decompose.

Table 7: Main sources and effects of pollutants on habitats and species²⁶

Pollutant	Source	Effects on habitats and species
Sulphur dioxide (SO₂)	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 1980s. Another origin of SO₂ 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.	Wet and dry deposition of SO₂ acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However SO₂ background levels have fallen considerably since the 1970s and are now not regarded a threat to plant communities. For example, decreases in SO₂ concentrations have been linked to returning lichen species and improved tree health in London.
Acid deposition	Atmospheric deposition of SO₂, NO_x, ammonia and hydrochloric acid lead to acidification of soils and freshwater. Acid deposition from rain has declined by 85% in the last 20 years, with most of this contributed by lower sulphate levels. Although future trends in sulphur (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.	Gaseous precursors (eg SO₂) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. The can also affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates and compromised reproduction in birds/ plants. 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.

²⁶ Summarised from the Air Pollution Information System (<http://www.apis.ac.uk/>)

Pollutant	Source	Effects on habitats and species
Ammonia (NH₃)	NH₃ is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but NH₃ concentrations are directly related to the distribution of livestock. NH₃ 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). While NH₃ deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH₄⁺ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH₃ is rapidly deposited, some of the most acute problems of NH₃ deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	NO_x 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. In contrast to the steep decline in SO₂ emissions, NO_x are falling slowly due to control strategies being offset by increasing numbers of vehicles.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (eg roadside verges). A critical level of NO_x for all vegetation types has been set to 30 µg/m³. Deposition of N compounds (nitrates [NO₃], nitrogen dioxide [NO₂] and nitric acid [HNO₃]) contributes to the total N deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total N deposition derive mainly from oxidized (eg NO_x) or reduced (eg NH₃) nitrogen emissions (described separately above). While oxidized N mainly originates from major conurbations or highways, reduced N mostly derives from farming practices. The N pollutants together are a large contributor to acidification (see above).	All plants require N compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, eg drought and frost.

C5.3.2 Screening of Air Pollutants

C5.3.2.1 The Environment Agency's risk assessment guidance (Environment Agency 2016²⁷) criteria were used in Wood's AQA to define when the impacts of emissions on ecological receptors could be screened out of the assessment. For European sites (SAC, SPA and RAMSAR) and nationally designated sites (SSSI), guidance advises that to screen out the need for further assessment, the Process Contribution (PC) for any substance emitted from an industrial source must meet both the following criteria at the assessment location:

- short-term PC is less than 10% of the short-term environmental standard; and
- long-term PC is less than 1% of the long-term environmental standard.

C5.3.2.2 For non-statutory sites, including local wildlife sites and ancient woodlands, the EA uses less stringent criteria in its permitting decisions. EA policy for its permitting process is that if either the short-term or long-term PC is less than 100%

²⁷ Environment Agency (EA), 2016. *Air emissions risk assessment for your environmental permit* – retrieved September 2022 from <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas>

of the Critical Level or Critical Load, they do not require further assessment. In their assessment Woods applied this less stringent criteria to the nine SWBGS candidate sites.

C5.3.2.3 The APIS website identifies the Critical Level of NO_x as 75µg m⁻³ (daily mean) and 30µg m⁻³ (annual mean). These levels are set for all receptor types as “values are not habitat specific, as in Critical Loads, but have been set to cover broad vegetation types”²⁸. These are the relevant long-term and short-term environmental standards for NO_x, however a higher (200 µg m⁻³) daily mean is an appropriate standard in circumstances where SO₂ and Ozone levels are predicted to be well below their respective Critical Levels. This higher daily mean was applied in Wood’s AQA.

C5.3.3 Significance Criteria

C5.3.3.1 Wood’s AQA used impact descriptors from the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK)²⁹. These impact descriptors are detailed below in **Figure 9** below.

Figure 9: Impact Descriptors for Individual Receptors – Reproduced from Wood’s AQA

Absolute concentration with Proposed Development, relative to assessment level	% change in Concentration Relative to Assessment Level				
	0%	1%	2-5%	6-10%	>10%
75% or less	Negligible	Negligible	Negligible	Slight	Moderate
76-94%	Negligible	Negligible	Slight	Moderate	Moderate
95-102%	Negligible	Slight	Moderate	Moderate	Substantial
103-109%	Negligible	Moderate	Moderate	Substantial	Substantial
110% or more	Negligible	Moderate	Substantial	Substantial	Substantial

Table notes: When defining the concentration as a percentage of the AQAL, the ‘without scheme’ concentration is used where there is a decrease in pollutant concentration, and the ‘with scheme,’ concentration for an increase. The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL. It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it¹⁴.

C5.3.4 Mean Nitrogen Oxide (NO_x) Impacts – Daily and Annual

C5.3.4.1 Analysis of the predicted annual and daily mean NO_x levels, for a notional 1,500 hours/year was carried out for several receptor sites throughout each of the PAS (see **Section B2** above). Where there were multiple receptor points for one PAS, the receptor point with the highest predicted PC concentration was reported. The results are set out in Tables 5.3 and 5.4 of Wood’s AQA (to be found on pages 31[marked as 13] and 32 [marked as 14] respectively).

C5.3.4.2 Wood’s AQA concludes that, in terms of daily mean predictions for nitrogen oxides at each PAS:

“All sensitive receptors representative of sites which have statutory designation (E01- E08) satisfy the short-term criteria provided by the EA10 (PC<10% of AQAL), therefore the impacts predicted at these receptors are screened out as insignificant.

There is one exceedance of the EA10’s short-term criteria (PC<10% of AQAL) and this is predicted at receptor E49. E49 is representative of the H28 SWBGS candidate site. As discussed in Table 5.5, the SWBGS sites have not

²⁸ APIS, 2020. http://www.apis.ac.uk/critical-loads-and-critical-levels-guide-data-provided-apis#_Toc279788054 accessed: 25th March 2022 by Wood

²⁹ EPUK & IAQM, 2017. Land-Use Planning and Development Control: Planning for Air Quality. [Online]. Accessed by Wood from: <https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

*received formal designation, but for this AQA the SWBGS sites are being assessed against the criteria for both statutory and local designation. If one were to assess E49 (H28 SWBGS site) against the criteria for statutory designation, this impact equates to a moderate impact of significance (Table 3.3). Considering E49 in the context of a local designation, **the impact predicted at this receptor is less than 100% and is therefore insignificant.***

C5.3.4.3 Wood's AQA conclusions above show that PAS01 and PAS02 (Wood's ecological receptors E01 to E08) both have a PC of <10% of AQAL and **can be screened out of a Likely Significant Effect** for daily nitrogen oxide levels.

C5.3.4.4 These conclusions also show that PAS03 to PAS09 also have a PC of <10% of AQAL and similarly **can be screened out of a Likely Significant Effect** for daily nitrogen oxide levels.

C5.3.4.5 It should be noted that Wood's receptor point E49 represents the H28 SWBGS candidate site, which was scoped out of assessment at **Section B2** above and is not a PAS considered within this HRA.

C5.3.4.6 Wood's AQA assesses the annual mean predictions for nitrogen oxides on each PAS as follows:

"The annual mean NO_x PC from the proposed installation exceeds the 1% screening criteria at receptor E03 (Chichester and Langstone Harbours Ramsar and SPA, Langston Harbour SSSI and Solent Maritime SAC). The PEC at E03 is predicted below the AQAL. Receptor E03 is at the northern edge of Chichester and Langstone Harbours Ramsar and SPA, Langston Harbour SSSI and Solent Maritime SAC and the point from all four designations that is closest to the proposed installation. The PC is likely to remain below the 1% criterion throughout the majority of the area covered by these biodiversity sites, including as modelled at E02 and E05.

*Of the SWBGS candidate sites, there are exceedances of the EA's criteria¹⁰ for statutory designated sites (PC<1% of AQAL) predicted at receptors E12, E25, E29, E37 and E43. The PECs at receptor points E12, E25, E29 and E37 are above 70% of the AQAL but there are no exceedances predicted. When assessing against local designation criteria, **the PC predicted at E12, E25, E29 and E37 are below the AQAL, therefore the impacts are screened out as insignificant (PC< 100% of AQAL).***

*When operating at 1500 hours per year, impacts from the PC at E43 are reported to be 8.2% of the long-term AQAL, and impacts from the PEC are reported to be 122.6% of the long-term AQAL. Therefore, impacts cannot be screened out as insignificant when assessed against the criteria for statutory designated sites. **However the PC at E43 can be screened out as insignificant when assessing against the EA's criteria¹⁰ for locally designated sites (PC<100% of AQAL).***

Figure 5.3 presents a contour of NO_x PC with 1500 hours operation, showing the 0.3 µg m⁻³ contour corresponding to the 1% criterion. This exceedance is overlaid on the boundary of Chichester and Langstone Harbours Ramsar and SPA, Solent Maritime SAC and Langstone Harbour SSSI and the SWBGS candidate sites H09 (receptor E09) and H130 (receptor E10). The overlap represents the region where the impacts cannot be screened out as insignificant. Table 5.5 summaries these biodiversity sites.

As reported in Table 5.5 the SWBGS sites are being considered in this assessment under the context of their importance to the surrounding SPA. For this reason, the area of the SWBGS sites has been added to the area of the Chichester and Langstone Harbours Ramsar and SPA area, to allow for a holistic and complete consideration of impacts on the Chichester and Langstone Harbours Ramsar and SPA.

The area of these designated sites over which the PC is predicted to exceed the 1% assessment criterion is approximately 9 hectares, representing a very small proportion of these designated sites: ~0.2% (SPA and Ramsar, including area of the H09, H130, H07B, H07C and H08 SWBGS sites), ~0.2% (SAC) and ~0.4% (SSSI). Based on the MAGIC website and aerial imagery, the habitats within this area are substantially intertidal mud and intertidal mixed sediments, with small isolated fragments of saltmarsh. These habitats are supporting features of the SPA and Ramsar Site, providing foraging habitats for the associated bird species/assemblages. These habitats are also one of the qualifying features of the SAC and a reason for the notification of the SSSI. The area of these habitats over which the exceedance is predicted to occur is a tiny proportion of the available mudflat habitat within the SPA/Ramsar/SAC/SSSI and a smaller proportion of the mudflat habitat within the wider Chichester and Langstone Harbour and Portsmouth Harbour area."

C5.3.4.4 The geographical area of the nitrogen oxides exceedance envelope is illustrated at **Figure 5** and **Plan 4** of this HRA.

C5.3.4.3 Only two of the PAS identified in this HRA represent European designations: PAS01 Chichester and Langstone Harbours SSSI, SPA and Ramsar; and PAS02 Solent Maritime SAC.

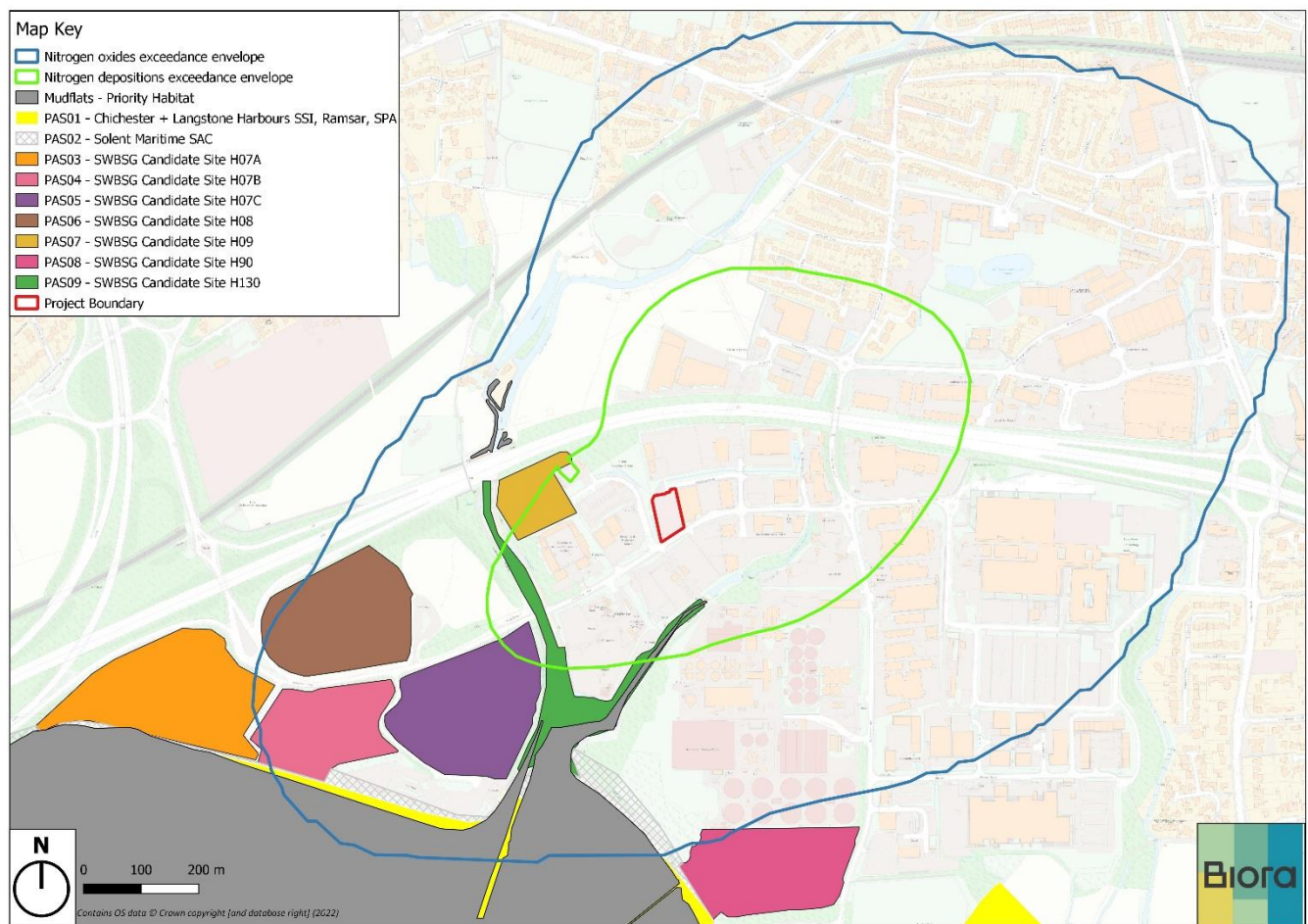
C5.3.4.4 Wood's AQA conclusions above show that only a small portion of PAS01 and PAS02 (Wood's ecological receptor E03) will exceed the 1% assessment criterion. Some habitat types within these two PAS are more susceptible to nitrogen oxides than others:

