Report

Habitats Regulations Assessment of the North Dorset Core Strategy and Development Management Policies DPD Preferred Options

Durwyn Liley, Rachel Hoskin, Jim White, Sophie Lake, John Underhill-Day, David Tyldesley & Joanna Sharp

Forest Office
Cold Harbour
Wareham
Dorset BH20 7PA
Tel/Fax: 01929 552444
info@footprint-ecology.co.uk

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www.footprint-ecology.co.uk

Version: Habitats Regulation Assessment of Draft Core Strategy and Draft Development Management Policies.
Date: 4th January 2009
Recommended citation: Liley, D., Hoskin, R., White, J., Lake, S., Underhill-Day, J., Tyldesley, D. & Sharp, J. (2009). Habitats Regulations Assessment of the North Dorset Core Strategy and Development Management Policies DPD. Preferred Options. Footprint Ecology.

DAVID TYLDESLEY AND ASSOCIATES
PLANNING, LANDSCAPE AND ENVIRONMENTAL CONSULTANTS

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Summary

The aim of this assessment is to identify any areas where there are likely significant effects to the Natura 2000 sites and assess these in detail. This will influence the development of the submission draft of the Core Strategy, ensuring that any elements of the plan where there is a likelihood of a significant effect on any European site are assessed and that where necessary appropriate amendments are applied or alternative options pursued.

A full check for likely significant effects at preferred options stage is set out and we consider the following issues in detail within the appropriate assessment part of this report:

- Impacts of recreation and housing on the Dorset Heaths (Dorset Heaths SAC, Dorset Heathlands SPA/Ramsar)
- Impacts from recreation on chalk grassland sites (Fontmell and Melbury Downs SAC, Cerne and Sydling Downs SAC and Salisbury Plain SAC/SPA)
- Impacts of recreational pressure on coastal / estuarine sites (Poole Harbour SPA/Ramsar Chesil and the Fleet SAC / SPA; Isle of Portland to Studland Cliffs SAC; Dorset Heaths (Purbeck & Studland) and Studland Dunes SAC).
- Impacts of increased recreational pressure on the New Forest (New Forest SAC/SPA/Ramsar)
- Water issues: abstraction and water quality issues relating in particular to Rooksmoor SAC, the Avon Valley sites (SAC/SPA/Ramsar), Fontmell and Melbury Downs SAC.
- Air quality issues for sites within 200m of roads (Rooksmoor SAC and Fontmell and Melbury Downs SAC)
- Implications of increased traffic on the management of Lydlinch Common (Rooksmoor SAC).

We identify adverse effects on integrity relating to increased recreational pressure to:

- the Dorset Heaths SAC, Dorset Heathlands SPA/Ramsar,
- Fontmell and Melbury Downs SAC,
- the New Forest SAC/SPA/Ramsar
- Poole Harbour SPA/Ramsar.

These sites are mostly outside of the District and located away from the main centres of new development within the core strategy. For many of the sites the impacts from increased recreation will occur in-combination with development in other nearby districts.

Adverse effects on integrity relating to air quality as a result of increased traffic are addressed for Rooksmoor SAC and Fontmell & Melbury Downs SAC. Road traffic issues have further implications for Rooksmoor SAC and we are unable to rule out an adverse affect on the integrity of the site as a result of road traffic increases hindering the future management of the site.

For most of the adverse effects we identify, mitigation measures are possible but these need securing prior to the core strategy being finalised. In particular further work is needed to clarify the level of impact associated with air quality and for the management of Lydlinch Common.

Contents

1 Introduction 6
1.1 Overview of process to date 6
1.2 Background to the Habitats Regulations Assessment 6
1.3 Outline of the Habitats Regulations Assessment process 7
2 European Sites Potentially Affected by the Core Strategy 11
2.2 Sites Within the District 15
Fontmell and Melbury Downs SAC 15
Rooksmoor SAC 15
2.3 Sites Outside the District 15
Holnest SAC 16
Dorset Heaths SAC, Dorset Heathlands SPA/Ramsar site and Dorset Heaths (Wareham and Purbeck) and Studland Dunes SAC 16
Cerne & Sydling Downs SAC 20
Poole Harbour SPA and Ramsar 21
Prescombe Down SAC 23
West Dorset Alder Woods SAC 24
River Avon SAC/Avon Valley SPA/Ramsar 25
Chilmark Quarries SAC 26
Isle of Portland to Studland Cliffs SAC 26
Bracket's Coppice SAC 28
Mendip Woodlands SAC 28
Salisbury Plain SAC / SPA 28
Great Yews SAC 29
Mells Valley SAC 30
The New Forest SPA / SAC / Ramsar 30
Chesil and the Fleet SAC 31
3 Screening for the likelihood of significant effects 33
3.2 Screening Outcomes 33
4 Impacts of housing on the Dorset Heaths (Dorset Heaths SAC/SPA/Ramsar) 36
4.1 Introduction 36
4.2 Disturbance to Annex I birds 38
Nightjars *Caprimulgus europaeus* 38
Woodlark *Lullula arborea* 39
Dartford warbler *Sylvia undata* 39
4.3 Trampling and disturbance to other species 40
4.4 Dog fouling 40
4.5 Fire risk to heathland 41
4.6 Other urban effects 41
4.7 Functional links and the connectivity between North Dorset and the European Heathland Sites 42
4.8 Mitigation 45
5 Impacts from recreation on chalk grassland sites (Fontmell and Melbury Downs SAC, Cerne and Sydling Downs SAC and Salisbury Plain SAC/SPA) 48
5.1 SAC interest features 48
5.2 Impacts 48
Effects of trampling 48
Effects of nutrient input 49
5.3 Summary of Impacts 50
5.4 Mitigation 50

5.5 Conclusions 51
6 Impacts of recreational pressure on coastal / estuarine sites (Poole Harbour SPA/Ramsar, Chesil and the Fleet SAC / SPA; Isle of Portland to Studland Cliffs SAC; Dorset Heaths (Purbeck & Studland) and Studland Dunes SAC.) 52
6.1 Introduction 52
6.2 Poole Harbour: current use and likely impacts 52
6.3 Studland Dunes 54
6.4 Other Coastal Sites 55
6.5 Mitigation 56
6.6 Conclusions 56
7 Impacts of increased recreational pressure on the New Forest (New Forest SAC/SPA/Ramsar) 58
7.2 Mitigation 59
7.3 Conclusions 59
8 Impacts of increased housing on water quality 60
8.2 Sewage discharges 63
8.3 Conclusions 64
9 Air quality (with particular reference to Rooksmoor SAC and Fontmell & Melbury Downs SAC) 65
9.2 Mitigation 67
9.3 Conclusions 68
10 Long term management of Rooksmoor SAC in relation to roads and traffic 69
10.2 Marsh Fritillaries at Lydlinch 69
10.3 Options for management 69
10.4 The future and links to North Dorset Core Strategy 73
10.5 Mitigation 74
10.6 Conclusions 74
Appendix 1 76
Appendix 2: Screening of draft Preferred Options, July 2009. 81
Appendix 3: Revised Screening of Final Preferred Options (Version provided by N. Dorset District Council 18/12/09) 94
Appendix 4 Consultee comments on the working draft of the HRA 102
References 106

Acknowledgements

This Habitat Regulations Assessment was commissioned by North Dorset District Council and we are grateful to Amanda Ford and Trevor Warrick for their support.

Various people have commented and provided additional information. We are grateful to the following:
Chris Catterall (Buro Happold Ltd.), Jon Dare-Williams (Buro-Happold Ltd.), Stephen Hardy (Dorset County Council), Rob Keane (Natural England), John Stobart (Natural England), Sarah Williams (Dorset Wildlife Trust), Kate Tunks (Dorset County Council).

1 Introduction

1.1 Overview of process to date

1.1.1 In June 2007 North Dorset District Council published its Issues and Alternative Options Paper for consultation after a very early issues consultation in 2005. This was the beginning of the development of the Core Strategy for the district, and provided an early opportunity for public involvement in the development of the plan. Following this consultation, the Council has considered the consultation responses, and started to formulate preferred options for the Draft Core Strategy, based upon those responses, and also giving due consideration to the emerging findings of the Sustainability Assessment. In accordance with current Government direction, the North Dorset Core Strategy Document will now also incorporate its suite of Development Management Polices, which provide the policy detail and direct guidance for development to ensure that the district is developed in a sustainable way that achieves the vision and objectives of the Core Strategy in accordance with the overarching development principles of the Core Strategy policies.

1.2 Background to the Habitats Regulations Assessment

1.2.1 The Conservation (Natural Habitats &c.) Regulations 1994, normally referred to as the 'Habitats Regulations,' transpose the requirements of the European Habitats Directive 19921 into UK law[1]. The EC Habitats Directive and UK Habitats Regulations afford protection to plants, animals and habitats that are rare or vulnerable in a European context.

1.2.2 Earlier European legislation, known as the Birds Directive 1979[2], protects rare and vulnerable birds and their habitats and includes the requirement for all Member States to classify 'Special Protection Areas' (SPA) for birds. This involves each State identifying the most suitable areas of land, water and sea for the protection of rare and vulnerable species listed in the Directive, and areas which are important for migratory species, such as large assemblages of waterfowl.

1.2.3 The Habitats Directive increased the protection afforded to plants, habitats and animals other than birds, through stricter protection of species and by the creation of 'Special Areas of Conservation' (SAC). This required each State, working in bio-geographical regions, to designate the best areas for habitats and species listed in annexes to the Directive. Article 6(1) and (2) of the Habitats Directive impose duties on Member States to establish ecological conservation management measures for these areas, to avoid deterioration of their natural habitats and the habitats of species, and to avoid significant disturbance of the species in the areas.

1.2.4 Importantly, by virtue of Article 7 of the Habitats Directive, the procedures relating to the protection of SAC equally apply to SPA. Article 7 of the Habitats Directive

[1] Council Directive on the conservation of natural habitats and of wild fauna and flora of 21st May 1992 (92/43/EEC)
[2] Council Directive on the conservation of wild birds of 2nd April 1979 (70/409/EEC)

supersedes the previous requirements of the first sentence of Article 4(4) of the Birds Directive.

1.2.5 It should be noted that SPAs and SACs include European Marine Sites, which are designated sites below Highest Astronomical Tide. In addition, European Offshore Marine Sites (EOMS) are also part of the suite of internationally protected sites. Although outside the direct jurisdiction of local planning authorities, there is the potential for indirect effects upon European Offshore Marine Sites as a result of plans or projects under local planning authority control.

1.2.6 The UK is also a contracting party to the Ramsar Convention[3]. This is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. In order to ensure compliance with the requirements of the Convention, the UK Government expects all competent authorities to treat listed Ramsar sites as if they are part of the suite of designated European sites, as a matter of policy[4].Most Ramsar sites are also a SPA or SAC, but the Ramsar features and boundary lines may vary from those for which the site is designated as a SPA or SAC. Collectively proposed and classified SPA, SAC and EOMS are referred to in this assessment as European sites. Article 6(3) and (4) of the Habitats Directive, and Regulations 48 and 85A – 85F of the Habitats Regulations, impose duties on all public bodies to follow strict regulatory procedures in order to protect the European sites from the effects of plans or projects.

1.2.7 Until recently, the assessment of the potential effects of a spatial or land use plan upon European sites was not considered a requirement of the Habitats Directive. A judgment of the European Court of Justice[5] required the UK to extend the requirements of Article 6(3) and (4) of the Directive to include the assessment of the potential effects of spatial and land use plans on European sites. The Habitats Regulations have been amended accordingly[6].

1.3 Outline of the Habitats Regulations Assessment process

1.3.1 The Habitats Regulations Assessment procedure is outlined in Figure 1 below, which illustrates the method of assessment in accordance with Regulation 85B. The site(s) affected could be in or outside the relevant plan area. Depending on the outcome of the Habitats Regulations Assessment, the LPA may need to amend the plan to eliminate or reduce potentially damaging effects on the European site.

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[3] Convention on wetlands of international importance especially as waterfowl habitat, Ramsar, Iran, 2/2/71 as amended by the Paris protocol of 3/12/92 and the Regina amendments adopted at the extraordinary conference of contracting parties at Regina, Saskatchewan, Canada 28/5 – 3/6/87, most commonly referred to as the 'Ramsar Convention.'

[4] Office of the Deputy Prime Minister, 2005, *Planning Policy Statement 9, Biodiversity and Geological Conservation*, paragraph 6.

[5] ECJ case C-6/04, *Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland,* 20th October 2005.

[6] The addition of Part IVA (Regulations 85A-85E) to the Habitats Regulations in 2007, under the title "*Appropriate Assessments for Land Use Plans in England and Wales*".

1.3.2 Habitats Regulations Assessment should be an iterative process, informing the refinement of plan options as the plan develops. Where an option is highlighted to be likely to have a significant effect, the potential for modification of the option is considered, or an alternative option may be pursued. In this sense, the Habitats Regulations Assessment is similar to the Sustainability Appraisal process, which seeks to ensure that the plan pursues the most sustainable options to ensure it is in accordance with the principles of sustainable development. The assessment of plans under the provisions of the Habitats Regulations does however differ in the flexibility of approach. Whilst sustainability appraisal will balance the needs of environmental, social and economic sustainability, the Habitats Regulations Assessment follows strict tests to ensure the protection of European sites, and does not normally consider the balance of social or economic needs. In exceptional circumstances, where mitigation cannot prevent harm, a plan may be given effect in accordance with Regulations 85C to 85E, where there are no alternative solutions that would have a lesser effect and there are imperative reasons of overriding public interest sufficient to justify adopting the plan despite its effects on the European site(s).

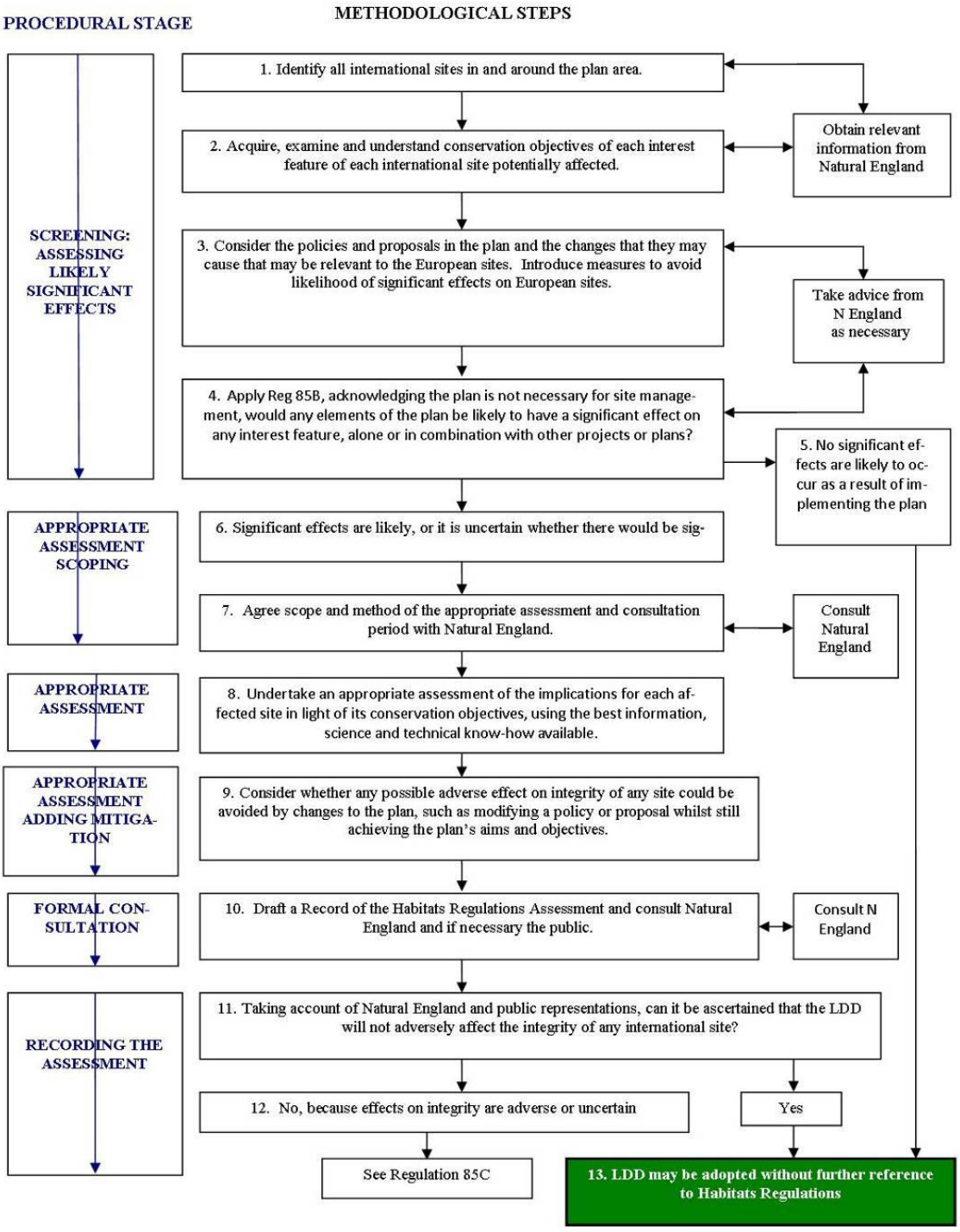


Figure 1: Outline of the different stages within a Habitats Regulations Assessment

1.3.3 The Government is likely to expect that a plan will only need to proceed by way of these later tests in the most exceptional circumstances because a LPA should, where necessary, adapt the plan as a result of the Habitats Regulations Assessment, to ensure that it will not adversely affect the integrity of any European site. The considerations of Regulations 85C to 85E are not applicable in this case.

1.3.4 It will be seen that the key stages are evidence gathering, checking for the likelihood of significant effects, and then the 'Appropriate Assessment' of elements of the plan where a likelihood of significant effects cannot be ruled out, followed by the introduction mitigation measures, the final consultation and recording the assessment upon completion.

1.3.5 This Habitats Regulations Assessment has taken account of published guidance and good practice:

- Department for Communities and Local Government, 2006, Planning for the Protection of European Sites: Appropriate Assessment under The Conservation (Natural Habitats &c) (Amendment) (England and Wales) Regulations 2006: Guidance for Regional Spatial Strategies and Local Development Documents;
- Office of the Deputy Prime Minister (ODPM), Circular 6/2005, Department for Environment Food and Rural Affairs Circular 1/2005, Biodiversity and Geological Conservation: Statutory obligations and their impact within the planning system;
- Royal Society for the Protection of Birds, 2007, The Appropriate Assessment of Spatial Plans in England: A guide to why, when and how to do it.

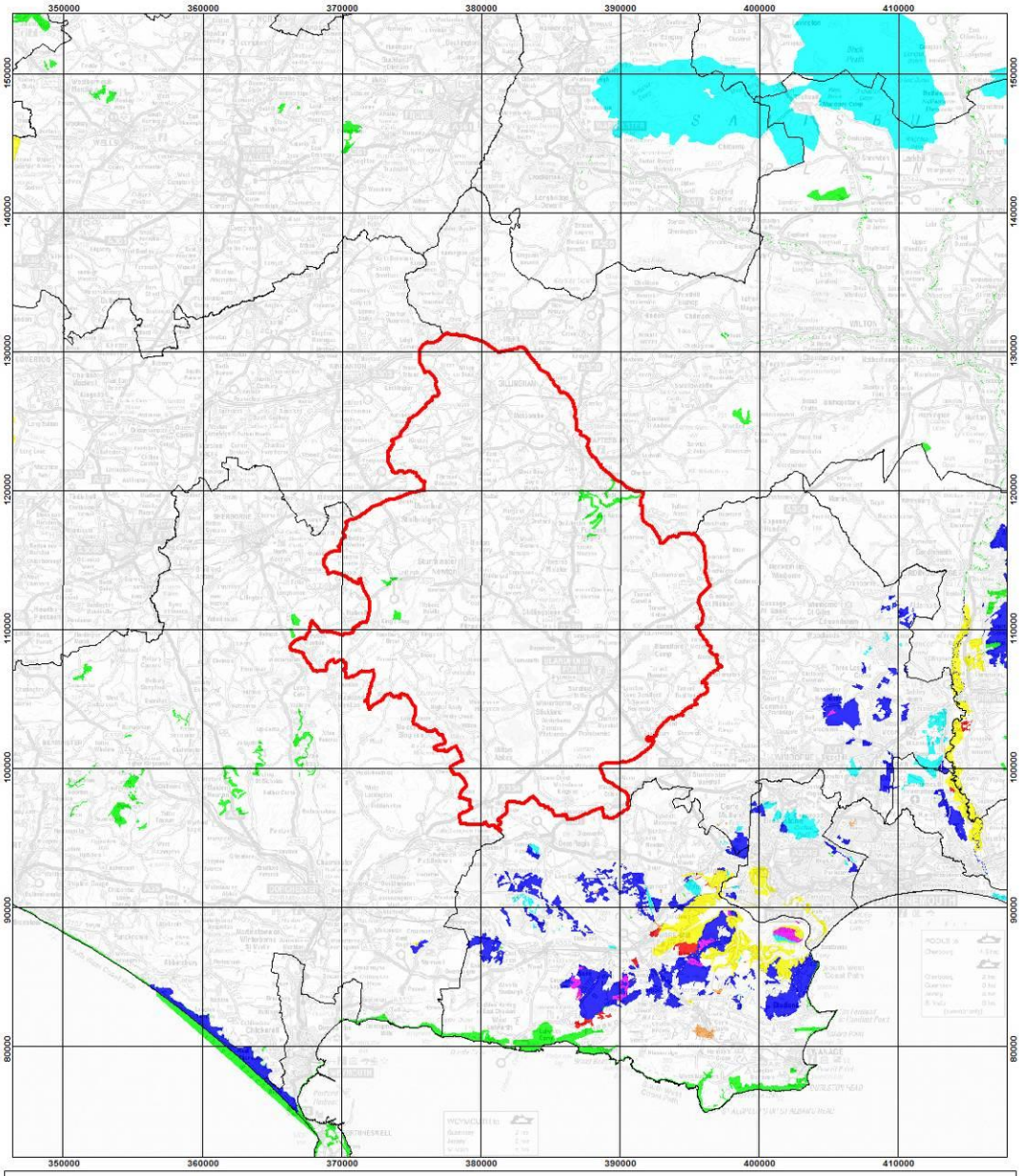
2 European Sites Potentially Affected by the Core Strategy

2.1.1 European sites both inside and outside of the District are considered because impacts such as water abstraction, waste water discharge and increased recreation could have effects well beyond the District boundary, and it is necessary to identify all functional links between with North Dorset District and the different European sites. In this chapter we set the context and describe all potentially relevant sites within the District and beyond. These sites are summarised in Table 1, which includes all sites within a 20km radius of the District (we have used 20km as an initial area of search).

Table 1: European Sites in and around North Dorset District, entirely or partly within 20km of the District Boundary. The approximate distance is the shortest distance from the District to the nearest part of the relevant site's boundary. Where multiple designations occur in a row then it is the nearest that is used.

SAC	SPA	Ramsar	Approx. distance from District boundary (km)
Fontmell & Melbury Downs			Within boundary
Rooksmoor			Within boundary
Holnest			0.15
Dorset Heaths, Dorset heaths (Purbeck and Wareham) and Studland Dunes	Dorset Heaths	Dorset Heathlands	2.1
Cerne and Sydling Downs			2.9
	Poole Harbour	Poole Harbour	6.7
Prescombe Down			8.6
West Dorset Alder Woods			8.6
River Avon	Avon Valley	Avon Valley	10.4
Chilmark Quarries			11.8
Isle of Portland to Studland Cliffs			14.3
Bracket's Coppice			13.7
Mendip Woodlands			14.9
Salisbury Plain	Salisbury Plain		16.5
Great Yews			17.2
Mells Valley			17.3
The New Forest	New Forest	New Forest	18.9
Chesil and the Fleet			19.9

2.1.2 Further information, summarising the reasons for designation and interest features of the sites in Table 1 are given in Appendix 1. The spatial relationship between the designated sites and the District are shown in Maps 1 and 2. The rest of this section describes the relevant protected sites and provides an overview of current issues affecting them.



Map 1: European designations of sites within and surrounding North Dorset District
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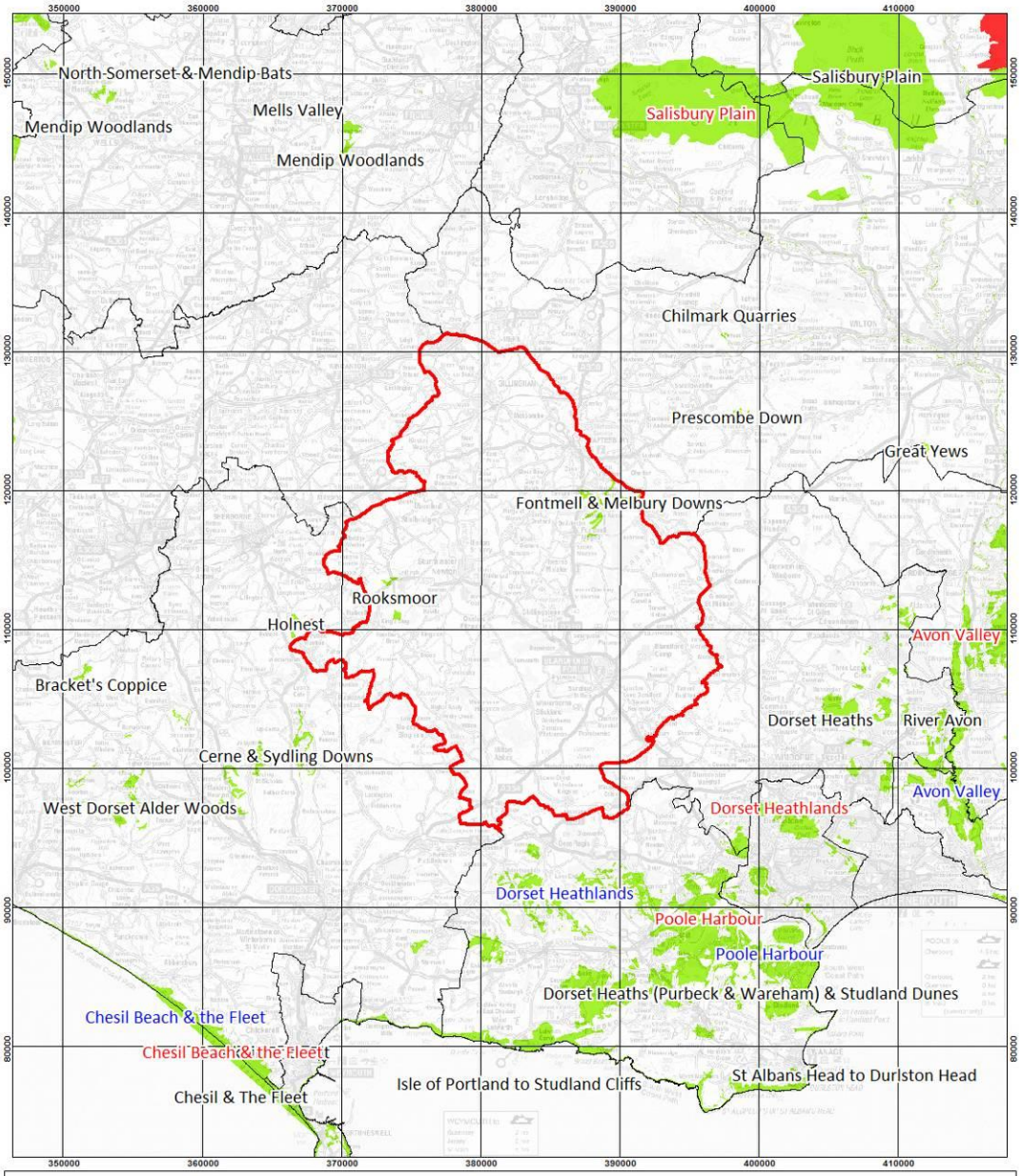

Map 2: European designations of sites within and surrounding North Dorset District
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North Dorset District

District Boundaries

European designated site

SAC sites

Ramsar sites

SPA sites

2.2 Sites Within the District

2.2.1 Within the District there are the following European Protected Sites:

Fontmell and Melbury Downs SAC

2.2.2 This site is designated for its calcareous grassland and the presence of large populations of early gentian *Gentianella anglica*, numbering many thousands of plants. The SAC covers 261ha, while the SSSI is slightly larger, covering 287.9 ha. The site is part owned by the National Trust and part managed as a nature reserve by the Dorset Wildlife Trust. The grassland shows wide variety related to variation in soil type, aspect and grazing pressure.

