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Vale of White Horse District Council: Preferred Approach Local Plan 2029 Part 1

Habitats Regulations Assessment

March 2013

URS Job:

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Rev	**Date**	**Details**	**Prepared by**	**Reviewed by**	**Approved by**
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URS
Scott House
Alençon Link
Basingstoke
Hampshire
RG21 7PP

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1 INTRODUCTION

1.1 Scope of the project

URS Infrastructure & Environment UK Ltd was appointed in May 2012 by Vale of White Horse District Council to assist the Council in undertaking a Habitat Regulations Assessment (HRA) of the emerging Local Plan 2029 Part 1 (LPP1). The objective of the assessment was to identify any aspects of the Local Plan 2029 Part 1 (LPP1) that would have the potential to cause a likely significant effect on Natura 2000 or European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites), either in isolation or in combination with other plans and projects, and to devise appropriate mitigation strategies where such effects were identified. The Local Plan 2029 Part 1 was previously referred to as the Core Strategy, and URS has already undertaken HRA work on a previous iteration of the Preferred Approach Core Strategy in 2010.

1.2 Legislation

The need for HRA is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats & Species Regulations 2010. The ultimate aim of the Habitats Directive is to "*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*" (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status. European sites (also called Natura 2000 sites) can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) or Special Protection Areas (SPA). It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites.

The Habitats Directive applies the precautionary principle to protected areas. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. This is in contrast to the SEA Directive which does not prescribe how plan or programme proponents should respond to the findings of an environmental assessment; merely that the assessment findings (as documented in the 'environmental report') should be 'taken into account' during preparation of the plan or programme. In the case of the Habitats Directive, plans and projects may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

All the European sites mentioned in this document are shown in Figure 1. In order to ascertain whether or not site integrity will be affected, a HRA should be undertaken of the plan or project in question:

Box 1. The legislative basis for HRA

Habitats Directive 1992

Article 6 (3) states that:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."

Conservation of Habitats & Species Regulations 2010 (as amended)

The Regulations state that:

"*A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site*".

1.3 Vale of White Horse District

There is no pre-defined guidance that dictates the physical scope of an HRA of a Local Plan. Therefore, in considering the physical scope of the assessment we were guided primarily by the identified impact pathways rather than by arbitrary 'zones'. Current guidance suggests that the following European sites be included in the scope of assessment:

- All sites within the Vale of White Horse District boundary; and
- Other sites shown to be linked to development within the District boundary through a known 'pathway' (discussed below).

Briefly defined, pathways are routes by which a change in activity within the Local Plan area can lead to an effect upon a European site. In terms of the second category of European site listed above, CLG guidance states that the HRA should be '*proportionate to the geographical scope of the* [plan policy]' and that '*an HRA need not be done in any more detail, or using more resources, than is useful for its purpose*' (CLG, 2006, p.6).

There are two European sites within the Vale of White Horse District – Cothill Fen SAC and Hackpen Hill SAC. European sites also lie in adjoining districts and the potential for longer range and indirect effects upon these sites has been considered (Table 1). Figure 1 shows the location of the European sites in relation to the Vale of White Horse District.

Table 1: European sites considered at the screening stage of the Habitats Regulations Assessment

Site	Minimum Distance from the Vale of White Horse District
Cothill Fen SAC	Within the district
Hackpen Hill SAC	Within the district
Oxford Meadows SAC	Adjacent to the north east corner of the district; connected by the A34 and A40
Little Wittenham SAC	2.5km east of the district

Other European sites were scoped out of the HRA during the screening stage of the previous iteration of the Core Strategy in 2008 as it was deemed that no actual pathway existed connecting them to development under the Core Strategy.

1.4 This report

Chapter 2 of this report explains the process by which the HRA has been carried out. Chapter 3 explores the relevant pathways of impact. Chapter 4 provides a screening exercise on each of the Preferred Approach policies. Chapters 5-8 consider the individual European sites – their designation, condition and potential effects of the Local Plan 2029 Part 1 Preferred Approaches that could not be screened out following the initial short appraisal. The key findings are summarised in Chapter 9: Conclusions.

2 METHODOLOGY

2.1 Key Principles

This section sets out the basis of the methodology for the HRA. URS has adhered to several key principles in developing the methodology – see Table 2.

Table 2 - Key principles underpinning the proposed methodology

Principle	Rationale
Use existing information	We make the best use of existing information to inform the assessment. This will include information gathered as part of the SA of the emerging Plan and information held by Natural England, the Environment Agency and others.
Consult with Natural England, the Environment Agency and other stakeholders	We will ensure consultation with Natural England for the duration of the assessment. We will ensure that we utilise information held by them and others and take on board their comments on the assessment process and findings.
Ensure a proportionate assessment	We will ensure that the level of detail addressed in the assessment reflects the level of detail in the Plan (i.e. that the assessment is proportionate). With this in mind, the assessment will focus on information and impacts considered appropriate to the local level.
Keep the process as simple as possible	We will endeavour to keep the process as simple as possible while ensuring an objective and rigorous assessment in compliance with the Habitats Directive and emerging best practice.
Ensure a clear audit trail	We will ensure that the HRA process and findings are clearly documented in order to ensure a clearly discernible audit trail.

2.2 Process

The HRA is being carried out in the absence of formal Government guidance. Communities and Local Government released a consultation paper on Appropriate Assessment of Plans in 2006[1] . As yet, no further formal guidance has emerged.

Figure 2 below outlines the stages of HRA according to current draft CLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

[1] CLG (2006) Planning for the Protection of European Sites, Consultation Paper

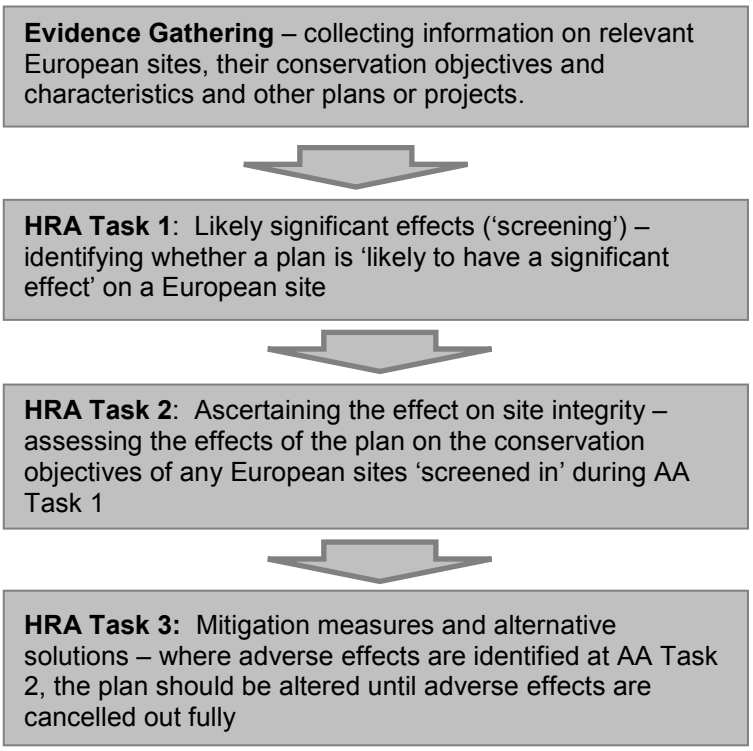


Figure 2 – Four-Stage Approach to Habitats Regulations Assessment (Source: CLG, 2006)

2.3 Likely Significant Effects (LSE)

The first stage of any Habitat Regulations Assessment (HRA Task 1) is a Likely Significant Effect (LSE) test - essentially a risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

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

The objective is to 'screen out' those plans and projects that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction with European sites.