- Intertidal mudflat habitats tend to be resilient to nitrogen oxides as they are subject to frequent tidal inundation. This regular flushing of nitrogen oxides from tidal incursion tends to reduce the role of nitrogen from the atmosphere in controlling botanical composition. This means that slightly raised levels of nitrogen oxide are unlikely to negatively impact the high biomass of invertebrates in such sediments, which provide important food sources for waders including Brent geese.
- Saltmarsh habitats tend to be less resilient to nitrogen oxides as they do not benefit from the regular flushing effects of frequent tidal inundation.

C5.3.4.5 Havant Council commissioned (in 2019) air quality and ecology analytical work³⁰ relating to atmospheric nitrogen levels at these sites. This work confirmed that most features for which Solent Maritime SAC is designated have low susceptibility to atmospheric nitrogen deposition and that the most widespread interest feature that has *some* air quality vulnerability is saltmarsh (which is recorded as being unfavourable declining condition).

C5.3.4.6 Further assessment was undertaken by the Biora team to determine the extent of both intertidal mudflat and saltmarsh habitat types present within the portions of PAS01 and PAS02 that lie within the exceedance envelope for nitrogen oxides. **Plan 5** below shows that approximately 85% of the portions of PAS01 and PAS02 that lie within this exceedance envelope represents mudflat habitat. This research also confirmed the absence of saltmarsh habitat within PAS01 and PAS02 where they lie within the exceedance envelope for nitrogen oxides.

Plan 5: Distribution of Intertidal Mudflat Habitats within PAS01 and PAS02 in relation to Nitrogen Oxide Exceedance Envelope



³⁰ Havant Borough Council (2019) Air quality status report

C5.3.4.7 Given the high proportion of resilient mudflat habitat within the small portions of PAS01 and PAS02 that lie within the nitrogen oxides exceedance envelope, **predicted impacts of air pollution from nitrogen oxides are screened out for PAS01 and PAS02 within this HRA.**

C5.3.4.8 The remaining PAS (03 to 09) identified in this HRA are candidate sites for the SWBGS. As such, these sites are not European-designated and are subject to lower thresholds than PAS01 and PAS02. Wood's AQA conclusions also show that PAS03 to PAS09 similarly **can be screened out of a Likely Significant Effect** for annual nitrogen oxide levels.

C5.3.4.9 **Subsequently predicted impacts of air pollution from nitrogen oxides are screened out for each of the nine PAS considered within this HRA.**

C5.3.5 Acid Deposition

C5.3.5.1 The impacts of acid deposition at all ecological receptors was assessed within Wood's AQA and again, where there were multiple receptor points for one designated site or SWBGS site, the receptor point with the highest predicted PC concentration was reported.

C5.3.5.2 Wood's AQA assesses the impacts of acid deposition on each PAS as follows:

*"The acid deposition PC is predicted to be below the EAs screening criteria (PC <1% of CL) at all ecological receptors except E43. E43 relates to the H09 SWBGS candidate site. H09 can be considered a local nature site, therefore following the EAs screening criteria for local nature sites, **this impact can be screened out as insignificant. Impacts from acid deposition for all remaining ecological receptors are predicted to be insignificant.**"*

C5.3.5.3 **Subsequently predicted impacts of acid deposition are screened out for each of the nine PAS considered within this HRA.**

C5.3.6 Nitrogen Deposition

C5.3.6.1 Analysis of the predicted nitrogen deposition levels for a notional 1,500 hours/year was carried out the several receptor sites throughout each of the PASs. Again, where there were multiple receptor points for one PAS, the receptor point with the highest predicted PC concentration was reported. The results are set out in Table 5.7 of Wood's AQA (to be found on pages 40[marked as 4]). It should be noted that receptor points relating to the PAS09 (SWBGS candidate site H130) were not assessed for nitrogen deposition as the site was not considered sensitive to nitrogen deposition.

C5.3.6.2 Wood's AQA assesses predictions for nitrogen depositions on each PAS as follows:

*"Predicted nitrogen deposition values are below the respective site CL at all receptor locations. The PC concentrations reported at receptor points E25 and E38 are above the EA screening criteria (i.e. PC <1% AQAL). E25 relates to the H07C SWBGS site and the PC is predicted to reach 2.6% of the AQAL. E38 relates to the H08 SWBGS candidate site, the PC emission at this site is predicted to be 1.1% of the critical load of the site. If E25 and E38 had formal statutory designation, then the impacts could not be screened as insignificant using the EA criteria. However, these sites are not formally designated but a part of the SWBGS, and impacts can be assessed according to the guidance set out by the EA10 for local nature sites. Following this guidance, **the impacts predicted at E25 and E38 can be screened out as insignificant.**"*

Figure 4.6 presents the 0.1 µg m⁻³ deposition PC contour, corresponding to the 1% of the critical load assuming the plant operates for 1500 hours, overlaid on the SWDGS candidate sites. The ecological receptors modelled report two different minimum CLs. The lower CL of 10 kg N ha⁻¹ y⁻¹ has been used for the contour presented in Figure 4.6. It should be noted that this is a minimum CL and if the maximum CL was considered, the area of exceedance would be halved. This is since for those sites which report a minimum CL of 10 kg N ha⁻¹ y⁻¹, the upper CL reported for these sites is 20 kg N ha⁻¹ y⁻¹.

*The contour overlaps with two SWBGS sites which have been assessed as sensitive towards nitrogen deposition impacts. These sites are H07C and H09. The area of the H09 SWBGS candidate site which the nitrogen deposition level is above 1% of the CL is 0.5 ha, representing 43% of the area of the site. This site is representative of a car park, with small areas of the perimeter containing grassland. It is again worth noting that the SWBGS sites such as H09 are not formally designated. The maximum PC predicted at H09 is below 100% of the CL, **this satisfies the EAs criteria for an impact at a local nature site to be screened out as insignificant.** The area of the H07C SWBGS candidate site which the nitrogen deposition level is above 1% of the CL is 0.3 ha, **representing 5.5% of the area of the site and impacts can be screened out as insignificant.**"*

- C5.3.6.3 The geographical area of the nitrogen depositions exceedance envelope is illustrated at **Figure 6** and **Plan 4** of this HRA.
- C5.3.6.4 Wood's AQA conclusions above show that deposition values are below the threshold for both European designated sites, PAS01 and PAS02. Subsequently both **can be screened out of a Likely Significant Effect** for nitrogen depositions.
- C5.3.4.4 These conclusions also show that there is an exceedance in a small portion (approximately 10%) of PAS05 SWBGS Candidate Site H07C and a larger portion (approximately 40%) of PAS07 SWBGS Candidate Site H09. It should be noted that no data was recorded for nitrogen depositions in PAS09 SWBGS Candidate Site H130. These sites are not European-designated and are subject to lower thresholds than PAS01 and PAS02. Wood's AQA conclusions also show that PAS03 to PAS09 similarly **can be screened out of a Likely Significant Effect** for nitrogen deposition levels.
- C5.3.4.5 **Subsequently predicted impacts of air pollution from nitrogen depositions are screened out for each of the nine PAS considered within this HRA.**

C6 Summary and Conclusion of No Likely Significant Effects

- C6.1 PP04 Water pollution, PP05 Changes in species distribution, PP07 Change to site conditions, PP13 Air pollution and P16 Development have been identified as potential pathways that could negatively impact the European sites and SWBGS candidate sites (PAS) identified within this HRA.
- C6.2 Each of these potential pathways is based on the two issues, identified in Wood's AQA, of a potential exceedance of nitrogen oxides and nitrogen depositions within a small geographical area.
- C6.3 Wood's AQA concludes that there will be no Likely Significant Effects on any of nine sites identified as PAS in this HRA from these exceedances:

"The impacts from daily mean NO_x emissions are negligible at all ecological receptor points relating to sites with statutory designation. The daily mean NO_x impact at H28 cannot be screened out as insignificant if assessed against criteria for statutory designation, but as discussed in Table 5.5 this site has not obtained formal designation and can therefore be considered as a local nature site. Assessing against the EAs criteria for local sites concludes this impact as insignificant.

The annual mean NO_x PC from the proposed installation, operated at 1,500 hours per year, is predicted to exceed the 1% assessment criteria at five of the SWBGS sites assessed (receptors E12, E25, E29, E37 and E43), and at the closest point on Chichester and Langstone Harbours Ramsar and SPA, Langston Harbour SSSI and Solent Maritime SAC. Although intertidal mudflat habitats are supporting features of the SPA and Ramsar Site and the SWBGS sites, one of the qualifying features of the SAC and a reason for the notification of the SSSI, a small increase in NO_x is predicted to affect a small proportion of the area covered by these biodiversity sites: ~0.2% (SPA and Ramsar and SWBGS sites), ~0.2% (SAC) and ~0.4% (SSSI), and a small proportion of the available mudflat habitat within these sites and surrounding areas. Therefore, no likely significant effects on these biodiversity sites are predicted, also recognising that mudflats are subject to frequent tidal inundation and are likely to be more resilient to the influence of small changes in aerial NO_x emissions compared to other habitat types to which the same Critical Level (30 µg m⁻³) applies.

Impacts from acid deposition are predicted to be insignificant at all receptor locations except for E43. E43 relates to SWBGS candidate site H09 which does not hold statutory designation (Table 5.5). The impact from acid deposition at E43 is insignificant when assessing as a local nature site. The PC at receptor locations E25 and E38 are predicted to exceed 1% of the CL. Receptor locations E25 and E38 relate to the H07C and H08 SWBGS candidate sites respectively. The area of which each site occupies has been identified to include some broadleaved woodland. This is a habitat of principal importance and therefore sensitive to nitrogen deposition. The background nitrogen deposition reported at each site at 22.96 kg N ha⁻¹ yr⁻¹ already exceeds the 10 kg N ha⁻¹ yr⁻¹ critical level. This can be owed to the position of the site's being immediately adjacent to the A27. Therefore, the additional deposition reported at these site's is not likely to be significant since the critical load is exceeded without this addition from the Proposed Installation. Additionally, impacts at these sites have been screened out as insignificant when assessed against the EA's criteria¹⁰ for local nature sites."

- C6.4 Biora's ecological team concur with this assessment. The geographical extents of the mean annual nitrogen oxides and the nitrogen depositions were very limited (over an area of 9ha in total) and over habitat that is predominantly mudflats

(ie not saltmarsh) which has low susceptibility to atmospheric nitrogen. Given that the EA's exceedance for the prescribed 1% limit is marginal, given the habitats described (relatively robust mudflats) and the regular flushing from tidal incursion, there will be no Likely Significant Effect on any of the nine PAS identified in this HRA from these nitrogen oxide or nitrogen depositions exceedances. Further impacts can subsequently be dismissed and no further assessment and/ or mitigation is required in relation to the project.