2.2.3 SSSI condition assessment information for the site indicates that c.70% of the site is in favourable condition, 20% unfavourable recovering and 10% unfavourable declining. The reasons for unfavourable declining condition relate to past management (part of the site was ploughed) and inappropriate grazing levels.

2.2.4 A public right of way crosses the site which is designated as open country under the 2001 CRoW Act

Rooksmoor SAC

2.2.5 Rooksmoor SAC includes two separate SSSIs: Rooksmoor, and Lydlinch Common and Stock Wood. The SAC designation applies to all of Rooksmoor SSSI and the units at Lydlinch that include the common rather than Stock Wood. The reason for the international designation is the presence of *Molinia* purple moor-grass meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) and also for the presence of the marsh fritillary for which this is considered to be one of the best areas in the United Kingdom.

2.2.6 There is a problem with achieving sustainable grassland management on both parts of the site. Traditional light grazing with cattle is difficult on Lydlinch Common because it is bisected by two very busy roads and is registered common land. The legal complexities to be overcome and the infrastructure needed to reinstate grazing on Lydlinch Common are being addressed and an application has been made to fence the common. At Rooksmoor, the land is isolated from the rest of the farm holding which is now an intensive dairy unit.

2.2.7 At Lydlinch, the SSSI condition assessment records the grassland units as currently unfavourable recovering, due a large amount of recent scrub clearance. The condition of Rooksmoor SSSI is considered to be unfavourable (no change), due to undergrazing and tree/scrub management.

2.2.8 Public rights of way run through parts of both sites. Lydlinch also has open access as a registered common under the 2001 CRoW Act. Use of the sites is likely to be mainly local.

2.3 Sites Outside the District

2.3.1 The following European Protected Sites are outside the boundary but are potentially relevant to the assessment. They are listed in order of distance from North Dorset District, with the closest sites first.

Holnest SAC

2.3.2 This 55ha site is designated solely for great crested newts *Triturus cristatus*. The site encompasses around 20 ponds set in a matrix of terrestrial habitats, comprising areas of semi-improved grassland, scrub, associated semi-natural habitats and woodland bounded by fences and hedgerows. The ponds exhibit a range of sizes, profiles and origins, and include some recently-created ornamental ponds as well as traditional farm ponds. A large population of great crested newts is present, with over 200 individuals having been recorded at one pond in spring 2003. The woodland areas provide ideal hibernation habitat. The site is currently in favourable condition.

Dorset Heaths SAC, Dorset Heathlands SPA/Ramsar site and Dorset Heaths (Wareham and Purbeck) and Studland Dunes SAC

2.3.3 The Dorset Heaths SAC covers a complex of heathland sites centred around Poole Harbour. It encompasses 5,730 ha of heathland reaching from Warmwell in the west to Cranborne in the north east and Hengistbury Head in the south east and includes all or part of 37 SSSIs. The Dorset Heaths (Wareham and Purbeck) and Studland Dunes SAC encompasses most of the remaining area of heathland within the eastern half of the Isle of Purbeck (south of the river Frome, plus Morden Bog and part of Sandford Heath) with the addition of the beach and dunes at Studland. It covers a further 2,222ha. The SPA and Ramsar designations largely include the same area as the two SACs and cover 8169ha and 6730ha respectively.

2.3.4 Within the Dorset Heaths European sites a full range of heathland communities is represented with transitions from dry heaths to wet lowland heathland and mires; all habitats restricted to the Atlantic Fringe of Europe and among the best of their type in the UK. There are also transitions to coastal wetlands and floodplain fen habitats, plus woodland, grassland, and pools. The whole complex has an outstanding fauna in a European context, covering many different taxa. Many species have a specialist ecology, strongly associated with, or restricted to, heathland.

2.3.5 The heaths lie on infertile soils derived from the sands and clays of the Bagshot Beds and include shallow peat in wetter areas. Wet heath and mires support a diverse range of rare species including include Dorset heath *Erica ciliaris*, brown beak-sedge *Rhynchosphora fusca*, marsh gentian *Gentiana pneumonanthe*, marsh clubmoss *Lycopodiella inundata*, great sundew *Drosera anglica* and bog orchid *Hammarbya paludosa* and the moss *Sphagnum pulchrum*. They are a stronghold for invertebrates, including Southern damselfly *Coenagrion mercuriale*, for which the site is designated as an SAC (together with great crested newt). Some of these invertebrates are restricted to the Dorset heaths within the UK.

2.3.6 The dry heath occurs on very infertile soils and is not very diverse botanically, but locally some nationally scarce plants occur, such as mossy stonecrop *Crassula tillaea* and yellow centaury *Cicendia filiformis*. In places, where heather *Calluna vulgaris* occurs in mature stands, lichens of the genus *Cladonia* are very abundant. The dry heaths support populations of European importance of several species, including rare butterflies (e.g. silver-studded blue *Plebejus argus*), grasshoppers and spiders. Among birds, the dry heath is very important for woodlark *Lullula arborea*, European

nightjar *Caprimulgus europaeus*, Dartford warbler *Sylvia undata* and some migrants such as hen harrier *Circus cyaneus* and merlin *Falco columbarius* (see Table 2). All six species of native British reptiles, including the Annex IV species sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*, occur within the Dorset Heaths.

Table 2 Estimated populations of species listed in Annex I of the Habitats Directive (79/409/EEC) used for SPA designation (from counts undertaken in 1991/2).

Annex I species	Estimated population	% GB total
Dartford warbler *Sylvia undata*	418-606 pairs	26.1%
Nightjar *Caprimulgus europeaus*	436+ pairs	12.8%
Woodlark *Lullula arborea*	41-56 pairs	6.8%
Hen harrier *Circus cyaneus*	20, wintering	2.7%
Merlin *Falco columbarius*	15, wintering	1.2%

2.3.7 The Dorset Heaths contain small pockets of wet woodland within valley mires but most of these appear to be of recent origin. However, at Morden Bog a bog woodland stand is of ancient origin, as shown by its pollen record and old maps. The woodland is dominated by downy birch *Betula pubescens* with a ground flora consisting of greater tussock sedge *Carex paniculata* and purple moor-grass *Molinia caerulea*. There is a rich epiphytic lichen assemblage, again indicating the persistence of this area of bog woodland.

2.3.8 The Dorset heaths represent some of the biggest and finest remaining areas of lowland heathland in the UK. However, the area of heathland has been reduced and fragmented, with about 86% lost since the mid-18th century to agriculture, forestry and urban development. In recent years these land use changes have been almost halted through changes in national and local policy, but the scale of previous fragmentation and development has left a number of adverse pressures, including those relating to recreational use of heaths. The decline in use for traditional agriculture has resulted in a successional trend to scrub and woodland together with invasion by conifer and introduced scrub species, especially Rhododendron. Financial support schemes and management initiatives which aid the removal of scrub and encourage the re-establishment of traditional management in the form of extensive grazing now cover much of the heath area.

2.3.9 The heaths around Wareham and to the west of the Dorset Heaths tend to have a more rural feel. Many of the sites are particularly large and are well known visitor sites, attracting both local people and tourists. There are tourist facilities such as visitor centres at both Arne (RSPB) and Studland (National Trust).

2.3.10 Studland dunes form part of the South Haven Peninsula, a complex spit feature located on the south side of the entrance to Poole Harbour comprising a series of shallow lakes and acidic dunes. The surface features have developed partly on the site of a former shallow sea since the seventeenth century (Diver, 1933), although some dune ridges may have been present at least as far back as the Domesday Book

(May, 2003). The structure and function of the dunes are well-represented with dune-building processes still active. The site supports a number of vegetation communities which are rare in this part of the UK (partly owing to intensive recreational use of the coast) and comprises the only large dune heath site in the south and south-west of Britain.

2.3.11 The coastal elements of the Studland heath and dune site comprise "embryonic shifting dunes" with sand couch *Elytrigia juncea* and lyme grass *Leymus arenarius* as the key pioneer species. In some seasons good populations of sea rocket *Cakile maritima* and saltwort *Salsola kali* also occur in this restricted community, along the toe of the fore dunes. This embryonic dune feature is rare in southern England, due in part to recreational pressures. It is continuous with and grades into "shifting dunes along the foreshore", with marram grass *Ammophila arenaria* as the dominant species, along with other local dune flora. At Studland, these classic fore-dune communities grade into "Atlantic decalcified dune heath" which is a priority feature and confined in south and south-west UK to the Studland site. This community is dominated by heather *Calluna vulgaris* with sand sedge *Carex arenaria* and bell heather *Erica cinerea* and occupies a series of dune ridges, which have developed over a period of several hundred years and represent successive eastwards growth of the dunes. The occurrence in this community of rare and protected reptiles eg sand lizard *Lacerta agilis* is especially noted for this SAC. The Studland dunes and heath are the most important single locality for this species in UK. There is no dune grassland at this site, with the fore-dunes merging directly into dune heath and then other heath communities and this has a direct relevance to vulnerability of the SAC to impacts from human pressure. The dry open heath is an important habitat for rare reptiles such as sand lizard. At the western margin of the dune ridges the dry dune heath grades into wet heath in which cross-leaved heath *Erica tetralix* is prominent, while at the northern end it grades into the southern heathland types of inland Dorset.

2.3.12 Acidic humid dune slack communities with a high water table lie in the parallel hollows between the dune ridges. In these slacks, acidic fen and reedbeds have developed with some areas of scrub. The dune slacks are linked to an area of open fresh water known as the Little Sea on the western edge of the dune ridges. This is of recent origin (<500 years old), formed as a large body of seawater became landlocked by the growing sand dunes. This water is now fresh and is replenished by acidic, nutrient-poor water draining off the adjacent heathland, which then flows through the dune slacks and into the sea. The submerged vegetation is characterised by alternate water-milfoil *Myriophyllum alterniflorum*, shoreweed *Littorella uniflora* and spring quillwort *Isoetes echinospora*, together with bladderwort *Utricularia australis* and less frequently six-stamened waterwort *Elatine hexandra*.

2.3.13 The heaths have been the focus of many detailed, long term, ecological studies, mainly led by the ITE/CEH research station, which for many years was located locally at Furzebrook, in Purbeck. Of particular note are the successive heathland surveys that have documented the changes in extent, fragmentation and area of different heathland habitats within Dorset (Rose et al., 2000, Webb, 1990)

2.3.14 The conservation objectives for the sites are complex as they are developed separately for each SSSI. In general terms they are to maintain the designated habitats and species (see Appendix 1 for European designations) in favourable condition (subject to natural change), including restoration of habitats were necessary. Those for the SPA are to maintain, in favourable condition, the habitats for the populations of Annex 1 bird species (nightjar, woodlark, Dartford warbler, hen harrier and merlin) of European importance, with particular reference to their lowland heathland habitat. Sites are considered to be in favourable condition when they are being managed in a way which maintains their nature conservation value.

2.3.15 Recreational use of the heaths has become a key issue in recent years. There has been a number of visitor studies addressing visitor behaviour, access patterns and use of lowland heathland sites (Atlantic Consultants, 2003, Atlantic Consultants, 2005, Clarke et al., 2006, W.S.P. Environmental, 2004, Liley et al., 2006c, Liley et al., 2006e, Tourism South East Research Services and Geoff Broom Associates, 2005, Underhill-Day and Liley, 2007). These studies have been targeted at sites of nature conservation importance and in some cases the visitor data subsequently used to explore nature conservation impacts (Clarke et al., 2008a, Liley et al., 2006a, Sharp et al., 2008). The study by Clarke et al. 2006 focused on the Dorset Heaths SPA.

2.3.16 These visitor studies typically show high levels of recreational use, involving a wide range of different activities, with dog walking typically the most common reason for visiting. In the Dorset Heaths SPA study 80% of visitors were dog walkers, and other reasons for visiting included walking, jogging, cycling and horse riding (Table 3).

Table 3: Percentage of visitors undertaking different activities on the Dorset Heaths SPA. Data are from 632 interview carried out at 20 different access points in a SPA wide visitor survey conducted in 2004 (Clarke et al., 2006).

Type of activity	Percentage of visitors
Dog walking	80
Walking	10
Jogging	2
Cycling	2
Horse riding	1
Other	5

2.3.17 'Urban effects' such as fly tipping, increased fire incidence, use of heaths for motor biking and off-road vehicles etc. tend to be particularly focused around the conurbation of Poole and Bournemouth.

2.3.18 The majority of the heaths are designated as open country under the Countryside and Rights of Way (CRoW) Act, 2001, and have a long history of access by local people.

2.3.19 Studland Dunes and beach are used extensively by tourists and also by students studying the ecology and coastal geomorphology of the site. Three car parks totalling over a thousand car park spaces are provided by the National Trust, with Ferry Road used extensively for further parking. Part of the beach is a designated naturist beach. Overall this easily accessed, sandy, and relatively sheltered site receives over a million visitors per year (Dickinson, 2006). Holiday visitors tend to be concentrated around the cafes and car parks at Middle and Knoll beachs and the car park at Shell Bay. The one access route through the dunes and slacks from Ferry Road also has a concentration of visitors where it reaches the beach, midway along the dunes. The site is popular with dog walkers throughout the year. Just offshore, the sea is used extensively by pleasure craft including jet skis. In the past, visitor pressures have caused serious damage to the dunes, especially in the Knoll Beach car park area. In recent years several areas have been 'restored' for conservation purposes, however, visitor pressure is seen in the absence on embryo dunes in the southern area of the bay and incipient blowout development in the foredune ridge. At the extreme southern end of the bay, near Knoll Beach car park, the frontal dunes have experienced significant erosion in recent decades (Pye et al., 2007).

2.3.20 Studland Dunes are vulnerable to sea-level rise related to climate change. Erosion at the Knoll and Middle Beaches began to threaten infrastructure in the early 1990's. Research commissioned by the National Trust from Bournemouth University in 1996 showed that the annual rate of erosion had significantly increased in recent years. The main causes of erosion were identified as an increase in easterly winds, an increase in stormy weather and a rise in sea level. Other factors included reduced local sediment supply to the system due to cliff protection measures at the southern end of the Bay, and interruption of littoral drift by the construction of groynes.

2.3.21 The National Trust's long-term policy for the dune system is to permit natural processes to operate. At the present time, beach erosion is not a sufficiently widespread problem to require large-scale relocation of visitor facilities or other infrastructure, but this may be required in the future. It is unlikely that the frontal dunes in this area will roll back and maintain their present size, especially in the face of sea level rise. Ultimately washover and breakthrough is likely on a timescale of 50 to 100 years.

Cerne & Sydling Downs SAC

2.3.22 This 370ha site on the west Dorset chalk consists of a large area of semi-natural dry grassland **(***Festuca –Brometalia***)** for which the site is designated. Dry valley slopes with a variety of aspects support extensive examples of CG2 sheeps festuce *Festuca ovina* – meadow oat grass *Avenula pratensis* grassland in the south-west of its UK range. A particular feature of this site is the presence of the devil's bit scabious *Succisa pratensis* – ox-eye daisy *Leucanthemum vulgare* sub-community, especially on south- and west-facing slopes. This type of calcareous grassland is almost entirely restricted to parts of Wiltshire and Dorset.

2.3.23 Cerne & Sydling Downs is also designated for the presence of the marsh fritillary butterfly *Euphydryas aurinia*, an Annex 2 species. The larger sub-populations regularly expand into other nearby areas in favourable years. These calcareous

downland colonies complement the wet grassland habitats of the other Dorset strongholds for the butterfly.

2.3.24 Cerne & Sydling Downs is a composite site comprising a number of steep downland scarps around Cerne Abbas, including Sydling Valley Downs; Black Hill Down; Court Farm, Sydling; Giant Hill; and Hog Cliff. Conservation objectives are developed separately for each of the component SSSIs and in general seek to maintain the designated habitats and species in favourable condition, subject to natural change. Condition of the site is largely favourable, with some areas unfavourable, generally due to locally unsatisfactory grazing regime and scrub control.

2.3.25 Public rights of way run through the sites, but visitor pressure is focussed around the Cerne Abbas giant, a 55m high figure into the chalk of the hillside which attracts a large number of visitors. However the giant is best viewed from the opposite side of the valley where a car park is provided. Some areas of the site are designated as open access land under the 2000 CRoW Act. There is also a paragliding site within the SAC just east of Sydling St Nicholas, although it is used infrequently (N. Bourn, pers. comm.).

Poole Harbour SPA and Ramsar

2.3.26 Poole Harbour is a bar-built estuary of nearly 4,000ha occupying a shallow depression towards the south-western extremity of the Hampshire Basin which has flooded over the last 5,000 years as a result of rising sea levels. The unusual micro-tidal regime means that a significant body of water is retained throughout the tidal cycle and the Harbour therefore exhibits many of the characteristics of a lagoon. There are extensive intertidal mud-flats and, away from the north shore that has become urbanised through the growth of Poole, there are fringes of saltmarsh and reedbed. Parts of the Harbour, especially along the western and southern shores, adjoin the Dorset Heathlands SPA. Where the two areas meet, there are rare transitions from saltmarsh and reedbed to valley mire and heath habitats. The Harbour is separated from Poole Bay by the Studland Dunes (part of the Dorset Heaths [Purbeck and Wareham] and Studland Dunes SAC) and the SPA includes Littlesea, a large oligotrophic dune-slack lake of importance for wintering wildfowl.

2.3.27 As a whole, the Harbour supports important numbers of waterbirds in winter and is also an important breeding site for terns and gulls, whilst significant numbers of little egret *Egretta garzetta* and aquatic warbler *Acrocephalus paludicola* occur on passage. Several river valleys converge on the Harbour, notably the Frome and the Piddle, and these support grazing marshes that contribute to the importance of the area for wintering waterbirds.

2.3.28 There is a considerable amount of data on the birds of Poole Harbour. Work funded by BP Ltd. and conducted by the RSPB in the mid 1980s provides useful context (Collins, 1985, 1986). The Harbour is surveyed annually as part of the national Wetland Bird Survey (WeBS). These data have been collated and analysed to provide comparative assessments of the important bird species within Poole Harbour (Pickess and Underhill-day, 2002, Pickess, 2007). Dedicated surveys of roost sites within the Harbour were conducted by Morrison (2004), and detailed mapping and surveying of the invertebrates that are the main prey of the key bird species was

conducted by CEH (Thomas et al., 2004), the latter work to provide a baseline against which future verification of favourable condition could be established. A condition assessment of the Harbour was conducted by Footprint Ecology in 2006 (Underhill-Day, 2006).

2.3.29 The bird data are summarised in Underhill-Day (2006), which shows that populations of those bird species for which the harbour was designated as an SPA are mostly stable or increasing. Breeding numbers of common terns and Mediterranean gulls have been rising and the wintering populations of black-tailed godwits and avocets have also been increasing. Shelduck numbers have declined but at a lower rate than those nationally. The size of the overall assemblage of wintering waterfowl has declined, but wader numbers excluding lapwings (which have fallen considerably) have risen and wildfowl numbers show no clear trend. Some wader roosts are threatened by saltmarsh erosion and disturbance from people and boats. The fact that overall wader numbers are rising can mask impacts that prevent numbers increasing to their full potential within the protected site.

2.3.30 The site includes examples of natural habitat types of European interest and the transitions from saltmarsh through to peatland mires are of exceptional conservation importance as few such examples remain in Britain. The site supports nationally important plant species including Viper's grass *Scorzonera humilis*, sharp-leaved pondweed *Potamogeton acutifolius*, bulbous foxtail *Alopecurus bulbosus*, narrow-leaved water-dropwort *Oenanthe silaifolia*, mousetail *Myosurus minimus*, shrubby seablite *Sueda maritima*, spiny quillwort *Isoetes echinospora* and six-stamened waterwort *Elatine hexandra*, and the marine flowering plants narrow-leaved eelgrass *Zostera angustifolia* and dwarf eelgrass *Zostera noltei*. There are also at least three British Red data book invertebrate species.

2.3.31 The conservation objectives for Poole Harbour include the maintenance in favourable condition of the shallow inshore waters, intertidal sediment communities, saltmarsh and reedbed for the internationally important populations of regularly occurring Annex I and migratory bird species and the internationally important assemblage of waterfowl.

2.3.32 There are a number of marinas and boat havens along the northern shore of the Harbour, and some 2000 swinging moorings within the site. Poole Harbour is heavily used for water sports recreation, mainly boating but water skiing, jet skiing, wind surfing, canoeing and angling also occur, particularly during the summer. Most of the north shore of the site is urbanised and there is a caravan site adjacent to the Harbour at Rockley Sands. The site is not heavily used for bathing and beach recreation, although there are numerous accesses for bird watching along the northern shore. Public access on the quiet southern shore is largely limited to Studland National Nature Reserve and a controlled access at Arne RSPB Reserve. There is also easy public access along the River Frome at Wareham allowing good viewing of birds on the grazing marsh.

2.3.33 At a few places along the shoreline where there is good access the site is well used for bait-digging and angling. The eastern part of the site is a bass nursery area. All wildfowling on the intertidal areas is under the control of the Dorset Wildfowling Association. Private estates also shoot on their own land i.e. on saltmarsh above high

water but much of the shoreline above MHW is controlled by conservation organisations.

2.3.34 Poole Harbour has been impacted by the growth of a conurbation along its north shore, together with associated infrastructure, and by development of a commercial port, marinas and moorings. In recent years, further encroachment by development has been almost halted by changes in national and local policy. Most of Poole Harbour falls under the authority of Poole Harbour Commissioners and management policies have been in place since 1987. Recreation pressures on the site are being addressed by an Aquatic Management Plan which has directed certain uses to areas where impacts on nature conservation are thought to be minimal. The plan is supported by a steering group of almost wholly statutory bodies, and consists of Borough of Poole, Dorset County Council, Natural England, Environment Agency, Poole Harbour Commissioners, Purbeck District Council, Southern Sea Fisheries District Committee and Wessex Water Services Ltd. A 'Navigate with nature' project, funded by the Department of the Environment, promoted best practice amongst Harbour users to reduce water pollution and disturbance to wildlife. Dredging to provide navigation may impact on intertidal habitat and will be addressed through national policy requirements on sustainable coastal management. There is recent evidence that Manilla clam is becoming naturalised within the Harbour following small scale commercial introduction and any potential problems will be examined by the steering group. Die back of common cord-grass *Spartina anglica* is also affecting the site and has been monitored by the Centre for Ecology and Hydrology.

2.3.35 Footprint Ecology produced a monitoring strategy for Poole Harbour in 2009 (Liley and Underhill-Day, 2009), which sets out the monitoring measures needed to address increases in access and quantify potential impacts to the SPA.

2.3.36 Several sewage treatment plants discharge into the Harbour and the effect of these on water quality is monitored by the Environment Agency. Wytch Farm oilfield has facilities within the site; their maintenance and any risks from oil spills are dealt with according to agreed method statements and oil spill contingency plans. Recent studies have addressed the effects of bait digging in the Harbour which has local impacts. Most of the wildfowling is regulated by a management plan that identifies non shooting areas. The impact of drainage on grazing marshes is being addressed through Water level Management Plans.

Prescombe Down SAC

2.3.37 Prescombe Down is a botanically rich downland site (c.76 ha) with a flora characteristic of the south and south-west chalk grassland. The site consists of a deep, forking, coombe system eroded into an escarpment of the Upper Chalk, lying to the west of Salisbury. The SAC designation is for the calcareous grassland ("Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)") and the presence of early gentian. Marsh fritillary is an additional annex II species present (but not a primary reason for designation).

2.3.38 The SSSI is largely in favourable condition and management issues at the site revolve around ensuring scrub encroachment is kept in check and grazing intensities are appropriate. The site has very little in the way of access facilities, but there is public

access to the entire site as it is mapped as open country and therefore included as open access land under the Countryside and Rights of Way (CRoW) Act (2001).

West Dorset Alder Woods SAC

2.3.39 This SAC covers some 329ha and includes the following component SSSIs: Aunt Mary's Bottom, Frome St. Quentin, Mapperton and Poorton Vales, Powerstock Common, Toller Porcorum, Woolcombe.

2.3.40 The SAC interest and name of the SAC relates to the Mixed ash-alder *Fraxinus excelsior - Alnus glutinosa* woods which are a characteristic feature of the sinuous valley woods developed along the headwaters of alkaline streams and seepages (which have their origin in the chalk downland and issue from the underlying Upper Greensand at its junction with the Gault Clay). The woods vary from those with greater tussock-sedge *Carex paniculata*, remote sedge *C. remota*, hemlock water-dropwort *Oenanthe crocata*, opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium* and alternate-leaved golden-saxifrage *C. alternifolium*, to transitions to drier oak-ash woodland with ramsons *Allium ursinum*. Several of the component sites are associated with valley mires with transitions to fen, reedswamp, fen meadow and acid grassland. Characteristic features of the woods are the shallow silty peats and tufa deposits which support an important assemblage of specialised invertebrates. The streams have natural meanders, back channels and debris dams, features that are otherwise rare in the lowlands. Ancient stands of ash-alder woodland have developed some 'old growth' characteristics with associated old forest lichens.

2.3.41 Other Annex I habitats present as a qualifying feature (but not a primary reason for selection of this site) are *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) and Old acidophilous oak woods with *Quercus robur* on sandy plains.

2.3.42 Marsh fritillaries occur at Powerstock and Toller Porcorum SSSIs and are a qualifying interest feature of the SAC. The population is small but stable and has the potential to expand over a wide area of favourable habitat. Great crested newts are also present within the SAC (but are not a qualifying interest feature).

2.3.43 The vulnerability of the sites is linked principally to the surrounding land-use and the management of the water environment in the catchment, particularly where sites are small and isolated. The alder woods are mainly unmanaged stands of former coppice and cutting would now only be appropriate in larger, more robust sites. Deer browsing and game management are a concern and these impacts need to be monitored. Removal of conifer plantations at Powerstock has extended the area of the open habitats.

2.3.44 Dorset Wildlife Trust manages two nature reserves within the SAC, at Kingcombe and Powerstock. These areas form a core part of the SAC. Visitor facilities include a small visitor centres, two car-parks and a series of walks within the two sites. Visitor numbers are typically fairly small.

River Avon SAC/Avon Valley SPA/Ramsar

2.3.45 The Avon is a large, lowland river system running through chalk and clay, with transitions between the two. It displays wide fluctuations in water level and parts of the valley are regularly flooded in winter. The Avon valley has a greater range of habitats and a more diverse flora and fauna than any other chalk river in Britain. The valley includes one of the largest expanses of unimproved floodplain grassland in Britain, including extensive areas managed as hay meadow. The SAC covers almost 500ha in Wiltshire, Hampshire and Dorset, and includes the tributary rivers Wylye and Bourne. The SPA and Ramsar site encompass 20km of the lower reaches of the River Avon and its floodplain between Bickton and Christchurch. The SPA and Ramsar are therefore considerable distances (c.18km) from the North Dorset District.

2.3.46 The River Avon is particularly important for its water-crowfoot species, and the SAC is designated for water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Five such species occur within this habitat, but stream water-crowfoot *Ranunculus penicillatus* ssp. *pseudofluitans* and river water-crowfoot *R. fluitans* are the main dominants, with *R. peltatus* dominant in some winterbourne reaches. The Avon has an excellent mosaic of aquatic habitats, which include extensive areas of gravel, sand and silt essential for spawning and growth of juvenile fry. The site is also designated for Desmoulin`s whorl snail *Vertigo moulinsiana*, sea lamprey *Petromyzon marinus*, brook lamprey *Lampetra planeri,* Atlantic salmon *Salmo salar*, bullhead *Cottus gobi*. There has been limited modification of the river course by comparison with many other southern lowland rivers in England.