The Likely Significant Effect test is the purpose of this HRA report.

2.4 Confirming other plans and projects that may act 'in combination'

It is clearly neither practical nor necessary to assess the 'in combination' effects of the Local Plan within the context of all other plans and projects within the South East. In practice therefore, in combination assessment is of greatest relevance when the plan would otherwise be screened out because its individual contribution is inconsequential. For the purposes of this assessment, we have determined that, due to the nature of the identified impacts, the key other plans and projects relate to the additional housing, transportation and

commercial/industrial allocations proposed for other neighbouring authorities over the lifetime of the Local Plan.

Table 3. Housing levels that were to be delivered in authorities surrounding Vale of White Horse District.

Local Authority	Total housing over the Local Plan period
South Oxfordshire District	10,000 +
West Oxfordshire District	5,500
Oxford City	8,000
Cherwell	16,750
Swindon Borough	20,000 +
Cotswold District	6000
Wiltshire (Marlborough Area)	850

There are other plans and projects that are relevant to the 'in combination' assessment, most notably Thames Water's final Water Resource Management Plan (2012) and the Environment Agency's Vale of White Horse Catchment Abstraction Management Strategy. These have been taken into account in this assessment.

Table 4 summarises documents that we have reviewed to inform our assessment:

Table 4. Documents reviewed in order to inform this assessment

Document		Relevant contents
Environment Agency (2006)	The Vale of White Horse Catchment Abstraction Management Plan	• Sets out the Environment Agency's position regarding future abstraction within the Vale of White Horse Catchment
Environment Agency (various)	Stage 3 and 4 Appropriate Assessments: Review of Consents	• Understanding of existing conditions at European sites
Environment Agency (2006a)	Water Resources in the South East report to latest South East Plan housing provision and distribution received from SEERA. May 2006, for commentary to SEERA	• Water resources.
Thames Water (July 2012)	Final Water Resource Management Plan	• Sets out the proposed approach to providing water resources in the future
Environment Agency (2006b)	Creating a Better Place: Planning for Water Quality and Growth in the South East. Version 10.4	• Sewage treatment capacity.
Government Office for the South East (2009)	The South East Plan (final version)	• Housing figures for Vale of White Horse and for surrounding Boroughs and Districts. • Other local proposals. • General development context for SE England.

Document		Relevant contents
Government Office for the South West (2008)	The draft revised South West RSS	• Housing figures for for surrounding Boroughs and Districts. • Other local proposals.
Assessors Report by Peter Burley (2007)	Report to the Panel for the Draft South East Plan Examination in Public on the Thames Basin Heaths Special Protection Area and Natural England's Draft Delivery Plan. 19 February 2007.	• Comments on Natural England's Draft Delivery Document.
Vale of White Horse (2011)	Housing Needs Assessment	• Sets out the background to housing options contained within the Local Plan
Oxfordshire County Council (2011)	The Oxfordshire Local Transport Plan, 2011 – 2030.	• Transport schemes.
Core Strategies and Local Plans for neighbouring local authorities	Spatial development policies for South Oxfordshire, Oxford, Cherwell, West Oxfordshire, Swindon and Wiltshire.	• Provides projected levels of housing for authorities surrounding Vale of White Horse District

In preparing this HRA we have utilised data held on the following sources in order to inform on the current ecological status of relevant European sites:

- The UK Air Pollution Information System (www.apis.ac.uk); and
- Nature on the Map and its links to SSSI citations and the JNCC website (www.natureonthemap.org.uk)

3 PATHWAYS OF IMPACT

3.1 Introduction

In carrying out an HRA it is important to determine the various ways in which land use plans can impact on European sites by following the pathways along which development can be connected with European sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site.

3.2 Urbanisation

This impact is closely related to recreational pressure, in that they both result from increased populations within close proximity to sensitive sites. Urbanisation is considered separately as the detail of the impacts is distinct from the trampling, disturbance and dog-fouling that results specifically from recreational activity. The list of urbanisation impacts can be extensive, but core impacts can be singled out:

- Increased fly-tipping - Rubbish tipping is unsightly but the principle adverse ecological effect of tipping is the introduction of invasive alien species with garden waste. Garden waste results in the introduction of invasive aliens precisely because it is the 'troublesome and over-exuberant' garden plants that are typically thrown out[2]. Alien species may also be introduced deliberately or may be bird-sown from local gardens.
- Cat predation - A survey performed in 1997 indicated that nine million British cats brought home 92 million prey items over a five-month period[3]. A large proportion of domestic cats are found in urban situations, and increasing urbanisation is likely to lead to increased cat predation.

The most detailed consideration of the link between relative proximity of development to European sites and damage to interest features has been carried out with regard to the Thames Basin Heaths SPA.

After extensive research, Natural England and its partners produced a 'Delivery Plan' which made recommendations for accommodating development while also protecting the interest features of the European site. This included the recommendation of implementing a series of zones within which varying constraints would be placed upon development. While the zones relating to recreational pressure expanded to 5km (as this was determined from visitor surveys to be the principal recreational catchment for this European site), that concerning other aspects of urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats, but also including recreational pressure, fly tipping, increased incidence of fires and general urbanisation) was determined at 400m from the SPA boundary. The delivery plan concluded that the adverse effects of any development located within 400m of the SPA boundary could not be mitigated, in part because this was the range within which cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements, and as such, no new housing should be located within this zone.

The Local Plan 2029 Part 1 Preferred Approaches does not outline any major strategic housing locations within 500m of any European sites and therefore impacts of urbanisation are not considered further within this HRA.

[2] Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. British Wildlife 8: 213-218.
[3] Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. Mammal Review 33, 2 174-188

3.3 Recreational pressure

Consultation for the HRA of the South East Plan revealed that potentially damaging levels of recreational pressure are already faced by many European sites. Recreational use of a site has the potential to:

- Cause disturbance to sensitive species, particularly ground-nesting birds such as woodlark and nightjar, and wintering wildfowl;
- Prevent appropriate management or exacerbate existing management difficulties;
- Cause damage through erosion; and
- Cause eutrophication as a result of dog fouling.

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

There have been several papers published that empirically demonstrate that damage to vegetation in woodlands and other habitats can be caused by vehicles, walkers, horses and cyclists:

- Wilson & Seney (1994)[4] examined the degree of track erosion caused by hikers, motorcycles, horses and cyclists from 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, It was concluded that horses and hikers disturbed more sediment on wet tracks, and therefore caused more erosion, than motorcycles and bicycles.
- Cole et al (1995a, b)[5] conducted experimental off-track trampling in 18 closed forest, dwarf scrub and meadow & grassland communities (each tramped between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling, and an inverse relationship with trampling intensity was discovered, although this relationship was weaker after one year than two weeks indicating some recovery of the vegetation. Differences in plant morphological characteristics were found to explain more variation in response between different vegetation types than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. Cover of hemicryptophytes and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks, but had recovered well after one year and as such these were considered most resilient to trampling. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling. It was concluded that these would be the least tolerant of a regular cycle of disturbance.
- Cole (1995c)[6] conducted a follow-up study (in 4 vegetation types) in which shoe type (trainers or walking boots) and trampler weight were varied. Although immediate damage was greater with walking boots, there was no significant difference after one year.