- C6.6 **it is concluded that the project is not likely to result in a significant effect upon any European sites, or any candidate site for the Solent Waders and Brent Goose Strategy, or any of their qualifying features, through direct or indirect pathways, either alone or in combination with other plans and projects.**

PART D: APPROPRIATE ASSESSMENT AND CONCLUSIONS ON SITE INTEGRITY

D1 Appropriate Assessment

- D1.1 Where Likely Significant Effects on a protected site cannot be fully ruled out, Stage 2 of the HRA is required, known as Appropriate Assessment. This stage aims to consider the implications of the project for the conservation objectives of the identified protected sites and determine whether the project's impacts (either alone or in combination with other projects/plans) will have a significant adverse impact on the integrity of the protected sites.
- D1.2 At this second stage of the HRA, any mitigation measures proposed can and should be taken into account when determining the project's impacts.
- D1.3 As Likely Significant Effects of the proposal can be ruled out, no further assessment either or alone or in combination is required in relation to this project.

PART E: REFERENCES AND BIBLIOGRAPHY

Air Pollution Information System – retrieved September 2022 from <http://www.apis.ac.uk/>

AECOM (2019) *HRA of the Revised Portsmouth Seafront Masterplan*.

Bardsley, L., Brooksbank, J., Giacomelli G., Marlow, A., and Webster E. 2020. Review of Chichester Harbour sites: intertidal, subtidal and bird features. Natural England Research Report, Number 090.

Barnes, J. & Owens, N.J.P. (1998) *Denitrification and nitrous oxide concentration in the Humber Estuary, UK, and Adjacent Coastal zones*. Marine Pollution Bulletin 37 247-260

Boorman L. A. & Hazelden, J. (2012). *Impacts of additional aerial inputs of nitrogen to salt marsh and transitional habitats*. CCW Science Report No. 995, Countryside Council for Wales, Bangor, Wales. [Impacts of additional aerial inputs of nitrogen to salt marsh and transitional habitats](http://publications.naturalengland.org.uk/publication/5789102905491456)

BS:42020 (2013) *Biodiversity. Code of practice for planning and development*, British Standards Institute

Case C-323/17: Reference for a preliminary ruling from the High Court (Ireland) made on 30 May 2017 — People Over Wind, Peter Sweetman v Coillte Teoranta

Chichester and Langstone Harbours SPA Citation – retrieved September 2022 from <http://publications.naturalengland.org.uk/publication/5789102905491456>

Chichester Harbour SSSI Citation – retrieved September 2022 from [Chichester Harbour \(naturalengland.org.uk\)](http://publications.naturalengland.org.uk/publication/5789102905491456)

Condition Review of Chichester Harbour Sites: retrieved September 2022 from [Condition review of Chichester Harbour sites: intertidal, subtidal and bird features - NERR090 \(naturalengland.org.uk\)](http://publications.naturalengland.org.uk/publication/5789102905491456)

The Conservation of Habitats and Species Regulations 2017 (SI No. 2017/1012), commonly referred to as ‘the Habitats Regulations’

Directive 2009/147/ec of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds – retrieved August 2022 from [Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds \(codified version\) \(legislation.gov.uk\)](http://www.legislation.gov.uk/uk/2009/147/EC)

DTA *HRA Handbook*, February 2021

DEFRA website, retrieved August 2022;

Environment Agency (EA), 2016. *Air emissions risk assessment for your environmental permit* – retrieved September 2022 from <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas>

Environment Agency *Solent Maritime SAC Condition Assessment and improving water quality in the Solent* - retrieved September 2022 from [Solent Maritime SAC Condition Assessment and water quality 200918.pptx \(solentems.org.uk\)](http://www.solentems.org.uk)

Hampshire County Council Senior Ecologist *Consultee Comments for Planning Application APP/21/00809*, undated

Havant Borough Council 2019 *Air quality status report*

JNCC *Ramsar Information Sheet: :UK11013 Chichester and Langstone Harbours, Version 3.0, 13/06/2008*

JNCC website, retrieved August 2022;

Langstone Harbour SSSI Citation – retrieved September 2022 from [1001182.doc \(Converted\) \(naturalengland.org.uk\)](http://publications.naturalengland.org.uk/publication/1001182.doc)

Multi-agency Geographic Information for the Countryside (MAGIC) map, interrogated August 2022;

Natural England *European Site Conservation Objectives for Solent Maritime SAC* – retrieved September 2022 from

<http://publications.naturalengland.org.uk/publication/5762436174970880>

Natural England *Impact Risk Zones for Sites of Special Scientific Interest*, v4.0, Issued 27 April 2021

Natural England *Intertidal sediment surveys of Langstone Harbour SSSI, Ryde Sounds and Wootton Creek SSSI and Newton Harbour SSSI 2015 (RP02533)*, 29 July 2016

Natural England *Solent Maritime SAC Citation* – retrieved September 2022 from
<http://publications.naturalengland.org.uk/publication/5762436174970880>

Natural England *Solent Maritime Site Improvement Plan* – retrieved September 2022 from
[Site Improvement Plan: Solent - SIP043 \(naturalengland.org.uk\)](http://publications.naturalengland.org.uk/publication/5762436174970880)

Natural England website, retrieved August 2022;

Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, (February), (2021) edition UK: DTA Publications Ltd

Whitfield, D (2020) *Solent Waders and Brent Goose Strategy* Hampshire and Isle of Wight Wildlife Trust. Curdridge.

Wood Group UK Limited, May 2022 *Harts Farm Way, Air Quality Assessment*

Wood Group UK Limited, June 2020 *Technical Note: GFP II Limited – Harts Farm Way Ecological Appraisal (Emissions)*

APPENDICES

APPENDIX 1: Notes on Designations, Protections and Overlap Between Them

The following extracts from the DTA HRA Handbook³¹ provide more detail on the legislative background to designations, the varying levels of protection afford them and the types of protected site relevant to this shadow HRA.

A.3.1. An Introduction to European sites

Bac

The term 'European site' is widely used. It is not found in the Directives, but a statutory definition of 'European site' is given in regulation 8 of the 2017 Regulations (see below).

Correctly, the Habitats Regulations repeatedly refer to the likely effects on 'a European site or a European offshore marine site' (see A.3.5 below). However, to make this Handbook more readable, and because it will be rare for offshore sites to be affected by proposals considered in this Handbook, which relates to England and Wales and their respective territorial waters, we refer only to 'a European site'.

Nevertheless, wherever the context means that a 'European Offshore Marine Site' could also be affected, or should also be considered, it should be taken into account in the same way as the 'European site'.

In practice, the term 'European site' is generally used to refer to any site over which the provisions of the Regulations exert an influence, whether by way of statute or policy.

In order to make this Handbook more readable and because the Regulations are to be applied to a wider range of sites than those explicitly included in the statutory definition, we have adopted the wider use of the term 'European site', unless in a particular context it is important to distinguish between statutory European sites and sites protected as a matter of policy.

In addition to the influence of Government policy, the Court of Justice of the European Union (CJEU), formerly known as the European Court of Justice (ECJ)¹ requires sites that are not yet fully designated or classified to be treated in certain ways. So, not surprisingly, confusion can arise as to how sites which are passing through the various stages of designation should be treated, compared to sites that are fully designated or classified.

The picture is complex but we try to set out the legal and policy expectations in this section in order to set the scene for notes and comments in the main body of the Handbook which draw attention to these differences, Figure A.3.1 summarises the position.

We set out below firstly, an explanation of the 'National Site Network' as defined by regulation 3(1) of the amended Habitats Regulations and then the statutory list of 'European sites' (which beyond territorial waters would be European Offshore Marine Sites) as defined by regulation 8 of the Habitats Regulations.

We then list the additional 'sites' which we include in the definition of 'European site' in this Handbook, because Government policy says that they should be subject to the protection of the Regulations.

³¹ Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, (February), (2021) edition UK: DTA Publications Ltd

A.3.2 to A.3.6 below describe each of these designations and their status in more detail.

National Site Network

The term ‘national site network’ was introduced into the 2017 Habitats Regulations by the 2019 Amendment Regulations. As a result, in the UK sites, which were part of the European Union’s Natura 2000 network before the UK left the EU, have become part of the National Site Network, together with any new sites classified or designated after Exit Day. So, the purposes and objectives previously fulfilled by the Natura 2000 network will now be fulfilled in the UK under the various Habitats Regulations retained in any part of the UK.

In the Habitats Regulations as amended, regulation 3(10) provides that for the purposes of the Regulations and any guidance issued by the government or statutory nature conservation bodies, on or after exit day, references to “Natura 2000” are to be construed as references to the National Site Network.

Statutory European (and European Offshore Marine) sites are:

- a. A fully designated Special Area of Conservation (a SAC)
- b. A Site of Community Importance (an SCI) included on the list of such sites compiled by the European Commission from cSACs submitted by the UK before the UK left the EU, until such time as the UK designates the site, when it will become a fully designated SAC under the provisions of regulation 141A(1).
- c. A site submitted by the UK Government to the European Commission before Exit day as eligible for selection as an SCI, but not yet entered on the EC’s list of SCI, until such time as the Appropriate Authority has designated the site or it has notified the statutory nature conservation body that it does not intend to designate the site and the reasons for that decision (see regulation 141A(2) and (3)). These sites have conventionally been referred to as ‘candidate SACs’ (a cSAC), but with the UK’s departure from the EU, no further cSACs will be submitted to Europe.
- d. A classified Special Protection Area (an SPA)

As a matter of policy in England and Wales, the following sites should be subject to Habitats Regulations Assessment in the same way, as statutory ‘European sites’²

- A potential Special Protection Area (a pSPA)
- A possible / proposed Special Area of Conservation (a pSAC)
- Listed and proposed Ramsar sites (see further A.3.6. below)
- Areas secured as sites compensating for damage to a European site.

Bearing all of this in mind, an overview of English and Welsh policy, reflecting current legislation and more recent court judgments, is summarised in Figure A.3.1 below. The policy is discussed in more detail in A.3.2 (SPAs), A.3.3 (SACs) and A.3.6 (Ramsar sites) below.

Figure A.3.1 summarises the legal and policy protection of these various designations at different stages in their designation process, explained in detail below.

Figure A.3.1
Summary of legal and policy protection for 'European sites'

European site or European Offshore Marine Site		Ramsar Convention Ramsar site	Status and protection in England and Wales
EC Birds Directive Special Protection Area	EC Habitats Directive Special Area of Conservation		
	Designated SAC (SAC) [Handbook A.3.3]		Fully designated European Site in law in E&W [Habitats Directive Art 4(4); Hab Reg 8(1)(a)]
Classified SPA (SPA) [Handbook A.3.2]			Fully designated European Site in law in E&W [Birds Directive Art 4(1-3); Hab Reg 8(1)(d)]
		Listed Ramsar site	Policy protection in E&W, to be treated the same as a fully designated European site [NPPF para 176; PPW para 6.4.18, and Defra WG NE NRW joint guidance to competent authorities February 2021]
		Proposed Ramsar site [Handbook A.3.6]	Policy protection E&W to be treated the same as a fully designated European site [NPPF para 176, PPW para 6.4.19 and Defra WG NE NRW joint guidance to competent authorities February 2021]
Potential SPA (pSPA) upon notification by the appropriate authority (regulation 16)), [Handbook A.3.1 & A.3.2]	Possible / proposed SAC (pSAC) subject to consultation [Handbook A.3.3]		Policy protection in E&W to be treated the same as a fully designated European site [NPPF para 176; PPW para 6.4.19, and Defra WG NE NRW joint guidance to competent authorities February 2021]
An area under investigation before the commencement of consultation as a pSPA [Handbook A.3.2]	Draft SAC (dSAC) an area under investigation before the commencement of formal consultation as a pSAC [Handbook A.3.3]		No explicit legal or policy protection, but in the Sherwood Forest case (see A.3.2) the Secretary of State applied the process provided under the Regulations, in a 'shadow assessment', to an area which was subject to investigation as a possible SPA, in light of the duty under Article 4(4) of the Birds Directive, now embodied in regulation 10(8), to strive to avoid pollution and deterioration of habitats of Annex 1 bird species outside SPAs.
Compensatory sites (required by regulation 68 in respect of projects proceeding in absence of alternative solutions and for imperative reasons of overriding public interest) [Handbook A.3.8]			Policy protection in England and Wales, to be subject to HRA in the same way as a fully designated European site [Defra WG NE NRW joint guidance to competent authorities February 2021]
Key Green shading represents legal protection Blue shading represents policy protection			

¹ Prior to the Lisbon Treaty coming into force on 1st December 2009, the official name of the Court of Justice of the European Union was the European Court of Justice. Where appropriate, this Handbook adopts the convention of referring to decisions of the court before 1/12/09 as being those of the ECJ and subsequent decisions as being cases in the CJEU

² Joint Defra WG NE NRW guidance to competent authorities February 2021.