2.3.47 The extensive floodplain grasslands support wintering Bewick's Swans *Cygnus columbianus bewickii* in numbers of European importance (though this winter flock has declined markedly in recent years), and Blashford Lakes Gravel Pits within the SPA are particularly important for wintering Gadwall *Anas strepera.*

2.3.48 Recent[7] condition assessments for the River Avon System SSSI classify around 88% (by area) of the SSSI as unfavourable declining or unfavourable no change. Key reasons for the assessment include water quality (particularly P levels) as a result of agricultural run-off and also from discharge, water abstraction, inappropriate water levels, invasive freshwater species, siltation and inappropriate weirs, dams and other structures.

2.3.49 The Avon valley is used for informal walking and birdwatching, and access by people and dogs both on and off public rights of way is a significant cause of disturbance in some areas. Coarse-fish and game-fish angling and wildfowling and game shooting and associated activities also take place, but the extent and intensity are unknown although thought to be considerable. Localised sailing and watersports are carried out at Blashford Lakes; and Hampshire Wildlife Trust manages a visitor centre here.

2.3.50 There are issues arising from the decline in traditional pastoral agriculture and lack of maintenance of ditch network. Management of water levels driven partly by

[7] Dated 1st December, http://www.english-nature.org.uk/Special/sssi/reportAction.cfm?report=sdrt13&category=S&reference=2000183

agriculture but also urban flood risk management continues to have adverse effect on habitats. High levels of silt in the river continue to degrade its interest, especially aquatic species but also contribute to silting-up ditches and deterioration of grasslands after flood events. The invasive introduced species *Crassula helmsii* is an increasing problem in Blashford Lakes following restoration of the gravel pits.

Chilmark Quarries SAC

2.3.51 This SAC is a complex of abandoned stone mines, covering a total of 10.4ha to the north-east of Tisbury. The site is used as a hibernation site by a range of bat species. The SAC designation is specifically for the following Annex II bat species: Greater horseshoe bat *Rhinolophus ferrumequinum*, Barbastelle *Barbastella barbastellus* and Bechstein`s bat *Myotis bechsteinii*. An additional Annex II species present as a qualifying feature, but not a primary reason for site selection is the Lesser horseshoe bat *Rhinolophus hipposideros*.

2.3.52 The long-term safeguard of the hibernacula entails preventing the collapse of the underground voids and restricting unauthorised access. The entrances to the mines have been grilled and the underground bat hibernacula are well protected from development and disturbance.

Isle of Portland to Studland Cliffs SAC

2.3.53 Isle of Portland to Studland Cliffs, together with St Albans Head to Durlston Head forms a discontinuous unit of cliffed coastline and associated calcareous grassland stretching some 40km. The Isle of Portand to Studland Cliffs SAC (1447.5ha) includes the cliffed coast of the Portland peninsula, a stretch of coastline from just north-east of Weymouth to St Alban's Head, from Durlston to Peveril Point south of Swanage, and Ballard Down and Cliff. Most of the SAC is located within Purbeck District, with the section west of Ringstead within 20km of the district. Some parts of the SAC also fall within the Dorset and East Devon Coast World Heritage Site.

2.3.54 The great range of rock types has given rise to a varied coastline of vertical cliffs, undercliffs and landslips which support an outstanding array of local and maritime species. Some of the cliffs are formed of hard limestones, with chalk at the eastern end and central section, interspersed with slumped sections of soft cliff of sand and clays. The cliffs support "vegetated sea cliffs of the Atlantic and Baltic regions" for which it is also one of the best localities in the UK. The Portland peninsula, extending eight kilmetres south of the mainland, demonstrates very clearly the contrast between the exposed western and southern coasts, with sheer rock faces and sparse maritime vegetation, and the sheltered eastern side, with sloping cliffs supporting scrub communities, where wood spurge *Euphorbia amygdaloides* grows in grassland.

2.3.55 Semi-natural dry grasslands and scrub on calcareous substrates, among the best examples in the country, occur at this site in both inland and coastal situations on both chalk and Jurassic limestone. The site contains extensive species-rich examples of tor grass *Brachypodium pinnatum* grassland in the southern part of its UK range. Smaller areas of the typical chalk grassland type sheep's fescue *Festuca ovina* – meadow oat-grass *Avenula pratensis* grassland occur on shallow soils on steeper

slopes. Transitions from calcareous grassland to both chalk heath and acid grassland are also present. The site has well-developed terricolous (ground dwelling) and saxicolous (rock dwelling) lichen and bryophyte communities associated with open turf, chalk rock and pebbles, and flinty soils. Among the many scarce and localised plants and animals of the chalk and limestone are the largest national populations of two rare species – early spider orchid *Ophrys sphegodes* and Lulworth skipper butterfly *Thymelicus acteon*.

2.3.56 The site also supports annual vegetation of drift lines, here associated with the intermittent occurrence of shingle beaches beneath the cliffs which are subject to periodic displacement or overtopping by high tides and storms. The distinctive vegetation, which may form only sparse cover, is therefore ephemeral and composed of annual or short-lived perennial species such sea mayweed *Matricaria maritima*, oraches *Atriplex species*, and sea beet *Beta vulgaris* ssp. *maritima*. Level or gently-sloping, high-level mobile beaches, with limited human disturbance, support the best examples of this vegetation.

2.3.57 Together with St Albans Head to Durlston Head, Isle of Portland to Studland Cliffs SAC, supports important long-standing populations of early gentian numbering several thousands of plants in floristically-rich calcareous grassland.

2.3.58 Conservation objectives for the site include those for the separate SSSI, and are in general terms to maintain the designated habitats and species(see Appendix 1) in favourable condition. The main forces active here are natural processes, so that erosion/deposition and cliff slumping occur widely (in the absence of any significant coast protection works) and grazing, where the same challenges arise with tor grass turf as in the St Alban's to Durlston SAC.

2.3.59 The south-west coast path runs the length of this site. Over 1 million people walk some of the South West Coast Path between Poole and Lyme Regis each year. Visitor numbers for individual locations are not generally available, although it is estimated that 500,000people visit Lulworth Cove annually. Erosion is a key concern in some areas, particularly where it is not clear who should shoulder the burden of repair and maintenance costs.

2.3.60 The hard limestone cliffs of Purbeck and Portland are also increasingly popular for climbing. Season and route restrictions are in place in Purbeck to help avoid conflict with nesting birds – the scheme appears to be accepted by the majority of climbers, and is monitored through an annual climbing forum. Portland is experiencing rapid growth in sports climbing, following national publication of new climbing guides: over 300 routes with fixed bolts have been put in place in the last few years, and this is set to increase further. Issues include impacts on cliff vegetation (particularly the nationally important Portland sea-lavender *Limonium recurvum*).

2.3.61 Hang-gliding has been a localised minority activity on the coast for over 10 years, and has been joined recently by paragliding (gliding using a parachute). The main clubs use sites in Portland, Kimmeridge, St Aldhelm's and Ballard Down when weather conditions are suitable. Erosion at launch sites and disturbance to cliff-nesting birds is a concern on Portland, and a zoning scheme has been agreed with the main association who use the Island.

Bracket's Coppice SAC

2.3.62 Bracket's Coppice SAC is a 55ha site that covers Bracket's Coppice and Ryewater Farm SSSI. The SAC is managed in part by the Dorset Wildlife Trust (their Bracket's Coppice reserve) and also by Plantlife (Ryewater Farm). The site lies 2 km north of Corscombe in the vales of West Dorset and comprises oak and ash woodland, wooded stream valleys, herb rich grassland and fen-meadow with a diverse fauna. The area is also geologically important. The SAC designation is for the presence of Bechstein's Bat; one of the first maternity colonies to be found in the UK was discovered within bat boxes within the woodland. The SAC designation also includes (although not a primary reason for designation) the grassland which falls under the Annex I habitat type "*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)".

2.3.63 There is no public access to the Plantlife reserve and the Dorset Wildlife Trust reserve has limited visitor facilities, with a small car-park and footpaths within the reserve. The SSSI is largely in favourable condition or unfavourable recovering condition.

Mendip Woodlands SAC

2.3.64 The Mendip Woodlands SAC is designated for the Annex I habitat "*Tilio-Acerion* forests of slopes, screes and ravines". The SAC is comprised of a cluster of ash-dominated woods on Carboniferous limestone. A rich variety of other trees and shrubs are present, including elm *Ulmus* spp. and, locally, small-leaved *lime Tilia cordata*. At Ebbor Gorge elm rather than lime is mixed with ash *Fraxinus excelsior* in a steep-sided gorge; at both Rodney Stoke and Cheddar Wood lime and ash are found on rocky slopes with patches of deeper soil between the outcrops.

2.3.65 The different woods that comprise the SAC are widely spaced, with five different fragments (totalling some 254ha), with the linear distance between the two farthest fragments being some 40km. Asham Wood, which lies to the south of Coleford, is the only part of the SAC that is at all close to North Dorset District, lying c.15km to the north-west of the District. The other parts of the SAC lie much further to the north-west. Asham Wood is the largest and most diverse of the ancient semi-natural woods in the SAC and is currently entirely classified as in favourable condition. The wood has been badly affected by quarrying in the past with up to 20% lost but this has now ceased and no major threats are apparent.

Salisbury Plain SAC / SPA

2.3.66 Salisbury Plain SAC covers over 2000ha and is believed to be the largest surviving semi-natural dry grassland within the EU (and is therefore the most important site for this habitat in the UK). The SAC is designated for the following Annex I habitats that are a primary reason for selection of this site:

- *Juniperus communis* formations on heaths or calcareous grasslands
- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)

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

2.3.67 The Plain is the best remaining example in the UK of lowland juniper scrub on chalk. The juniper is juxtaposed with extensive semi-natural dry grassland and chalk heath. In some cases the scrub has developed recently by invasion of open chalk grassland and contains few typical shrub species. However, most of the scrub is of the southern mixed scrub type and is enriched by roses Rosa spp., wild privet *Ligustrum vulgare*, dogwood *Cornus sanguinea*, wayfaring tree *Viburnum lantana* and other species characteristic of the type. The Plain also support extensive examples of *Bromus erectus* grassland, which is the most widespread and abundant calcareous grassland found in the UK. Alongside this are extensive areas of the rare *Festuca ovina – Hieracium pilosella – Thymus praecox* grassland, and one of the largest examples of CG6 *Avenula pubescens* grassland. The orchids include the largest UK population of the nationally scarce burnt orchid *Orchis ustulata*, together with significant populations of green-winged orchid *Orchis morio* and frog orchid *Coeloglossum viride*. Marsh fritillaries occur within Salisbury Plain and are a further primary reason for the SAC designation.

2.3.68 The SPA designation reflects important populations of two species: stone curlew *Burhinus oedicnemus* (22 pairs representing 12% of the breeding population in Great Britain in 1998) and hen harrier *Circus cyaneus* (14 individuals representing 2% of the wintering population in Great Britain in 1996/7).

2.3.69 This site comprises three landholdings: a military training area, a military research area and a National Nature Reserve. The interests of all three sites require low intensity grazing and scrub management which on the military areas has occurred as a by-product of military use over many years and on the NNR has been maintained through traditional farm management. Changes in military use, particularly the use of increased numbers of vehicles and the construction of roads and tracks to accommodate those vehicles have the potential to damage the qualifying interests, but are subject to prior assessment and are strategically addressed through an integrated land management plan. An EU funded LIFE project, involving various partners, ran for four years in the mid 2000s with the aim of improving the management across the Plain. Disturbance from military use and recreation is an issue for stone curlews and extensive research on these issues have been conducted at Salisbury Plain (see Taylor, 2003, Taylor et al., 2007). Public access to most of the military training area is strictly limited, though there is access to the eastern area, near Tidworth, around 40km from North Dorset District.

Great Yews SAC

2.3.70 Great Yews near Coombe Bisset in Wiltshire is a 29ha site supporting *Taxus baccata* woods of the British Isles. Although it is the smallest example of this habitat within the SAC series, it is important for the presence of about 300 old yew trees. It probably originated as yew wood following beech *Fagus sylvatica* or ash *Fraxinus excelsior*. It has some regeneration and so has the full structural and functional range expected of yew stands. There are no public rights of way through the site, although a public footpath runs along its southwest corner.

Mells Valley SAC

2.3.71 Mells Valley is a composite site comprising four individual units spanning some 10km west of Frome in Somerset. The 29ha site is designated an SAC on the basis of the size of its exceptional breeding population of greater horseshoe bat *Rhinolophus ferrumequinum*. It contains the maternity site associated with a population comprising about 12% of the UK population. A proportion of the population also hibernates at the site, though other hibernation sites remain unknown. Other qualifying features present (but not primary reasons for designation) include semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) and caves not open to the public. There is a public right of way through one of the four component sites (Vallis Vale SSSI) near Frome, the closest part of the site to North Dorset

The New Forest SPA / SAC / Ramsar

2.3.72 The New Forest is a composite site covering some 29,626ha, almost entirely within Hampshire but with 1% in Wiltshire. The Ramsar and SPA sites cover a similar area. The vast majority of the site lies beyond 20km of North Dorset District, but a small fraction of the SAC lies within this boundary a couple of kilometres north-west of Ringwood.

2.3.73 It comprises a complex mosaic of habitats overlying mainly nutrient-poor soils over plateau gravels. The major components are the extensive wet and dry heaths with their rich valley mires and associated wet and dry grasslands, the ancient pasture woodlands and inclosure woodlands, the network of clean rivers and streams, and frequent permanent and temporary ponds.

2.3.74 The area supports a diverse assemblage of wetland plants and animals including (at the time of designation)at least 29 nationally important plant species, including small fleabane *Pulicaria vulgaris*, slender cottongrass *Eriophorum gracile* and pennyroyal *Mentha pulegium*. Invertebrates include two species with internationally important populations (southern damselfly *Coenagrion mercuriale* and stag beetle *Lucanus cervus*). 180 other species of invertebrate range from butterflies such as the high brown fritillary *Argynnis adippe* to ground bugs such as *Nysius helveticus*, freshwater invertebrates such as the tadpole shrimp *Triops canriformis* and insects such as the New Forest cicada *Cicadetta montana*, the latter two species only known from the New Forest in the UK. Other important species occurring include great crested newt and two fish brook lamprey and bullhead. The area supports important populations of breeding birds, including nightjar, woodlark and Dartford warbler**.** Breeding honey buzzard *Pernis apivorus* and wintering hen harriers are also notable.

2.3.75 The site is subject to recreational pressure including informal walking, horse-riding, cycling, birdwatching and shooting, and steps are being taken to deal with recreational pressures. A recent decline in waders such as redshank, lapwing, curlew and snipe may in part be due to the effects of walkers and particularly those with dogs, as well as low water levels affecting the wetland habitats. Most of the valley mires in the Forest have been damaged in the past by drainage which has caused drying out of the peat layers. Prevention of further erosion has already been tackled on some sites but a more extensive programme of infilling drainage ditches is

currently being discussed with the landowners and commoners. The work to restore valley mires systems is expected to influence these bird populations in time.

Chesil and the Fleet SAC

2.3.76 The SAC includes Chesil Bank, the Fleet and the shore of Portland Harbour, and extends to some 1630 hectares. Almost all of this large site falls beyond 20km from North Dorset district. The Chesil and the Fleet Ramsar site covers a smaller areas than the SAC (748ha), including Chesil Bank, but not the entire beach.

2.3.77 Chesil Bank is a large (28 km-long), relatively undisturbed shingle bar, one of the three major shingle structures in the UK. It encloses the Fleet, by far the largest saline lagoon in the country. The salinity gradient, peculiar hydrographic regime and varied substrates, together with associated reedbed and intertidal habitats and the relative lack of pollution in comparison to most other lagoons, have resulted in the Fleet being extraordinarily rich in wildlife. It contains outstanding communities of aquatic plants and invertebrates, and supports large numbers of wintering waterbirds, including Dark-bellied Brent Goose *Branta bernicla bernicla***.** In spring and summer, Chesil Bank is an important breeding site for Little Terns *Sterna albifrons* which feed in the shallow waters of the lagoon, as well as adjacent waters outside the SPA. The plant life includes 150 species of algae and the lagoon is best known for the most extensive mixed populations of eelgrass Zostera and tasselweeds *Ruppia* in Britain including two species of eelgrass and three species of tasselweed, one of which is the rare spiral tasselweed *R. cirrhosa*. The Fleet also supports distinct and highly unusual mollusc associations and other notable invertebrates. It is an important breeding area for fish and is a bass nursery. In all, 23 species of fish have been recorded.

2.3.78 On the landward, more stable side of Chesil Bank, large, internationally and nationally important populations of shingle plants occur (perennial vegetation of stony banks), mostly relatively undisturbed by human activities. Much of the shingle bar is subject to wash-over and percolation in storm conditions and is therefore sparsely vegetated. It supports the most extensive occurrences of the nationally scarce sea-kale *Crambe maritima* and sea pea *Lathyrus japonicus* in the UK, together with other grassland and lichen-rich shingle plant communities typical of more stable conditions, especially towards the eastern end of the site.

2.3.79 An almost continuous belt of shrubby seablite *Suadea vera* and sea-purslane *Atriplex portulacoides (*Mediterranean and thermo-Atlantic halophilous scrubs *[Sarcocornetea fruticosi*]) forms a clear zone between the Fleet and the shingle vegetation of Chesil Bank. It appears to exist in a dynamic equilibrium with annual vegetation of drift lines dominated by sea beet and oraches which replaces the scrub in areas subject to disturbance, and is in turn displaced by the scrub after disturbance ceases.

2.3.80 The Fleet and much of Chesil bank are privately owned and managed as a nature reserve. Part of Chesil is Crown Common land. Whilst the majority of the site is largely inaccessible to casual visitors, the south western part of the site known variously as Ferrybridge or Ham beach is subject to considerable visitor recreational pressure, and receives an estimated 100,000-150,000 visitors per annum. The

purpose of visits to the area is wide ranging from local people dog walking, to those engaged in specialist sports or activities. The Coast Path runs alongside the inland boundary of part of the site, which is used year round for walking. Large numbers of migrating birds pass through the area in spring and autumn, attracting bird watchers. The beach is used for swimming and sunbathing in the summer. There are moorings within part of the site and windsurfing, kite surfing and sailing occur adjacent to the site year round (including international competitions). The height restriction of Ferrybridge itself mean that only canoes and other small craft can use the Fleet, and numbers are monitored. Diving occurs both within and adjacent to the site - all year but mainly April to October. Bait-digging is carried out by reacreational fisherman on the intertidal mudflats of the Fleet. Angling is popular off Chesil Beach, which hosts national competitions and litter and discarded and lost tackle remains an issue.

2.3.81 The adjacent Portland Harbour through which much of the water exchange for the Fleet takes place is the site of a new commercial port, following departure of MOD several years ago. Routine or accidental discharges arising from activities within the Harbour could affect water quality in the Fleet and there is potential for recreational uses to 'spill over' into the Fleet. The land use of the Fleet hinterland is largely intensive agriculture and agricultural run-off is a potential source of eutrophication within the Fleet itself. There are also small domestic sewage discharges into the Fleet. There is a shellfish farm within the Fleet which cultivates oysters and cleanses mussels and other species. Introduction of non-native species remains a potential concern. Japanese seaweed is cut on an annual basis. The site is close to one of the world's busiest shipping lanes and consequently there is a risk of accidental oil pollution. Contingency plans exist for dealing with oil spills.

3 Screening for the likelihood of significant effects

3.1.1 The assessment of North Dorset's Core Strategy Preferred Options, in accordance with the Habitats Regulations, should influence the development of the submission draft of the Core Strategy in terms of ensuring that any elements of the plan where there is a likelihood of a significant effect on any European site are assessed, and where necessary appropriate amendments are applied or alternative options pursued.

3.1.2 The initial screening stage (which determines whether an 'Appropriate Assessment' is necessary - see Figure 1) comprises a full check for likely significant effects at the Preferred Options stage. An initial screening was conducted by North Dorset District Council in July 2008. A full screening was then conducted as part of this work, following discussion with Natural England, and this is set out within Appendix 2, providing a policy-option-by-policy-option check for the likelihood of significant effects. The check also considers whether any preferred option likely to have a significant effect can be modified to avoid the potential effect. The check is based on a draft preferred options document dated 29th July 2009.

3.1.3 Based on the policy by policy check (Appendix 2) and discussions with Natural England, the following issues are identified as ones where there may be likely significant effects:

- Increased recreation pressure from increase in population
- Water issues – abstraction and water quality
- Air quality
- Long term management of a site bisected by roads

3.2 Screening Outcomes

3.2.1 We consider increased recreation pressure to have likely significant effects where the sites are located close to locations for new housing, or if they are obvious visitor attractions and may therefore draw people a considerable distance, with 20km a useful cut-off, based on work on access patterns in south-east Dorset and the New Forest (Clarke et al., 2008b, Liley et al., 2008, Sharp et al., 2008). For there to be any effects there must of course also be public access to the site and there must be interest features that could be affected (e.g. through disturbance or trampling) by increased recreation. We address recreation pressure in the appropriate assessment stage by grouping sites according to the habitats they contain and the likely impacts of recreation. We therefore address the following:

- Impacts of recreation and housing on the Dorset Heaths (Dorset Heaths SAC/SPA/Ramsar)
- Impacts from recreation on chalk grassland sites (Fontmell and Melbury Downs SAC, Cerne and Sydling Downs SAC and Salisbury Plain SAC/SPA)

- Impacts of recreational pressure on coastal / estuarine sites (Poole Harbour SPA/Ramsar Chesil and the Fleet SAC / SPA; Isle of Portland to Studland Cliffs SAC; Dorset Heaths (Purbeck & Studland) and Studland Dunes SAC).
- Impacts of increased recreational pressure on the New Forest (New Forest SAC/SPA/Ramsar)

3.2.2 All the other sites have either little or no public access (e.g. parts of Rooksmoor SAC, Great Yews), are too far away or too insignificant to attract people from the District (e.g. Brackett's Coppice), are difficult to walk on (e.g. Lydlinch Common) or the interest feature (such as hibernating bats) are not likely to be affected by recreational activities or visitor pressure.

3.2.3 Water issues are relevant to sites that fall into any catchments from which new housing will abstract water, any sites affected by waste water discharges (e.g. from sewage treatment works) or any sites adjacent to new development such that they will be affected by contaminated run-off. Sites potentially affected are therefore the Avon valley sites (water abstraction and water quality), Fontmell and Melbury Downs SAC (water abstraction) and Rooksmoor SAC (water abstraction).

3.2.4 Air quality is particularly an issue close to roads. Following advice from Natural England we focus on sites that fall within 200m of a road (Rooksmoor SAC and Fontmell and Melbury Downs SAC).

3.2.5 Rooksmoor SAC is actually bisected by two A roads and these pose particular problems for the management of this site. This issue is unique to Rooksmoor.

3.2.6 These issues are now taken forward to appropriate assessment stage in the subsequent sections of this report. We also summarise the sites and issues where a likely significant effect has been identified in Table 4. It can be seen that for nine of the sites discussed in the previous chapter there are no likely significant effects.

3.2.7 Discussions with Natural England as part of the HRA have also raised concerns with regard to European protected species in the wider landscape. The principal species of concern is greater horseshoe bat, with a large and famous colony at Blandford (roosting within buildings that are part of the school). The species is known to disperse widely. Development in Blandford may cause problems for this species. Also increased development is of concern to Natural England in terms of ensuring the protection of otters *Lutra lutra* and great crested newts. This is not for consideration within the HRA, because the species are not interest features of European sites. They are however European protected species under the provisions of the Habitats Regulations. The Council should note these issues raised by Natural England at this stage in the plan making process, and should be pursued with Natural England in order to ensure that the Core Strategy and Development Management Policies DPD does not compromise these European protected species.

Table 4: Summary of likely significant effects ("LSE") for sites and issues. Sites are listed in approximate order of distance from North Dorset District (closest first), and all sites within 20km are listed.

European Site	Increased recreation / housing	Water abstraction	Water quality	Air quality	Long term management due to roads & traffic
Fontmell & Melbury Downs SAC	LSE	LSE		LSE	
Rooksmoor SAC		LSE		LSE	LSE
Holnest SAC					
Dorset Heaths SAC	LSE				
Dorset heaths (Purbeck & Wareham) and Studland Dunes SAC	LSE				
Dorset Heathlands SPA	LSE				
Dorset Heathlands Ramsar	LSE				
Cerne and Sydling Downs SAC	LSE				
Poole Harbour SPA	LSE				
Poole Harbour Ramsar	LSE				
Prescombe Down SAC					
West Dorset Alder Woods SAC					
River Avon SAC		LSE	LSE		
Avon Valley SPA		LSE	LSE		
Avon Valley Ramsar		LSE	LSE		
Chilmark Quarries SAC					
Isle of Portland to Studland Cliffs SAC	LSE				
Bracket's Coppice SAC					
Mendip Woodlands SAC					
Salisbury Plain SAC	LSE				
Salisbury Plain SPA	LSE				
Great Yews SAC					
Mells Valley SAC					
The New Forest SAC					
New Forest SPA	LSE				
New Forest Ramar	LSE				
Chesil and the Fleet SAC	LSE				

4 Impacts of housing on the Dorset Heaths (Dorset Heaths SAC/SPA/Ramsar)

4.1 Introduction

4.1.1 New housing can result in an increase in the pressure on heathland sites through a wide range of impacts including: increased access, increased incidence of deliberate and accidental fires, litter, predation from people and pets, eutrophication and dumping/fly tipping. Attention was formally drawn to these issues in a report on the Dorset heaths to the Council of Europe in 1998 (De Molinaar, 1998), which prompted the UK Government to commission a study of heathland fires in the county (Kirby and Tantrum, 1999). Various authors have since reviewed and summarised the various impacts (see Haskins, 2000, Liley et al., 2006b, Underhill-Day, 2005); we provide a summary in Table 5 and further discussion below. We view these urban effects as potentially operating synergistically to influence the conservation interest of sites surrounded by high densities of housing.

Table 5: Summary of key negative impacts (besides disturbance to birds) of development close to European heathland sites. Table is adapted from Liley *et al.* (2006b)

Effect	Description and Impact	Examples of species / species group affected	Key references
Fragmentation	Loss of supporting habitats	Nectar feeding invertebrates; nightjar, woodlark	Alexander & Cresswell (1990)
	Lack of connectivity between sites preventing movement / genetic exchange between sites	Invertebrates, plants, reptiles, birds and mammals	
	Smaller site size increases edge effects from non-heathland species	Invertebrates and plants	Webb (1989); Webb & Vermaat (1990); Webb (1990); Webb & Thomas (1994)
Predation and increased mortalities	Access by pet cats, some of which feed on the heath	Birds, invertebrates, reptiles and amphibians	Woods *et al.* (2003); Sims *et al.* (2008)
	Different densities of mammalian predators such as foxes present on more urban heaths	Birds, reptiles, mammals.	Taylor (2002)
	Increase in crows and magpies on sites with greater human activity	Birds, invertebrates, reptiles and amphibians	Marzluff & Neatherlin (2006)
Roads	Road kills from traffic	Birds, invertebrates, reptiles and amphibians	Erritzoe (2002)
	Increased levels of noise and light pollution	Birds, Invertebrates	Reijnen *et al.* (1997)
	Roads are barriers to species mobility	Invertebrates	Mader *et al.* (1990)
Pollution /	Ground and surface water pollution from roads and hard surfaces, spills and	Vegetation communities,	Armitage *et al.* (1994)

Effect	Description and Impact	Examples of species / species group affected	Key references
Hydrology	dumping.	macroinvertebrates in watercourses	
	Air pollution from industrial uses, fires and vehicles	Vegetation communities	Bobbink *et al.* (1998); Angold (1997); Bignal *et al.* (2007)
Trampling	Soil compaction	Plant communities and species. Invertebrates	(Taylor et al., 2006)
	Soil erosion from walkers, cyclists and horse riders	Plant communities and species, some invertebrates benefit	
	Damage to breeding and wintering sites	Invertebrates and reptiles	
	Creation of extensive path network increases spatial disturbance	Birds, reptiles	
Vandalism	Damage to signs, fences, gates		
Eutrophication	Enrichment of soils from dog excrement.	Plant communities and species, invertebrates	Bonner & Agnew (1983); Taylor *et al.* (Taylor et al., 2005)
	Dumping of household and garden rubbish.		Liley (2004)
	Enrichment along road corridors, effects of dust, salt, run-off	Plant communities and species, invertebrates	Angold (1997)
Fires	High fire incidence on urban heaths. Direct mortality of fauna. Temporary removal of breeding and foraging habitat	Birds, invertebrates, reptiles and amphibians	Kirby & Tantrum (1999)
	Long term vegetation change from repeated fires	Vegetation communities	Bullock & Webb (1994)
Restrictions on management	Stock grazing, gates left open, dogs chasing animals, injury to stock		
	Objections to management eg. tree clearance		Woods (2002)
	Increased costs of wardening		
Negative public perception	Disregard of access and activity restrictions, hence trampling, dog fouling, fire lighting, illegal motorcycling etc	Vegetation communities, birds, invertebrates, reptiles and amphibians	

4.2 Disturbance to Annex I birds

4.2.1 There is a strong evidence-base showing impacts of new housing and recreational access on the three Annex I breeding bird species associated with lowland heathland. This material has been rigorously tested at various public inquiries and underpins much of the recent policy and planning initiatives such as the Thames Basin Heaths Delivery Plan and the Dorset Interim Planning Framework.