[4] Wilson, J.P. & J.P. Seney. 1994. Erosional impact of hikers, horses, motorcycles and off road bicycles on mountain trails in Montana. Mountain Research and Development 14:77-88
[5] Cole, D.N. 1995a. Experimental trampling of vegetation. I. Relationship between trampling intensity and vegetation response. Journal of Applied Ecology 32: 203-214
Cole, D.N. 1995b. Experimental trampling of vegetation. II. Predictors of resistance and resilience. Journal of Applied Ecology 32: 215-224
[6] Cole, D.N. 1995c. Recreational trampling experiments: effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.

Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no difference in effect on cover.

- Cole & Spildie (1998)[7] experimentally compared the effects of off-track trampling by hiker and horse (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). Horse traffic was found to cause the largest reduction in vegetation cover. The forb-dominated vegetation suffered greatest disturbance, but recovered rapidly. Higher trampling intensities caused more disturbance.

Dogs, rather than people, tend to be the cause of many management difficulties, notably by worrying grazing animals, and can cause eutrophication near paths. Nutrient-poor habitats such as heathland are particularly sensitive to the fertilising effect of inputs of phosphates, nitrogen and potassium from dog faeces[8].

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

A survey undertaken during October 2011 by Oxford City Council to inform the Oxford Sites and Housing DPD identified that over 80% of visitors to the Oxford Meadows SAC live within 5km of the site. The majority of respondents (82%) indicated that they were residents of Oxford with only 4% being resident in other parts of Oxfordshire. Those settlements within Vale of White Horse from which visitors originated were Kennington, Botley, North Hinksey and Wytham. However, considerably less than 4% of visitors to the SAC derived from these settlements.

It should be emphasised that recreational use is not inevitably a problem. Many European sites are also National Nature Reserves (e.g. Cothill Fen) or nature reserves managed by wildlife trusts or nature conservation charities. At these sites, access is encouraged and resources are available to ensure that recreational use is managed appropriately.

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

- *Access management* – restricting access to some or all of a European site - is not usually within the remit of the Council and restriction of access may contravene a range of Government policies on access to open space, and Government objectives for increasing exercise, improving health etc. However, active management of access is possible, for example as practised on nature reserves.
- *Habitat management* is not within the direct remit of the Council. However the Council can help to set a framework for improved habitat management by promoting cross-authority collaboration and S106 funding of habitat management. In the case of Vale of White Horse, opportunities for this are limited since, according to Natural England, the Cothill Fen and Hackpen Hill component SSSI units are in favourable or favourable recovering conditions.

[7] Cole, D.N., Spildie, D.R. 1998. Hiker, horse and llama trampling effects on native vegetation in Montana, USA. Journal of Environmental Management 53: 61-71

[8] Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, **74**, 77-82.

- *Provision of alternative recreational space* can help to attract recreational users away from sensitive European sites, and reduce additional pressure on them. Some species for which European sites have been designated are particularly sensitive to dogs, and many dog walkers may be happy to be diverted to other, less sensitive, sites. However the location and type of alternative space must be attractive for users to be effective. The timely delivery of this suitable habitat in advance of occupation of dwellings is also required.

3.4 Atmospheric pollution

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

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

Pollutant	Source	Effects on habitats and species
Acid deposition	SO_2, NO_x and ammonia all contribute to acid deposition. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased N emissions may cancel out any gains produced by reduced S levels.	Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity.
Ammonia (NH_3)	Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with expansion in numbers of agricultural livestock. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4^+)- containing aerosol which may be transferred much longer distances (can therefore be a significant trans-boundary issue.)	Adverse effects are as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides NO_x	Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one-half from motor vehicles, and the rest from other industrial and domestic combustion processes.	Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) can lead to both soil and freshwater acidification. In addition, NO_x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species.

Pollutant	Source	Effects on habitats and species
Nitrogen (N) deposition	The pollutants that contribute to nitrogen deposition derive mainly from NO_X and NH_3 emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication.	Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated levels of N. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions from NO_x and volatile organic compounds (VOCs). These are mainly released by the combustion of fossil fuels. The increase in combustion of fossil fuels in the UK has led to a large increase in background ozone concentration, leading to an increased number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	Concentrations of O_3 above 40 ppb can be toxic to humans and wildlife, and can affect buildings. Increased ozone concentrations may lead to a reduction in growth of agricultural crops, decreased forest production and altered species composition in semi-natural plant communities.
Sulphur Dioxide SO_2	Main sources of SO_2 emissions are electricity generation, industry and domestic fuel combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO_2 emissions have decreased substantially in the UK since the 1980s.	Wet and dry deposition of SO_2 acidifies soils and freshwater, and alters the species composition of plant and associated animal communities. The significance of impacts depends on levels of deposition and the buffering capacity of soils.

The main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH_3) and sulphur dioxide (SO_2). NO_x can have a directly toxic effect upon vegetation. In addition, greater NO_x or ammonia concentrations within the atmosphere will lead to greater rates of nitrogen deposition to soils. An increase in the deposition of nitrogen from the atmosphere to soils is generally regarded to lead to an increase in soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. As such, it is unlikely that material increases in SO2 or NH_3 emissions will be associated with Local Development Frameworks. NO_x emissions, however, are dominated by the output of vehicle exhausts (more than half of all emissions). Within a 'typical' housing development, by far the largest contribution to NO_x (92%) will be made by the associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[9]. Emissions of NO_x

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

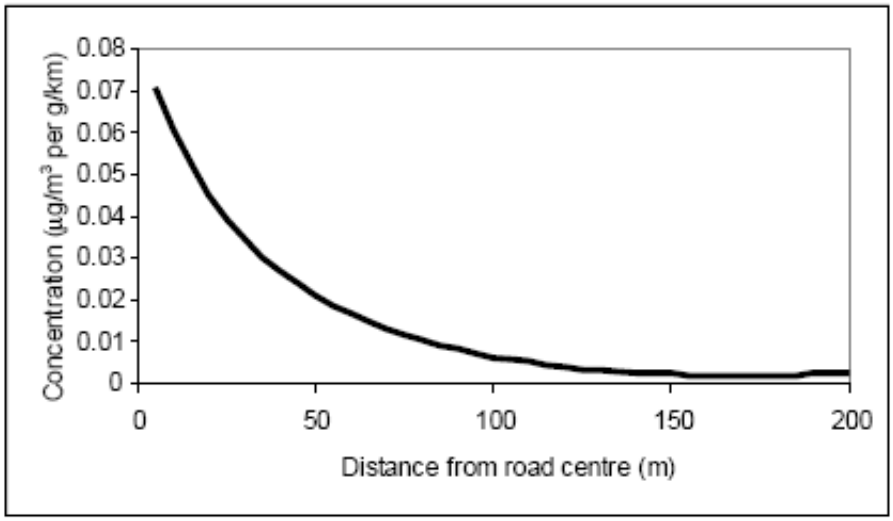
could therefore be reasonably expected to increase as a result of greater vehicle use as an indirect effect of the LDF.

According to the World Health Organisation, the critical NO_x concentration (critical threshold) for the protection of vegetation is 30 μgm^{-3}; the threshold for sulphur dioxide is 20 μgm^{-3}. In addition, ecological studies have determined 'critical loads'[10] of atmospheric nitrogen deposition (that is, NO_x combined with ammonia NH_3) for key habitats within European sites.