A.3.2. Special Protection Areas (SPAs, pSPAs)



Special Protection Areas are classified under regulation 15 of the Habitats Regulations in the context of the Birds Directive and may be either a statutory European site or a statutory European Offshore Marine Site. With SACs they form the National Site Network in the UK and also contribute to ecological value of the European Union network of protected sites referred to as Natura 2000. Once fully classified a Special Protection Area is commonly referred to using the acronym SPA, without any prefixing letters. All classified SPA must be entered on a register of European sites in accordance with regulation 17 of the Habitats Regulations.

A classified SPA is a statutory ‘European site’ and thus afforded full protection by law under the provisions of the Regulations.

The first SPAs were classified under Article 4(1) and (2) of the Birds Directive, in the early – mid 1980’s. Classification is a continuing process aided by periodic reviews and improving information, especially in respect of the marine areas. There is no formal European Commission guidance on classification, so the Joint Nature Conservancy Council (predecessor of the present Joint Nature Conservation Committee) (JNCC) prepared SPA selection guidelines, with a 2 stage process for selecting sites to be considered by Government for classification. Classification must be based only on ecological criteria and evidence. Social, economic or recreational requirements must not be taken into account in deciding whether to classify an SPA³. The process by which a site is classified leads to the acronym ‘pSPA’ as explained below.

The obligation to classify SPAs in England and Wales rests with the ‘appropriate authority’ which is the Secretary of State (Defra) or the Welsh Ministers as the case may be (regulation 15). If these authorities propose to classify an SPA they must give the appropriate nature conservation body, Natural England or Natural Resources Wales, notice and details at which point it becomes a potential SPA or pSPA. As indicated in A.3.1 above, as a matter of policy a pSPA is afforded the same protection in the planning system and other similar decision-making procedures as a fully classified SPA.. In practice the nature conservation bodies will already have worked on the gathering and consideration of the scientific evidence for classification. Once in receipt of a regulation 16 notice from the Appropriate Authority, these bodies must then consult widely on the proposal (regulation 16).

There is no statutory or policy protection afforded to an area being investigated for possible classification before it earns policy protection as a pSPA, following service of a regulation 16 notice, on the basis explained above. However, there may nevertheless be good reasons to adopt a precautionary approach and begin to consider the implications of the Regulations in the event that the site may eventually be classified.

One of the principal reasons for this is because, if the site is classified and becomes a statutory European site, the requirements of regulation 65 known as the ‘review’ provisions would apply. Thus, if a consent, permission or other authorisation was granted that affected such an area, it may become necessary for a competent authority, upon classification of the SPA, to modify or revoke the consent, at public expense, if on review it could not be ascertained that it would not adversely affect the integrity of the classified SPA and the requirements for a derogation under regulation 64 were not met.

Furthermore, if a proposal is located in or close to habitats supporting any species listed in Annex I of the Birds Directive (and regularly occurring migratory species not listed in Annex 1), it is necessary to bear in mind the duty imposed on Member States of the EU by the second sentence of Article 4.4 of the Directive and on UK competent authorities by regulation 10 of the Habitats Regulations.

This requires competent authorities to strive to avoid pollution or deterioration of the habitats of such species outside the area of classified SPAs. It is reasonable to assume that normal pollution prevention measures applied under environmental legislation are likely in most cases to sufficiently avoid pollution of habitats in this context. In terms of deterioration of habitats, competent authorities should consider whether proposals should be refused, or conditions or other restrictions applied, to ensure that significant deterioration of habitats used by Annex 1 bird species does not occur. If such habitats are used by nationally significant populations of Annex 1 bird species, or may otherwise be considered for a possible classification as a SPA, as indicated above, competent authorities may need to go further and assess the implications of the review procedures of the Regulations in the event that the area is classified before a plan or project is fully implemented.

A.3.4. European Marine Sites

▲
Back to top

A European marine site (EMS) is any statutory European site, or any part of a statutory European site, consisting of marine areas (regulation 8(4) of the Habitats Regulations). This is taken to mean the part of any statutory European site below Mean High Water Mark and (theoretically) out to the 12 nautical mile limit of the territorial waters of England and Wales. They are not designated for any additional reasons than for the habitats and species for which they have been classified as an SPA or designated as a SAC. They are not listed as a statutory European site per se because it is the relevant SPA or SAC that is the statutory European site.

The additional 'designation' is necessary because the marine component of a European Marine Site extends beyond the jurisdiction of some terrestrial planning and other regulatory and management controls. Consequently, they have special provisions in Part 2 of the Habitats Regulations, enabling their marking (regulation 37), the establishment and securing compliance with management schemes (regulations 38 and 39), and for the making of byelaws and orders (regulation 40).

No additional designation procedures are involved other than those described in A.3.2 and A.3.3 for SPAs and SACs respectively.

The term 'European Marine Site' may sometimes be applied in practice to the whole of an SPA or SAC, only part of which is actually 'marine' (below Mean High Water Mark). Whilst it is not correct to refer to the entire site as a European Marine Site (as only the marine part of it is a European Marine Site) the practice appears to have become generally accepted as a title of convenience.

A.3.5. European Offshore Marine Sites

▲
Back to top

A statutory European Offshore Marine Site (EOMS) is a classified SPA or a designated SAC lying wholly or in some cases partly beyond the 12 nautical mile limit of the territorial waters of England and Wales. They are as much a part of the National Site Network of protected sites in the UK and contribute to the ecological value of the Natura 2000 network of European sites.

Due to their location beyond territorial waters, EOMSs are protected by their own Regulations which are the *Offshore Marine Conservation Regulations 2017*. Few plans or projects located on land or in the territorial waters of England and Wales are likely to affect a EOMS.



Offshore wind turbines near Inner Dowsing, Race Bank and North Ridge offshore SAC

A.3.6. Ramsar Sites

▲
Back to top

Ramsar sites are wetlands of international importance 'listed, (rather than 'classified' or 'designated') under the Ramsar convention, which was the Convention on Wetlands of International Importance, held in Ramsar, Iran in 1971. It is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It is a global treaty of which both the UK and the European Union are signatories.



Competent authorities in England and Wales should, as a matter of policy, treat listed Ramsar sites, and proposed Ramsar sites from the beginning of consultation on the scientific case for listing them,⁹ in the same way as classified SPAs and designated SACs, including the application of regulations 63, 64, 68 etc for plans or projects.

Furthermore, 'Any proposals affecting a [listed or proposed Ramsar site] would require an HRA because these are protected by government policy.'¹⁰

⁹ Paragraph 176 National Planning Policy Framework England edition June 2019 and paragraph 6.4.19 Planning Policy Wales edition 11 February 2021

¹⁰ Defra WG NE NRW joint guidance to competent authorities February 2021

A.3.7. Multiple designations and relationships with national site designations



In many cases a European site may have more than one designation. This arises because the legal regimes of the Birds and Habitats Directives are separate. A given site may be permutations of an SPA and a SAC and a Ramsar site, and the marine part of the SPA or SAC would also be a European Marine Site. The boundaries of the SPA, the SAC and the Ramsar site may vary slightly or significantly and may overlap.

Ramsar Sites are not part of the statutory National Site Network, but almost all listed Ramsar sites in England and Wales are a classified SPA and / or a designated SAC. The boundaries and qualifying features of the associated European site(s) may vary.



View of Wivenhoe across the Colne Estuary SPA and Ramsar site, part of the Essex Estuaries SAC

In England and Wales statutory European sites (as defined above) are also notified as Sites of Special Scientific Interest (SSSI). As such the provisions of the Wildlife and Countryside Act 1981 as amended particularly by the Countryside and Rights of Way Act 2000, are also relevant. This Handbook does not set out in detail the procedural requirements of section 28 of the 1981 Act in respect of SSSI except in so far as it may be necessary in the context of describing European site protection and management.

Authoritative explanations of SSSI procedures are to be found in section 5.4 of Technical Advice Note (TAN) 5 *Nature Conservation and Planning*. Although this Advice Note relates to Wales, the explanations to be found there are equally relevant in England.

APPENDIX 2: Qualifying Features, Conservation Objectives, Conditions and Management Recommendations of European Sites

PAS01 – Chichester and Langstone Harbours – Chichester Harbour SSSI Citation

COUNTY: WEST SUSSEX/HAMPSHIRE SITE NAME: CHICHESTER HARBOUR

DISTRICT: CHICHESTER/HAVANT

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: CHICHESTER DISTRICT COUNCIL; HAVANT BOROUGH COUNCIL

National Grid Ref: SU 760 000 Area: 2657 ha 6566.7 acres W Sussex
3695 ha 9130.3 acres Total

Ordnance Survey Sheet 1:50,000:197 1:10,000: SU 70 NW,NE,SW,SE, SU 80 NW, SW,SE, SZ 79
NW,NE, SZ 89 NW

Date Notified (Under 1949 Act): 1970 Date of Last Revision: 1980

Date Notified (Under 1981 Act): 1984 (Hants) 1985 (W Sussex)

Other Information: This site lies within the South Coast Plain. It includes Nutbourne Marshes Local Nature Reserve. The site is listed in 'A Nature Conservation Review' and is a Geological Conservation Review site.

Reasons for Notification:

Chichester Harbour is a large estuarine basin in which at low water extensive mud and sandflats are exposed, drained by channels which unite to make a common exit to the sea. The site is of particular significance for wintering wildfowl and waders and also breeding birds both within the Harbour and in the surrounding permanent pasture fields and woodlands. There is a wide range of habitats which have important plant communities.

The intertidal area is fragmented in the upper reaches of the harbour by intruding tongues of land giving a very long and varied coastline. The harbour exhibits a wide range of intertidal and associated terrestrial habitats and with the neighbouring Langstone and Portsmouth Harbours is unusual in providing a large volume of sheltered saline water fed by a few streams of only low volume. The extensive intertidal mudflats are the feeding grounds, at the relevant times of year for internationally important numbers of ringed plover, grey plover, redshank, black-tailed godwit, dunlin, sanderling, curlew and greenshank (the latter two in autumn particularly). Bar-tailed godwit numbers are of European importance. Amongst the wildfowl, shelduck, teal and dark-bellied brent goose numbers are of international importance with 5% of the world population of the latter. The unimproved permanent pasture behind the sea wall provides alternative feeding sites for the geese and major high tide wader roosts. Some of this pasture is floristically rich being a red fescue *Festuca rubra* sward with scarce species such as green-winged orchid *Orchis morio* and adder's tongue fern *Ophioglossum vulgatum*.

The lower saltmarsh habitat fringing the mud flats is dominated by cord grass *Spartina anglica* and in most places the upper saltmarsh is rather restricted by the sea wall but there are some pure stands of sea purslane *Halimione portulacoides* while in some areas there is also sea lavender *Limonium vulgare*, sea aster *Aster tripolium* and other saltmarsh species.

Shingle occurs as spits and islands and most are rather unstable permitting little vegetation to become established. This habitat forms the main breeding grounds in the harbour for ringed plover, black-headed gull and three species of terns. The extensive sand dunes at East Head are dominated by marram grass *Ammophila arenaria* although the degree of ground cover varies from 90% to 10% on the more recently established dunes.

At the head of Fishbourne Channel saltmarsh grades through a reed *Phragmites australis* bed into fresh marsh

influenced by a chalk spring. Most of the other fresh marshes behind the sea wall are small but at Thorney Deeps reclaimed saltmarsh has given way to extensive fresh water marsh vegetation influenced by salt water intrusion; here the reed is fringed by extensive areas of rushes *Juncus* species and invasive willow *Salix* scrub. A number of small ponds occur one of which contains the rare annual beard grass *Polypogon monspeliensis*. Significant blocks of scrub, mainly hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* occur which are important for breeding and roosting birds. Hedgerows of oak *Quercus robur* are common and in some places the oak roots are strongly influenced by salt water. Semi-natural broadleaved woodland associated with the Harbour is important for breeding birds and supports two heronries. Oak is the major tree species usually with hazel *Corylus avellana* coppice, as at Old Park Wood, although Tournerville Wood has well spaced oaks with the occasional beech *Fagus sylvatica*, holly *Ilex aquifolium* and yew *Taxus baccata* with a fairly dense ground flora of bramble *Rubus fruticosus* and bracken *Pteridium aquilinum*.

Notable invertebrates include the long-winged conehead *Conocephalus discolor* and the moths, starwort hawk *Cucullia asteris*, the sand dart *Agrotis ripae*, shore wainscot *Mythimna litoralis* and lunar hornet *Sphex bembeciformis*.

Geology and Physiography

East of Langstone, at SU 725053, a low cliff line at high water mark exhibits a complex of Brickearth and Coombe Rock deposits and at East Head, SZ 769991 there is a sizeable sand dune and shingle system both of which are of geomorphological importance.