Nightjars *Caprimulgus europaeus*

4.2.2 Several recent studies have demonstrated clear links between human disturbance and both density and breeding success in European nightjars (Liley and Clarke, 2003, Langston et al., 2007b, Clarke et al., 2006, Clarke et al., 2008a, Liley and Clarke, 2002b, Liley and Clarke, 2002a, Langston et al., 2007c, Murison, 2002).

4.2.3 Modelling using data from the last national survey (in 2004) suggests that the nightjar population on the combined Dorset Heaths and Thames Basin Heaths SPAs would be 14% higher were there no nearby housing or visitor pressure (Clarke et al., 2008a). On the Thames Basin Heaths (where visitor pressure is higher than Dorset), nightjars demonstrate a general preference for areas away from access points and site edges. There is a clear trend for nightjar density to decline with increasing visitor pressure, with nightjars appearing to avoid highly disturbed areas within sites. This decline is gradual, and there is not a clear cut-off point at which a marked change in nightjar density occurs. The trend is similar but less clear on the Dorset Heaths (Liley et al., 2006a, Langston et al., 2007c). However, on the Dorset Heaths a negative correlation was shown for urban development or people density and nightjar density, regardless of the size of heathland studied (Liley and Clarke, 2002a, Liley and Clarke, 2002b); urban development density could be considered a rough proxy for recreational access levels.

4.2.4 Studies on 10 Dorset heaths revealed that nightjars had significantly higher breeding success at sites with no public access than those with open access. Nests had a greater chance of failure on open access sites with more surrounding urban development and increasing proximity to a greater density of footpaths (Murison, 2002). Nightjar nests that failed were significantly closer to paths (45 m compared to 150m for successful nests) and tended to be closer to the main access points. Nightjar territories had fewer paths within 100m than did random points. No significant differences in levels of path usage and nest failure were detected. Incubating nightjars sit tight unless disturbed; in 2,000 hours of camera observations of eight nests, nightjars never left the nest unattended during the day unless disturbed (Langston et al., 2007a).

4.2.5 Humans and dogs flush nightjars from their nest, the flushing rate being positively associated with height of the vegetation around the nest (presumably because nightjars cannot see the cause of the disturbance); and negatively correlated with the extent of nest cover (Murison, 2002, Langston et al., 2007a, Langston et al., 2007c). Flushing during daylight leaves nightjar eggs or chicks vulnerable to predation, the proximate cause of nest failure (Murison, 2002). Use of remote cameras fixed on nests documented a single instance of predation: The predator was a carrion crow *Corvus corone* (Woodfield and Langston, 2004), but this species may be responsible for 60% of nest failures (Murison, 2002).

4.2.6 As most nightjar breeding failures happen during incubation (Murison, 2002, Woodfield and Langston, 2004), a single dog running off-path into the heather could disturb large areas of nightjar breeding habitat. Disturbance may be of greater significance during breeding seasons that, for other reasons (e.g. weather), are less favourable.

Woodlark *Lullula arborea*

4.2.7 Across 16 sites in southern England, including the Dorset Heaths, woodlark population density was found to be significantly lower at sites with higher disturbance levels (Mallord et al., 2006, Mallord et al., 2007a). This supported previous findings that density of woodlark territories is significantly reduced on sites with open access compared to those with restricted access (Liley and Clarke, 2002b). This pattern was thought to be due to birds not nesting (but nevertheless still foraging) in the most heavily visited areas.

4.2.8 At sites with recreational access, woodlarks were found to be less likely to colonise suitable habitat in areas with greater disturbance; eight disturbance events per hour reduced the probability of colonisation to below 50%. However, the lower woodlark density at more highly disturbed sites resulted in greater breeding success, in terms of more fledged chicks per pair, i.e. high disturbance levels produced a strong density-dependent increase in reproductive output (Mallord et al., 2006, Mallord et al., 2007a).

4.2.9 A model has been developed to predict the consequences for the woodlark population of a range of visitor access levels (Mallord et al., 2006). Recreational disturbance is thought to be having a major adverse effect on woodlark populations in Dorset already. Any further population impact is likely to depend on the spatial distribution of visitors as well as overall numbers. Under current access arrangements, a doubling of visitor numbers is predicted to reduce population size by 15%. If visitor levels doubled and visitors spread equally across sites, a 40% population decline is predicted (Mallord et al., 2006, Mallord et al., 2007b). If disturbance at 16 heathland sites were to be removed, it is predicted that the breeding population of woodlarks would increase by 13–48% (Mallord 2005).

Dartford warbler *Sylvia undata*

4.2.10 Initial analysis based on data from the Dorset heaths suggested no statistically significant difference in the number of Dartford warbler territories on sites with open access compared to those with restricted access (Liley and Clarke, 2002b). Subsequent studies, however, have refined this view. Clear impacts on breeding ecology have been demonstrated: Disturbance at territories was higher where these were located close to car parks (Murison, 2007, Murison et al., 2007). Dartford warblers are particularly susceptible to disturbance when nest-building, halting or even abandoning activities when interrupted (Murison, 2007, Murison et al., 2007). The nearer the centre of the warbler territory is to an access point (e.g. car park), the later the first brood is likely to be raised. Disturbance appears to delay hatching dates and so prevent chick growth from coinciding with periods of optimal invertebrate prey density, and also to interrupt adult foraging and chick feeding (Murison, 2007, Murison et al., 2007). Dog-walkers accounted for 60–72% of all disturbance events, with dogs off-lead and off-path likely to have the greatest adverse impact on Dartford warbler breeding productivity (Murison, 2007, Murison et al., 2007). Moreover, for such a short-lived species in which there is also low over-winter survival of young birds, increased disturbance could limit population recovery by reducing annual breeding productivity and hence the numbers of potential recruits to new areas (Langston et al., 2007a).

4.2.11 Research on Dartford warblers shows that disturbance may vary to different extents in different habitats (Murison, 2007, Murison et al., 2007). Dartford warblers occupy territories dominated by heather *Calluna vulgaris*, heather territories with significant areas of European gorse *Ulex europaeus* and territories containing western gorse *Ulex gallii*. However, only in the first habitat type did disturbance have significant impact on breeding productivity, delaying breeding by up to six weeks which, in turn significantly reduced the number of broods raised and the average number of chicks raised per pair. In heather territories, an average of 13–16 people passing through per hour each day delayed pairs sufficiently to prevent them raising multiple broods;

most heather territories fell below this threshold. The lower impact of disturbance in territories with gorse may be due to this impenetrable habitat offering some protection from disturbance, as it is known to provide from harsh weather and predators. Dogs were seen to move up to 45 m off-path in heather, but never into gorse-dominated vegetation (Murison, 2007, Murison et al., 2007).

4.3 Trampling and disturbance to other species

4.3.1 Bare ground and early successional habitats are a very important for a suite of plants, invertebrates and reptiles on heaths (Byfield and Pearman, 1996, Moulton and Corbett, 1999, Key, 2000, Kirby, 2001, Lake and Day, 1999). On the Dorset Heaths it is bare ground habitats, rather than heather-dominated ones, that support the most rare species (Key, 2000) and of the 90 Biodiversity Action Plan species associated with lowland heathland, 39% depend on bare ground and early successional habitats (Alonso pers. comm.). Many plants are only associated with such habitats (e.g. tiny annuals such as slender centaury *Cicendia filiformis*, which occurs alongside the B3075 and is associated with wetter hollows, including vehicle ruts and hoof prints (Lake et al., 2001).

4.3.2 Some kind of physical disturbance is usually required to create these bare ground habitats, and hence a certain level of physical disturbance can be beneficial. Localised erosion, the creation of new routes and ground disturbance may all contribute to the maintenance of habitat diversity within sites. However, the level of disturbance required is difficult to define and is likely to vary between sites (Lake et al., 2001). There are likely to be optimum levels of use that maintain the bare ground habitats but do not continually disturb the substrate. Unfortunately such levels of use have never been quantified, nor is it known whether sporadic use is likely to be better at maintaining bare ground habitats than low level, continuous use.

4.3.3 Heavy use of sandy tracks, particularly by horses or mountain bikes, causes the sand to be loose and continually disturbed, rendering the habitat of low value to many invertebrates (Symes and Day, 2003) and sand lizards that need to lay their eggs in bare sand. Species which burrow into flat surfaces (i.e. the centres of paths) are likely to be particularly vulnerable, as loose sand may not support their burrows and the churning may make it impossible for them to relocate their burrows once dug. The friable nature of heathland soils makes them particularly vulnerable to these impacts.

4.3.4 Path surfacing to divert people along particular routes or contain access problems such as erosion can often be detrimental to invertebrates (S. Miles pers. comm.) and sand lizards. Surfacing with gravel, hoggin, chips or similar material can entomb invertebrates within their burrows and can render the path useless in the future as the invertebrates can no longer burrow through the capping.

4.4 Dog fouling

4.4.1 A number of reviews have addressed the impacts of dog fouling (Taylor et al., 2006, Taylor et al., 2005). Dogs will typically defecate within 10 minutes of a walk starting, and as a consequence most deposition tends to occur within 400m of a site entrance (Taylor et al., 2005) though any walker in the countryside will know to their cost that this not invariably the case. Similarly, dogs will typically urinate at the start of a walk, but they will also urinate at frequent intervals during the walk too. The total volume deposited on sites may be surprisingly large. At Burnham Beeches NNR over one year, Barnard (Barnard, 2003) estimated the total amounts of urine as 30,000 litres and 60 tonnes of faeces from dogs. Limited information on the chemical composition of dog faeces indicates that they are particularly rich in nitrogen (see work cited in Taylor et al., 2006).

4.4.2 Nutrient levels in soil are important factors determining plant species composition and on heathland sites the typical effect will be equivalent to applying a high level of fertilizer, resulting in a reduction in species richness and the presence of species typically associated with more improved habitats. A lush green strip is often evident alongside paths as nutrient enrichment can also lead to more vigorous growth and flowering (Taylor et al., 2006).

4.4.3 The interface between heather and open bare ground is important for many species, especially invertebrates. The emriched grassy strips alongside paths result in a direct loss of an important micro-habitat and the effect is therefore often disproportionate to the amount of land affected.

4.5 Fire risk to heathland

4.5.1 The main source of information on fire on the Dorset heaths was a report commissioned by DETR (Kirby and Tantrum, 1999) which analysed 3333 separate fires and evaluated these in relation to built up areas. This report noted that of the 26 lowland heathland SSSIs in Dorset with the highest number of fires, 1990-1998, 70% were located in or adjacent to urban areas, including the top nine. Similar clustering around the urban fringe was noted by Liley based on earlier work by Hall on Yateley Common, one of the Thames Basin Heaths in N Hants (Liley, 2004). In a later study, Murison found that there was a strong causative relationship between measures of human recreational disturbance and the incidence of wildfires on heaths (Murison, 2007). Kirby & Tantrum also noted that fires were more likely to occur at weekends than weekdays, during school holidays than term time, and during the afternoon and early evening than at other times of day (at times when children have been let out of school but working parents may not have arrived home) (Kirby and Tantrum, 1999). They reported that there was a widespread belief amongst professional heathland managers that most fires were deliberate and that children were often responsible.

4.5.2 Heathland fires can kill mature heather plants, and, where it is hot enough to penetrate the top layers of the soil, can damage seed banks (Hobbs and Gimingham, 1987). On organic soils the soil itself can be damaged by fire delaying the re-establishment of vegetation, sometimes for many years, and causing soil erosion (Maltby et al., 1990, Legg et al., 1992).

4.5.3 The effects of wild fires on invertebrates is variable, with invertebrates with restricted niches, e.g. on old heather the most susceptible to uncontrolled burning (Bell et al., 2001). Old heather stands are also valuable for reptiles, in Dorset particularly rare sand lizards and smooth snakes, and wild fires not only kill many reptiles and leave survivors vulnerable to increased predation, but it can take between 5-25 years before the vegetation has recovered sufficiently to allow re-colonisation (Braithwaite, 1995, Nature Conservancy Council, 1983). No studies have been carried out on nightjars and woodlarks, but it has been found that on a number of wild fire sites on urban heaths in Dorset, after a year 20% of territories remained unoccupied (Murison, 2007).

4.6 Other urban effects

4.6.1 There is a range of other urban effects on heathland ecosystems including pollution, vandalism, fly tipping, littering, introduction of alien plants and animals, trampling and predation.

4.6.2 There is considerable evidence from the records of a number of heathland managers of a range of undesirable activities by members of the public including use of vehicles off paths and tracks, dumping of chemicals, setting fire to abandoned vehicles, collecting wildlife and indirect effects of barbecues and camping (De Molinaar, 1998, Haskins, 2000, Underhill-Day, 2005, Munns, 2001).

4.6.3 No systematic studies have been attempted on the introduction of alien plants and animals to heathland, but one study recorded over 40 non-native plants and another the introduction of alien plants and fish into heathland ponds (Liley, 2004, Munns, 2001).

4.6.4 A number of studies have estimated the number of cats in Britain and these suggest a figure of about 8 million domestic cats and over 800,000 feral cats (Harris et al., 1995). An analysis of the Target Group Index survey of 25,000 adults from across GB in 2000, suggested that 13% of British households own one cat and 10% own two or more cats (Saul, 2000). Although cats differ widely in the amount of hunting they do and the distances they will travel to hunt, studies have shown that some cats will travel at least a kilometre from home; that they hunt both during the day and at night; and that they catch a wide range of mammals, birds and reptiles (Barratt, 1995, Barratt, 1997, Woods et al., 2003). Cats have been seen on most of the urban heaths in Dorset (Urban Heath Life Project pers comm.), and in 2004, Murison (2007) recorded that out of a marked population of young Dartford warblers, 16% had been predated by cats within 2-4 weeks of leaving the nest. No similar studies have been carried out on woodlarks or nightjars both of which are ground nesting.

4.6.5 Heathlands can be damaged by trampling, with heather dominated heath and communities with a high cover of lichens and mosses, and bog communities all being particularly susceptible (Harrison, 1981, Anderson and Radford, 1992). Wet and humid heathland are damaged by trampling with summer trampling generally being more harmful than winter trampling and repeated tramples causing more damage than single events (Gallet and Roze, 2001, Gallet and Roze, 2002, Gallet et al., 2004). These results show that most damage to heathland plant communities is likely to occur in summer when visitor numbers are greatest and that new paths can be rapidly created from desire lines by walkers on heathland.

4.7 Functional links and the connectivity between North Dorset and the European Heathland Sites

4.7.1 There are various relevant visitor surveys that can be used to indicate whether people living within North Dorset District visit the Dorset Heaths.

4.7.2 As part of Natural England's monitoring of the use of open access land, 37 days of surveys were conducted on Dorset Heathland sites in 2007, with 349 questionnaires being completed on 12 heaths. Five of the questionnaires (1.4%), representing 13 people, involved people that lived within North Dorset District (see Map 3). These interviews took place at the following locations:

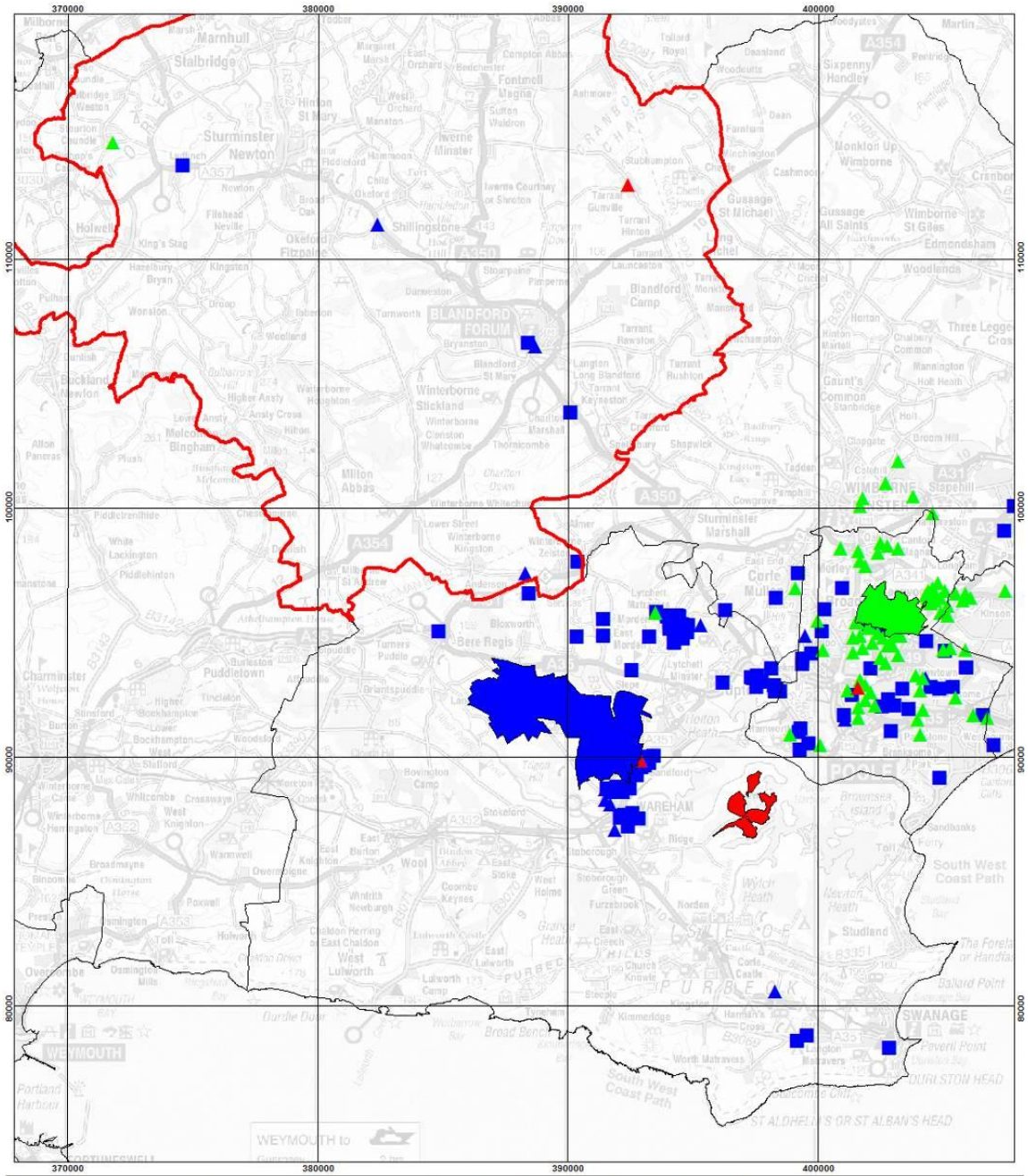
- At Coombe Heath (part of Arne RSPB nature reserve) there were visitors from Tarrant Gunville,
- At Decoy Heath (part of Wareham Forest) there were visitors interviewed from Shillingstone, Blandford Forum and Winterbourne Tomson
- Canford Heath (a Borough of Poole Nature Reserve) there were visitors interviewed from Stourton Caundle.

4.7.3 As part of work for Purbeck District Council, Footprint Ecology conducted visitor surveys in the eastern part of Wareham Forest in 2008. This small survey was conducted over four days at two locations and 123 interviews were conducted with visitors. Of those, there were four groups (3.2 %) of people interviewed who lived in North Dorset District (See Map 3). These visitors came from Lydlinch, Blandford Forum, Charlton Marshall and Winterbourne Zelston.

4.7.4 Within the visitor survey of the Dorset Heaths SPA / SAC / Ramsar, conducted in 2004 (Clarke et al. 2003), none of the interviewees (that gave valid, whole postcodes) were from North Dorset District. The survey involved 40 days of questionnaires with visitors and covered a range of sites.

4.7.5 It would therefore seem that there is evidence of a low use of Dorset Heath sites by residents of North Dorset, born out by data from at least two visitor surveys. The number of dwellings involved (much of North Dorset is a long way from the Dorset Heaths), and the locations where

the interviews are conducted is clearly important. Wareham Forest is likely to be one of the sites visited, due to its extensive scale and proximity. An adverse effect on the integrity of the Dorset Heaths SAC, Dorset Heathlands SPA and the Dorset Heathlands Ramsar site cannot therefore be ruled out.



Map 3: Home postcodes of visitors to Warehm Forest, Canford Heath and Arne
Habitats Regulations Assessment of the North Dorset Core Strategy and Development Management Policies DPD

footprint ECOLOGY

21 August 2009

Scale 1:209000

North Dorset District

District Boundaries

Square symbols from Footprint Ecology Visitor Monitoring

Visitors to:

Canford Heath

Wareham Forest

Arne

Triangle symbols from Natural England Open Access Monitoring

4.8 Mitigation

4.8.1 Mitigation measures, relating to housing development and the Dorset Heathlands Natura 2000 sites, have already been set out by a number of authors and accepted by Natural England. We highlight the Dorset Interim Planning Framework (the IPF) which is a joint initiative by local authorities to the south and east of North Dorset (Poole, Bournemouth, Christchurch, E Dorset and Purbeck) and which has been using developer contributions to fund measures which include wardening, new access infrastructure, community work, the creation of new sites (to draw people away from the heaths) and monitoring. The intention is that the IPF will be superseded by a joint Development Plan Document (DPD) setting out measures over an extended time period. West Dorset District Council, not party to the IPF / DPD, have individually set out a programme of developer contributions to fund works relating to heathland sites and mitigation relating to development pressure.

4.8.2 West Dorset District Council provides a suitable model for mitigation as the scheme has been accepted by Natural England, and, like North Dorset, relates to potentially small increases in housing in the areas around the fringe of the heaths. Any mitigation framework for North Dorset would reflect the small increases in recreational pressure in comparison to other administrative areas around the heaths.

4.8.3 Relevant heathland SSSIs (and part of the Nautra 2000 network) that are within 5km of the North Dorset District are Black Hill Heath (Bere Regis) and parts of Wareham Forest (Morden Bog and Hyde Heath). The exact level of mitigation required will depend on the specific amount of housing that will come forward within 5km (Map 4 shows the relevant parts of the District), and it is therefore proposed that at this stage a broad understanding of the types of measures is developed, and that once the plan is refined to give greater clarity on numbers and locations for housing, more specific mitigation recommendations for a mitigation scheme are pursued.

4.8.4 Suitable measures would include:

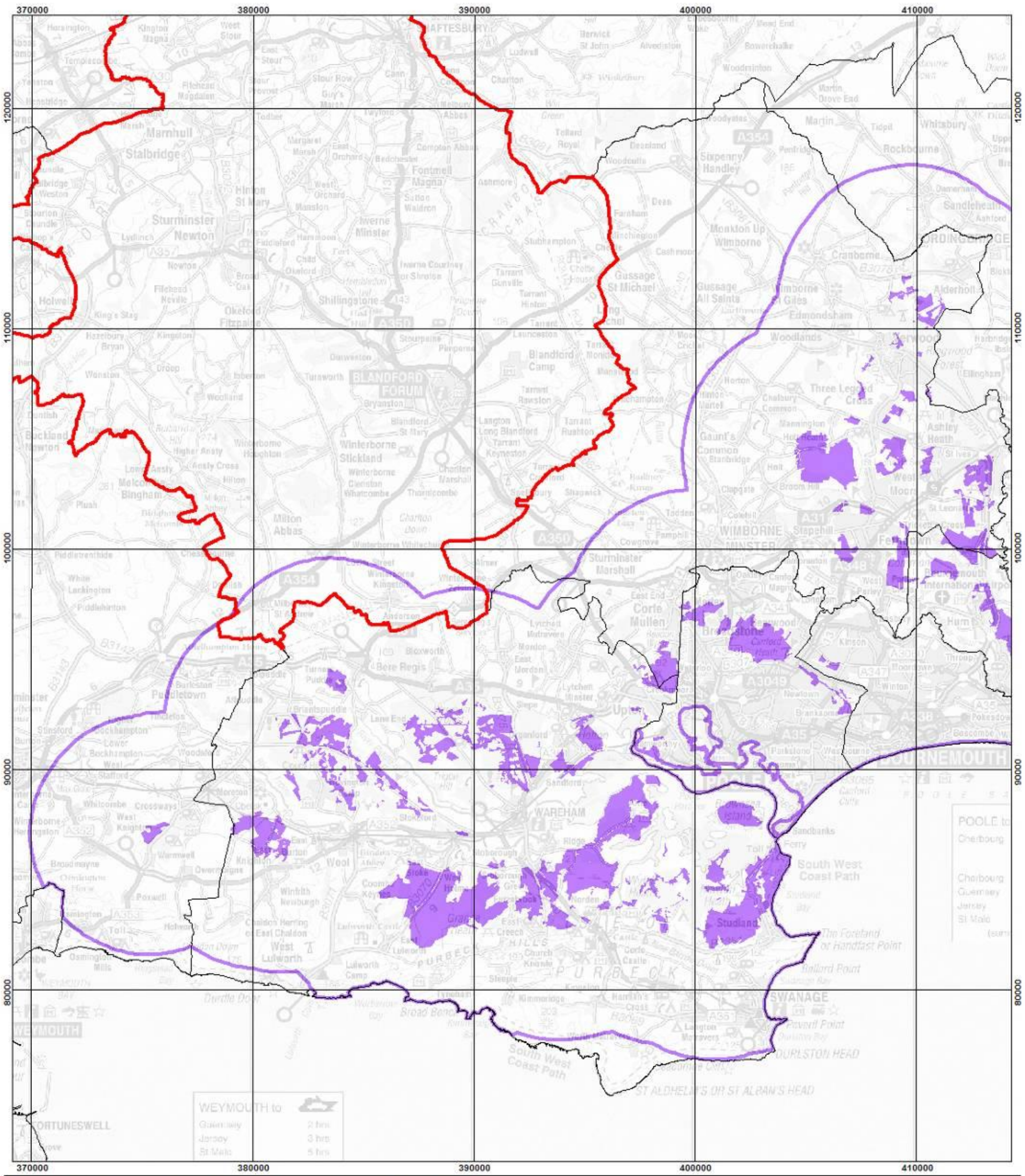
- The provision of alternative site(s) of a suitable size and design to draw dog walkers and other visitors that would otherwise visit Wareham Forest or Black Hill Bere Regis. Suitable locations would be in the south of the District around Milton Abbas, Winterbourne Whitechurch or Milborne St. Andrew. A large site to the south of Blandford may also be suitable. In order to be successful site(s) will need to be easily reached by car and provide safe, off-road parking. Sites would need to be agreed by Natural England and secured in perpetuity. Given the likely low level of housing provision that might come forward within the zone indicated in Map 4, costs may need to be disproportionately high to secure such a site (potentially too high to secure through, for example, developer contributions). Sites outside the District (e.g. in the north of Purbeck District or the west of East Dorset District) may also be suitable and it might be possible for North Dorset District Council to work jointly with one of these authorities to contribute towards a new site in a suitable location.