Local Air Pollution

According to the Department of Transport's Transport Analysis Guidance, "Beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"[11].

Figure 3. Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT)



This is therefore the distance that has been used throughout this HRA in order to determine whether European sites are likely to be significantly affected by development under the Local Plan. Given that sites detailed in Table 6 lie within 200m of roads that may be regularly used by vehicle journeys arising from Vale of White Horse as a result of the increased population, it was concluded that air quality should be included within the scope of this assessment. The location of these roads in relation to the European sites is shown in Figure 1.

[10] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[11] www.webtag.org.uk/archive/feb04/pdf/feb04-333.pdf

Table 6. Critical nitrogen loads, actual rates of nitrogen deposition and NOx concentrations[12] for the four European sites considered within this assessment (APIS data correct as of 01/02/13). Note that the data presented in this table are based on centroids for the European site; deposition rates and concentrations in different parts of each European site may vary

Site	Grid reference [13]	Key habitats	Minimum [14] critical loads (Kg N/ha/yr)	Actual nitrogen deposition[15]	Actual NOx concentration (μgm^{-3})	Actual SO_2 concentration (μgm^{-3})
Cothill Fen SAC	SU463999	Alkaline fens and reedbeds	15	20	21	1.2
Hackpen Hill SAC	SU352847	Calcareous grassland	15	22.1	13	1.2
Little Wittenham SAC	SU572929	Wood pastures and parklands	10	40.2	16.4	1.3
Oxford Meadows SAC	SP484099	Neutral grassland	20	17.9	21	1.3

Diffuse air pollution

In addition to the contribution to local air quality issues, development can also contribute cumulatively to an overall deterioration in background air quality across an entire region. In July 2006, when this issue was raised by Runnymede Borough Council in the South East, Natural England advised that their Local Development Framework 'can only be concerned with locally emitted and short range locally acting pollutants' as this is the only scale which falls within a local authority remit. It is understood that this guidance was not intended to set a precedent, but it inevitably does so since (as far as we are aware) it is the only formal guidance that has been issued to a Local Authority from any Natural England office on this issue.

In the light of this and our own knowledge and experience, it is considered reasonable to conclude that diffuse pan-authority air quality impacts are the responsibility of higher tier strategies or national government, both since they relate to the overall quantum of development within a region (over which individual districts have little control), and since this issue is best addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA.

3.5 Water abstraction

The South East is generally an area of high water stress (see Figure 4).

[12] As NO_2
[13] For sites outside Vale of White Horse District, grid references relate to the closest points to the District.
[14] APIS provides a critical load range – on a precautionary basis, this assessment uses the lowest figure in that range
[15] To a resolution of 5 km

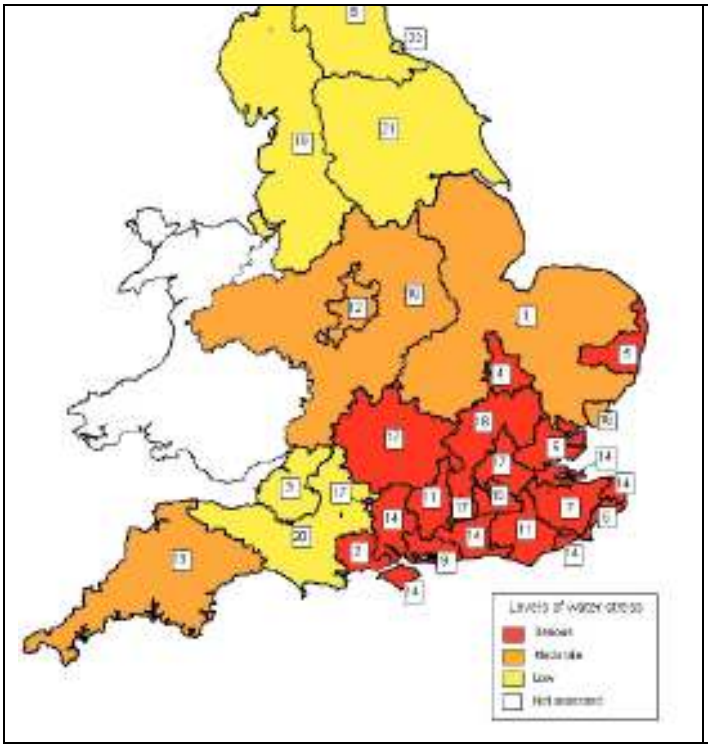


Figure 4. Areas of water stress within England. It can be seen from this map that Oxfordshire is classified as being an area of serious water stress (coded red).[16]

Development within Vale of White Horse District over the plan period will increase water demand.

The Vale of White Horse district is supplied via the catchment of the same name[17], with a combination of surface and groundwater supply, with around two thirds from groundwater. 47% of the water abstracted is for public water supply, the remainder for farming, domestic, recreation, industry and the environment. The southern boundary of the Vale of White Horse CAMS area is dominated by a Chalk and Upper Greensand outcrop. A groundwater divide follows the topography of the catchment, with groundwater in the scarp slope flowing into the Vale of White Horse catchment, and the remainder flowing into the Kennet catchment. This groundwater flow feeds the headwaters of the surface watercourses within the CAMS area. In the rest of the catchment, clays underlie the area so the rivers are typically flashy in nature (respond quickly to rainfall events).

Aside from the over-licenced Mill Brook, the rest of the catchment is regarded as having no further water available for abstraction during low flow periods. Therefore, the EA will not licence any more abstraction from rivers when flows are low, and any new licences will have a flow constraint. Licences may be granted when flows are high.

The Vale of White Horse catchment is split into two water management resource units (WMRUs). WMRU 1 covers the south of the CAMS (Mill Brook) and WMRU 2 the remainder. In WMRU1 all new consumptive surface water and groundwater licences (only those that are in direct hydraulic continuity with a nearby river) will be subject to a dual hands off flow (HOF) system (a local HOF and a Q50 HOF set at Kingston on the River Thames) to protect flows in the Lower Thames. Abstraction in the Vale draws upon water resources from the wider River Thames catchment, and the Lower Thames is classified as 'over-abstracted.' Any

[16] Figure adapted from Environment Agency. 2007. Identifying Areas of Water Stress. http://publications.environment-agency.gov.uk/pdf/GEHO0107BLUT-e-e.pdf
[17] Environment Agency. 2006. The Vale of White Horse Catchment Abstraction Management Strategy

consumptive abstraction from the tributaries will reduce flows in the Thames, causing the Lower Thames to become further 'over abstracted.' Flows in the Lower Thames need to be maintained for the environment, navigation, recreation and to protect existing licences, including abstractions for public water supply. The Vale of White Horse CAMS rivers are all tributaries of the River Thames.

According to the Thames Water Resources Management Plan (2012), the Vale of White Horse is covered by Thames Water's Swindon, North and South Oxfordshire (SWOX) Water Resources Zone (WRZ). This WRZ is calculated to suffer an increasing deficit under peak demand, rising to -55.1 Ml/d by 2034/35. Whilst Thames Water Utilities Ltd intends to increase its metering programmes into the zone in order to conserve resources, it already has low levels of leakage.