PAS01 – Chichester and Langstone Harbours – Langstone Harbour SSSI Citation

File ref:

County: Hampshire

Site Name: Langstone Harbour SSSI

Local Planning Authority: Hampshire County Council, Havant Borough Council, Portsmouth City Council

National Grid Reference: SU 700030

Ordnance Survey Sheet 1:50,000: 197 **1:25,000:** SU 60, 70; SZ 69, 79

Area: 2,069.4 (ha) 5.113.4 (ac)

Date Notified (Under 1949 Act): 1958 **Date of Last Revision:** 1979

Date Notified (Under 1981 Act): 1985 **Date of Last Revision:** –

Other Information:

Farlington Marshes (118.9 ha) is a Local Nature Reserve owned by Portsmouth City Council and managed by the Hampshire and Isle of Wight Naturalists' Trust under a long lease; 550 ha including a series of saltmarsh islands and extensive mud flats are owned by the Royal Society for the Protection of Birds.

Reasons for Notification:

Langstone Harbour is a tidal basin which at high water resembles an almost land-locked lake. At low water extensive mud flats are exposed, drained by three main channels which unite to make a common and narrow exit to the sea. The harbour includes one of the largest areas of mixed saltmarsh on the south coast, and extensive cord-grass *Spartina anglica* marsh in an advanced state of degeneration. The Site of Special Scientific Interest including Farlington Marshes, a peninsula of grassland and marsh on reclaimed tidal silt protected by a sea wall; and a similar but much smaller area at Southmoor in the north-east of the harbour. The harbour is of international importance as a rich intertidal system supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl, dependent upon them and upon the extensive beds of eelgrass *Zostera* species. The *Zostera angustifolia* and *Z. noltii* beds are among the largest in Britain. The harbour is among the twenty most important intertidal areas in Britain as a summer and autumn assembly ground for waders during the moult (when they require abundant high protein food) and as a post-moult wintering ground. Dunlin *Calidris alpina* often exceed 30,000 individuals, or 6% of the British winter population, or 3% of the European and North African wintering population. Grey plover *Pluvialis squatarola* and black-tailed godwit *Limosa limosa* achieve numbers which represent 1–2% of the European and North African migration flyway population; and redshank *Tringa totanus* and ringed plover *Charadrius hiaticula* do so periodically. At times as many as 20% of the black-tailed godwit, 8% of the ringed plover and 8–10% of the grey plover wintering in Britain are present in the harbour. The total numbers of waders present sometimes exceeds 40,000. Langstone Harbour and the adjoining and connected Portsmouth and Chichester Harbours form a single, coherent ecosystem which is among the ten most important intertidal areas for waders in Britain. In the 1970s and 1980s Langstone Harbour alone has consistently supported in excess of 5,000 wintering dark-bellied geese *Branta bernicla*, or 5–10% of the world population depending on fluctuating population levels. It has supported up to 2.5% of the European winter population of shelduck *Tadorna tadorna* and regularly supports substantial numbers of other ducks in autumn and winter.

Farlington Marshes intrudes into the north-west sector of the harbour. Its vegetation is strongly influenced by drainage water from the chalk and by

brackish water infiltration. The marshes embrace a variety of habitats – brackish marsh, fresh marsh, a large lagoon with associated reed *Phragmites* beds, *Agrostis stolonifera* grassland and scrub. It is a vital high water wader roost for the Harbour and a major feeding ground for Brent geese after the *Zostera* beds in the Harbour have been consumed. Few comparable sites have survived agricultural improvement on the south and east coasts of England, where the habitat was formerly common: the grassland flora is especially rich for reclaimed silt, and includes over 50 species of grasses. Southmoor shares these characteristics but is much smaller.

Langstone Harbour has been the forum for important ecological research on estuarine eutrophication and the relationship with algal blanketing of the muds, changes in invertebrate communities and changes in the composition of vertebrate predator communities.

PAS01 – Chichester and Langstone Harbours – SPA Citation

European Site Conservation Objectives for Chichester and Langstone Harbours Special Protection Area Site Code: UK9011011



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

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

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

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)
 A048 *Tadorna tadorna*; Common shelduck (Non-breeding)
 A050 *Anas penelope*; Eurasian wigeon (Non-breeding)
 A052 *Anas crecca*; Eurasian teal (Non-breeding)
 A054 *Anas acuta*; Northern pintail (Non-breeding)
 A056 *Anas clypeata*; Northern shoveler (Non-breeding)
 A069 *Mergus serrator*; Red-breasted merganser (Non-breeding)
 A137 *Charadrius hiaticula*; Ringed plover (Non-breeding)
 A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
 A144 *Calidris alba*; Sanderling (Non-breeding)
 A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
 A157 *Limosa lapponica*; Bar-tailed godwit (Non-breeding)
 A160 *Numenius arquata*; Eurasian curlew (Non-breeding)
 A162 *Tringa totanus*; Common redshank (Non-breeding)
 A169 *Arenaria interpres*; Ruddy turnstone (Non-breeding)
 A191 *Sterna sandvicensis*; Sandwich tern (Breeding)
 A193 *Sterna hirundo*; Common tern (Breeding)
 A195 *Sterna albifrons*; Little tern (Breeding)
 Waterbird assemblage

This is a European Marine Site

This SPA is a part of the Solent Maritime European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via [GOV.UK](https://www.gov.uk).

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives, and the accompanying Supplementary Advice (where this is available), will also provide a framework to inform the management of the European Site and the prevention of deterioration of habitats and significant disturbance of its qualifying features

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#).

Where these objectives are being met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 21 February 2019 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

EC Directive 79/409 on the Conservation of Wild Birds: Special Protection Area

CHICHESTER AND LANGSTONE HARBOURS (HAMPSHIRE/WEST SUSSEX)

The site is internationally important because it regularly supports more than 10,000 wintering wildfowl (average 25,000) and also by regularly supporting more than 20,000 wintering waders (average 77,000).

The site also supports internationally important numbers of the following species: grey plover Pluvialis squatarola (3.9% of the west European population), sanderling Caldris alba (3.1%), dunlin Caldris alpina (2.6% and over 20,000 birds), redshank Tringa totanus (1.4%), brent geese Branta bernicla (12%), shelduck Tadorna tadorna (4%), and teal Anas crecca (1%).

The site qualifies under Article 4.2 by supporting internationally important numbers of the migratory bird species listed above and nationally important wintering numbers of the following migratory bird species: ringed plover Charadrius hiaticula, curlew Numerius arquata, bar-tailed godwit Limosa lapponica, turnstone Arenaria interpres, wigeon Anas penelope, pintail Anas acuta, shoveler Anas clypeata and the red-breasted merganser Mergus serrator.

The site also qualifies under Article 4.1 because it provides a breeding site for three species of terns Sterna.

This station / map-refers to a site entered in
the Register of European sites for Great Britain,
Register reference number WS 00001
Date of inscription 30 JAN 1995

Signature Byco
on behalf of the Secretary of State for the Environment

PAS01 – Chichester and Langstone Harbours – Conditions Assessment

Executive Summary (Non-technical)

Chichester Harbour is one of the most important sites for wildlife in the United Kingdom and is globally important for migratory birds. The harbour is designated as a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA) for birds. A combination of a desk-based evidence reviews and field survey for saltmarsh in 2019 were undertaken by Natural England to assess whether the harbour's special habitats and species (known as notified features) were flourishing – or as we describe features of designated sites: in favourable condition. The report reviews the historic trends in populations and condition of notified features, discusses whether the existing conservation actions are appropriate, and identifies what changes are required to improve the site and its features back to favourable condition.

A summary of the key findings and recommendations from the review (for further study, survey and conservation action) are provided below.

Saltmarsh

Aerial photographs from the two 2008 and 2016 were reviewed for extent of saltmarsh and compared to previous assessments to provide the trend in area of saltmarsh from 1946 to 2016. During this period, 58% of saltmarsh habitat area was lost overall, with loss of almost half (46%) of that present when the site first became legally protected (1970). The saltmarsh was in unfavourable condition at the time of first designation as the saltmarsh losses in the 1960's were approximately 18 hectares a year. The rate of loss has slowed, however, on average 2.54 hectares (the equivalent of more than 3 football pitches in area) of saltmarsh is still being lost every year across Chichester Harbour. At the current rate of decline the site could lose all its remaining saltmarsh habitat by the middle of the next century.

In 2019, field surveys of six transects were undertaken across the largest areas of remaining saltmarsh. Several rare species were still present and even locally abundant showing the continued ecological value of the remaining saltmarsh. However, all six sites that were surveyed on foot were experiencing impacts from inappropriate coastal management, including coastal squeeze, to some extent on their landward edge. Opportunistic macroalgae (a sign of nutrient enrichment) was observed at all the land-based survey locations. No transects met the requirement for favourable condition for flourishing saltmarsh habitat. As a result, all SSSI units with saltmarsh at designation were assigned to unfavourable declining condition, totalling 3,003 hectares.

Birds

The wintering populations of birds in Chichester Harbour vary in their trends over time but on average the assemblage is in unfavourable condition as numbers of many species have declined, some species dramatically so (>70% long term). Nevertheless, the site remains nationally important for nine wintering species and internationally important for dark-bellied brent geese and black-tailed godwit. The national populations of four of the notified wader species have shifted range in response to climatic factors, which explains part of the declines seen. However, there are additional site-specific factors affecting these and the other bird species, including disturbance, pressures on high tide roosts and poor quality of habitat (opportunistic macroalgae). Consequently, some of the birds whose populations are doing well are species which can switch their foraging habitats away from the main intertidal area such as brent geese.

Nesting terns are in unfavourable declining condition because nesting Sandwich tern numbers have declined to zero, little tern numbers have declined dramatically and the number of their chicks per nest successfully fledging is at or close to zero. A range of complex factors including predation (both mammalian and avian), habitat changes and climate change (sea level rise and increased

storminess) are the causes, despite concerted conservation action taken by the Chichester Harbour Conservancy (CHC) as site managers. However, there have been recent successes for common terns using artificial rafts deployed by CHC at Thorney Deep, which if this continues will enable the population to recover.

Other intertidal habitats

Intertidal habitats – general and opportunistic macroalgae

The data on intertidal habitats' sediment type and the invertebrates that use it (biotopes) was reviewed based mainly on an analysis undertaken under contract in 2016. The data is of variable quality. For this reason, the current assessment should not replace the SAC wide assessment for overlapping features. Opportunistic macroalgae is an indicator of nutrient enrichment and high percentage coverage impacts bird prey and the habitat. Percentage coverage of opportunistic macroalgae was reviewed in 2011, 2014 and 2018, and assessed in each harbour arms and in the middle and outer harbour edges. Coverage varied from year to year and spatially but most of the harbour had too much opportunistic macroalgae in both 2011 and 2018. Only the outer harbour was not impacted by opportunistic macroalgae in all three years.

Intertidal and sub-tidal habitats – eelgrass

The historic data from a number of sources, including scientific literature on water quality impacts, was reviewed. There is no field survey of all the harbour's eelgrass in any one year. The review raised considerable doubt about the validity of previously used baseline data for the harbour. The SSSI baseline extent should be changed to at least between 130 and 220 hectares as a minimum for favourable condition for this sub-feature. This feature was assigned unfavourable as a provisional assessment, with a very low confidence due to the absence of reliable baseline data and was not used to change mapped condition of the SSSI. The current assessment should not replace but only supplement the SAC wide assessment for the overlapping features.

Water quality

Only the inorganic components of nitrogen; dissolved inorganic nitrogen (DIN) and orthophosphate were assessed. DIN and orthophosphate vary seasonally, yearly and spatially within the harbour. Most of the nutrients are taken-up in the harbour by the opportunistic macroalgae growth and by the wider catchment (in summer months) where both DIN and orthophosphate values drop, the former to below detectable limits in summers back to 1995. Winter peaks of DIN show no apparent overall trends across the harbour as a whole but increase during wet winters and springs. There are some localised declines in particular at Langstone Bridge where declines occur shortly after the removal of the Budds Farm wastewater treatment works (WwTW) discharge from the adjacent Langstone Harbour.

The winter DIN values do vary between areas of the harbour with a trend of increasing values from west to east and from the outer harbour towards the upper harbour arms. The highest mean winter value is from Fishbourne Channel, which has nearly six times higher (598%) values of nitrogen than the lowest value of 0.25mg/l at Fisheries Buoy in the west of the main harbour. The conservation measures (such as Catchment Sensitive Farming and WwTWs improvements) that have occurred in the catchment may be reducing DIN values in parts of the harbour, but the picture is complex, and the localised reductions are not sufficient for the wildlife to recover. The best remaining saltmarsh habitat and the largest eelgrass beds are in areas with lower nitrogen.