- Additional green infrastructure in the form of cycle routes and dog walking routes that provide attractive, quiet and safe opportunities for recreation. Additional facilities such as parking areas, signage, promotion etc may be required. In order to identify potential opportunities it will be necessary to undertake a review of existing routes etc. in the southern part of the District.

- Provision of a seasonal wardening presence at Black Hill Bere Regis, with the face-to-face contact between the warden and the public providing a means to promote responsible access (such as dogs on leads).

4.8.5 It will be necessary to monitor and evaluate the success of mitigation measures, to ensure that as a whole they deliver effective mitigation,, and to provide an audit trail for the use of developer funding. This would be best achieved through an annual review. The review should establish the number of new developments that have come forward in the period, project expenditure, and check on the progress and effectiveness of the mitigation projects adopted.

4.8.6 At this stage it is considered that the above measures would be sufficient to allow small developments to proceed with reasonable confidence of no adverse effect on integrity of the European Sites. It is possible that any large developments within 5km of a European designated heathland, would be able to provide adequate mitigation measures as part of the development alone, rather than providing developer contributions towards a co-ordinated approach. This may be something that needs to be actively encouraged through the Core Strategy, and all these possibilities should be explored further and firmed up once the plan is nearing a submission draft, in order to provide a basic framework for the mitigation strategy at submission stage, with a commitment to its completion set out within policy wording.



Map 4: Dorset Heaths SPA, with a 5 km buffer

Habitats Regulations Assessment of the North Dorset Core Strategy and Development Management Policies DPD

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21 August 2009

Scale 1:236000

North Dorset District

District Boundaries

5 km buffer around Dorset Heaths SPA

Dorset Heaths SPA

5 Impacts from recreation on chalk grassland sites (Fontmell and Melbury Downs SAC, Cerne and Sydling Downs SAC and Salisbury Plain SAC/SPA)

5.1 SAC interest features

5.1.1 The chalk grassland SACs where it is considered there may be impacts from recreational uses, arising from the increase in housing proposed in N Dorset district are Fontmell and Melbury Downs (within the district boundary), Cerne and Sydling Downs (some 3km to the nearest part, from the western edge of the district) and Salisbury Plain (some 16.5 km NW of NDDC).

5.1.2 They are all designated SACs for their occurrence of semi-natural dry grasslands and scrub on calcareous substrates. In each case they are among the best examples in the country and for the latter site, the orchid-rich chalk grassland is a priority feature. Another primary reason for the SAC designation in the case of Fontmell and Melbury Downs is the large population of the endemic early gentian Gentianella anglica. Both at Cerne and Sydling, and at Salisbury Plain the presence of strong populations of the Annex 2 marsh fritillary butterfly is another reason for SAC designation.

5.2 Impacts

5.2.1 The impacts on the chalk grassland SACs likely to arise from proposals in the Core Strategy are mainly from the effects of trampling and possibly erosion caused by walking or cycling, and the addition of nutrients. In the latter case, atmospheric deposition from traffic emissions is covered in Section 10, but eutrophication from dog faeces is also a real if localised threat, especially to habitats that are necessarily naturally low in nutrients, such as calcareous grassland.

Effects of trampling

5.2.2 The SAC habitats are vulnerable to some extent to the impacts from the passage of walkers or cyclists. Those parts that are steep and with thin soils, especially near access points where pressures are more concentrated, are particularly vulnerable. These plant communities are fragile and already under environmental stress, from among other factors, summer drought, thin soils and natural sub-aerial erosion. Such stresses from natural causes can be exacerbated by human pressures.

5.2.3 Because of the location generally on the steeper downland slopes, the richest grassland turf, though highly susceptible to such wear, is by its position comparatively safe. The steeper ground makes walking relatively difficult and thus fewer people venture onto the steep slopes. However, where such walking does occur, the impact through erosion and trampling is potentially greater. There are some localities where the high quality turf is relatively close to access points, such as at the foot of Giant Hill, Cerne, and here erosion is very clearly apparent, albeit locally. For the most part however, and especially where the main access is at the top of the downland, as at Fontmell, the immediate turf is on flatter ground and is as a consequence more robust, growing on deeper soils and comprising grasses and herbs of more fertile ground.

5.2.4 The chalk downlands of the Fontmell and Cerne SACs are open to public access and there are also footpaths and bridleways, some linking back to access points, and some with small-scale car parking available. There is thus existing walking pressure especially at the top of the downs at Fontmell where the views across the Blackmore Vale are very impressive, but also across some of the downland slopes.

5.2.5 At Fontmell and Melbury the main access is from several small, and in some cases informal, parking spots along or adjoining the C13 high road. In all some 25 spaces are available in several locations, to the south of Melbury Abbas. There is some availability of informal parking at the far eastern end of the minor road that joins the B3081 at Ashmore Down, but this is further from settlements and does not offer the same degree of walking routes on the downland, or such commanding views.

5.2.6 The main focus for car parking and access at Cerne and Sydling Downs SAC is in the villages of Cerne Abbas and Sydling St Nicholas. From these places, the downland slopes are relatively distant – 250-500m along roads and pathways; and access is to the foot of the downs. The main viewpoint for the chief feature – the Cerne Giant chalk figure – is separated by agricultural land from the downland slopes and is alongside the A352 road. There are limited parking opportunities for the other parts of the SAC complex, each only accommodating a few cars, and/or distant from the main downland slopes.

5.2.7 Many studies on the effects of trampling, by feet, cycles and vehicles, and on the impacts of soil enrichment including from dog fouling are cited in the literature. A useful and recent compendium of this varied research is given in the Natural England commissioned Report NERC012, 2009, and the Supplementary Guidance (NERC013) also 2009. Findings from a variety of experiments and research, and in various localities, support the view that low productivity turf (eg calcareous grassland) is more prone to trampling and enrichment damage than more productive grassland and that recovery from such damage is slower. Even quite modest pressure can result in changes in plant composition, reduction in biodiversity, reduction in soil invertebrates, and in soil compaction. And where diversity appears to be maintained, there can be a shift to more resilient and generalised species rather than the characteristic species of calcareous grassland. There is some evidence however that already grazed sites are less prone to dramatic change since to some extent the grassland communities have already adapted to the effects of grazing animals, which are comparable in some respects.

Effects of nutrient input

5.2.8 Low nutrient sites, typical of many semi-natural habitats including chalk grassland, are especially susceptible to the addition of fertiliser, whether from atmospheric deposition (mainly nitrogen) or dog faeces and urine (phosphorus and nitrogen). There are many studies and reports of the observed effects of dog fouling on vegetation and also on the volume of faeces and urine deposited. A very useful assembly of the literature on this topic is provided in the English Nature Research Report 649, Taylor et al 2005. This cites evidence of a strong correlation between soil phosphorus and faeces deposition; and levels can far exceed those of fertile farmland. Nitrogen is the main nutrient in urine and adding nitrogen results in loss or reduction in botanical diversity. It is estimated that 1000 tonnes of dog faeces are deposited every day in UK; and for every tonne, 500 litres of urine is deposited. Such deposition tends to be concentrated near entry points and along path sides, though any walker in the countryside will know to their cost that this not invariably the case.

5.2.9 The number of dogs in UK is estimated to be some 2.1 – 2.3 million; and there may be 1 dog for every 2 to 4 walkers (25-50%) on sites close to residential areas. In some cases, the ratio of dogs to people was more than 1 dog per walker on average. A study by C Westgarth et al, (BMC Veterinary Research 2007, 3:5) in a semi-rural community in Cheshire, found that 24% of households own at least one dog and that the average rate was 1.3 dogs per household. Liley et al, (in the report Access Patterns in SE Dorset, 2008, based on household surveys) found that the dog ownership level in SE Dorset was 19% of households.

5.2.10 Dog walking is a daily discipline and in many cases may mean one or more walks with the dog every day. Thus the impact of dog walkers is comparatively much more frequent than for other

walking. This effect is thus likely to be much more linked to the impacts from housing, with a decidedly local focus.

5.2.11 The 2008 SE Dorset Access Study found that the most frequently visited type of outdoor site by a considerable margin was the coast with 46% of respondents saying they had visited within the last week. (The next most frequently visited type of site was "parks" with 30% visiting within the last week.) However, the proportion of those owning a dog and visiting any outdoor site within the last year was higher than for non-dog owning households (96% cf 89%); and the proportion of dog owners that said they had visited a particular kind of site was higher for all types of site.

5.3 Summary of Impacts

5.3.1 No visitor surveys have been conducted at the downland SACs but casual observation (eg by DWT Site managers) confirms that the main access at Fontmell is from the small car parks off the C13; and that walkers, many with dogs, are the main users. This location is only 2km from east Shaftesbury where there is likely to be a focus of new housing provision. Though actual numbers of additional walkers/dog walkers visiting Fontmell and Melbury Downs, from new housing, especially from Shaftesbury because it is so near, may be quite small, this could represent a relatively high proportional increase. Full visitor surveys would be needed to enable prediction (and confirmation) of this, but in the absence of such information it must remain a distinct possibility and thus the likelihood of adverse impact cannot be ruled out. Trampling and especially increased enrichment from dog fouling on essentially low-nutrient habitat are the main impacts. Riding, cycling and other recreational pursuits are unlikely to be a significant impact, based on current practices.

5.3.2 The Cerne and Sydling sites are at significantly greater distance from new housing in NDDC and here an increase in visitors arising as a result of the Core Strategy housing provisions is unlikely. This fact, coupled with the relatively low access provision and no very obvious attraction feature, such as a viewpoint, means that no adverse effect on integrity to Cerne and Sydling Downs SAC is expected, as a result of increased recreational pressure arising from development in North Dorset.

5.3.3 Salisbury Plain is a considerable distance from North Dorset and it would therefore seem unlikely that there would be any direct link or impacts from recreation. Visitor data does support this. In work by Footprint Ecology in 2006 (Liley et al., 2007a) a total of 169 visitors to Salisbury Plain were interviewed about their visit. These were all visitors using the eastern part of the military training area (i.e. the part with public access), mostly accessing the area from informal parking locations (such as track gateways or lay-bys). Of the 169 interviewees, 133 were willing/able to provide a valid postcode. By comparing this data to the grid reference of the point at which they accessed the Plain (i.e. started their walk) it was found that 50% of these visitors had travelled under 7 kilometres. The majority (89%) of visitors had come from within 15 kilometres. Notable exceptions were the group of motorcyclists who regularly tow their bikes 65km from Hungerford to ride around the Plain and a pair of archaeologists who had travelled 124km from Exeter. None of the interviewees had come from North Dorset. We therefore assume no adverse effect on integrity, as a result of increased recreational pressure to Salisbury Plain SAC or SPA, arising from development in North Dorset.

5.4 Mitigation

5.4.1 Specific targeted monitoring of the condition of chalk grassland at the Fontmell and Melbury Downs SAC, including the presence of indicators of decline in quality due to trampling and/or enrichment will be required, and this should focus on vulnerable locations such as steep slopes or new desire lines leading out from main access points.

5.4.2 The features to be monitored need to be agreed with Natural England and to be sufficiently sensitive that early warning of adverse effect can be recognised. If signs of deterioration start to appear then actions will need to follow to contain or divert such pressure before long-term damage is sustained. It is critical that a set of monitoring thresholds are developed that provide an early warning before it is considered that adverse effects have occurred, otherwise the measures do not perform their function of protecting the interest features. The actions to implement at the trigger of early warning could include amongst other initiatives:

- path diversions if necessary, accompanied by on-site interpretation and rationale to explain the reasons
- closure of some car parking opportunities
- enforcement of the need to pick up dog mess, accompanied by the provision of sacrificial areas not within the SAC where such a policy need not apply
- provision of alternative sites to attract some pressures away from the SAC

5.4.3 A strategy to provide adequate, attractive green space should be an essential part of any new housing development. Those development sites close to the SAC – and in particular therefore at Shaftesbury or Blandford – are especially likely to generate recreational pressures on the downlands. Green space and suitable alternative routes for walking and dog walking in those settlements should be a key priority, in order to divert extra pressures away from the SAC. Such alternative access sites must be ready and available when new housing is first occupied so that patterns of visitor use to sensitive sites are not established.

5.4.4 If this monitoring and mitigation is adopted and put in place ahead of or at least at the same time as new development, the potential for adverse impacts in relation to the Fontmell and Melbury Downs SAC arising from the new housing proposals in the Core Strategy should be avoided.

5.5 Conclusions

5.5.1 No adverse effects to Cerne Abbas and Sydling Downs SAC or Salisbury Plain SAC/SPA are anticipated as a result of increased recreational pressure arising from north Dorset. Due to the proximity of Fontmell and Melbury Downs to development locations in Blandford and (especially) Shaftesbury, adverse effects to this site cannot be ruled out. Mitigation measures should be sufficient to ensure that visitor levels, as a result of the new development, result in no net increase and on-site management measures have the potential to enhance the site, and therefore mitigation should ensure no adverse effects from recreational pressure result either alone, or in combination, as a result of new development in North Dorset District. The measures may be further refined at submission stage, depending upon the refinement of policies.

6 Impacts of recreational pressure on coastal / estuarine sites (Poole Harbour SPA/Ramsar, Chesil and the Fleet SAC / SPA; Isle of Portland to Studland Cliffs SAC; Dorset Heaths (Purbeck & Studland) and Studland Dunes SAC.)

6.1 Introduction

6.1.1 An increase in people living within North Dorset is likely to result in an increase in recreational use of coastal sites. Coastal sites tend to draw people from a considerable distance and, besides the attraction of a family day out or walk along the coast the water also provides a venue for water based activities such as jet skiing, boating, kite surfing etc. We highlight some locations that are likely to particularly attract visitors in Table 6.

Table 6: Coastal sites which might attract visitors from North Dorset. Distances and travel times are from the centre of Blandford Forum. Drive times calculated using AA route planner[8]

Name of visitor location	European designation	Distance from Blandford (km)	Drive time from Blandford (mins)	Draw / Attraction
Lulworth Cove	Portland to Studland Cliffs SAC	25	50	Beach, coastal scenery
Poole Harbour, Sandbanks	Poole Harbour SPA / Ramsar	24	32	Harbour views, watersports (kite surfing adn windsurfing)
Poole Harbour, Ham Park	Poole Harbour SPA / Ramsar	20	25	Harbour side, launching point for windsurfing and kayaks
Arne RSPB Reserve	Dorset Heaths (Purbeck and Studland) & Studland Dunes SAC, Dorset Heathlands SPA / Ramsar, Poole Harbour SPA / Ramsar	21	46	Harbour side and heathland walks, beach
Studland Peninsula	Dorset Heaths (Purbeck and Studland) & Studland Dunes SAC, Dorset Heathlands SPA / Ramsar, Poole Harbour SPA / Ramsar	27	50	Harbour side access and heathland walks, large sandy beach, coastal scenery
Ferrybridge	Chesil and the Fleet SAC / SPA	38	45	

6.2 Poole Harbour: current use and likely impacts

6.2.1 The Harbour shoreline is used for a variety of land-based recreational activities. The shoreline paths are popular with families, dog walkers, cyclists, joggers, walkers and fishermen. There is currently little information on levels of recreational use of the harbour frontage, but (particularly around Poole) these areas are very well used. The only studies looking specifically at Poole Harbour and access/disturbance issues involve work on bait diggers (Dyrynda & Lewis, 1994; Morrisson, 2006), work at Studland (Liley, Pickess & Underhill-day, 2006c) and a study comparing night time and diurnal use of the northern shore by birds during the winter (Liley et al., 2008 in press).

6.2.2 The southern shore is rural in character and access opportunities directly to the shore within the District are limited. There is foot access to the shoreline near Wareham, at Arne and at

[8] http://www.theaa.com/route-planner/index.jsp

Studland. At Arne and Studland access levels are high. At Arne there is an RSPB car-park and bridleway and the Shipstal area is popular with walkers, birdwatchers families and others, with sandy beaches and fine views. Similarly at Studland the Poole Harbour shoreline is often sandy and is used by walkers, dog walkers, fishermen and others. At Studland the area of heath adjacent to the shore is CRoW access land and therefore there is no potential to control, limit or redirect access. At both locations there are important bird roosts and feeding areas (Collins, 1985, Liley, 2007, Liley and Underhill-Day, 2007, Liley et al., 2007b, Morrison, 2004, Thomas et al., 2004, Underhill-Day, 2006). The western and northern shore of the harbour have much more access. At Upton Country Park theshoreline is quite wooded and there are viewing facilities (a bird hide) over-looking Holes Bay. There is a path running along the shoreline around Holes Bay and another from Lilliput round to Sandbanks. There are parks at Hamworthy (Ham Park) and in the centre of Poole (Poole Park, Baiter and Whitecliff). Ham Park is relatively close to Upton and contains beach huts, a children's play area and the rest of the area is largely mown grass. A tarmac path runs along the shore.

6.2.3 Levels of existing recreational boating activity are high (see Underhill-Day, 2006 for counts). There are currently c.2500 swinging moorings and c.2300 pontoon and marina berths within the Harbour. There are 7 marinas with dry storage for c.2000 craft. With approximately eight yacht clubs (combined membership c.7500 members), some 5000 yachts visit the harbour each year (Underhill-Day, 2006). There are two public slipways. Other waterborne activities include windsurfing, kite-surfing, water-skiing, jet skis and other personal watercraft, wildfowling, motor boating and canoeing.

6.2.4 There are designated zones for water-skiing and personal watercraft within the Harbour both of which require permits. An area off Whitley Lake is set aside for wind surfers but they are not confined to this, and the area to the south of the harbour is designated as a quiet area, although this is only enforced in relation to activities taking place outside permitted areas or violations of the speed limits. Generally speed limits are 10 knots, but with six knots in some enclosed parts of the Harbour. Kite surfing appears to be increasingly common within the Harbour and is particularly concentrated in the area around Whitely Lake.

6.2.5 The number of wet moorings provided by pontoons and marinas has increased in recent years, but the policy of the Harbour Commissioners has been to reduce swinging mooring numbers as other wet berths become available. This policy has resulted in a small reduction in wet berths in the Harbour since 1994 (Underhill-Day, 2006). Based on a questionnaire survey, Southgate (2006) estimated the popularity of various water borne activities within the Harbour. The mean figures of daily use suggest some increase in harbour usage from 1994, and although the number of wet berths has declined slightly, there is an increasing trend in the number of visiting boats being launched from the public slipway at Baiter (Underhill-Day, 2006).

6.2.6 Water-based recreation also spreads out from Poole Harbour into Poole Bay, particularly in the area just outside the harbour mouth, around Shell Bay and Studland. These areas are also very important for birds and many species move freely between the harbour and this part of the bay. Water-based activities in these areas could therefore also have an impact.

6.2.7 There are existing concerns about recreational disturbance to the northern shoreline and its impacts upon the SPA (Underhill-Day, 2006). There is the potential for disturbance to result in birds avoiding using certain feeding areas and birds being repeatedly flushed, resulting in increased energy expenditure. Such effects can have population consequences (see Stillman & Goss-Custard, 2002; Stillman et al., 2001; Stillman et al., 2007; West et al., 2002). Both water based and shore based activities can result in similar impacts and compound the issues. It is likely that the main effect of boating in the Harbour on the SPA interest will be to cause disturbance to birds on the adjoining flats, saltmarshes, shingle and other habitats, particularly

during the winter months. The boats can provide access to parts of the Harbour that are otherwise inaccessible.

6.2.8 It is during the winter that disturbance is likely to have the greatest effect as there are more birds present within the harbour and the weather conditions can mean additional stress (Clark et al., 1993). Although boat traffic is likely to be reduced in winter (although there is no available data on boat use in the most important areas of the Harbour on the south shore during the year), other activities increase. Wildfowling is a winter activity, legally permissible from September 1st to February 20th on foreshore below mean high water, while the licensed clam fishery runs from October to January. Some fishermen collect cockles in winter both from dredging and hand raking, and bait digging takes place all the year round. While these activities taken individually may engender acceptable levels of disturbance under normal tidal and weather conditions, when birds can move to undisturbed areas to feed, taken in combination they could have a profound effect, particularly during hard weather.

6.2.9 Disturbance at times in the tidal cycle or in freezing weather could bear particularly hard on avocet or grey plover which have a limited distribution, linked to the patchy occurrence of their main prey species, or birds such as oystercatcher and curlew where the abundance of their prey species is in places too low to meet their winter energy requirements. There is no data on the in-combination disturbance from various activities for the Harbour, or on the likely effects. In the medium to longer term, milder winters could encourage greater year-round recreational activities with consequent disturbance both alone and in-combination with other activities. Existing in-combination effects have been little studied, and the increases in a number of wintering species in the Harbour may simply reflect changes in distribution due to factors elsewhere. These may mask effects of changing distribution and intensities of activities within the Harbour about which little is known. Moreover, any effects may take some time to influence population trends, and further time may elapse before causes can be identified.

6.2.10 There are no visitor data on recreational use of Poole Harbour and it is not known how far people travel to undertake different watersports or use the shoreline. Given the distances involved it is unlikely that residents in most of North Dorset District will visit the Harbour routinely. However, particularly within the southern parts of the District and up to Blandford it is likely that people may be drawn to the Harbour for specialist pursuits, such as kite surfing, windsurfing and kayaking. In the absence of any information on these activities within the Harbour it is not possible to conclude no adverse effect.

6.3 Studland Dunes

6.3.1 Studland attracts well over a million visitors per year, drawn to the extensive sandy beaches and coastal scenery. There are over 1000 car-parking spaces on the peninsula and a series of visitor facilities that include cafes, restaurants and way-marked routes. There are facilities for various water-sports and part of the beach is a naturist area. Some estimates of visitor numbers and visitor survey data are available (Dickinson, 2006, Liley et al., 2008, Purbeck Heritage Committee, 2002, The Market Research Group, 2007).

6.3.2 Concern about the impacts of recreation at the site were raised in the 1960s (Teagle, 1966). The issues are complex. The embryonic and fore-dune communities at Studland are vulnerable to trampling damage. The sparse vegetation of the upper strand line, with scattered fleshy plants like sea rocket, is especially susceptible to foot traffic and beach users, including the increasing amount of vehicle patrols. In addition to this zone being the often-preferred location for sunbathing, the daily passage of ATVs for litter collection and beach patrols several times a day during the summer makes this very localised and scarce vegetation highly susceptible to damage. A single traverse of two ATVs travelling side by side along the upper strand line at the toe of the

dunes was observed to flatten and crush several sea rocket plants (J. White pers. obs). Earlier in the season, the establishment of seedlings of these annual plants would be equally vulnerable to such damage. Moreover, the gradual trend of sea level rise is exerting a "squeeze" on this vegetation community.

6.3.3 The shifting (fore) dunes, though appearing tough with apparently resilient grasses like marram, are also very vulnerable to trampling damage. Much of the published research on the effects of trampling on dunes relates to fixed or stable dune grassland but it seems that the earlier stages in the succession – the fore and shifting dunes – are disproportionately adversely affected, with even small levels of trampling having a marked effect (Coombes, 2007). The review by Bonte and Hoffman (2005), records that restricting recreation had a positive impact on species diversity within such dune vegetation in every case reported.

6.3.4 The dune heath, with marram, sand sedge and heathers is also vulnerable to trampling. Here the dwarf shrubs can be damaged and broken; and the diverse lichen and bryophyte turf is also easily dislodged and fragmented. The Studland dunes support a significant proportion of the UK's sand lizard population and their feeding and sheltering habitat is vulnerable to damage as is the bare sand used for egg laying. Sand which is trampled and loosened by excessive foot traffic is unsuitable and any eggs laid here are more likely to be lost. Sand lizards are mentioned as a component of this SAC.

6.3.5 The issues from access at Studland Dunes are therefore very real, however it is difficult to determine to what extent development in North Dorset will result in an increase in recreational pressure. There is little data on the home postcodes of visitors to the area. While relatively close in terms of distance, travel time from North Dorset is considerable (c.50 minutes drive from Blandford) as the drive entails circumnavigating Poole Harbour. It is therefore likely that Studland will only attract occasional visits and these, within the context of the existing very large number of visitors, are not considered likely to have an adverse effect on the integrity of the SAC. The existing facilities and access infrastructure, managed by the National Trust is mostly successful at reducing the impacts.

6.4 Other Coastal Sites

6.4.1 Ferrybridge (near Weymouth and part of the Chesil and Fleet SAC/SPA) draws people from a wide area to partake in kite surfing, windsurfing and other water-based activities. The impacts from such activities are discussed above. We consider there to be no adverse effect on the integrity of the SAC/SPA as it is likely that anyone living in North Dorset and wanting to undertake such activities is likely to go to Poole Harbour or the seafront at Sandbanks rather than travel the additional distance to Chesil. Getting to Ferrybridge involves having to drive round Dorchester and going through the centre of Weymouth. Such journeys are likely to be infrequent and, given the existing level of use at the site (already very considerable) we consider there to be no adverse impacts here.

6.4.2 The other coastal sites which may draw visitors from North Dorset and that might be relevant to this assessment are those sites within the Portland to Studland Cliffs SAC. This SAC includes sites such as Durlston Country Park, Old Harry and Lulworth Cove. Such locations are popular tourist and day-visitor destinations, with existing visitor infrastructure and facilities. Visitors come to these sites for the attractive scenery and landscape, and undertake activities such as walking, visiting the beach, rock climbing and boating. The south-west coast path provides a long distance route along the entire SAC.

6.4.3 Impacts are mainly from the effects of trampling and possibly erosion caused by walking or cycling, and the addition of nutrients (e.g. dog-fouling). These impacts on grasslands are discussed in Section 5, in relation to Fontmell and Melbury Downs.

6.4.4 Given the existing visitor infrastructure, the volume of visitors (with high proportion of tourists) and the distance from North Dorset, we consider there to be no adverse effect on the integrity of Portland to Studland Cliffs SACs from additional recreational pressure arising from new development in North Dorset District.

6.5 Mitigation

6.5.1 We have identified that an adverse effect on integrity cannot be ruled out for Poole Harbour SPA / Ramsar. The principal concern relates to relatively specialist activities such as water sports and the impacts to wintering and passage waterfowl, and the proportional contribution that North Dorset will make to the overall impact of increased housing in the vicinity of the harbour. Such effects would be in-combination with neighbouring local authorities, where similar development would increase recreational use of the harbour.

6.5.2 These issues have also been raised in assessments of Purbeck's Core Strategy and Poole's Core Strategy, and the impacts should be viewed as a result of the in-combination effect of increased housing in a broad area around Poole Harbour. Measures relating to shore-line and water-based activities should therefore be implemented in a strategic fashion, involving other relevant bodies such as Natural England and the Poole Harbour Commissioners. The burden for mitigation largely should largely to local authorities that are directly adjacent to the Harbour. This does however require North Dorset to calculate what would be its fair share of the burden, which would be a difficult task and requires further thought prior to submission.

6.5.3 The increases in access to the harbour will be gradual and there is uncertainty about the levels of use and the exact impacts. North Dorset District Council will need to work with relevant partners and neighbouring authorities to clarify the extent to which North Dorset residents visit the Harbour, the activities they undertake and to derive a suitable means of mitigating the impact. The work necessary to understand the impacts of recreation on the SPA and how these relate to the spatial distribution of housing are set out in the Poole Harbour Monitoring Strategy (Liley and Underhill-Day, 2009). Further work now needs to be undertaken to understand what measures are being implemented by other local authorities, to determine whether any such measures will also negate the impact of North Dorset residents, or whether there is a need for North Dorset District Council to contribute towards measures developed by multiple authorities (for example through developer contributions). Such measures could include:

- Reviews of the measures in the Poole Harbour Aquatic Management Plan and further implementation of zoning as necessary.
- Landing / launching of small craft (windsurfers, canoes etc) carefully controlled and limited to specific locations within Poole Harbour only.
- Provision of alternative site(s) for windsurfing and other watersports, such as a gravel pit or inland waterbody.
- Establishment of exclusion zones at points where birds are most sensitive to disturbance

6.6 Conclusions

6.6.1 There is potential for an adverse effect on integrity to Poole Harbour SPA/Ramsar, arising from recreational pressure as a result of disturbance to waterfowl. No other adverse effects to coastal sites are identified. With respect to Poole Harbour the issues particularly revolve around specialist watersports such as kite surfing and windsurfing. There is little information on how far people travel to undertake these activities and therefore we cannot determine the scale of any impact. It is the effect of additional housing within North Dorset District and other areas such as the Poole / Bournemouth conurbation and Purbeck that will potentially contribute to the impact.