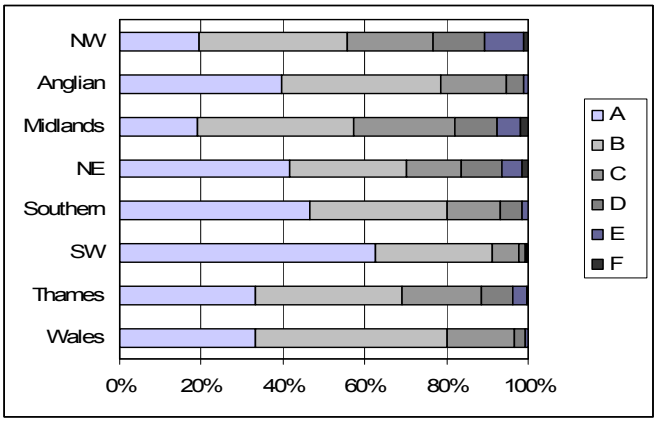
Thames Water Utilities Ltd has identified the requirement for water resource options to be implemented, including a major water resource development operational by 2026 in the Upper Thames area with a preferred option being a reservoir south west of Abingdon, which would abstract water from the River Thames. The reservoir was not included in the current Water Resources Management Plan (2010) because it was considered that further work needed to be completed to inform the appropriate scale of the reservoir and to confirm that it was the most suitable option for water resource management in the Upper Thames catchment. The Upper Thames Reservoir may again be put forward as a water management solution at the examination of the next Water Resources Management Plan (2014).

3.6 Water quality

Increased amounts of housing or business development can lead to reduced water quality of rivers and estuarine environments. Sewage and industrial effluent discharges can contribute to increased nutrients on European sites leading to unfavourable conditions. In addition, diffuse pollution, partly from urban run-off has been identified during an Environment Agency Review of Consents process, as being a major factor in causing unfavourable condition of European sites.

Overall, water quality in England is improving, but there is still a considerable disparity between the various regions.

Figure 5. Biological water quality of rivers and canals, 2005 (Defra, 2005)[18]



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

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of plant nutrients in water, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting the oxygen depleting effects of eutrophication. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.

Some pesticides, industrial chemicals, and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

The watercourses in the Vale of White Horse catchment have been monitored by the Environment Agency[19] (and river quality data is consequently available): the area is assessed as mostly having moderate or good biological quality (with the exception of watercourses north and west of Faringdon) and good chemical quality.

A consequence of increased development within the Vale will be increased volume of waste water and sewage. For treatment works close to capacity, further development may increase the risk of effluent escape into aquatic environments. In many urban areas, sewage treatment and surface water drainage systems are combined, and therefore a predicted increase in flood and storm events could increase pollution risk.

[18] Department for Environment, Food and Rural Affairs (2005) Biological water quality of rivers and canals: 1990, 1995, 200 to 2005, England, Wales and Northern Ireland.
Biological grading is based on the monitoring of invertebrates that live in, or on the bed of, rivers and canals. A and B = good; C and D = fair; E = poor; F = bad
[19] http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

Waste water within the district is dealt with by Thames Water Utilities Ltd. Research carried out by the Environment Agency has indicated that future sewage treatment capacity for the sewage treatment works within the Vale of White Horse can be rendered adequate to deal with projected growth to 2026 without upgrades being required[20] and will therefore not have an adverse effect upon receiving waters. However, the Abingdon sewage treatment works needs to reduce the levels of phosphorous in discharged water.

In addition to water quality from treated effluent discharge, surface water quality can also be affected through runoff on hard standing or tarmac which can affect European sites if it occurs within the catchment of that European site.

[20] Environment Agency. May 2006. Creating a Better Place: Planning for Water Quality and Growth in the South East

4 INITIAL SCREENING OF PREFERRED APPROACHES

4.1 Introduction

All Preferred Approaches within the Vale Local Plan 2029 Part 1 were screened for potential conflicts with European sites. The majority of the Preferred Approaches could be 'screened out' as there was no potential for any of these policy options to result in adverse effects on European sites. The following table (Table 7) highlights the policies and the HRA screening appraisal of these. Where there is a conclusion of no likely significant effect on European sites, the final column is shaded green. Where this conclusion cannot be made, the shading is orange to indicate that more detailed screening is required. That more detailed screening is presented in later chapters.

Table 7. HRA Screening of Local Plan 2029 Part 1 Preferred Approaches

Policy reference	Summary of Policy	Preliminary HRA Screening outcome
Core Policy 1 – Presumption in Favour of Sustainable Development	Planning applications that accord with this Local Plan (and where relevant, with any subsequent Development Plan Documents or Neighbourhood Plans) will be approved, unless material considerations indicate otherwise. Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise, and unless: 1. any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole, or 2. specific policies in that Framework indicate that development should be restricted.	This policy reflects the position of the NPPF in the presumption in favour of sustainable development. However, there is an explicit caveat with respect to protection of European sites within the NPPF, and thus in itself this policy does not create any likely significant effects.
Core Policy 2 – Settlement Hierarchy	The Settlement Hierarchy identifies and classifies settlements within the Vale and provides a guide to where development may be sustainable according to the role and function of the	There are no LSE associated with this policy, since it defines

	settlement. Market Towns Market Towns are defined as settlements that have the ability to support the most sustainable patterns of living within the Vale through their current levels of facilities, services and employment opportunities. Market Towns have the greatest long-term potential for development, to provide the jobs and homes to help sustain, and where appropriate, enhance their services and facilities to support viable and sustainable communities in a proportionate manner. The Market Towns are: Abingdon on Thames, Faringdon, and Wantage. Local Service Centres Local Service Centres are defined as larger villages or neighbourhoods to larger settlements with a level of facilities and services and local employment to provide the next best opportunities for sustainable development outside the Market Towns. The Local Service Centres are: Botley and Grove. Larger Villages Larger villages are defined as settlements with a more limited range of employment, services and facilities, where development will be limited to providing for local needs and to support employment, services and facilities within local communities. The Larger Villages are: Blewbury, Cumnor, Drayton, East Challow, East Hanney, East Hendred, Harwell, Kennington, Kingston Bagpuize, Marcham, Milton, Radley, Shrivenham, Southmoor, Stanford in the Vale, Steventon, Sutton Courtenay, Uffington, Watchfield and Wootton. Smaller Villages The Smaller Villages have a low level of services and facilities, where any development should be modest in scale and primarily be to meet local needs. The Smaller Villages are: Appleton, Ardington, Ashbury, Buckland, Charney Bassett, Chilton, Childrey, Coleshill, Frilford, Fyfield,	settlements, rather than promoting new growth.

<table>
<tr><td></td><td>Great Coxwell, Kingston Lisle, Letcombe Regis, Little Coxwell, Littleworth, Longcot, Longworth, Milton Heights, Rowstock, Shellingford, Upton, West Hanney and West Hendred.

Those villages not included within the categories described above are considered to form part of the open countryside where development will not be appropriate, unless consistent with the exceptions policies set out in the Local Plan.</td><td></td></tr>
<tr><td>Core Policy 3 – Housing Delivery</td><td>Core Policy 3 identifies the scale and location of housing to ensure growth in the Vale of White Horse is delivered in the most sustainable manner. The proposed housing target is for at least 13,294 homes to be delivered in the plan period between 2006 and 2029.