Condition summary

Overall, the main intertidal habitats and bird features are assessed as unfavourable declining condition largely due to the continued loss of saltmarsh, the poor quality of saltmarsh and mudflat habitat, and the continued decline of several bird species (wintering and nesting). The summary condition following this review is:

Summary of the condition of Chichester Harbour SSSI (of all the saltmarsh and bird designated features within the SSSI)

Designated sites condition following 2019/20 review	Area in hectares (%)
Favourable	252.91 (6.77)
Unfavourable Recovering	115.83 (3.10)
Unfavourable No change	361.62 (9.69)
Unfavourable Declining	3003.17 (80.44)

Summarised recommendations for conservation action

- Restore saltmarsh habitat within Chichester Harbour to achieve at least the 552 hectares area at SSSI designation. This could begin with climate change safeguarding policies to help protect low lying land around the harbour for future saltmarsh restoration. Opportunities to recreate saltmarsh habitat should then be identified e.g. realigning sea defences. An additional 257 hectares of saltmarsh from the current level is initially needed to restore it back to recovering, and as the habitat structure evolves then to favourable condition.
- Remove barriers to coastal change caused from inappropriate coastal management including coastal squeeze, which are resulting in saltmarsh erosion and interrupting sediment supply.
- Identify low nutrient sources of sediment into the harbour, particularly mud sediment, if removing the structures does not restore the sediment supply.
- Maintain current actions and identify additional measures to reduce nitrogen into the harbour and the wider Solent including, depending on source apportionment, reducing nitrogen inputs from urban and rural diffuse (planning and farming), from atmospheric deposition and from point sources (mainly wastewater treatment works).
- Work with partners to understand the baseline condition of small fish (prey) populations in the harbour and whether this is influencing tern productivity.
- Significantly increase efforts to improve tern populations, e.g. creating more tern rafts (to improve nesting success rates) and predator management where necessary.
- In partnership investigate the feasibility of creating a network of sites that are less susceptible to tidal flooding by creating suitable raised shingle beaches at Stakes Island.
- Where feasible, include creation of islands for breeding terns and high tide roosts when designing coastal habitat creation schemes.
- Work with partners to continue to identify and manage sources of disturbance to birds.
- Improve monitoring and data collection, to include (if possible) assessing source apportionment at a smaller spatial scale related to the harbour's interest features and increase the frequency of saltmarsh assessment.
- In partnership, implement a second phase of the project, subject to resources, to address identified evidence gaps and provide simple clear messages for stakeholders and the general public on how to help restore the harbour's wildlife.

PAS02 – Solent Maritime SAC

European Site Conservation Objectives for Solent Maritime Special Area of Conservation Site Code: UK0030059



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 maintaining or restoring;

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

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

H1110. Sandbanks which are slightly covered by sea water all the time

H1130. Estuaries

H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats

H1150. Coastal lagoons*

H1210. Annual vegetation of drift lines

H1220. Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves

H1310. *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand

H1320. *Spartina* swards (*Spartinion maritimae*); Cord-grass swards

H1330. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram

S1016. *Vertigo moulinsiana*; Desmoulin's whorl snail

* denotes a priority natural habitat or species (supporting explanatory text on following page)

www.naturalengland.org.uk

This is a European Marine Site

This site is a part of the Solent Maritime European Marine Site. These Conservation Objectives should be used in conjunction with the Conservation Advice document for the EMS. Natural England's formal Conservation Advice for European Marine Sites can be found via [GOV.UK](https://www.gov.uk).

*** Priority natural habitats or species**

Some of the natural habitats and species for which UK SACs have been selected are considered to be particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations. These priority natural habitats and species are denoted by an asterisk (*) in Annex I and II of the Habitats Directive. The term 'priority' is also used in other contexts, for example with reference to particular habitats or species that are prioritised in UK Biodiversity Action Plans. It is important to note however that these are not necessarily the priority natural habitats or species within the meaning of the Habitats Regulations.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 as amended from time to time (the "Habitats Regulations"). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment', including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where available) will also provide a framework to inform the measures needed to conserve or restore the European Site and the prevention of deterioration or significant disturbance of its qualifying features.

These Conservation Objectives are set for each habitat or species of a [Special Area of Conservation \(SAC\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving Favourable Conservation Status for that species or habitat type at a UK level. The term 'favourable conservation status' is defined in regulation 3 of the Habitats Regulations.

Publication date: 27 November 2018 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

Source: [European Site Conservation Objectives for Solent Maritime SAC - UK0030059 \(naturalengland.org.uk\)](https://naturalengland.org.uk)

Retrieved September 2022

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

Name:	Solent Maritime
Unitary Authority/County:	City of Portsmouth, City of Southampton, Hampshire, Isle of Wight, West Sussex
SAC status:	Designated on 1 April 2005
Grid reference:	SU756003
SAC EU code:	UK0030059
Area (ha):	11325.09
Component SSSI:	Bouldnor and Hamstead Cliffs SSSI, Chichester Harbour SSSI, Eling and Bury Marshes SSSI, Hurst Castle and Lymington River Estuary SSSI, Hythe to Calshot Marshes SSSI, King's Quay Shore SSSI, Langstone Harbour SSSI, Lee-on-the-Solent to Itchen Estuary SSSI, Lincegrove and Hackett's Marshes SSSI, Lower Test Marshes SSSI, Medina Estuary SSSI, Newtown Harbour SSSI, North Solent SSSI, Thorness Bay SSSI, Upper Hamble Estuary and Woods SSSI, Yar Estuary SSSI

Site description:

The Solent encompasses a major estuarine system on the south coast of England with four coastal plain estuaries (Yar, Medina, King's Quay Shore, Hamble) and four bar-built estuaries (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The Solent and its inlets are unique in Britain and Europe for their hydrographic regime with its double tides, as well as for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, intertidal areas that support eelgrass *Zostera* spp., sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. As well as occurring within the estuaries, mudflats and sandflats are found throughout the Solent and form the predominant intertidal substrates. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour.

Shallow sediment communities (comprising the subtidal sandbanks feature) occur around the Solent, particularly in the large harbours. They are typically colonised by a burrowing fauna of worms, crustaceans, bivalve molluscs and echinoderms. Where coarse stable material is present, species attached to the surface may include foliose algae, hydroids, bryozoans and ascidians. Mixtures of sand and associated hard substrate can lead to the presence of very rich communities. Mobile fauna at the surface of the sandbanks may include shrimps, prosobranch molluscs, crabs and fish. Shallow sandy sediments may be important nursery areas for fish and feeding grounds for seabirds.

Pioneer saltmarsh vegetation colonises intertidal mud and sandflats in areas protected from strong wave action. This habitat is dominated by open stands of glasswort *Salicornia* spp. or annual sea-blite *Suaeda maritima*. It occurs within pioneer marsh communities along the lower marsh and at the lower limits of tidal inundation, as well as in small depressions or saltpans in the upper and middle saltmarsh, or in narrow strips running along the margins of



Solent Maritime SAC UK0030059
Compilation date: May 2005 Version: 1
Designation citation Page 1 of 3

rivulets and creeks within the saltmarsh. This is one of only two sites where significant amounts of the native cordgrass species, small cord-grass *S. maritima* are found. It is also the only site for the naturalised North American species, smooth cord-grass *Spartina alterniflora* in the UK, and one of the few remaining sites for Townsend's cord-grass *S. x townsendii*. There are also extensive areas of common cord-grass *Spartina anglica* throughout the site. Thus all four cord-grass taxa occur here in close proximity.

The Solent contains the second-largest aggregation of Atlantic salt meadows in south and south-west England. The salt meadows are representative of the ungrazed type and support a range of communities dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. In general, the salt meadow is somewhat less truncated by man-made features in the Solent than other parts of the south coast. In places such as Chichester Harbour it shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland. Typical Atlantic salt meadow is still widespread in this site, despite a long history of colonisation by cord-grass *Spartina* spp.

Driftline habitats support a number of specialist plant species and can be found on a variety of coarse substrates across the Solent, including shingle beaches, shingle spits, shingle islands and chenier banks (formed by the deposition of broken shells by wave action on the saltmarsh edge). A transition is found in many areas from vegetated shingle to saltmarsh. Two important driftline communities can be identified. The first is dominated by spear-leaved orache *Atriplex prostrata* or grass-leaved orache *A. littoralis* on the seaward edge of the shingle. The second are sea sandwort *Honkenya peploides* – sea rocket *Cakile maritima* strandline communities with perennial associations of sea mayweed *Tripleurospermum maritimum*, curled dock *Rumex crispus*, sea beet *Beta vulgaris* ssp. *maritima*, sea campion *Silene uniflora* and yellow-horned poppy *Glaucium flavum*.

On more stable (typically landward) shingle or stony substrates, additional perennial species are found (these communities comprise the perennial vegetation of stony banks feature). There are at least four distinct community types present within the Solent including a specialised community characterised by hare's-foot clover *Trifolium arvense* occurring with lichens and mosses. Sites such as Calshot Spit and Chichester Harbour are important locations for this feature.

The site supports a number of coastal lagoons both on the Isle of Wight and along the Hampshire coast. This suite of lagoons provides examples of a variety of successional stages and salinity regimes including quite brackish conditions. Some of the lagoons support specialised invertebrates such as the nationally rare insensible shrimp *Gammarus insensibilis* occurring at Yar Bridge lagoon on the Isle of Wight.

The extensive sand dunes at East Head at the mouth of Chichester Harbour are dominated by marram grass *Ammophila arenaria*. There are also accreting sand dunes found at Pilsey Island in Chichester Harbour.

Desmoulin's whorl snail *Vertigo moulinsiana*, which is rare in Great Britain and usually occurs within base-rich wetlands where there are long established swamps, fens and marshes, is found in the reedbeds at the top of Fishbourne channel in Chichester Harbour.

Qualifying habitats: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- Annual vegetation of drift lines
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Coastal lagoons*
- *Spartina* swards (*Spartinion maritimae*). (Cord-grass swards)
- Estuaries
- Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats)
- Perennial vegetation of stony banks. (Coastal shingle vegetation outside the reach of waves)
- *Salicornia* and other annuals colonising mud and sand. (Glasswort and other annuals colonising mud and sand)
- Sandbanks which are slightly covered by sea water all the time. (Subtidal sandbanks)
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes). (Shifting dunes with marram)

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Desmoulin's whorl snail *Vertigo moulinsiana*

Annex I priority habitats are denoted by an asterisk (*).

This citation relates to a site entered in the Register of European Sites for Great Britain.

Register reference number: UK0030059

Date of registration: 14 June 2005

Signed: *Paul Salmon*

On behalf of the Secretary of State for Environment, Food and Rural Affairs



Solent Maritime SAC UK0030059
Compilation date: May 2005 Version: 1
Designation citation Page 3 of 3

PAS01 and PAS 02 – Solent Maritime Site Improvement Plan

Improvement Programme for England's Natura 2000 Sites (IPENS)

Planning for the Future

Site Improvement Plan

Solent

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 sites (IPENS). Natura 2000 sites is the combined term for sites designated as Special Areas of Conservation (SAC) and Special Protected Areas (SPA). This work has been financially supported by LIFE, a financial instrument of the European Community.

The plan provides a high level overview of the issues (both current and predicted) affecting the condition of the Natura 2000 features on the site(s) and outlines the priority measures required to improve the condition of the features. It does not cover issues where remedial actions are already in place or ongoing management activities which are required for maintenance.

The SIP consists of three parts: a Summary table, which sets out the priority Issues and Measures; a detailed Actions table, which sets out who needs to do what, when and how much it is estimated to cost; and a set of tables containing contextual information and links.

Once this current programme ends, it is anticipated that Natural England and others, working with landowners and managers, will all play a role in delivering the priority measures to improve the condition of the features on these sites.

The SIPs are based on Natural England's current evidence and knowledge. The SIPs are not legal documents, they are live documents that will be updated to reflect changes in our evidence/knowledge and as actions get underway. The information in the SIPs will be used to update England's contribution to the UK's Prioritised Action Framework (PAF).

The SIPs are not formal consultation documents, but if you have any comments about the SIP or would like more information please email us at IPENSLIFEProject@naturalengland.org.uk, or contact Natural England's Responsible Officer for the site via our enquiry service 0300 060 3900, or enquiries@naturalengland.org.uk

This Site Improvement Plan covers the following Natura 2000 site(s)

UK9011011	Chichester and Langstone Harbours SPA
UK9011051	Portsmouth Harbour SPA
UK9011061	Solent & Southampton Water SPA
UK0030059	Solent Maritime SAC

Site description

The Solent SIP covers the Solent Maritime SAC, Solent and Southampton Water SPA, Portsmouth Harbour SPA and Chichester and Langstone Harbours SPA.

The Solent is a complex site encompassing a major estuarine system on the south coast of England. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime with double tides, as well as for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive areas of intertidal mudflats, often supporting eelgrass *Zostera spp.* and green algae, saltmarshes and natural shoreline transitions, such as drift line vegetation.