6.6.2 More work is necessary to clarify the extent of the issues and there are measures that can be put in place to ensure no adverse effects will occur. This work and the provision of suitable mitigation measures should ideally be addressed in partnership with other local authorities in the sub-region and other relevant bodies such as the Poole Harbour Commissioners and Natural England.

7 Impacts of increased recreational pressure on the New Forest (New Forest SAC/SPA/Ramsar)

7.1.1 Southern England's extensive motorway and trunk road system puts more than 15 million people within 90 minutes drivetime of the New Forest. Good rail links further improve ease of accessibility. This, coupled with the unique mosaic of extensive, high quality habitats, is probably the main reason for the appeal of the New Forest as a tourist destination.

7.1.2 Various studies highlight the high levels of recreational use currently taking place within the New Forest (Tourism South East Research Services and Geoff Broom Associates, 2005, Gallagher et al., 2007, University of Portsmouth, 1996). Total visitor volumes within the New Forest are estimated at over 13 million visitor days (Tourism South East Research Services and Geoff Broom Associates, 2005). This total includes holidaymakers staying within the National Park (12% of visitor days), day trips from home by New Forest residents (14% of visitor days) and people living outside the Park and visiting for the day from home (64% of day visits).

7.1.3 Visitor data from the New Forest is drawn largely from the work conducted as part of the PROGRESS Project (Tourism South East Research Services and Geoff Broom Associates, 2005). The New Forest appears to be the third most frequently visited National Park in England. However, the large size of the New Forest means that visitor densities are equivalent to those experienced on the Dorset Heaths. Visitor distribution within the New Forest may be largely governed by the distribution of car parks since this is the primary mode of transport for visitors. The New Forest has a far larger catchment area than the Dorset Heaths and attracts a far higher proportion of tourists (40%). Dorset forms the second largest visitor origin, contributing 29% of 'other day-visitors'. Most of the visitors from Dorset come from Bournemouth and Poole.

7.1.4 In contrast to the Dorset Heaths, where there appears little seasonal variation in visitor numbers, the New Forest exhibits a clear peak during summer. This peak is in large part due to the arrival of holidaymakers. Visitor pressure is thus greatest during the most ecologically vulnerable period of the year (i.e. during the vertebrate and invertebrate breeding season). New Forest visitors spend more time and travel further on site than visitors to the Dorset Heaths. Dog-walking is a far less and walking a far more important activity in the New Forest than in the Dorset Heaths. Local day visitors to the New Forest are more likely to walk dogs than non-locals, but the proportion is still comparatively low.

7.1.5 It has been estimated that housing development as outlined in the southeast and southwest Regional Spatial Strategies within 50km of the New Forest National Park may result in an additional 1.05 million visits to the National Park per year (Sharp et al., 2008). However, 73% of these additional visits will be made by visitors living within 20 km. As the crow flies, North Dorset District is approximately 19 - 49 km away from the New Forest National Park, however, by road, the district is considerably further. Visitors are attracted to the New Forest due to its scenery, tranquillity, suitability for outdoor activities, and wildlife, characteristics that are similar to other greenspaces within and closer to North Dorset than the New Forest.

7.1.6 Impacts from recreation within the National Park are similar in many ways to those already described above for the Dorset Heaths (see section 4.4). Access can result in disturbance to Annex I breeding birds, trampling, and eutrophication. Impacts of access to the New Forest are discussed in more detail in (Sharp et al., 2008).

7.1.7 Considering the distance to the New Forest and the availability of high quality greenspace within and close to North Dorset, it is unlikely that the proposed housing developments and tourism policies within the North Dorset District's Core Strategy alone will result in significant increases to the number of visitors to the New Forest National Park. However, the in-combination effects of the housing development and tourism policies within the core strategies of all other districts

surrounding and close to the New Forest National Park may result in significant increases in the number of visits made to the Park, especially where new development is within 20km of the National Park (Sharp et al., 2008). Such an increase is likely to have an adverse effect on the integrity of the New Forest SPA and SAC. Proposed development at Blandford does fall within the 20km radius and it is therefore not possible to conclude no adverse effect on integrity.

7.2 Mitigation

7.2.1 The in-combination effects identified can only be resolved through a strategic approach, through some extended partnership that includes the New Forest National Park. North Dorset's contribution to such a strategic approach is relatively minor compared to other adjacent districts. The implementation of any mitigation is potentially complex as one of the fundamental purposes of the National Park is to promote opportunities for understanding and enjoying its features. The National Park therefore has both a duty to encourage and facilitate access as well as to manage access to ensure the protection of the Park. Much of the potential mitigation measures (such as codes of conduct, wardening, interpretation etc.) are already in place.

7.2.2 Visitors are attracted to the New Forest, rather than alternative areas, by dint of its scenery, peace and quiet, ease of accessibility, suitability for walking, and wildlife. As such the site has a wide appeal and draws people from a wide area. These factors need to be taken into consideration when identifying potential mitigation measures.

7.2.3 Potential mitigation measures for the authorities within and around the New Forest include:

7.2.4 Green infrastructure and alternative sites. These may be successful in attracting some visitors (such as regular dog-walkers living close or within the National Park) but are unlikely to attract someone from North Dorset. The alternative sites may well reduce total visitor numbers and therefore work as part of a package of measures to ensure a no net increase in visitor pressure.

7.2.5 Promotion of rail transport and measures to reduce car-use when visiting the National Park, thereby ensuring access is focused through main 'gateways' and reducing impacts from cars (pollution, parking on verges etc.).

7.2.6 Access management within the New Forest as part of a long-term, carefully planned programme to ensure promotion, the spatial distribution of access infrastructure, visitor welcome and contact with visitors is such that the interest features of the European designations are protected and enhanced.

7.3 Conclusions

7.3.1 The New Forest National Park is a nationally promoted visitor attraction that draws day visitors and holiday makers from a wide radius. Visitor levels to the National Park are already high and additional development, especially within a 20km radius, is likely to result in increased visitor pressure. Part of North Dorset District just falls within such a radius. Currently, the New Forest National Park and Natural England are working together to determine how the European interest features can be adequately protected, whilst continuing to welcome National Park visitors, and some of the measures listed above are being considered. It is therefore suggested that the progress of this work is revisited closer to submission stage, in order to determine what commitment, if any, North Dorset needs to make to this work.

8 Impacts of increased housing on water quality

8.1.1 Water throughout the North Dorset District Council area is supplied by Wessex Water (WW) who also supply parts of Somerset, Wiltshire and Avon across four water Resource Zones (RZ). These are defined as "the largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall". North Dorset District council area falls within the south, east and north RZs, with Gillingham in the North RZ and Shaftesbury and Blandford in the east RZ.

8.1.2 WW have estimated the future household demand for water in each resource zone by examining each use of water by households and forecasting future use based on changing attitudes and behaviours and expected changes to domestic equipment; by allowing for projected increases in population and from a forecast of the increase in the use of meters. They have also made an estimate of the future changes in non-household demand. These estimates have been converted into forecasts of demand in a dry year and for the peak week in a dry year when demand would be expected to be at its highest (Wessex Water, 2008c).

8.1.3 The company has then adjusted these figures to allow for the promotion of water efficiency measures to customers, a reduction in leakage and the effect of climate change on demand, to forecast the total demand for water until 2035.

8.1.4 Currently some 75% of supply comes from groundwater sources, of which two thirds comes from groundwater sources which are limited in a drought, and with four sources identified where abstraction is believed to have a significant effect on groundwater levels (none are believed to be in North Dorset). The company has also calculated surface water yields, and allowed for the import of water from adjoining suppliers. Calculations have then been made on the effect of climate change on supply using three scenarios, dry, mid and wet. In the north and south RZs, wetter winters are expected to slightly increase future average and peak groundwater yields while in the east RZ the effects are expected to be negligible for both average and peak yields.

8.1.5 These figures have then been adjusted to allow for outage (a temporary reduction in the achievable output from water treatment works due to unforeseen circumstances i.e. a breakdown in equipment, or a foreseen event such as maintenance) and headroom, an allowance for the uncertainties of demand and supply.

8.1.6 The balance between demand and supply has then been calculated as:

Balance = Yields –Outage – Target headroom – Demand + imports – Exports.

8.1.7 Without low flow reductions (see below), all the resource zones have a surplus of resources to meet foreseeable demand. However, anticipated low flow reductions and increases in population will result in predicted deficits in the North and east RZs, although these are outside the North Dorset area.

8.1.8 In the early 1990s there were concerns about the effects of abstraction during low flows on three rivers. WW proposed a major project to address these concerns but this was not approved by the water regulator OFWAT on the grounds of cost. An agreement between WW, EA, OFWAT and NE was then put in place to minimise the use of water sources which affected the three rivers, and formalised in a statement of Intent in 2002 which was renewed in 2007 for a further three years. However, these measures have not been confirmed as a long term solution, water might still need to be extracted up to typical current abstraction rates in dry years, when the streams would be most vulnerable, and further investigations and monitoring are necessary.

8.1.9 For the current Abstraction Management Plan (AMP5) period, 2005-2010, another fourteen low flow sites have been identified as at risk from abstraction. WW embarked on an option study and

appraisal to identify options that could help to meet a growth in peak demand across the region and allowing for a potential reduction in licenced abstraction to address low flows. They began by listing an unconstrained list of options and undertaking an assessment of, and consultation on, each one. The schemes were then ranked according to their social, environmental, economic and carbon costs and categorised into those that reduced demand for water; those that increased average and peak water availability, those that catered for peak demands only and those that were only applicable with low flow licence reductions. The optimal schemes identified were all in the East and North RZs and are to address problems primarily in the Bath/Trowbridge and South Somerset/Yeovil areas. Although no figures have yet been agreed, a deficit of 20Ml/d has been identified in the north resource zone and 12Ml/d in the east resource zone by 2035. These are due to a growth in demand in the north and sustainability reductions in both zones likely to be imposed by EA as a result of the low flows studies (Wessex Water, 2008a).

8.1.10 WW have opted for a strategy that integrates their water supplies such that customers will be able to receive their water from more than one source. This would provide more security of supply, allow the movement of water around the region in the event that some supplies became unsuitable (for example due to high levels of nitrate), give greater robustness of supply against the effects of climate change and improve the connections between areas in deficit and those in surplus. However this also means that supply shortages in one area could impact on other areas as water is moved around the region to ease the deficits. They anticipate that the measures they take will remove the supply/demand balance deficits in the north and east resource zones until 3034. However, the achievement of this will also depend on the construction of additional pipelines, pumping stations and reservoirs, increasing the proportion of metered customers, continuing to reduce wastage from leaks and continued wise use of water by customers.

8.1.11 Groundwater quality is an important issue for the Company with elevated levels of nitrates found in some locations, coming largely from agricultural sources. In many areas groundwater quality is getting worse, and between 2010 and 2015 it is expected that abstracted raw water will exceed the drinking water standard for nitrate at eight water supply sources. Where the nitrate level exceeds this standard of 11.3mg/l the law requires that the water is not put into the public supply. Using a modelling approach, based on historic rates of nitrate fertiliser application, variations in groundwater levels and intense groundwater recharge events, the company has extrapolated nitrate levels into the future for sources at risk, none of which appear to be in North Dorset. This has shown that for most sources, nitrate levels will continue to rise for a few years and then decline. If nitrate concentrations exceed permitted levels, the company can close the source of supply or install treatment processes to remove nitrates as has been done recently for two sources near Salisbury.

8.1.12 Abstraction, whether from reservoirs, rivers or groundwater sources has to be licenced by the Environment Agency (EA), and these licences set a limit to the amount of water that can be abstracted from any given source per annum or per day in order to protect the environment. In some places there is stream support, in others, the level of abstraction from groundwater sources can depress river flows.

8.1.13 The Environment Agency is required to produce Catchment Management Strategies for river catchments setting out the availability of water and their strategy for managing this resource now and in the future. Dorset Stour Catchment Abstraction Management Strategy (CAMS) covers an area of approximately 1300km². The River Stour and its dense network of tributaries includes the whole of north Dorset district as well as surrounding areas. The River rises at Stourhead and flows 96 k down to Christchurch Harbour (Environment Agency, 2004). There are 330 abstraction licences within the CAMS and 50% of the water abstracted is used for public water supply or stream support.

8.1.14 Parts of the CAMS area have been designated a Nitrate Vulnerable Zones (NVZs), mostly in the south–west of the area, due to high or rising levels of nitrates and action programme measures must therefore be implemented in the CAMS area to reduce nitrate pollution. Both surface and groundwaters have enhanced levels of nitrates mostly due to the historic application of fertilisers. The middle sections of the Stour in North Dorset district have been put forward as a candidate sensitive area (eutrophic) under the Urban Waste Water treatment directive. If public water supply sources are polluted by nitrates, alternative sources may have to be used that effectively reduce the available supplies.

8.1.15 The CAMS has assessed the availability of supplies used for consumptive purposes in terms of availability status as in Table 7.

Table 7: Indicative resource availability status.

Indicative resource availability status	Definition
Water available	Water likely to be available at all flows including low flows. Restrictions may apply
No water available	No water available for further licensing at low flows, although water may be available at higher flows with appropriate restrictions
Over-licensed	Current actual abstraction is resulting in no water available at low flows. If existing licences were used to their full allocation they would have the potential to cause unacceptable environmental impact at low flows. Water may be available at high flows with appropriate restrictions.
Over-abstracted	Existing abstraction is causing unacceptable environmental impact at low flows. Water may still be available at high flows with appropriate restrictions

8.1.16 The CAMS area has been subdivided into smaller Water Resource management Units for the purposes of assessment and the relevant management units in North Dorset are:

8.1.17 Unit 1. Upper Stour (Surface water). This unit includes the middle parts of the River Stour catchment including its tributaries. At low flows some 80% of water comes from the chalk and greensand, and there is concern that if abstraction rises to the full licensed limits, environmental deterioration would occur. The unit has therefore been classified as “over licensed”.

8.1.18 Unit 2 Middle Stour (Surface and groundwater). This unit includes the River Stour and its tributaries down to the edge of Poole, excluding the Rivers Crane, Allen and the Moors river, About 80% of water is extracted for public water supply, and the unit is assessed as “no water available”.

8.1.19 Unit 5 Middle Stour (Groundwater). This major chalk aquifer under lies much of the area and supports a number of rivers and streams around Blandford Forum. There is concern that if abstraction rises to the full licensed limits, environmental deterioration would occur. The unit has therefore been classified as “over licensed”.

8.1.20 Since the CAMS was published there has been a published review and no changes have been made in the water availability status of either surface or groundwater management units (Environment Agency, 2007)

8.1.21 The district adjoins the catchment of the Hampshire Avon, and most of this river and its tributaries have been designated as SAC and much of the Avon Valley as an SPA and Ramsar site.

8.1.22 The closest part of the Avon catchment is at Shaftesbury, where the headwaters of the River Nadder and River Sem, both tributaries of the Hampshire Avon, rise within about 3km of the town, although outside North Dorset district.

8.1.23 The CAM for the Hampshire Avon has shown that the river and all the main tributaries are either over-licensed or over abstracted and that the for the nearest groundwater unit (GWMU1) there is no water available (Environment Agency, 2006). It is not known whether any abstraction of groundwater within North Dorset District could affect the aquifers linked to the River Avon catchment. Wessex Water, in consultation with the Environment Agency and Natural England are carrying out an investigation into the effects of public water supply abstraction on the Avon Catchment during AMP 4 (2005-2010).

8.1.24 WW have opted for a strategy over the next 25 years of developing a more integrated water supply grid. This involves a network of pipelines to supplement the existing system. The proposed scheme will connect all major areas so that deficits in one area can be accommodated from surpluses elsewhere by moving water around. Such deficits may arise from water shortages in some years, the need to maintain flows in streams and rivers by reducing abstractions and stream support and the possibility of cutting supplies from sources with high nitrate levels or high pathogen levels (Wessex Water, 2008b).

8.1.25 For North Dorset this means that all areas will be on the extended network of water mains. It will, however, take WW some time to put a fully operative network in place and there could therefore be some short term issues of supply if further development places additional burdens on surface or groundwater sources which have no water available during dry years or at dry peaks, and if some local sources are closed due to high nitrate levels.

8.1.26 The Environment Agency's abstraction licensing system and Review of Consents should serve to protect the European sites from the negative effects of over-abstraction. The River Lydden drains the area around the Rooksmoor SAC, and although it is part of the WRM Unit 2 designated as no water available, this is due to the status of a more critical unit downstream. However, the Lydden is subject to rapid run-off and low levels during dry periods. Should the downstream unit change in status there is a possibility of the Lydden being re-assessed as water available. Should this occur, an appropriate assessment would be needed on the effect on the SAC of increased abstraction from the river.

8.1.27 Although there are concerns that abstraction could be affecting chalkwater springs, the springs at Fontmell and Melbury Downs are below the chalk grassland downs and therefore downstream extraction is unlikely to affect the SAC.

8.2 Sewage discharges

8.2.1 A total of 58 sewage treatment works (STWs) discharge into the Stour catchment, with three having permitted discharges greater than 10,000m³/d, all in the lower catchment. No designated European sites within the District are likely to be affected by these discharges as the River Stour (and Christchurch Harbour into which it discharges) are not European Sites. However it is not known whether any STWs in North Dorset District discharge into or are pumped across to the Avon Valley where the river and its tributaries are all within the European site. This needs to be checked.

8.2.2 North Dorset District Council should seek assurances from Wessex Water and the Environment Agency that proposed new development will not generate any increase to existing, or new discharges, into the Avon catchment that could damage the SAC.

8.3 Conclusions

8.3.1 It is concluded that adverse effects upon these European designated sites arising from water abstraction are unlikely, but that North Dorset District Council should seek an assurance from the Environment Agency and water authority that if the status of The Middle Stour Water Resource Management Unit was to change to "water available", that additional development in the district would not affect the Lydden and have a secondary effect on Rooksmoor SAC.

8.3.2 The District Council should also seek assurances from the Environment Agency and water authority that additional development in the district will not lead to any further abstraction of groundwater that might affect the Hampshire Avon SAC.

8.3.3 Such assurances from the Environment Agency and water authority in the short term and the implementation of an extended water supply network in the medium term by WW should allow development of the allocated housing to proceed with regard to water abstraction. Further checks are necessary to ascertain that no sewage treatment works discharge into the Avon catchment. A set of questions urgently need to be written by the Council, to obtain the necessary assurances from the Environment Agency and water authority, to enable the final HRA to conclude that potential effects have been ruled out, or appropriate and robust measures have been applied.

9 Air quality (with particular reference to Rooksmoor SAC and Fontmell & Melbury Downs SAC)

9.1.1 Airborne nitrogen arising from the burning of fossil fuels in industry, traffic, aviation and agriculture poses a considerable threat to naturally impoverished systems such as semi-natural grasslands. Many grassland plant species can only survive and compete successfully on neutral to calcareous soils with low nitrogen availability. In these situations, plant species composition is adapted to nutrient poor conditions, with low productivity. Enhanced nitrogen supply from atmospheric deposition tends to favour the growth of some grasses at the expense of other herbs, bryophytes and lichens, which may be of more conservation interest (e.g. Bobbink and Roelofs 1995, UBA 1996). The addition of nutrients in rain or dust particles increases the nitrogen in the vegetation, litter and upper soil layers, and this builds up over time.

9.1.2 The most serious pollutant affecting heathland is nitrogen due to nitrogen oxides (NOx) mostly from traffic and industry emissions and ammonia (NH3) mainly from agriculture.

9.1.3 Nitrogen compounds also increase acidification in more acid soils, which because of their low base status have poor buffering capacity, leading to dominance by the most acid resistant species and a reduction on biodiversity. High acid deposition can lead to direct damage to lower plants which receive their nutrients direct from the atmosphere. Acidification can also be caused by deposition of sulphur dioxide SO2, mostly derived from electricity generation and industry.

9.1.4 A widely adopted international standard for setting acceptable levels of air pollutants is the use of critical loads and levels defined as: “quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge” (Nilsson and Grennfelt, 1988). Critical levels identify acceptable levels of pollutants in the atmosphere while critical loads identify acceptable deposition levels on different habitats.

9.1.5 The calcareous and neutral grassland SACs at Fontmell and Melbury Down and at Rooksmoor are likely to be sensitive to atmospheric nitrogen and Rooksmoor is likely to be mildly acidic and therefore moderately sensitive to acid deposition[9] (Rorison, 1990). The critical and recorded loads for both sites are shown in Table 8.

Table 8 Critical loads and actual loads of nitrogen and acid deposition at Fontmell & Melbury downs and Rooksmoor SACs

	Fontmell & Melbury SAC	Rooksmoor SAC
Nitrogen critical Load	15-25kg/ha/yr	15-25 kg/ha/yr
Nitrogen actual load	23.9 kg/ha/yr	25.5 kg/ha/yr
Exceedance	-1.1 - +8.9	+10.5 - +0.5
Acid deposition critical load	4.0 keq/ha/yr	1.5 keq/ha/yr
Acid deposition actual load	1.93 keq/ha/yr	2.05 keq/ha/yr
Exceedance	- 2.07 keq/ha/yr	+ 0.55 keq/ha/yr

9.1.6 The results show high levels of nitrogen at both sites and high levels of acid deposition at Rooksmoor in relation to the recommended critical loads[10].

[9] http://www.apis.ac.uk

[10] Kg/ha/yr: kilogram per hectare per annum Keq/ha/yr: 1 keq equivalent to 14 Kg N /ha/yr

9.1.7 The difficulty in dealing with air pollution issues lies in identifying their source. Air pollution is a product of industry, agriculture, transport and a host of other activities causing emissions, at local, regional and national levels. Responsibility at a national level is for national Government, and at a regional level with regional authorities. The role of the local authority is more limited. This has been well summarised in a letter from English Nature to Runnymede Borough Council, that suggests that local authorities should focus on local air pollution impacts (Levett-Therivel, 2006):

"The Local Development Framework-Core Strategy can only be concerned with locally emitted and short range locally acting pollutants. In terms of pollution from vehicular emissions the concentrations decline exponentially from the road edge. Though it varies with a range of factors and from pollutant to pollutant the concentrations of pollutant from roads can be said to have localised impacts up to 200m from the road side. Therefore for the LDF-CS effects of vehicular atmospheric emissions should be considered if the roads on which the vehicles travel are closer than 200m from the Natura 2000 site."

9.1.8 The main sources of pollutants at both SAC sites are likely to be from traffic levels in the surrounding area. The main concern is therefore any increase in emissions either as a result of the general increase in traffic levels or from new housing and employment developments within the district or from localised effects from increased traffic on the roads crossing the SACs. Another cause for concern would be any increase in traffic as a result of the use of the roads as a 'rat run', particularly the A 350, B3081 and C13 from new populations living in Shaftesbury and working in Blandford Forum or vice-versa, and on the A357 crossing Lydlinch Common.

9.1.9 An assessment of future traffic levels (provided by Buro Happold Ltd) based on existing dominant flows during peak times, 0800-0900 and 1700-1800 shows an increase in traffic levels between 2008 and 2026 on the A350 and C13 of 7% and on the A357 at Lydlinch Common of 16%.

9.1.10 Under the Environment Act 1995, local authorities are required to carry out a periodic assessment of air quality within their areas. In North Dorset a review in 1999 found no evidence of excess of any of the regulated pollutants. In 2003 a second assessment was made and concluded that the air quality objectives were unlikely to be exceeded for any of the measured pollutants and that further detailed assessment were not required (Air Quality Research Group, 2003). A further assessment carried out in 2006 came to the same conclusion. No traffic measurements were quoted for the A3030 but the A357 West of Shillingstone (crossing Lydlinch Common, part of Rooksmoor SAC) had an average annual daily traffic (AADT) figure of 6800 in 2003 and 6700 in 2004. Similarly, the B3081 south of Shaftesbury had an AADT of 7140 in 2003 and 7500 in 2004, an increase of 5% (North Dorset District Council, 2006). These assessments are based on public health criteria and do not specifically deal with air pollution issues and European sites.

9.1.11 The general level of nitrogen deposition at both SACs already exceeds the minimum critical load, and at Rooksmoor, where acid deposition is also high, the maximum critical load. This is highly likely to be due to traffic emissions as studies have shown that an effect on vegetation from local traffic can extend up to 200m from the road edge (Angold, 1997), a standard which has been adopted generally by Natural England (see earlier). Additional development in the areas currently responsible for traffic across or around the SACs will generate additional traffic and increase emissions. It is therefore not possible to conclude that the increased traffic levels both regionally and locally will not have a significant adverse effect on the integrity of Fontmell and Melbury or Rooksmoor SACs.

9.1.12 It would be of considerable value to know where most of the existing traffic travelling through or past the SAC sites comes from and its destination and purpose. For example, if much of the traffic was the result of tourists coming to the area, then measures to counteract this would be quite different to those used to control or reduce traffic from local commuters. In the absence of

data, a precautionary approach would assume that much of the traffic is local and that additional housing will increase this.

9.2 Mitigation

9.2.1 Both of Fontmell and Melbury Downs and Rooksmoor SACs are at the upper limits of the critical loads for nitrogen, and Rooksmoor SAC has exceeded the critical limit for acid deposition, thus rendering both sites vulnerable to increased air pollution arising from traffic. Based upon information available and best practice, and in accordance with the Habitat Regulations and European Directive, the Council should seek ways to rectify the current impact upon these European sites, and ensure no further increases in traffic within 200m of the site boundaries. The Council at a local level, alongside regional and national government are all seeking ways to reduce air pollution, as a matter of legislation and policy. Regional and national initiatives, alongside cleaner and greener vehicle technologies should see improvements in air quality nationally. This may, in the longer term, rectify the current high levels of nitrogen and acid deposition that the sites are enduring. It is therefore concluded that the Council should, as part of its plan making process, be working to achieve improvements in air quality across the District, and this should form part of the Core Strategy irrespective of the need to protect European sites. Such measures may include:

- Plan new development such that additional traffic is not generated between home and workplace by providing employment opportunities close to new and existing housing
- Set high standards for public open space provision with new developments so that new and existing residents can find opportunities for outdoor recreational activities without travelling by car
- Encourage the provision of adequate public transport links, particularly on those roads crossing or adjacent to the SACs (the SAC roads) and adopt measures to encourage greater use of public transport
- Discuss with the County Council as Transport Authority whether traffic control measures on the SAC roads, together with measures to restrict or discourage heavy vehicles would be possible. (There could be other reasons for discouraging heavy vehicles from the B3081, including the narrow Z bends and steep hills in and to each side of Melbury Abbas).

The Council should seek to ensure that air pollution does not significantly increase within 200m of the SACs as a result of development proposed within the plan. There is a need to gather baseline information to establish traffic patterns and possible effects, particularly at Rooksmoor SAC. The following mitigation measures are therefore suggested:

- Commission traffic studies to establish the origins, destinations and purpose of travelling by current users of the SAC roads and monitor the effectiveness of measures to discourage greater use of these roads. It may be possible to obtain a good idea of the make-up of the traffic from conventional axle counters, which would give flows per hour, day, month etc, indicating whether flows are seasonal or peaking at commuting or school times, for example.
- Contribute to any regional measures relating to air quality that have been recommended in the Appropriate Assessment for the South West Plan.
- Ensure that modelling of the transport effects of any larger developments which could generate increased traffic on the SAC roads takes place at an early stage to allow

potential effects on the SACs to be fully assessed and counteracting measures applied as necessary.

- Give consideration to the actual traffic increases that are likely to occur as a result of new development. Can this be determined, and if so, is the increase considered to be significant? This needs to be considered prior to submission of the plan, following collation of baseline data.