Strategic Allocations

Development will be supported at strategic sites in accordance with the Sub-Area Strategies where this meets the requirements set out within the Development Templates shown by Appendix A. The following table illustrates our proposal for how the level of housing which is required through strategic development could be distributed.
<table>
<tr><td>Settlement</td><td>Site Name</td><td>Number of Dwellings</td></tr>
<tr><td>Harwell Parish East of the A34</td><td>Valley Park</td><td>2150</td></tr>
<tr><td>Harwell</td><td>Harwell Oxford Campus</td><td>400</td></tr>
<tr><td>Faringdon</td><td>South of Park Road</td><td>350</td></tr>
<tr><td>Wantage and Grove</td><td>Monks Farm (North Grove)</td><td>750</td></tr>
<tr><td></td><td>Crab Hill (North East Wantage)</td><td>1500</td></tr>
<tr><td colspan="2">Total</td><td>5150</td></tr>
</table>
Development at Market Towns, Local Service Centres and Larger Villages

There is a presumption in favour of sustainable development within the existing built area of Market Towns, Local Service Centres and Larger Villages in accordance with Core Policy 1.</td><td>Housing development has potential to create LSE on European sites through each of the Pathways of Impact identified in Chapter 3 of this report.

Development within Vale of White Horse may lead to increased visitor access to some European sites, increased road transport past sensitive European sites and increased demand for water resources and waste water treatment.

Therefore the housing allocations require further consideration within the main body of this report before a decision can be made on whether LSE on European sites can be ruled out.</td></tr>
</table>

	Development outside of the existing built area of these settlements will be permitted where it is allocated by the Local Plan 2029 Part 1 or has been identified through neighbourhood plans or through the Local Plan 2029 Part 2. This development must be adjacent, or well related, to the existing built area of the settlement or meet exceptional circumstances set out in the other policies of this plan. **Development at Smaller Villages** At the Smaller Villages, limited development may be appropriate within the existing built areas of these settlements. Proposals for development will be supported where they seek to meet local housing needs, and/ or provide local employment, services and facilities, provided that the development accords with the development plan and respects the existing character and form of the settlement.	
Core Policy 4 – Meeting Business and Employment Needs	143 hectares of land is identified for future employment development on the following strategic sites and saved Vale Local Plan 2011 allocations.	Both Didcot and Harwell are in close proximity to the A34 that runs through Oxford Meadows SAC. These employment sites have potential to lead to increased commuter traffic past the SAC. Increased employment capacity will also lead to a need for water resources and waste water treatment capacity. Therefore this requires further consideration within the main body of this report before a decision can be made on whether LSE on

		European sites can be ruled out.

Site Name	Type of Site	Available Development Land (Hectares)
Milton Park	Saved Local Plan 2011 allocation	28*
Harwell Oxford Campus	Saved Local Plan 2011 allocation	64
Monks Farm – North Grove	New mixed use strategic allocation	6
South of Park Road - Faringdon	New mixed use strategic allocation	3
Didcot A	Identified future potential supply	29**
	Other saved Local Plan 2011 allocations	13
Total		143

Employment and business development will be supported at strategic sites where this meets the requirements set out within the Strategic Site Development Templates shown by Appendix A, and in accordance with the Sub-Area Strategies.

The other saved Vale Local Plan 2011 employment allocations are:

	<table><tr><th>Site Name</th><th>Available Development Land (Hectares)</th></tr><tr><td>Abingdon Business Park at Wyndyke Furlong</td><td>0.7</td></tr><tr><td>Abingdon Science Park at Barton Lane</td><td>0.7</td></tr><tr><td>Cumnor Hill</td><td>0.3</td></tr><tr><td>Land adjacent to A420; '4&20' site</td><td>4.2</td></tr><tr><td>Land north of Park Road (HCA business centre)</td><td>0.2</td></tr><tr><td>Grove Technology Park</td><td>5.4</td></tr><tr><td>Wootton Business Park</td><td>1.5</td></tr><tr><td>Total</td><td>13.0</td></tr></table> Proposals for employment related development on other sites will be supported in accordance with Core Policy 24 (New employment development on unallocated sites). In addition to the sites identified for new employment development, a number of existing strategic employment sites have been identified in the sub-area strategies. These sites will be safeguarded for employment uses in accordance with Core Policy 25 (Change of use of existing employment land and premises).	
Core Policy 5 – Providing Supporting Infrastructure and Services	All new development will be required to provide, in a timely manner, for the on-site and, where appropriate, off-site infrastructure requirements necessary for the development to be sustainably accommodated. Infrastructure requirements will be delivered directly by the developer wherever possible and appropriate, otherwise through an appropriate financial contribution prior to, or in conjunction with, new development. In identifying infrastructure requirements, development proposals must demonstrate that full regard has been paid to the Infrastructure Delivery Plan and all other relevant policies of this plan. Joint working with adjoining authorities will be encouraged to ensure that wider strategic	The policy does commit to the timely provision of infrastructure in line with other new development. Partnership working with adjoining authorities is also proposed. Both of these measures would help to reduce the likelihood of other developments having LSE through pathways such as reduced air

	infrastructure requirements are appropriately addressed. Proposals for major development should be supported by an independent viability assessment. If the viability assessment adequately demonstrates that development proposals are unable to fund the full range of infrastructure requirements, then the Council will: i. prioritise the developer contributions sought in accordance with the IDP ii. use an appropriate mechanism to defer part of the developer contributions requirement to a later date, as agreed by all parties, and iii. as a last resort, refuse planning permission if the development would be unsustainable without inclusion of the unfunded infrastructure requirements. Infrastructure provision will be delivered through the development management process. Planning conditions and planning obligations will be sought to mitigate the direct impact (s) of development, secure its implementation, control phasing where necessary, and to secure and contributions to the delivery of infrastructure necessary to the development. If a Community Infrastructure Levy (CIL) is adopted, a CIL Charging Schedule will be prepared and CIL revenue will be used to provide new and improved infrastructure necessary to deliver new development.	quality, water resources or water quality.
Core Policy 6 - Spatial Strategy for Abingdon on Thames and Oxford Fringe Sub-Area	Development in the Abingdon on Thames and Oxford Fringe Sub-Area should be in accordance with the Settlement Hierarchy set out in Core Policy 2: Market Town: Abingdon on Thames Local Service Centre: Botley Larger Villages: Cumnor, Drayton, Kennington, Kingston Bagpuize and Southmoor, Marcham, Radley, Sutton Courtenay and Wootton Smaller Villages: Appleton and Frilford	The policy allocates new residential development of at least 2,291 new houses in this sub-region. However, no new strategic locations are identified. There is a requirement to identify 299 new dwelling locations. There is potential for increased road transport past the Oxford Meadows SAC as a result, and