All four species of cordgrass found within the UK are present within the Solent and it is one of only two UK sites with significant amounts of the native small cordgrass *Spartina maritima*. The rich intertidal mudflats, saltmarsh, shingle beaches and adjacent coastal habitats, including grazing marsh, reedbeds and damp woodland, support nationally and internationally important numbers of migratory and over-wintering waders and waterfowl as well as important breeding gull and tern populations.

Plan Summary

This table shows the prioritised issues for the site(s), the features they affect, the proposed measures to address the issues and the delivery bodies whose involvement is required to deliver the measures. The list of delivery bodies will include those who have agreed to the actions as well as those where discussions over their role in delivering the actions is on-going.

Priority & Issue	Pressure or Threat	Feature(s) affected	Measure	Delivery Bodies
1 Public Access/Disturbance	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1210 Annual vegetation of drift lines, H1220 Coastal shingle vegetation outside the reach of waves, Waterbird assemblage	Reduce disturbance through access management, awareness raising and wardening	Hampshire County Council, Natural England, RSPB, Southern Inshore Fisheries Conservation Authority (IFCA), Solent Forum, Harbours and ports, Solent Recreation Mitigation Partnership (SRMP), Partnership for Urban South Hampshire (PUSH)

2 Coastal squeeze	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, Waterbird assemblage	Investigate options to create alternative habitat	Environment Agency, Natural England, Eastern Solent Coastal Partnership, Southern Coastal Group (SCG), Standing Conference on Problems Associated with the Coastline (SCOPAC)
3 Fisheries: Commercial marine and estuarine	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1110 Subtidal sandbanks, H1140 Intertidal mudflats and sandflats, Waterbird assemblage	Introduce appropriate management measures where required and ensure compliance	Environment Agency, Southern Inshore Fisheries Conservation Authority (IFCA), Sussex Inshore Fisheries Conservation Authority (IFCA)

4	Water Pollution	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, Waterbird assemblage	Implement actions in the Diffuse Water Pollution Plan, and investigate further pollution	Environment Agency, Hampshire and Isle of Wight Wildlife Trust, Natural England, Ofwat, Portsmouth Water Plc, RSPB, Rural Payments Agency (RPA), Southern Water Services Ltd, Green Blue, Harbours and ports, Chichester Harbour Authority
5	Changes in species distributions	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, S1016 Desmoulin's whorl snail, Waterbird assemblage	Investigate the causes of change	Hampshire and Isle of Wight Wildlife Trust, Chichester Harbour Authority
6	Climate change	Threat	A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern	Investigate the effects of climate change	Not yet determined

7	Change to site conditions	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, S1016 Desmoulin's whorl snail, Waterbird assemblage	Investigate the reasons for change	Not yet determined
8	Invasive species	Threat	A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1110 Subtidal sandbanks, H1140 Intertidal mudflats and sandflats, H1150 Coastal lagoons, H1220 Coastal shingle vegetation outside the reach of waves, H1330 Atlantic salt meadows	Implement the management options to control invasive non-native species (INNS)	Hampshire and Isle of Wight Wildlife Trust
9	Direct land take from development	Threat	H1130 Estuaries, H1140 Intertidal mudflats and sandflats	Option appraisal for private coastal defences	Not yet determined
10	Biological Resource Use	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, Waterbird assemblage	Appropriate egg collection licensing	Not yet determined

11 Change in land management	Threat	A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1150 Coastal lagoons, H1210 Annual vegetation of drift lines, H1220 Coastal shingle vegetation outside the reach of waves, Waterbird assemblage	Ensure appropriate ditch management, and assess the effects of tidal sluice operation	Not yet determined
12 Inappropriate pest control	Threat	A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, Waterbird assemblage	Increase control of foxes	Hampshire and Isle of Wight Wildlife Trust, Hampshire County Council, Natural England, RSPB
13 Air Pollution: impact of atmospheric nitrogen deposition	Pressure	A046a(NB) Dark-bellied Brent Goose, A050(NB) Wigeon, A054(NB) Pintail, A156(NB) Black-tailed Godwit, A160(NB) Curlew, A164(NB) Common greenshank, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1130 Estuaries, H1150 Coastal lagoons, H1310 Glasswort and other annuals colonising mud and sand, H1330 Atlantic salt meadows, H2120 Shifting dunes with marram	Reduce the impacts of air pollution	Not yet determined
14 Hydrological changes	Threat	H1150 Coastal lagoons, H1320 Cord-grass swards, H1330 Atlantic salt meadows, S1016 Desmoulin's whorl snail	Review abstraction licenses	Environment Agency
15 Direct impact from 3rd party	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, Waterbird assemblage	Assess the activities and their effects	Natural England, Trading Standards Authority, Wildlife Crime Partnership

16 Extraction: non-living resources	Threat	H1110 Subtidal sandbanks, H1140 Intertidal mudflats and sandflats, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows	Investigate the extent and impact of shingle extraction	Not yet determined
17 Other	Threat	A026(NB) Little Egret, A046a(NB) Dark-bellied Brent Goose, A048(NB) Common shelduck, A050(NB) Wigeon, A052(NB) Eurasian teal, A054(NB) Pintail, A056(NB) Shoveler, A069(NB) Red-breasted Merganser, A137(NB) Ringed Plover, A141(NB) Grey Plover, A144(NB) Sanderling, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A157(NB) Bar-tailed Godwit, A160(NB) Curlew, A162(NB) Common redshank, A169(NB) Turnstone, A176(B) Mediterranean Gull, A191(B) Sandwich Tern, A192(B) Roseate Tern, A193(B) Common Tern, A195(B) Little Tern, H1110 Subtidal sandbanks, H1130 Estuaries, H1140 Intertidal mudflats and sandflats, H1220 Coastal shingle vegetation outside the reach of waves, H1310 Glasswort and other annuals colonising mud and sand, H1320 Cord-grass swards, H1330 Atlantic salt meadows, H2120 Shifting dunes with marram, S1016 Desmoulin's whorl snail, Waterbird assemblage	Consider/explore boundary change to amend the SAC / SPA designations, to include habitats outside of the existing boundaries	Natural England

APPENDIX 3: Natural England Guidance on Impact Risk Zones of SSSIs



Natural England's Impact Risk Zones for Sites of Special Scientific Interest

(For use by Local Planning Authorities to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites and determine when to consult Natural England)

User Guidance

Version: v4.0

Issue Date: 27 April 2021

Purpose: To provide guidance on the interpretation and use of the **Impact Risk Zones for Sites of Special Scientific Interest** GIS dataset available to download from the [Natural England Open Data Geoportal](#) and the [Defra Data Services Platform](#) and to use online on the [Magic website](#)

Enquiries: For further information please email the Natural England Impact Risk Zones mailbox: neirzs@naturalengland.org.uk

www.gov.uk/natural-england

SSSI Impact Risk Zones User Guidance

Impact Risk Zones for Sites of Special Scientific Interest

Purpose of the Impact Risk Zones for SSSIs

As the government's conservation advisory body, Natural England has a number of statutory duties and general responsibilities in relation to SSSIs. These include providing advice to local planning authorities (LPAs) and developers on the potential impacts of development on SSSIs to ensure their protection and enhancement in line with the policies in the NPPF and development plans.

The Impact Risk Zones (IRZs) are a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. The IRZs also cover the interest features and sensitivities of European sites, which are underpinned by the SSSI designation and "Compensation Sites", which have been secured as compensation for impacts on European /Ramsar sites.

Local planning authorities (LPAs) have a duty to consult Natural England before granting planning permission on any development that is in or likely to affect a SSSI. The SSSI IRZs can be used by LPAs to consider whether a proposed development is likely to affect a SSSI and determine whether they will need to consult Natural England to seek advice on the nature of any potential SSSI impacts and how they might be avoided or mitigated. The IRZs do not alter or remove the requirements to consult Natural England on other natural environment impacts or other types of development proposal under the Town and Country Planning (Development Management Procedure) (England) Order 2015 and other statutory requirements - see the [gov.uk](https://www.gov.uk) website for further information.

The SSSI IRZs can be used by developers, consultants and members of the public, who are preparing to submit a planning application. They will help them to consider whether a proposed development is likely to affect a SSSI and choose whether to seek pre-application advice from Natural England. This will allow any potential impacts to be taken into account within the planning application and so minimise the risk of delays at the formal planning stage. Further information on Natural England's pre-application Discretionary Advice Service (DAS) is available on the [gov.uk](https://www.gov.uk) website.

Access to the data and further information

The SSSI IRZ dataset can be downloaded in various formats or accessed via API from the [Natural England Open Data Geoportal](https://data.naturalengland.org.uk/) and the [Defra Data Services Platform](https://data.defra.gov.uk/) and used in combination with other spatial data in the users GIS. It is also available to use online on [Magic](https://magic.naturalengland.org.uk/). We have set up an Impact Risk Zones team on Microsoft (MS) Teams, a secure online collaboration and file sharing platform, to allow us to share data, news and information about the SSSI IRZs with colleagues within and outside of Natural England. Team members and guests will receive a notification when an update has taken place and there is an area to post questions and answers.

If you would like to join the IRZs team on MS Teams, or require further information and/or advice on the SSSI IRZs please email the NE Impact Risk Zones mailbox: neirzs@naturalengland.org.uk.

Update of the SSSI Impact Risk Zone Dataset

The SSSI IRZ Dataset is updated regularly to reflect improvements in our evidence and understanding of the sensitivities and potential risks to SSSIs. Updates are undertaken every two months and users should ensure that they are always using the most up to date version of the dataset.

SSSI Impact Risk Zones User Guidance

Appendix 1 – Flow Chart

Step by step guide to using the SSSI IRZs Dataset

Switch on the SSSI IRZs layer, zoom to the location of the proposed development and interrogate the SSSI IRZs layer at that location.

If using the SSSI IRZs on Magic, set the map scale to 1:10,000 and use the Identify tool to click on the map at the location of the proposed development. To define an area of interest, use the Site Check tool.

The area of a proposed development may coincide with more than one SSSI IRZ and care should be taken to ensure all IRZs are checked and all potential risks are identified.



The results table will show a list of development categories in the left hand margin with a corresponding development description in the right hand margin. In some areas there is also a Note.



Does the nature and scale of the proposed development match one or more of the development descriptions listed in the right hand margin of the results table alongside a development category?

YES

The proposed development has the potential to impact upon a SSSI.

The Local Planning Authority should consult Natural England for advice on how impacts might be avoided or mitigated.

Consultations should be sent to consultations@naturalengland.org.uk

If you are a developer, consultant or member of the public preparing to submit a planning application, Natural England can be consulted for pre-application advice on how impacts might be avoided or mitigated.

See the [gov.uk](https://www.gov.uk) website for further information on our pre-application discretionary advice service (DAS).

NO

Is there a Note that contains advice relevant to the proposed development?

YES

The proposed development has the potential to impact upon a SSSI.

The Note provides additional advice that should be followed.

NO

The proposed development is unlikely to pose a risk to SSSIs.

The Local Planning Authority does not normally need to consult Natural England on this proposal regarding likely impacts on SSSIs (but see **Important Notes** on the following page).

SSSI Impact Risk Zones User Guidance**Appendix 1 – Flow Chart****Important Notes**

1. The SSSI IRZs do not currently cover potential risks from coastal schemes such as coastal defences, cliff stabilisation, cross beach structures, harbour and marina development. Natural England should be consulted on any such development which is likely to affect a coastal SSSI.
2. The SSSI IRZs seek to guide consultations relating to the likely impacts of development on SSSIs under Schedule 4 (w) of the Town and Country Planning (Development Management Procedure) (England) Order 2015 and section 28I of the Wildlife and Countryside Act 1981 (as amended). They do not alter or remove the requirements to consult Natural England on other natural environment impacts or other types of development proposal under the Town and Country Planning (Development Management Procedure) (England) Order 2015 and other statutory requirements.
3. It is important to note that the SSSI IRZs only indicate Natural England's assessment of likely risk to the notified features of SSSIs. Where they indicate such a risk is unlikely, this does not mean that there are no potential impacts on biodiversity or the wider natural environment.

Questions and Answers

Purpose and Use

What are Natural England's SSSI IRZs?

The SSSI IRZs are a GIS tool/dataset. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

How does Natural England use the SSSI IRZs?

Natural England is a statutory consultee on development proposals that might impact on SSSIs. When a consultation is received, the SSSI IRZs are used to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. This allows Natural England to quickly determine which consultations are unlikely to pose risks and which require more detailed consideration.

How can Local Planning authorities use the SSSI IRZs?

Local Planning Authorities (LPAs) have a duty to consult Natural England before granting planning permission on any development that is in or likely to affect a SSSI. The SSSI IRZs can be used by LPAs to consider whether a proposed development is likely to affect a SSSI and determine whether they will need to consult Natural England to seek advice on the nature of any potential SSSI impacts and how they might be avoided or mitigated. For a step-by-step guide to using the SSSI IRZs see the flow chart in [Appendix 1](#).