9.3 Conclusions

9.3.1 It is not possible to conclude that the increased traffic levels both regionally and locally will not have a significant adverse effect on the integrity of Fontmell and Melbury Downs or Rooksmoor SACs. In order to ensure no adverse effect it is necessary to understand the contribution that new development in North Dorset District would make to the changes in traffic levels on the relevant roads. Some mitigation measures are set out above, and some of these can be directly met by North Dorset District Council and the emerging LDF documents. However, the effects arising from wider traffic movement are complex and potentially need to be addressed at a regional and national level, with contributions made locally. The Council should look to take forward any measures and initiatives that can be incorporated into spatial planning at the local level, and contribute to the regional and national picture.

10 Long term management of Rooksmoor SAC in relation to roads and traffic

10.1.1 Rooksmoor SAC contains two component SSSIs: Lydlinch and Rooksmoor. Lydlinch is markedly different to Rooksmoor in that it is smaller and bisected by two A roads. It is the impact of these roads on the site that we consider here, and in particular the difficulties of long term management that are associated with a site split into small fragments by busy roads. We do not consider there to be any likely significant effects arising from direct mortality of butterflies as a result of traffic nor any effect of isolation of the different populations and reduced gene flow. There is clear evidence, from Dorset, that these issues are irrelevant with respect to butterflies and roads (Munguira and Thomas, 1992). The impact of air-borne pollutants from traffic we address in the air quality section.

10.2 Marsh Fritillaries at Lydlinch

10.2.1 Lydlinch Common is comprised of neutral grassland and fen meadow (a scarce habitat in the UK), with associated scrub, a habitat supporting a diverse range of flowers and insects. There are some 200 species of flowering plants recorded, more than 175 species of moths, including 3 that are nationally notable and 34 species of butterflies including marsh fritillary. This last species is rare on a European scale and is the principal reason for the designation of Lydlinch as SAC. The population of marsh fritillary here and on the nearby Rooksmoor is one of the largest on wet grassland surviving in England, and the designation is applied to both sites as they are believed to support the same umbrella population or 'metapopulation'.

10.2.2 The Lydlinch population of marsh fritillaries has been declining for some years. Marsh fritillaries choose large devil's-bit scabious plants for egg-laying sites and a decline both in vigour and frequency of the food plant, as coarse tussocky grasses take over, has led to a contraction and reduction of the butterfly population. Whilst there are always fluctuations in insect populations, influenced by annual climatic variation, a consistent downward trend in the numbers of butterflies and of their caterpillar webs has occured at Lydlinch. The distribution of marsh fritillary within the common has also changed, with a marked reduction in the spatial distribution of the insect across the site. This has come about due to scrub encroachment and lack of suitable management.

10.3 Options for management

10.3.1 The best and most sustainable management for this area of national and international nature conservation interest is low-intensity grazing by traditional cattle or ponies (at a level of about 1 beast per 3 hectares during the summer plant growth period). The animals should be able to wander freely, reducing the height of herbaceous vegetation in a gradual and patchy way, maintaining an uneven turf of grasses and herbs, essential for the majority of the special wildlife of Lydlinch. In this respect it is in very marked contrast to any other form of vegetation harvesting, such as cutting or burning where the removal of the growth is sudden and drastic. Cutting or burning would not produce the right

sward and would be very damaging to many of the most important insects. It would be impossible to create a small-scale mosaic of open fen and grassland, interspersed with scrub, by burning which could only be conducted in a restricted period in order not to destroy insect larval stages and is also difficult to guarantee in any season due to the unpredictability of weather. The heavy wet soils do not lend themselves to the use of machinery for regular cutting and removal of annual vegetation growth. Sudden harvesting is unacceptable for the dependent insects while leaving the cut grass would cause immense damage to the sward composition. An intricate pattern of open grassland glades with clumps of sheltering scrub and with a gradual edge, rather than a hard, sharp divide between herbaceous and woody growth, would be impossible under a cutting-only regime. Grazing is therefore the most appropriate grassland management system at Lydlinch because it would best cope with the heavy, wet soils and allow for the scatter of scrub patches that are needed to provide for other key insect and bird species. The scrub, managed in this way to prevent its dominance and coalescence, will also assist open grassland species, such as marsh fritillary, by providing sheltered, warm pockets of suitable habitat.

10.3.2 The common has traditionally been grazed and historic photographs (see Figure 2) show an open common with cattle moving freely across the site. The grazing ceased long ago as a result of the road traffic, reduced financial viability and the cessation of traditional practices carried out by older members of the community.

10.3.3 Volunteer management by Butterfly Conservation and others managed to keep the scrub at bay in some limited areas of the site, but since the cessation of grazing, securing the long term management of the site has been an intractable problem. The road traffic is now considerable, essentially splitting the site into small units that, in isolation, are mainly small and difficult to graze and there are numerous practical difficulties such as water provision. The two roads are the A3030 which runs to Sherborne and the A357, which forms a route from Blandford Forum, eventually joining with the A30 and heading north-west to Wincanton.

10.3.4 In order to address the problems, Natural England (and its predecessor English Nature) commissioned various studies investigating and consulting upon management options (Liley, 2005, Liley et al., 2006d). The best option for grazing the common in an extensive, low-intensity manner would have been to enclose the whole site as one unit, using cattle grids to keep livestock within the site. This option was ruled out, at least for the foreseeable future, on road safety grounds, following informal consultation with the Highway Authority. A decision was therefore made to permanently fence the common, excluding the roads (to ensure secure enclosure of stock and their safety, and that of traffic on the A roads). An application for fencing the common was made to the Secretary of State in 2008 and an ambitious programme of scrub management was commenced, dramatically scaling back the amount of scrub on the site with heavy machinery.

10.3.5 It is hoped (assuming that the application for fencing is successful) that the combination of scrub clearance followed by grazing will allow the common to recover and marsh fritillaries to regain their former numbers and distribution within the site. However, the proposed fencing is not the ideal solution, as it creates small grazing units between which the livestock cannot move at will.

There should be a marked improvement in the fortunes of marsh fritillaries, but completely fencing the common and allowing livestock to graze extensively within the entire site would have been much preferred. The proposed fence lines will mean that there are a number of different blocks of the site, and it will be necessary to move stock between them. Potential problems / issues could be:

- There are some parts of the site that are not fenced and will not be grazed and it may not be possible to achieve favourable condition status on these areas
- The livestock will be fenced into relatively small sections meaning it could be easier for the site to become overgrazed if the stock are enclosed in a small area for too long
- There could be difficulties moving stock in and out of the different parts of the common due to the difficulties in moving them across the roads
- It may be more difficult to create the required sward diversity within small units, as grazing will be more uniform.

Figure 2: Historic (undated) pictures of Lydlinch Common and more recent (2005 and 2006) views of the same area. Historic images scanned from postcards provided by A. Langmead.

10.4 The future and links to North Dorset Core Strategy

10.4.1 The changes to the management of Lydlinch Common will hopefully bring a marked improvement in the condition of the site and the abundance of marsh fritillaries, and time will tell the extent to which the measures have been successful and how easy the site will be to graze. The current levels of traffic have forced the management of the site down a particular route and it is hoped that this management will be suitable to resolve the issues on the site. The management should however be seen as a compromise, and further improvements could be made. The fencing design could be easily changed in the long term to create a more extensive unit: for example the current design (as proposed to the Secretary of State) puts fencing either side of the A3030. As this road joins the A357 at a T junction, where traffic must stop or slow down when using the junction, it could be possible to put cattle grids along a section of the A3030 and hence join two of the units into a single block (see Map 5).

10.4.2 With additional housing at Sturminster Newton and Blandford, there is the potential for increases in road traffic alongside the SAC. Proposals within the Core Strategy may therefore directly result in increases in traffic along both the A roads that bisect the common. The consequences of this traffic increase could be:

- Reducing the long term potential to extend the fencing to encompass the entire site (or even simply placing cattle grids across the A3030) and achieve the ideal management.
- Enhanced difficulties in moving stock between different sections of the site.

10.4.3 The level of increased traffic flow on the relevant roads are set out in Table 9, provided by Buro Happold Ltd. These figures show an increase in the dominant am flows over the period 2008 – 2026 of 12% on the A357 (Sturminster Newton – Lydlinch), 16% on the A357 (Lydlinch – Henstridge) and 21% on the Henstridge – A303 section of the A357. These figures suggest a marked increase in traffic levels. It is not possible to determine to what extent these increases are directly attributable to measures within the North Dorset Core Strategy.

Table 9: Traffic flow data for roads close to Lydlinch Common. Data provided by Buro Happold Ltd, and reflect peak hour (0800 – 0900 and 1700 – 1800) dominant directional vehicular flows.

Location	Dominant Flow AM			Dominant Flow PM		
	2008	2016	2026	2008	2016	2026
Sturminster Newton - Lydlinch (A357)	578	616	645	564	590	620
Lydlinch - Henstridge (A357)	122	128	142	115	116	120
Henstridge - A303 (A357)	100	112	121	97	107	119

10.4.4 At this stage it is not known how serious an impact these issues will be. This is because:

- It will be a few years before the success of the recent management work at Lydlinch and the impact of grazing can be assessed. It may take many years for the marsh fritillary numbers to reach former levels.
- There is little evidence to identify to what extent development within the core strategy will result in an increase in traffic levels on roads that are already busy.
- It is difficult to predict how much of an additional problem the increased traffic might be.

10.4.5 At this stage it would therefore seem that adverse effects on integrity are unlikely, but cannot be ruled out.

10.5 Mitigation

10.5.1 There are two options that would ensure no adverse effect on integrity of the SAC. The first would be to ensure no net increase in traffic along the A357 and A3030. The second would be to ensure that cattle grids could be put in place, in the long term, on the A3030. Neither option is straightforward to achieve. The first option is desirable with respect to air pollution and sustainability issues. The second option would help to optimise management at the site and ensure the long term viability of management.

10.5.2 It is recommended that annual monitoring of marsh fritillaries at Lydlinch takes place and regular monitoring (not potentially necessary on an annual basis) of the habitat is also conducted. The habitat monitoring should assess the effectiveness of the restoration measures and the long -term recovery of the site, providing feedback to ensure that the management (stocking densities, grazing period etc) can be adjusted as necessary to optimise conditions for marsh fritillaries. Additional management such as further scrub clearance may be required in the future. Management and monitoring of the site should be implemented with the involvement of Natural England and potentially involving the local expertise of Butterfly Conservation.

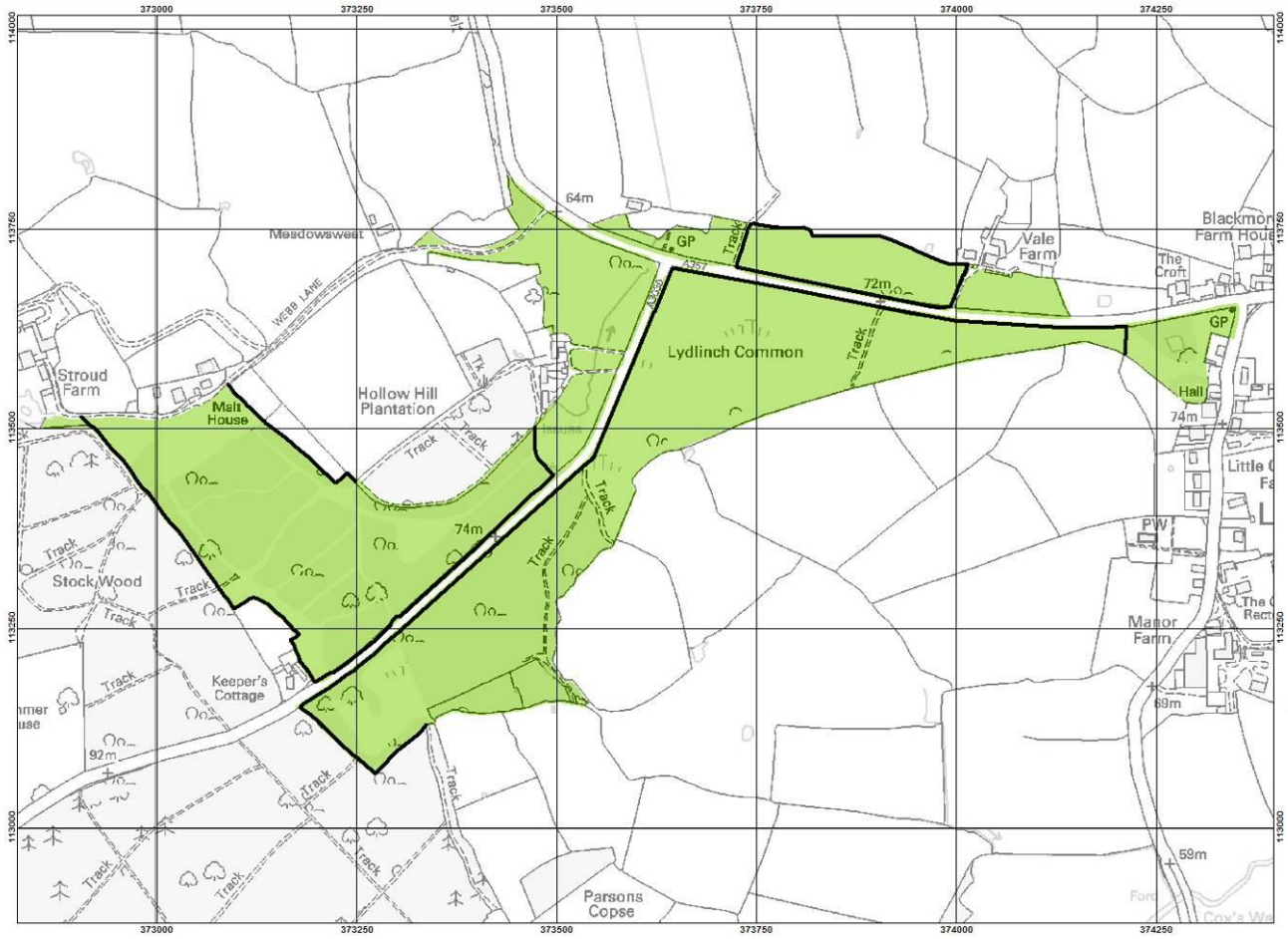
10.6 Conclusions

10.6.1 It is currently not possible to rule out an adverse effect on the integrity of Rooksmoor SAC as a result of potential traffic increases inhibiting the long -term management of the site for marsh fritillaries. Some additional work is required prior to finalising the Core Strategy to ascertain the following:

- To what extent traffic may increase as a result of new development.
- To what extent the current scrub clearance work undertaken, and the proposed fencing, will improve the conservation status of the marsh fritillary interest feature. This work could provide improvements to the extent that further management is not necessary.
- To what extent further management via cattle grids is actually feasible, irrespective of any potential traffic increases arising from the Core strategy. Collation of existing data, including previous discussions with the Highways Agency, and possibly a reopening of discussions to obtain the necessary information to draw a final conclusion on this issue.

Map 5: Lydlinch Common (part of Rooksmoor SAC), showing proposed fencing

Habitats Regulations Assessment of the North Dorset Core Strategy and Development Management Policies DPD



footprint ECOLOGY

21 August 2009

Scale 1:6700

Proposed fencing

SAC

Appendix 1

Table 10: Reasons for designation of European sites within North Dorset District and 20km of the District boundary. + indicates a primary reason for designation as SAC, ,* indicate a priority SAC feature.

Site	Reason for designation :		
	SAC	SPA	Ramsar
Fontmell and Melbury Downs	Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) Early gentian *Gentianella anglica*+		
Rooksmoor	*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*+		
Holnest	Great crested newt *Triturus cristatus*+		
Dorset Heaths SAC, Dorset Heaths (Purbeck and Wareham) and Studland dunes SAC, Dorset Heathlands SPA and Ramsar	Northern Atlantic wet heaths with *Erica tetralix*+, temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*+, European dry heaths+, depressions on peat substrates of the *Rhynchosporion*+, *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils, Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*,* Alkaline fens, Old acidophilous oak woods with *Quercus robur* on sandy plains, Embryonic shifting dunes+, shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes") +, Atlantic decalcified fixed dunes*, humid dunes slacks+, oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) +, Southern damselfly+; great crested newt.	Breeding nightjar, Dartford warbler, woodlark. Wintering hen harrier, merlin.	Ramsar criterion 1: Contains particularly good examples of (i) northern Atlantic wet heaths with cross-leaved heath *Erica tetralix* and (ii) acid mire with *Rhynchosporion*, largest example in Britain of southern Atlantic wet heaths with Dorset heath *Erica ciliaris* and cross-leaved heath *Erica tetralix*. Ramsar criterion 2: Supports 1 nationally rare and 13 nationally scarce wetland plant species, and at least 28 nationally rare wetland invertebrate species. Ramsar criterion 3: high species richness and ecological diversity of wetland habitat types and transitions; lies in one of the most biologically-rich wetland areas of lowland Britain.
Cerne and Sydling Downs	Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) +		

Site	Reason for designation : SAC	SPA	Ramsar
	Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*[+]		
Poole Harbour SPA and Ramsar		Breeding common tern, and Mediterranean gull. Passage aquatic warbler and little egret. Wintering avocet, little egret. Internationally important wintering populations of Icelandic population of black-tailed godwit and the North-western European population of wintering shelduck. A wetland of international importance by regularly supporting at least 20,000 waterfowl.	Ramsar criterion 1: best and largest example of a bar-built estuary with lagoonal characteristics in Britain. Ramsar criterion 2: 2 species of nationally rare plant, 1 nationally rare alga, at least 3 British Red data book invertebrate species. Ramsar criterion 3: Mediterranean and thermo Atlantic halophilous scrubs, dominated by shrubby seablite *Suaeda vera;* calcareous fens with great fen sedge *Cladium mariscus*; transitions from saltmarsh through to peatland mires. Nationally important populations of breeding waterfowl including common tern, and Mediterranean gull, and of wintering. avocet. Ramsar criterion 5: internationally important assemblages of waterfowl. Ramsar criterion 6: Internationally important populations of common shelduck, black-tailed godwit..
Prescombe Down	Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) Early gentian *Gentianella anglica*[+], Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*		
West Dorset Alder Woodlands	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) *, *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*), Old		

Site	Reason for designation : SAC	SPA	Ramsar
	acidophilous oak woods with *Quercus robur* on sandy plains Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*+, Great crested newt *Triturus cristatus*		
River Avon/Avon Valley	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation+ Desmoulin`s whorl snail *Vertigo moulinsiana*+, Sea lamprey *Petromyzon marinus*+, Brook lamprey *Lampetra planeri*+, Atlantic salmon *Salmo salar*+, Bullhead *Cottus gobi*+.	Internationally important over-wintering populations of Bewick's Swan (135 individuals, at least 1.9% of the wintering population in Great Britain [5 year peak mean 1991/2 - 1995/6]) Overwintering populations of European importance of Gadwall (135 individuals representing at least 1.9% of the wintering population in Great Britain [5 year peak mean 1991/2 - 1995/6])	Ramsar criterion 1:The site shows a greater range of habitats than any other chalk river in Britain, including fen, mire, lowland wet grassland and small areas of woodland. Ramsar criterion 2:The site supports a diverse assemblage of wetland flora and fauna including several nationally-rare species. Ramsar criterion 6: Internationally important populations of wintering Gadwall , *Anas strepera strepera*, 537 individuals, average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3)
Chilmark Quarries	Greater horseshoe bat *Rhinolophus ferrumequinum*+, Barbastelle *Barbastella barbastellus*+, Bechstein`s bat *Myotis bechsteinii*+, Lesser horseshoe bat *Rhinolophus hipposideros*		
Portland to Studland Cliffs	Vegetated sea cliffs of the Atlantic and Baltic coasts+, Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia+, annual vegetation of drift lines. Early gentian *Gentianella anglica*+		
Bracket's Coppice	*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) Bechstein`s bat *Myotis bechsteinii*+		
Mendip Woodlands	*Tilio-Acerion* forests of slopes, screes and ravines*		

Site	Reason for designation : SAC	SPA	Ramsar
Salisbury Plain	*Juniperus communis* formations on heaths or calcareous grasslands[+], Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) [+], Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) (important orchid sites)*, Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*[+]		
Great Yews	*Taxus baccata* woods of the British Isles *		
Mells Valley	Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) , Caves not open to the public Greater horseshoe bat *Rhinolophus ferrumequinum*[+]		
The New Forest	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [+], Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*[+], Northern Atlantic wet heaths with *Erica tetralix*[+], European dry heaths[+], *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [+], Depressions on peat substrates of the *Rhynchosporion*[+], Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (*Quercion robori-petraeae* or *Ilici-Fagenion*) [+], *Asperulo-Fagetum* beech forests[+], Old acidophilous oak woods with *Quercus robur* on sandy plains[+], Bog woodland[+], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [+], Transition mires,	Breeding Dartford warbler, nightjar, woodlark, honey buzzard, wood warbler *Phylloscopus sibilatrix*, hobby. Wintering hen harrier	Ramsar Criterion 1: Valley mires and wet heaths of outstanding scientific interest. The largest concentration of intact valley mires of their type in GB. Ramsar Criterion 2: Supports a diverse assemblage of wetland plants and animals. Ramsar Criterion 3: Mire habitats of high ecological quality and diversity. Invertebrate fauna important due to the concentration of rare and scarce wetland species. Whole site complex is essential to the genetic and ecological diversity of southern England.

Site	Reason for designation : SAC	SPA	Ramsar
	quaking bogs and Alkaline fens. Southern damselfly *Coenagrion mercuriale*[+], Stag beetle *Lucanus cervus*[+], Great crested newt *Triturus cristatus.*		
Chesil Beach and The Fleet	Coastal lagoons*, Annual vegetation of drift lines, perennial vegetation of stony banks[+], Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [+], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).	Internationally important overwintering population of dark-bellied Brent goose (Western Siberia/Western Europe) 1.1% of the GB population (5 year peak mean 1991/92-1995/96)	Ramsar criterion 1: outstanding example of rare lagoon habitat, largest of its kind in the UK. The site also supports rare saltmarsh habitats. Ramsar criterion 2: Supports 15 specialist lagoonal species – more than any other UK site – and five nationally scarce wetland plants, ten nationally scarce wetland animals. Chesil Bank is one of the most important UK sites for shingle habitats and species. Ramsar criterion 3:The site is the largest barrier-built saline lagoon in the UK, and has the greatest diversity of habitats and of biota. Ramsar criterion 4: important for a number of species at a critical stage in their life cycle including post-larval and juvenile bass *Dicentrarchus labrax*. Ramsar criterion 6: 2 species/ populations occurring at levels of international importance. Ramsar criterion 8: nursery for bass *Dicentrarchus labrax*.

Appendix 2: Screening of draft Preferred Options, July 2009.

Screening of the emerging draft Core Strategy and Development Management DPD for the likelihood of significant effects ("LSE"). Orange shaded rows identify where issues will be taken forward to the Appropriate Assessment Stage, pale green shading indicates rows that make recommendations for changes to wording to strengthen or clarify particular issues relating to the HRA.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Background – Introduction	Introduces the plan and the plan making process to date. Explains the key elements of the background documents and evidence base. Includes reference to HRA.	No LSE, as an overarching and descriptive introduction, without directing any type, quantum or location for development. The section gives a clear indication that HRA must conclude that the plan will not adversely affect any European site before it is given effect.		No further action required, recheck at next draft
Background – Spatial Portrait	Sets the context for the plan by describing the district, its natural assets, economy, housing, key corridors of movement and relationship between settlements.	No LSE	The section describes the current characteristics and situation, and does not promote development in any way	No further action required, recheck at next draft
Background – Key Issues and challenges	This section provides a further setting for the plan, by describing the critical and overarching	No LSE, however additional wording could be added to bolster key messages and provide further explanation of	The protection of European sites is presented as a primary issue for the council to consider in the preparation of the plan.	Add the following text after paragraph 1.3.19: "*This challenge is achieved through the ongoing assessment*

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	issues in the district.	HRA.		*of the emerging plan, taking into account the special interest features of the European sites, their vulnerabilities, current condition, and requirements to meet their conservation objectives. The Council will only pursue options where it can be demonstrated that any such options will not result in adverse effects upon the integrity of European sites, either within or outside the district."*
Vision	The formal vision for the District is explained and presented, followed by location specific aspirations for key settlements.	No LSE, however it is suggested that the vision is strengthened with minor amendments.	The draft vision for the environment sets out that in 20 years time North Dorset will have "an enhanced and locally distinctive built and natural environment…..". The local visions that follow are brief and strategic. We suggest the overarching vision should contain the wording to ensure restoration of habitats. This is pertinent to Rooksmoor SAC, which could be adversely affected by traffic increases, and also requires good management to fully restore its interest features.	Add "*and where necessary, restored*" after "an enhanced..." and before "....locally distinctive" within part 5 of the vision.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Objective 1 – Thriving Market Towns	States that the majority of housing will be directed to Shaftsbury, Gillingham and Blandford	LSE	With a focus of housing within Shaftsbury, Gillingham and Blandford, there is the potential for Fontmell and Melbury Downs SAC to be affected by increased development in these market towns. Development in Blandford has potential consequences for increased access and recreation pressure on N2k sites to the south of the District such as Poole Harbour and the coast.	AA to consider effects of the focus of development within the market towns of within Shaftsbury, Gillingham and Blandford upon Fontmell and Melbury Downs SAC and also the coast and New Forest. Potential effects arise from increased recreation. There is also a need to check whether there will be any knock on effects in terms of road infrastructure improvements. Will there be a decrease in air quality and will this affect the European site?
Objective 2 – Sustainable Rural Communities	Aims to regenerate and connect smaller rural communities.	LSE	Whilst largely referring to regeneration rather than increasing the developed footprint of western villages, there is the potential for effects upon Rooksmoor SAC arising from development in the rural west. The site is also vulnerable to harm arising from transport route improvements.	AA to consider whether even small scale development in the rural west will adversely affect Rooksmoor SAC. As a site currently being restored, it is important to consider whether any development in the rural west will have a negative effect upon the achievement of conservation objectives and the restoration of previous

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
				populations of the Marsh Fritillary interest feature. Any knock on effects in relation to transport and air quality will require consideration given the site's vulnerable location.
Objective 3 – Protecting and Managing the Environment	An environmentally positive objective	No LSE, but further strengthening could be included	Referring to the protection and enhancement of the natural environment.	Further strengthening is suggested with the addition of "*working towards positive restoration where necessary*" after "protected and enhanced".
Objective 4 – Meeting the District's Housing Needs	Presents a focus of development in the local service centres, whilst also meeting affordable housing needs elsewhere in the district	LSE	Whilst largely overarching and without specifying any quantum or location for development in detail, the objective refers to key service areas and potential development in other parts of the district, thus there is the potential for LSE on both Rooksmoor SAC and Fontmell and Melbury Downs SAC.	AA to consider effects of development in the district on both Rooksmoor SAC and Fontemell and Melbury Downs SAC and other sites outside the District that may be affected by increased recreational pressure.
Objective 5 – Improving the Quality of Life	An overarching sustainability objective to improve local quality of life.	No LSE	Sets out qualitative requirements for development, to meet sustainability principles. Does not promote development.	No further action required, recheck at next draft
Core Policy 1 - Taking Climate Change	An environmentally positive policy	No LSE	Policy does not promote development, but rather sets out environmentally positive	No further action required, recheck at next draft

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
			requirements for development generally.	
Core Policy 2 -	An environmentally positive policy	No LSE, measures set out under both transport and resource conservation will potentially help minimise impacts of air quality and water abstraction on N2k sites.	Policy does not promote development, but rather sets out environmentally positive requirements for development generally.	No further action required, recheck at next draft
Core Policy 3 – Core Spatial Strategy for North Dorset	The relationship with the requirements of the RSS is explained	LSE	Provides the key locations that will be the focus of development - Shaftsbury, Gillingham and Blandford. Also discusses opportunities for limited growth in Sturminster Newton, and a focus for employment related regeneration.	AA to consider effects of development in the district on both Rooksmoor SAC and Fontmell and Melbury Downs SAC. In addition a need to determine impacts of increased recreational pressure on sites outside the District such as Poole Harbour SPA / SAC and other coastal sites.
Core Policy 4 – Housing (incl Affordable Housing) Distribution	Sets out the overall quantum of housing for the plan as 7,000, in accordance with the RSS. A large proportion will need to be affordable housing.	LSE	71% of housing is directed to Shaftsbury, Gillingham and Blandford and the plan will therefore need to be certain that this option will not adversely affect European sites, particularly Fontmell and Melbury Downs SAC. 29% of housing is directed elsewhere in the district, and some	AA to consider effects of development in the district on both Rooksmoor SAC and Fontemell and Melbury Downs SAC. This is the first policy to provide the actual quantum of housing proposed for the plan period. It