	Housing Over the plan period (2006 to 2029), at least 2291 new homes will be provided in broad accordance with the spatial distribution set out in Table 5.1, sites for 299 of these homes remain to be identified. No strategic housing sites will be allocated within the sub-area in the Local Plan 2029 Part 1. Therefore, first consideration will be given to this sub-area should additional sources of housing supply need to be identified in the plan period, providing growth can be sustainably accommodated. **Employment** 3.20 Hectares of employment land are identified for future business and employment growth (Table 5.2). In addition, the following strategic employment sites will be safeguarded for employment use in line with Core Policy 25. Strategic employment sites: Abingdon on Thames: Ashville Trading Estate, Abingdon Business Park, Nuffield Way, Drayton Road Industrial Estate, Fitzharris Trading Estate, Abingdon Science Park, Radley Road Industrial Estate, Barton Mill in Audlett Drive; Botley: Curtis Industrial Estate, Hinksey Business Centre, Minns Business Park, Seacourt Tower;	therefore further assessment of air quality effects on this site are required later in this report before a conclusion on LSE can be reached. New development may also lead to increased visitor pressure on the SAC. There is also potential for new development to have effects on Cothill Fen SAC (recreational pressure, water resources, water quality) and these require further consideration. Little Wittenham lies east of Abingdon, and is theoretically vulnerable to reduced water quality that could arise from Vale of White Horse district. Therefore further assessment is required within the main body of this report before it can be concluded that LSE will not occur.
Core Policy 7 – Abbey Service Centre and The Charter, Abingdon-on-Thames	Within the Abbey Shopping Centre and the Charter Area (to be defined on the Adopted Policies Map) proposals which lead to environmental enhancement and major refurbishment or development will be supported. Applicants will need to demonstrate that proposals reflect the planning and urban design guidance set out in the adopted Supplementary Planning Document for the area. Proposals should demonstrate how they will mitigate their transport impact, including improving facilities for pedestrians and cyclists.	Although in theory, new development in Abingdon could give rise to increased traffic on the A34 past Oxford Meadows SAC, the scale of new development is unlikely to be major, and the policy does include mitigation by stating that proposals should contribute toward mitigating transport impacts.

Core Policy 8 – Botley Central Area	Proposals for a comprehensive retail-led redevelopment and upgrading of Botley central area, as defined on the Adopted Policies Map, will be supported provided that: i. taken as a whole, the proposals support and are appropriately scaled to the role and function of Botley as a Local Service Centre providing a well-integrated mix of shops and services to meet day-to-day shopping needs of the local area. ii. effective and proportionate use is made of development potential above ground level and on more peripheral parts of the site for a mix of uses including, but not limited to, office, community, residential, hotel and leisure activities. iii. existing community facilities, including the community hall, library and Baptist church are replaced with facilities of an appropriate size and quality to meet current and likely future local needs. iv. it can be demonstrated that proposals will not harm the character or appearance of the Botley central area, and will not cause unacceptable harm to the amenities of nearby residents, for example by noise pollution from late night opening. v. proposals for the site are prepared through a comprehensive master planning process providing an integrated solution to site access, servicing and sufficient car parking whilst prioritising the pedestrian customer environment.	The policy does not imply that major levels of growth would be expected, but it does not provide significant mitigation in the form of measures to mitigate transport impacts. Botley lies adjacent to the A34, and therefore at this stage LSE on Oxford Meadows SAC through reduced air quality cannot be screened out without further analysis contained within the later sections of this report.
Core Policy 9 – The Oxford Green Belt	The Oxford Green Belt will continue to be protected to maintain its openness and open character. Inappropriate development that is harmful to the Green Belt will not be approved except where the scheme provides exceptional community benefits that cannot reasonably be provided elsewhere and outweigh the harm from the loss of Green Belt land in very special circumstances. Development on previously developed sites within the Green Belt should not have a greater impact on the openness of the Green Belt and the purpose of including land in it than the existing development. Proposals should:	The policy does not propose alterations to the Oxford green belt, apart from redevelopment of existing sites. Therefore no effect on European sites is anticipated.

	i. ensure any new buildings would not exceed the height of existing buildings ii. not lead to a major increase in the developed proportion of the site, and iii. not have an adverse impact on the landscape.	
Core Policy 10 – Harcourt Hill Campus	The council will work proactively with the University to develop a masterplan that meets its business objectives, for adoption as SPD. Proposals for the redevelopment of the Oxford Brookes University Harcourt Hill campus that accord with the adopted Masterplan SPD will be supported within the key previously developed site boundary provided that: i. the scale of development proposed can be safely accommodated on the local road network ii. there is an effective strategy in place to manage car parking demand and promote access to the site by sustainable modes of transport, and iii. long distance views of the site from Oxford, are safeguarded, and new development does not detract, by reason of its height or form, from views of the existing spires.	Harcourt Hill is adjacent to the A34 and hence new development at this location could lead to increased volumes of traffic on the A34 past Oxford Meadows SAC. LSE on Oxford Meadows SAC through reduced air quality cannot be screened out without further analysis contained within the later sections of this report.
Core Policy 11 – Safeguarding of Land for Transport Schemes in the Abingdon on Thames and Oxford City Fringe Sub Area	Land is required to be safeguarded, as shown by the map in Appendix E. Any proposals for new development should take account of the safeguarded area shown. The land required, or expected to be required, for these schemes will be safeguarded from development for alternative uses, although some temporary uses may be acceptable. Planning permission will not be given for development that would prejudice the construction or effective operation of these schemes. New development adjacent to land required for a transport scheme should be carefully designed in relation to that scheme, having regard to matters such as building layout, noise insulation, landscaping and means of access.	There is no LSE on European sites arising from this policy, as no new development is promoted.
Core Policy 12 – Spatial Strategy for South East Vale Sub-Area	Development in the South East Vale Sub-Area should be in accordance with the Settlement Hierarchy set out in Core Policy 2: Market Town: Wantage	This policy allocates at least 9,535 new houses in this sub-region, of which 4,800 would be strategic allocations and 419 remain to be

Local Service Centre: Grove

Larger Villages: Blewbury, East Challow, East Hanney, East Hendred, Harwell, Milton, Milton Heights and Steventon

Smaller Villages: Ardington, Chilton, Letcombe Regis, Rowstock, West Hanney, West Hendred and Upton

Housing

Over the plan period (2006 to 2029), at least 9535 new homes will be provided in broad accordance with the spatial distribution set out in Table 5.3. Sites for 419 of these homes remain to be identified. Land identified for strategic growth is shown below.

Wantage and Grove	Crab Hill	1500 dwellings
Wantage and Grove	Monks Farm	750 dwellings
Harwell parish, east of the A34	Valley Park	2150 dwellings
Harwell Oxford	Harwell Oxford Campus	400 dwellings

The strategic allocations will be brought forward through a master planning process involving the community, local planning authority and the developer and should meet any requirements as set out in the Development Templates shown by Appendix A.

Employment

132 Hectares of employment land will be provided (Table 5.4). In addition, the following strategic employment sites will be safeguarded for employment use in line with Core Policy 25:

Strategic employment sites:

determined. 132ha of employment land is also designated.

There is potential for increased road traffic past Oxford Meadows on the A34 as a result, leading to potentially reduced air quality.

Development, particularly at Wantage and Grove, could also lead to increased visitor pressure on Hackpen Hill SAC.

Development near Didcot has potential to lead to water quality effects on Little Wittenham SAC through reduced water quality upstream.

Further consideration within the main body of this report is required before a decision can be made on whether LSE on European sites can be ruled out.

	Grove Technology Park Grove Road, Wantage Downsview Road, Grove Station Road, Grove Existing Business Premises around Didcot Power Station (not including vacant surplus land) Milton Park Site Harwell Oxford Campus. In addition to the above sites, there is also recognised potential for up to 58 hectares of employment development at the Didcot A Power Station site. Development on this site should be in accordance with Core Policy 13.	
Core Policy 13 – Didcot A Power Station	Proposals for the redevelopment of up to 29 ha of the Didcot A site for employment uses (B1, B2 or B8) will be supported, especially where effective use can be made of the railhead. The mix of employment uses will need to reflect demand, suitability of the site, and any transport implications to be identified by a detailed transport assessment. On the remainder of the site, up to 29 ha of further employment uses will be supported subject to the considerations listed above. Complementary uses, such as institutional or community use, will also be supported on the remainder of the site subject to a master planning process, providing the uses are appropriate to the location adjacent to Didcot B Power Station. Appropriate uses for the remainder of the site will be determined through the Local Plan 2029 Part 2 if not agreed beforehand through a master planning process.	Redevelopment of the Didcot A site could result in increased road traffic accessing the site from the A34, which runs through Oxford Meadows SAC. Therefore reduced air quality could result. Further consideration within the main body of this report is required before a decision can be made on whether LSE on European sites can be ruled out.
Core Policy 14 – Transport Delivery for the South-East	In order to deliver the growth in this sub area and the wider Science Vale UK area, the Science Vale UK Integrated Transport Package has been identified as necessary to mitigate the impact	The Wantage Eastern Link Road will not affect any European sites.