Do the SSSI IRZs reflect the interest features and sensitivities of European sites?

European sites are underpinned by the SSSI designation and their interest features and sensitivities are covered by the SSSI IRZs. Where the notified features of the European site and SSSI are different, the SSSI IRZs have been set so that they reflect both. The SSSI IRZs can therefore be used as part of a Habitats Regulations Assessment (HRA) to help determine whether there are likely to be significant effects from a particular development on the interest features of the European site. The SSSI IRZs also cover "Compensation Sites" which have been secured as compensation for impacts on European/Ramsar sites. Each Compensation Site has been given the same IRZs as the European/Ramsar site(s) it is providing compensation for.

Do the IRZs alter the arrangements to consult Natural England?

The IRZs seek to guide consultations relating to the likely impacts of development on SSSIs under Schedule 4 (w) of the Town and Country Planning (Development Management Procedure) (England) Order 2015 and section 281 of the Wildlife and Countryside Act 1981 (as amended). They do not alter or remove the requirements to consult Natural England on other natural environment impacts or other types of development proposal under the Town and Country Planning (Development Management Procedure) (England) Order 2015 and other statutory requirements.

For further information on when to consult Natural England on planning proposals see the [gov.uk](https://www.gov.uk) website.

All consultations should be sent to consultations@naturalengland.org.uk.

SSSI Impact Risk Zones User Guidance

Appendix 2 – Q&A

How can developers, consultants and members of the public use the SSSI IRZs?

The SSSI IRZs can be used by developers, consultants or members of the public, who are preparing to submit a planning application. They will help them to consider whether a proposed development is likely to affect a SSSI and choose whether to seek pre-application advice from Natural England. This will allow any potential impacts to be taken into account within the planning application and so minimise the risk of delays at the formal planning stage.

For a step-by-step guide to using the SSSI IRZs see the flow chart in [Appendix 1](#).

Further information on Natural England's pre-application Discretionary Advice Service (DAS) is available on the [gov.uk](https://www.gov.uk) website.

What types of development are covered by the SSSI IRZs?

Potential impacts from most types of development requiring planning permission are covered by the SSSI IRZs. One important exception is any development proposal with the potential to impact on coastal processes. The SSSI IRZs do not currently cover potential risks from coastal schemes such as coastal defences, cliff stabilisation, cross beach structures, harbour and marina development. Natural England should be consulted on any coastal scheme which is likely to affect a coastal SSSI.

What does it mean when a development is indicated by the SSSI IRZs?

If the development descriptions in the SSSI IRZs at a chosen location match the nature and scale of a proposed development, this indicates the potential for impact and means that more detailed consideration is required. In this case Natural England should be consulted for advice on any potential impacts on SSSIs and how these might be avoided or mitigated.

What does it mean when there is advice in the Notes field(s)?

A Note in the SSSI IRZs at a chosen location provides additional advice for particular development types that should be followed. It does not remove the requirement to consult Natural England where other SSSI IRZs indicate consultation is necessary.

What does it mean when a development is not indicated by the SSSI IRZs?

If the development descriptions in the SSSI IRZs at a chosen location do not match the nature and scale of a proposed development and there is no relevant advice in the Notes fields, this signifies that the development, as proposed, is unlikely to pose a significant risk to the notified features of any SSSI(s) and normally no further consultation with Natural England regarding likely effects on SSSIs is required (see *Coastal Schemes* exception above).

When using the SSSI IRZs and interpreting the information they provide, it is important to note that they only indicate Natural England's assessment of likely risk to the notified features of SSSIs. Where they indicate such a risk is unlikely, this does not mean that there are no potential impacts on biodiversity or the wider natural environment.

SSSI Impact Risk Zones User Guidance

Appendix 2 – Q&A

Maintenance and Development**How often is the SSSI IRZ dataset updated?**

A new version of the dataset is uploaded onto the [Natural England Open Data Geoportal](#), [Defra Data Services Platform](#) and [Magic](#) every two months.

Do the SSSI IRZs reflect the site specific sensitivities of each SSSI?

Yes. The SSSI IRZs for each SSSI have been drawn to reflect the specific features for which the site is notified. Natural England's local team staff have reviewed the SSSI IRZs and where necessary the IRZs have been varied to reflect locally specific site sensitivities. Ensuring that the SSSI IRZs continue to reflect our understanding of locally specific site sensitivities is an ongoing process which will depend on the input of Natural England's area teams and our local partners.

Do the SSSI IRZs take into account local circumstances?

Yes. Natural England's local team staff have reviewed the SSSI IRZs and where necessary the IRZs have been varied to reflect specific local circumstances such as known water quality issues or particular development pressures. Ensuring that the SSSI IRZs continue to reflect local circumstances is an ongoing process which will depend on the input of Natural England's area teams and our local partners.

How are the SSSI IRZs kept up to date with emerging evidence and improvements of our understanding of SSSI sensitivities?

Natural England's specialists continue to review the evidence and advise the IRZ project on changes required to ensure the IRZs reflect our current understanding of SSSI sensitivities. We also welcome input from Natural England's area teams and their local partners, and encourage them to contribute to the update and development of SSSI IRZs in their area.

What can I do if I think the IRZs of a particular SSSI do not accurately reflect the sensitivities of the site?

Ensuring that the SSSI IRZs continue to reflect our current understanding of specific site sensitivities is an ongoing process which will depend on the input of Natural England's specialists, area teams and our local partners. If you think the IRZs for one or more SSIs need to be reviewed and/or updated you should either speak to the area team IRZ lead or contact the IRZ project team directly through the Impact Risk Zones mailbox: neirzs@naturalengland.org.uk.

What can I do if I think that the potential impacts of a particular type of development are not adequately reflected in the SSSI IRZs?

Ensuring that the SSSI IRZs continue to reflect our current understanding of the potential risks posed to SSIs by different types of development is an ongoing process which will depend on the input of Natural England's specialists, area teams and our local partners. If you think there is a significant risk which is not reflected in the SSSI IRZs you should contact the IRZ project team directly through the Impact Risk Zones mailbox: neirzs@naturalengland.org.uk.

SSSI Impact Risk Zones User Guidance

Appendix 3 – Attribute Data

Attribute Data for SSSI Impact Risk Zones

The table below illustrates the structure of the attribute data table and sets out the development categories and descriptions used in the dataset. It also explains why Natural England is concerned about the different types of development reflected in the SSSI IRZs.

Development Category	GIS Attribute Field Name	Example Description: the nature and scale of development proposals at the given location which have the potential to impact on an SSSI. Where a proposal meets the description consult NE for further advice.	Why is Natural England concerned about this type of development?
All Consultations	AllConsult	ALL PLANNING APPLICATIONS - Text may be qualified to exclude householder applications or applications in existing settlements/urban areas that do not impact on greenspace, farmland or semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.	All developments within or in very close proximity to SSSIs present a range of risks of direct impacts. Extending further from the sites, potential impacts on Great Crested Newts (GCN), bats and birds are also reflected in this category, as they travel several kilometres from SSSIs to breed, roost, forage etc. Proposed developments outside or on the edge of existing settlements/urban areas can result in increased light pollution, loss or fragmentation of greenspace and loss or disturbance of functional habitat, all of which can affect these species.
Infrastructure	Infrastruc	Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals - Description may vary to include/exclude one or all of the above.	Pipelines, pylons and overhead cables can create a collision risk for birds and the footprint of the construction can affect local water supplies, which the SSSIs depend on. An increase in road traffic as a result of new or extended roads can cause local air pollution impacts and significant transport infrastructure projects can have impacts on water supply mechanisms, especially by introducing new drainage. New or extended aviation proposals can cause disturbance to birds, as well as collision with birds. Increased air traffic also has the potential for significant air pollution.
Wind & Solar Energy	WindSolar	Solar schemes with a footprint >0.5ha, all wind turbines - Description may vary to include/exclude one of the above.	Wind turbines can cause collision impacts and disturbance for birds. Solar schemes can impact on functional land outside SSSIs which birds depend on for feeding.
Minerals, and Gas	Oil	MinOilGas Planning applications for quarries – including new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction - Text may be qualified to exclude applications in existing settlements/urban areas that do not impact on greenspace, farmland or semi natural habitats.	These types of development often involve water abstraction, which can affect local water supplies that designated sites depend on. Waste drilling fluids that are returned to the surface may contain gases and other contaminants, which may be treated and discharged either to the ground to filter away from the site, or into a nearby watercourse. If the treated water flows towards a SSSI, it has the potential to impact on water quality sensitive features. Site activities and spoil generation can create dust or particles, which can physically smother leaves or be toxic to habitats and species on SSSIs. Flaring may give rise to local elevated levels of particulates, local ozone formation and NOx emissions. The development footprint and site activities can result in loss or fragmentation of greenspace and loss or disturbance to functional habitat, which birds depend on for feeding. Vibration from drilling can affect geological features.
Rural Non Residential	RuralNonRe	Any non-residential development outside of existing urban areas where net additional gross internal floorspace following development is 30m² or more - Description may vary to specify different area thresholds.	Rural non-residential developments can impact on water quality, cause disturbance to birds and impact on functional land outside SSSIs, which they depend on for feeding.
Residential	Residentia	Any residential developments with a total net gain in residential units - Description may vary to specify thresholds for numbers of residential units.	New residential developments can impact water supply mechanisms, water quality and functional land outside SSSIs, which birds depend on for feeding. New houses also mean more people, which can increase disturbance to birds, and put more recreational pressure on sensitive sites.
Rural Residential	RuralResid	Any residential developments outside of existing settlements/urban areas with a total net gain in residential units - Description may vary to specify thresholds for numbers of residential units.	Rural housing developments can impact on catchments of water dependent and water quality sensitive SSSIs and on functional land outside site boundaries which SSSI birds depend on for feeding. New houses also mean more people, which can increase disturbance to birds, and put more recreational pressure on sensitive sites.
Air Pollution	AirPolluti	Any development that could cause AIR POLLUTION or DUST either in its construction or operation (incl: industrial/commercial processes and agricultural developments such as livestock & poultry units, manure/slurry stores) - Description may vary to include/exclude one or all of the above and to specify different area/weight thresholds.	Emissions from many different types of development can cause air pollution and/or dust affecting the habitats and species on SSSIs. Dust or particles can fall onto plants and physically smother the leaves, affecting photosynthesis, respiration, transpiration and leaf temperature. There may also be toxicity issues (caused by heavy metals particles) and potential changes in pH (particularly if the dust is alkaline (e.g. cement dust)). Lichens can be directly affected by the dust (shading, chemical effects) or by changes in bark chemistry.
Combustion	Combustion	All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion - Description may vary to specify thresholds for energy input.	Emissions from combustion can cause air pollution affecting the habitats and species on SSSIs. More than 500m away from a SSSI, only combustion processes over a certain minimum size are likely to have an impact. A very large project and could cause air pollution on SSSIs up to 10km away.
Waste	Waste	Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management - Description may vary to specify particular type of waste proposal.	Landfill and waste treatment can cause air pollution and affect local water supplies, which designated sites depend on. Landfill sites attract large numbers of gulls which can impact on birds (Predation). An MBWT plant can generate significant amounts of ammonia. At high concentrations ammonia is toxic to vegetation; it also deposits to ecosystems and causes nitrogen enrichment and acidification of soils and freshwaters.
Composting	Compost	Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management - Description may vary to specify thresholds for throughput in tonnes.	Emissions of ammonia from composting units can make a significant contribution to nitrogen deposition near to a sensitive site and cause severe localised impacts on semi-natural habitats as well as contributing to regional nitrogen deposition. More than 500m away from a SSSI, the amount of material composted needs to be over a certain amount to be likely to have an impact.
Discharges	Discharge	Any discharge of water or liquid waste that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream - Description may vary to specify volume thresholds for discharges or to include discharges to main sewer.	Most foul water is removed from a development site by a mains sewer. Where this is not the case, foul water is usually treated on site and then discharged either to ground to filter away from the site, or into a nearby watercourse. If the treated water flows towards a SSSI, it has the potential to impact on water quality sensitive features.
Water Supply	Water_Sply	Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1000m² or any development needing its own water supply (eg remote rural housing) - Description may vary to include/exclude one of the above.	Large non-residential developments can have an impact on water supply mechanisms to SSSIs and rural housing developments, especially remote ones, can need their own water supply, such as an abstraction borehole or spring, which can affect water dependent SSSIs.
NOTES	NOTES_1	These fields will be populated where there is additional planning policy/guidance that planners/developers need to be aware of. It does not alter or remove the requirement to consult Natural England when other SSSI IRZs indicate consultation is necessary.	
	NOTES_2		