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
			of the larger villages referred to within the policy surround Rooksmoor SAC.	is therefore advised that the AA of this particular policy will also need to consider the availability of water supply, and the capacity of waste water treatment, in order to determine whether the additional numbers stated will put pressure on aquatic European sites. Impacts on the River Avon SAC are therefore required. Other European sites identified outside the district will also need to be considered in terms of the potential recreational effects of an additional 7000 houses within North Dorset. This will include Poole Harbour and the Dorset Heaths.
Core Policy 5 – Managing Housing Land Supply	The annual rate of housing growth will be focused upon the second half of the plan period, particularly at Gillingham	No LSE??	The actual rate of housing per annum does not affect the overall impacts upon European sites. Opportunities for mitigation may however be influenced by the rates.	No further action required, recheck at next draft – particularly in relation to SHLAA updates and possible locations for Greenfield development affecting European sites.
Core Policy 6 - Economy	Explains that employment growth should be aligned	LSE	Whilst the employment focus at Shaftsbury, Gillingham and	AA to consider effects of employment development in the

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	with the housing focus at Shaftsbury, Gillingham and Blandford. Reference is also made to allocations in Sturminster Newton and Stalbridge		Blandford is not considered to be a LSE upon Fontemell and Melbury Downs SAC or any other European sites, there are concerns that increased employment in the vicinity of Rooksmoor SAC could lead to road improvements that may affect the site.	district on Rooksmoor SAC. There is also a need to check whether there will be any knock on effects in terms of road infrastructure/ improvements and resultant air quality on Fontmell and Melbury Downs SAC.
Core Policy 7 – Retail and Other town Centre Uses	Sets out a focus of retail development at Shaftsbury, Gillingham, Blandford, Sturminster Newton and Stalbridge.	LSE	Whilst the retail focus at Shaftsbury, Gillingham and Blandford is not considered to be a LSE upon Fontmell and Melbury Downs SAC or any other European sites, there are concerns that a focus of retail at Sturminster Newton and Stalbridge in the vicinity of Rooksmoor SAC could lead to road improvements and increased traffic that may affect the site.	AA to consider effects of a retail focus at Sturminster Newton and Stalbridge on Rooksmoor SAC, in terms of increased traffic, road improvement requirements and possible deterioration in air quality. **NDDC do not anticipate a traffic increase – once further justification developed it may be possible to conclude no LSE**
Core Policy 8 – Housing Type, Mix and Density	Describes the desirable densities and types of housing in the district	No LSE	Policy does not promote development, but rather sets out requirements for housing types. Includes positive wording in relation to sustainable transport.	No further action required, recheck at next draft
Core Policy 9 –	Describes the required	No LSE	Policy does not promote	No further action required,

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Affordable Housing	affordable housing contribution.		development, but rather sets out requirements for affordable housing. This will not alter effects upon European sites.	recheck at next draft
Core Policy 10 – Affordable Housing: rural Exception Schemes	Sets out exceptions to housing distributions, to meet affordable housing needs	LSE?? Unsure.	Includes villages in the vicinity of Rooksmoor SAC, and again the requirements for road improvements are relevant	Further clarification required regarding likely road requirements and consequences for traffic flows.
Core Policy 11 – Community, Leisure and Cultural Facilities	Sets out the need for community infrastructure within new development	No LSE	A general and overarching policy that does not direct development to locations that may result in adverse effects upon European sites	No further action required, recheck at next draft
Core Policy 12 - Health	Sets out the provision of health care facilities	No LSE	Locations for healthcare facilities are will not result in adverse effects upon European sites.	No further action required, recheck at next draft
Core Policy 13 – Education and Skills	Sets out the provision of education facilities	No LSE	Locations for education facilities are will not result in adverse effects upon European sites.	No further action required, recheck at next draft
Core Policy 14 - Transport	Sets out a requirement for sustainable transport in development, and lists some roads that may require management or improvement measures	LSE	Unsure whether list of road improvement s will affect any European sites. Increased traffic will be an issue for Rooksmoor SAC (management issues) and for both Rooksmoor SAC and Fontmell and Melbury Downs SAC (air quality issues).	Need to check list of road management and improvements set out within policy

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Core Policy 15 – Outdoor Sport Recreation and Green Infrastructure	Sets out the provision of sport and recreation facilities	No LSE, could be strengthened by reference to providing green infrastructure and recreation facilities to reduce impacts to European sites (heaths and Poole Harbour)	A general and non location specific policy, which will not result in adverse effects upon European sites. Certain types of green space provision could help reduce pressure on European Protected Sites (Poole Harbour and the Heaths)	No further action required, recheck at next draft. Additional text could be added to cross reference to the need for additional green infrastructure identified within the HRA.
Core Policy 16 – Protecting Key Environmental Assets	An environmentally positive policy	No LSE		No further action required, recheck at next draft
Core Policy 17 – Internationally Important Wildlife Sites	An environmentally positive policy, which seeks to incorporate measures to prevent any adverse effects upon the integrity of European sites arising as a result of the plan.	No LSE	The policy is wholly protective of European site interest features, and is intended to incorporate counteracting measures necessary to enable it to be concluded that the plan is in accordance with the Habitats Regulations.	Following further assessment as the plan progresses, Core Policy 17 may need to be amended as necessary to fit with assessment findings.
Core Policy 18– Areas of Outstanding Natural Beauty	An environmentally positive policy, which ensures the AONB purposes are protected	No LSE	Protecting AONB purposes does not compromise European sites.	No further action required, recheck at next draft
Core Policy 19 - Blandford	Sets out Council's approach to shaping Blandford. Policy Includes	LSE	Potential increases in recreational pressure to sites within and outside District. Air quality issues for	AA to consider impacts of development at Blandford on traffic and consequences for

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	1500 homes and associated developments.		Fontmell and Melbury Downs SAC and Rooksmoor SAC. Management issues related to traffic at Rooksmoor SAC.	visitor numbers at nearby sites.
Core Policy 20 - Gillingham	Sets out Council's approach to shaping Gillingham. Policy includes c.2300 homes and associated infrastructure.	No LSE?	Gillingham is well away from any European Sites. AA will need to check on potential recreational impacts to sites outside the District.	AA to check that no impacts from development at Gillingham resulting in increased recreational pressure.
Core Policy 21 - Shaftesbury	Set's out Council's approach to shaping Shaftesbury. Policy includes c. 1200 homes and associated infrastructure.	LSE	Development will be to the east of Shaftesbury, potentially resulting in increased traffic on C13 adjacent to Fontmell and Melbury Downs SAC. AA will need to check on potential recreational impacts to sites outside the District	AA to consider implications of increased traffic along C13 and to check for consequences of increased recreational access to N2k sites.
Core Policy 22 – Sturminster Newton	Set's out Council's approach to shaping Sturminster Newton. Policy includes c. 500 homes and associated infrastructure.	LSE	Rooksmoor SAC is close to Sturminster Newton. Potential issues could include water abstraction, air quality and implications for management of the site as a result of traffic increases.	AA to address water abstraction, recreational access, air quality and implications for management of Rooksmoor SAC.
Core Policy 23 – Stalbridge and the Larger Villages	Set's out the Council's approach for Stalbridge and the larger villages. Includes 1200 homes.	LSE	Potential consequences relating to water abstraction, increased traffic (air quality issues for Fontmell and Melbury Downs SAC and Rooksmoor	AA to address water abstraction, recreational access, air quality and implications of traffic for management of Rooksmoor SAC.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
			SAC and management issues related to traffic at Rooksmoor SAC). Increased recreational pressure will potentially impact some sites such as New Forest, Dorset Heaths and Poole Harbour.	
Core Policy 24 – the Countryside	Set's out the council's approach to development in the countryside	No LSE,development only permitted where overriding need and anticipated levels of development will be low		No further action required, recheck at next draft
Introduction to DM Policies	A general introduction to the purpose of DM policies	No LSE	General introduction, no promotion of development	No further action required, recheck at next draft
DM Policy 1 – Renewable Energy	General policy support for renewable energy	No LSE	Policy relates to renewable energy requirements rather than promoting development	No further action required, recheck at next draft
DM Policy 2 – Sustainable Transport	General policy support for sustainable transport initiatives	No LSE	Policy relates to sustainable transport requirements rather than promoting development	No further action required, recheck at next draft
DM Policy 3 - Design	Sets out design requirements for development within the district	No LSE	A qualitative policy only	No further action required, recheck at next draft
DM Policy 4 - Amenity	Sets out amenity requirements for development within the district	No LSE	A qualitative policy only	No further action required, recheck at next draft

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
DM Policy 5 – Tourism	Sets out criteria for tourism development	No LSE	A qualitative policy only	No further action required, recheck at next draft
DM Policy 6 – Sites for Gypsies, Travellers and Travelling Show People	Sets out a commitment to the provision of sites in suitable locations	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft
DM Policy 7 – Retention of Community Facilities	Sets out the protection and retention of community facilities	No LSE	A qualitative policy only	No further action required, recheck at next draft
DM Policy 8 – Open Space	Sets out the protection and retention and increase of open space	No LSE	A qualitative policy only	No further action required, recheck at next draft
DM Policy 9 – Trees, Hedgerows and Landscape Design	An environmentally positive policy	No LSE	Protecting trees, hedgerows and landscape quality will not adversely affect European sites	No further action required, recheck at next draft
DM Policy 10 – Existing Dwellings in the Countryside	Sets out criteria for dwelling replacement	No LSE	Does not result in a net increase in dwellings	No further action required, recheck at next draft
DM Policy 11 – Re-use of existing Buildings in the Countryside	Sets out criteria for building re-use	No LSE	A qualitative policy only	No further action required, recheck at next draft

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
DM Policy 12 – Existing Employment Sites in the Countryside	Sets out criteria for employment sites in the countryside	No LSE	A qualitative policy only	No further action required, recheck at next draft
DM Policy 13 – Equine Related Development in the Countryside	Sets out criteria for equine development in the countryside	No LSE	A qualitative policy only	No further action required, recheck at next draft
Appendix A – Open Space Standards	Sets out standards for open space and recreation facilities with new developments	No LSE	Some of the semi natural greenspace within the District is within the N2k network. However, it is not foreseen that the application of the standards will increase effects on European sites as the main development locations are more than 1km from protected sites. Additional standards maybe necessary to attract people away from European Sites and therefore work as mitigation.	No further action required, recheck at next draft.

Appendix 3: Revised Screening of Final Preferred Options (Version provided by N. Dorset District Council 18/12/09)

Further screening of amended policies as options have been refined (December 2009) for the emerging draft Core Strategy and Development Management DPD for the likelihood of significant effects ("LSE"). Orange shaded rows identify where issues will be taken forward to the Appropriate Assessment Stage, pale green shading indicates rows that make recommendations for changes to wording to strengthen or clarify particular issues relating to the HRA.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Draft Core Policy 1 – Tackling climate change	Sets out a policy for reducing carbon footprint of the district, including the promotion of renewable energy and sustainable construction, along with highlighting the need for climate change adaptation.	Potential for effects arising from initiatives such as renewable energy development, but policy is not location specific, rather just offers general support. No LSE.	A general policy, which does not direct development towards European sites. Measures to reduce impacts of climate change may in some ways be beneficial to European sites.	No further action required, recheck at next draft
Draft Core Policy 2 – Delivering sustainable forms of development	An environmentally positive policy	No LSE.	Policy does not promote development, but rather sets out environmentally positive requirements for development generally.	No further action required, recheck at next draft
Draft Core Policy – 3 Core Spatial Strategy for North Dorset	The relationship with the requirements of the RSS is explained. North Dorset does not hold any of the region's strategically significant cities or	LSE	Provides the key policy B locations that will be the focus of development - Shaftsbury, Gillingham and Blandford. Also lists the 18 small towns and	AA to consider effects of development in the district on both Rooksmoor SAC and Fontmell and Melbury Downs SAC. In addition a need to

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	towns, and therefore is only allocated for 'development policy B settlements' which are market and coastal towns and 'development policy C settlements' which are small towns and villages.		villages that will be allocated as policy c settlements. The policy does not allocate any proportion of development to the towns listed.	determine impacts of increased recreational pressure on sites outside the District such as Poole Harbour SPA / SAC and other coastal sites.
Draft Core Policy – 4 Housing (including affordable housing) distribution	Sets out the overall quantum of housing for the plan as 7,000, in accordance with the RSS. A large proportion will need to be affordable housing.	LSE	71% of housing is directed to Shaftsbury, Gillingham and Blandford and the plan will therefore need to be certain that this option will not adversely affect European sites, particularly Fontmell and Melbury Downs SAC. A significant proportion of houses is also directed towards Sturminster Newton. 29% of housing is directed elsewhere in the district, and some of the larger villages referred to within the policy surround Rooksmoor SAC.	AA to consider effects of development in the district on both Rooksmoor SAC and Fontemell and Melbury Downs SAC. This policy provides the actual quantum of housing proposed for the plan period. It is therefore advised that the AA of this particular policy will also need to consider the availability of water supply, and the capacity of waste water treatment, in order to determine whether the additional numbers stated will put pressure on aquatic European sites. Impacts on the River Avon SAC may also be required. Other European sites identified outside the district

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
				may also need to be considered in terms of the potential recreational effects of an additional 7000 houses within North Dorset (e.g. Poole Harbour and the Dorset Heaths). Careful consideration needs to be given to the 500 houses at Surminster Newton, and possible increases in traffic alongside Rooksmoor SAC.
Draft Core Policy – 5 Managing housing land supply	Sets out the rate of housing delivery per annum. Also includes mechanisms to review and alter the rate should the proposed rate not be achieved.	LSE	It is possible that measures to prevent effects upon European sites may require a phasing of housing that enables measures to be put in place to prevent effects upon European sites prior to a potentially damaging quantum of houses being built.	The policy requires rechecking once all mitigation measures are determined, to check that the phasing of housing does not cause adverse effects, or prevent mitigation measures being implemented prior to a potentially damaging quantum of houses being built.
Draft Core Policy – 6 Developing a prosperous economy	The policy sets out a quantum of employment land for the Core Strategy and the number of jobs to be created as a result of the implementation of development on the land allocated. Employment	LSE	The policy directs employment development to both Shaftsbury and Sturminster Newton, therefore possible effects from increased traffic on Fontmell and Melbury Downs SAC and	Will need to check that the increased development at Shaftsbury will not create the need for road improvements that might affect Fontmell and Melbury Downs SAC, and

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	land will be focused upon the three key towns; Blandford, Gillingham and Shaftsbury. Land at Sturminter Newton is proposed for mixed use regeneration		Rooksmoor SAC.	similarly that increased development at Sturminter Newton will not create the need for road improvements that might affect Rooksmoor SAC.
Draft Core Policy – 7 Retail and other town centre uses	Promotes retail development is town centres, and deters retail development outside town centres. Specific reference is made to the potential for retail development at the regeneration site at Sturminster Newton	LSE	Particular concern with regard to retail development on the outskirts of Sturminster Newton at the regeneration site. The additional of retail attractions at this location may further increase traffic that might impact upon Rooksmoor SAC.	Further information required on the regeneration site at Sturminster Newton, in order to understand the potential traffic increases and implications for Rooksmoor SAC. Further information on the potential effects upon Rooksmoor SAC, and possible viability of mitigation measures is also required.
Draft Core Policy – 8 Housing mix, type and density	A quantitative policy that sets housing types and sizes, but is a general and district wide policy.	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.
Draft Core Policy – 9 Affordable housing	Policy sets the minimum requirements for proportions of affordable housing within new residential development	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.
Draft Core Policy – 10 Affordable housing, rural exceptions	Sets the parameters for rural exceptions schemes, which would not normally be allowed on the outskirts of the three principal	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	towns.			
Draft Core Policy – 11 Grey infrastructure	Policy requires all development to provide the necessary grey infrastructure to support that development.	No LSE	A general policy, which does not direct development towards European sites. Although the policy requires adequate grey infrastructure, it is general, and does not refer to specific locations or improvements.	No further action required, recheck at next draft to ensure specific schemes are not mentioned, or if are mentioned are then adequately assessed.
Draft Core Policy – 12 Social infrastructure	Policy ensures adequate provision of social infrastructure across the District.	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.
Draft Core Policy – 13 Green infrastructure	Policy ensures adequate provision and expansion of multi-functional green infrastructure across the District.	No LSE	A general policy, which does not direct development towards European sites. However, need to recheck to ensure that the green network does not result in increased visitor pressure on European sites.	No further action required, recheck at next draft. May be beneficial to add wording in with regard to the need to consider European sites within the GI strategy.
Draft Core Policy – 14 Conserving and enhancing the environment	An environmentally positive policy	No LSE.	Policy does not promote development, but rather sets out environmentally positive requirements for development generally, and offers good protection for biodiversity, including European sites. Reference is made to the implementation of measures to	No further action required, recheck at next draft

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
			protect sites in accordance with the Habitats Regulations.	
Draft Core Policy – 15 Blandford	Sets out additional detail with regard to development at this town, including adequate green and grey infrastructure.	No LSE	Overall quantum of development requires checking, but additional details listed will not lead to adverse effects. Blandford is not in close proximity to any European site.	No further action required, recheck at next draft
Draft Core Policy – 16 Gillingham	Sets out additional detail with regard to development at this town, including adequate green and grey infrastructure.	No LSE	Overall quantum of development requires checking, but additional details listed will not lead to adverse effects. Gillingham is not in close proximity to any European site.	No further action required, recheck at next draft
Draft Core Policy – 17 Shaftsbury	Sets out additional detail with regard to development at this town, including adequate green and grey infrastructure.	?	Overall quantum of development requires checking, but additional details listed will not lead to adverse effects. Reference is made to safeguarding the route of the outer eastern bypass. Therefore need to check this route before concluding no LSE for this policy	Likely to be no LSE, but need to check outer eastern bypass route before confirming.
Draft Core Policy – 18 Sturminster Newton	Sets out additional detail with regard to development at this town, including adequate green	LSE	Overall quantum of development requires checking along with specific sites for	Further information required on development at Sturminster Newton, in order to understand

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
	and grey infrastructure.		housing and employment, with regard to increased traffic that may affect Rooksmoor SAC.	the potential traffic increases and implications for Rooksmoor SAC. Further information on the potential effects upon Rooksmoor SAC, and possible viability of mitigation measures is also required.
Draft Core Policy – 19 Stalbridge and the larger villages	Sets out additional detail with regard to development in the wider villages, including adequate green and grey infrastructure.	LSE	The policy particularly promotes development at Stalbridge, although no actual quantum is stated. There is the potential for increased traffic through the Rooksmoor SAC site with increased development at Stalbridge. Wider villages at a small scale unlikely to have a significant effect.	Further information required on development at Stalbridge, in order to understand the potential traffic increases and implications for Rooksmoor SAC. Further information on the potential effects upon Rooksmoor SAC, and possible viability of mitigation measures is also required.
Draft Core Policy – 20 The Countryside, including smaller villages	A general policy that does not promote development in the wider countryside, but rather sets out the restrictions for such development.	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.
Draft Delivery Policy – 1 Infrastructure and Community Benefits	Sets out the requirements for community benefits, grey, social and green infrastructure. General and qualitative.	No LSE	A general policy, which does not direct development towards European sites.	No further action required, recheck at next draft.
Draft Delivery Policy – 2	Sets out the monitoring of the Core Strategy, against a range of criteria.	No LSE	A general policy, which does not direct development towards	No further action required, recheck at next draft.

Plan section/policy reference	Summary of relevant section/policy content	Likely Significant Effect and sites affected	Explanation of assessment made	Counteracting measures, or proceed to AA
Implementation and monitoring			European sites.	

Appendix 4 Consultee comments on the working draft of the HRA

Comments from Natural England (John Stobart), sent to Footprint Ecology via email on 6th November 2009

Recreational disturbance in Poole Harbour – I think the potential measures section (6.5.3) should include a specific mention of the value to the harbour bird populations of refuge / no go areas. This has been raised previously and I believe potential areas identified as a means of reducing recreational impacts, but as far as I am aware has not been implemented. (It would be worth checking on the status of refuges with Sue Burton). In my view refuges provide the only meaningful mechanism for mitigating the impacts of increased disturbance caused by increased visitor pressure. Indeed a clear, well managed and well planned network of refuges would be likely to provide greater benefit than the potential for increased harm caused by larger visitor numbers and should be a key priority for the management of the SPA. Point noted and added to bullet points of possible measures. North Dorset will only be able to work in partnership with and contribute to measures being developed, as the harbour is not within the Council's administrative boundary.

In para 8.2.2 you suggest that "North Dorset District Council should seek assurances from Wessex Water and the Environment Agency that proposed new development will not generate any increase to existing, or new discharges, into the Avon catchment that could damage the SAC". I feel that this might be interpreted as no increase to existing consents for discharge which clearly would not go far enough. Perhaps a few words spelling out that *any* increases in discharges, including those authorised by current discharge consents could still damage the SAC. If additional discharge can be accommodated within the existing consent the issue is not for the Council and the HRA to resolve, but rather for the Environment Agency to resolve, as existing consents should not result in an adverse effect upon European sites. It is of relevance to the HRA if the level of development would require an increase in the consented level, or a completely new consent.

In 8.3.2 you state that "The District Council should also seek assurances from the Environment Agency that additional development in the district will not lead to any further abstraction of groundwater that might affect the Hampshire Avon SAC". This is rather loading the responsibility on to EA who are not the competent authority – ultimately I think it is the LAs responsibility to gather the information necessary to be able to demonstrate that further dev will not lead to further groundwater abstraction that might affect the SAC. It is the water authorities that hold the relevant information, and plan for future development. Sentence amended to include obtaining information from the water authority.

Appendix 2 does not mention the within 5km heathland issue – unless there is specific wording or policy to exclude additional new housing within 5km, or an

agreed mitigation package in place, wouldn't this come in somewhere? Eg Objective 2 ?

The screening table makes general references to sites outside the district, and a specific reference to the heaths has been added under Core Policy 4, which sets out overall housing numbers. The assessment text goes through the need for a 5km zone within which a mitigation strategy will apply.

The draft AA is well written, well set out and extremely thorough. Noted, thank you.

Comments from Dorset Wildlife Trust (Sarah Williams), sent to Footprint Ecology via email on 20th October 2009

The HRA is very comprehensible and I have leant lots reading it. Noted, thank you.

Water issues

There needs to be further consultation with Wessex Water (WW) regarding abstraction and waste water discharges. WW do have the capabilities to move water around their area and although most water comes from ground water sources they have been doing lots on low flows and their impacts on Nature 2000 site, however their investigations have been over the 3 wet summers.

Waste water is often discharged close to STW however as water is moved around the WW area abstraction and discharges are not done in the same areas therefore there are net losses and net gains of water across the WW area and as more areas of clean abstraction water may be turned off due to high nutrient/pollution levels new bore holes and other ways to obtain new clean sources will need to be looked at. WW published a few of their ideas as part of the Low Flow investigations, some of the ideas were for a new reservoir south of Yeovil, which could have an impact on Bracketts Coppice. Discharge points need to be looked into closely as discharges could be going into Poole Harbour as well as the Avon direction. WW should have this information.

Loss of water through the chalk is something the EA have been investigating and have had interesting results. Parts of the North Winterbourne dry up and disappear down into the chalk, however the water reemerges in the Sherford river, which is in a different catchment, flowing into Poole Harbour. So development in the Winterbourne Valley could have impacts on Poole Harbour, depending on STW outputs.

This is helpful information, and as part of the assessment the further assurances needed from Wessex Water will now be sought in the forthcoming phase. All points raised will be put to Wessex Water. Text stating the need for a set of questions to be sent to Wessex Water has been added to the HRA.

Dorset Heaths

DWT agrees with the mitigation ideas as you are probably aware West Dorset DC have a similar arrangement to the last point under 4.8.4. WDDC pay for a part-time

season warden on Tadnoll and Winfrith Heath as many of the dog walks to these Purbeck heaths come from West Dorset district areas, especially Crossways. As the site is owned by DWT we have seen a difference in dog walkers attitudes, many more either keeping their dogs on the lead or choosing to walk elsewhere during the bird nesting season. The questionnaires that the UHP undertake are very useful tool to direct people and information on sites. See below+

Open space provision

Large open spaces will need to be developed in the district. South of Blandford is one suggestion to mitigate for the Dorset Heaths. However, as much of the housing is going on in Gillingham, Shaftesbury and to a small extent in Motcombe, a large open space should be provided between Motcombe and Gillingham. This area between the developments has lots of opportunities for open woodland and wetlands (ponds and streams) habitats, which if designed well would be a great place for people to walk etc. This area is on clay and is rich in ponds and great crested newts, but this pond habitat is declining. See below+

+These are helpful comments that will assist the next stages of assessment. A number of the mitigation measures proposed for each potential effect require further work once the plan has progressed, and the suggestions and ideas given by DWT will help the discussions as the measures are refined.

Poole Harbour

The potential adverse effects on Poole Harbour SPA/Ramsar site due to kite-surfers and windsurfers is difficult to address by ND. Kite-surfers and windsurfers are either local (especially in the week users) or travel a distance to use Poole Harbour. Many of the weekend surfers come from London and further afield, even though there are nearer locations along the Essex coastline. The conditions in the harbour, especially the shallow waters make the sport safer here and good South-west winds, means that the wind direction is on-shore. International events tend to be held in Portland Harbour rather than Poole Harbour.

These are interesting points. We clearly need to give further consideration to the potential for North Dorset to contribute to these effects as the plan progresses.

Mitigation here would be to work with the local wind/kite surfing schools on zoning. Production of signage around the harbour for all users would be useful, especially kayakers as these users often seek out quite undisturbed locations within the harbour and may not be aware of the potential disturbance they are having on the bird populations. Providing alternative sites such as inland water bodies so close to the coast is unlikely to work, inland water bodies tend to be much colder than sea water temperatures and wind speeds are often reduced over land. If inland water bodies are available it may be better to use these as additional bird habitats. These are interesting and useful points. North Dorset will only be able to work in partnership with and contribute to measures being developed, as the harbour is not within the Council's administrative boundary. However, these ideas can be taken forward in any discussions held.

Rookmoors SAC
Can't we just move the roads? No? Well then fencing, grazing and cattle grids must happen. Noted, thank you!

Comments from RSPB (Renny Henderson), sent to Footprint Ecology via email on 16th October 2009

We note the conclusion of adverse effects on integrity on a number of N2K sites within and outside the District boundaries. Page 2 concludes "in most cases mitigation measures are possible but these need securing prior to the core strategy being finalised". We would additionally highlight that any such measures need to be set within a delivery framework which includes robust management and monitoring protocols. See below*

We agree with the general issues raised in paragraph 3.1.3, and the screening 'outcomes' in section 3.2. Noted

We note the discussion regarding mitigation measures in section 4.8 regarding housing provision and Dorset heathland sites, and support the general initiatives suggested as suitable mitigation measures. As mentioned above, critical to this will be the certainty of delivery/implementation and monitoring/evaluation. The draft Core Strategy (CS) will need to signpost how these aspects are to be met. See below*

Working across boundaries with other authorities needs to be developed. This is explicitly recognized in the HRA. Key relationships will need to be forged especially with Borough of Poole and Purbeck District Council and the CS needs to demonstrate how these key links will be made. Cross boundary co-operation for example on the delivery of SANGS is likely to be necessary. See below*

We note the conclusion over potential impacts on Poole Harbour (section 6.5); possible impacts on N2K sites are identified. Further work is recommended to clarify the issues. The CS needs to state how this work will be carried out. See below*

*These are all very helpful comments that will assist the next stages of assessment. A number of the mitigation measures proposed for each potential effect require further work once the plan has progressed, and the RSPB comments will be of assistance as the measures are refined.

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