Vale Sub Area	of the planned growth across Science Vale UK and secure the future economic viability of the area. The Wantage Eastern Link Road (WELR) is required to serve the strategic allocations at Wantage and Grove. It will help provide the development in this part of the sub area with good access to the major employment sites without significantly increasing traffic on local roads in Wantage. As a result, all the allocated development in Wantage and Grove is required to fully fund the WELR through proportionate contributions. The details of the Science Vale UK Integrated Transport Package and the Wantage Eastern Link Road are detailed within the Infrastructure Delivery Plans. All development within the South East Vale Sub-Area will be required to contribute towards the Science Vale UK Integrated Transport Package.	Transport issues relating to European sites essentially relate to traffic movement along the A34 and A40 past Oxford Meadows SAC and are linked to the volume of housing to be delivered. Traffic volumes on these roads arising from Vale of White Horse district will not be affected by changes to transport infrastructure within the Vale of White Horse itself, despite the fact that the SVUK Integrated Transport Package will involve improvements to the A34 at the Milton and Chilton junctions.
Core Policy 15 – Safeguarding of Land for Transport Schemes in the South East Vale Sub Area	The land that is required to be safeguarded for transport schemes is shown in the accompanying map (Appendix E). New development proposals should take account of all transport schemes listed. The land required, or expected to be required, for these schemes will be safeguarded against development for alternative uses, although some temporary uses may be acceptable. Planning permission will not be granted for development which would prejudice the construction or effective operation of these schemes. New development adjacent to land required for a transport scheme should be designed having regard to the known details of that scheme and for that to be taken into account on matters such as building layout, noise insulation, landscaping and means of access.	Although major new transport schemes should be subject to HRA, this policy in itself seeks only to safeguard land, rather than promote development. Therefore there is no LSE on European sites.
Core Policy 16 – Upper Thames Reservoir	Land is safeguarded for a reservoir and ancillary works between the settlements of East Hanney, Drayton and Steventon, until the outcome of the examination of Thames Water's Water Resources Management Plan 2014. Until or subsequently subject to that decision development that might prejudice the implementation of the Upper Thames Reservoir will be	This policy in itself seeks only to safeguard land, rather than promote development.

	refused. The proposed reservoir location is shown on the Adopted Policies Map which will be updated in the Local Plan 2029 Part 2. The proposed reservoir, if included in an adopted Water Resources Management Plan, must be brought forward through a comprehensive masterplanning process agreed between the community, the local planning authority, the local highway authority and the statutory utility provider. As part of the masterplan the Wiltshire and Berkshire canal should be restored on its original or an appropriate alternative alignment to be agreed in consultation with the Wiltshire and Berkshire Canal Trust. Any proposal for a reservoir must: 1. be demonstrably the best practicable environmental option to meet a clearly identified need, having regard to reasonable alternative options, and 2. be in accordance with a comprehensive planning and development brief, including a masterplan and design statement that: i. mitigates the impact of construction on local people, the environment and roads ii. minimises the effects on the landscape of an embankment reservoir through its design, general configuration and the use of hard and soft landscaping iii. maximizes the creation of wildlife habitats and biodiversity iv. promotes the recreational uses of the reservoir consistent with the landscaping and biodiversity values of the proposal and having regard to the traffic impacts of such uses v. includes a new route for the diverted Hanney to Steventon road, to include provision for an off-road cycle path vi. makes provision for the new route of the Wiltshire and Berkshire Canal, and vii. includes measures to avoid and mitigate any other significant impacts identified through the environmental impact assessment of the proposal, including on the local and wider highway	Therefore there is no LSE on European sites.

	networks and on surface water and fluvial flooding.	
Core Policy 17 – Spatial Strategy for Western Vale Sub Area	Development in the Western Vale Sub-Area should be in accordance with the Settlement Hierarchy set out in Core Policy 2: Market Town: Faringdon Larger Villages: Shrivenham, Stanford in the Vale, Uffington and Watchfield Smaller Villages: Ashbury, Buckland, Charney Bassett, Childrey, Coleshill, Great Coxwell, Kingston Lisle, Little Coxwell, Littleworth, Longcot, Longworth, Shellingford **Housing** Over the plan period (2006 to 2029), at least 1468 new homes will be provided in broad accordance with the spatial distribution set out in Table 5.5, including at land identified south of Park Road for strategic growth. Sites for 337 of these homes remain to be identified. The strategic site allocation will be brought forward through a master planning process involving the community, local planning authority and the developer and should meet any requirements as set out in the Development Templates shown by Appendix A. **Employment** 7.38 Hectares of employment land will be provided (Table 5.6). In addition, the following strategic employment sites will be safeguarded for employment use in line with Core Policy 25: Strategic employment sites: Faringdon: Park road industrial estate	The policy advocates development of at least 1,468 new houses in this sub-region, of which 337 remain to be identified. Although the major focus of this development, Faringdon, lies approximately 25km from Oxford Meadows SAC, there are good transport links via the A420 and A34, and therefore potential for air quality effects through increased road traffic. Therefore, although the housing numbers are smaller than other sub-regions, LSE cannot be ruled out prior to further traffic modeling. Although both Cothill Fen SAC and Hackpen Hill SAC lie within the typical distance that visitors may travel for a day visit from this sub-region, the housing numbers involved, and lack of direct road access (particularly to the more popular Hackpen Hill), mean that in reality, LSE through recreational pressure is unlikely.
Core Policy 18 – Affordable Housing	Forty per cent affordable housing with a tenure mix of 75 per cent social/affordable rented and 25 per cent intermediate housing will be sought on all sites capable of a net gain of three or more dwellings subject to the viability of development. Any affordable housing provided should:	The nature of housing provision does not have HRA implications.

	i. be of a size and type which meets the requirements of those in housing need, and ii. be indistinguishable in appearance from the market housing and distributed evenly across the site In cases where the 40 per cent calculation provides a part unit, a financial contribution will be sought, equivalent to that part unit. In circumstances where it can be demonstrated that the level of affordable housing being sought would be unviable, a revised mix and type of housing will be considered before a lower level of affordable housing provision is accepted. The council will seek to deliver affordable housing following the preferred hierarchy shown below: 1. On site provision (with the exception of part units) 2. Mix of on-site and off-site provision 3. Off site provision 4. On site provision and financial contribution 5. Off site provision and financial contribution 6. Financial contribution Off-site contribution and/or financial contributions for the provision of affordable housing in lieu of on-site provision may be appropriate if it can be robustly justified that: iii. it is not physically possible or feasible to provide affordable housing on the application site, or iv. there is evidence that a separate site would more satisfactorily meet local housing need and contribute to the creation of mixed communities.	
Core Policy 19 – Rural	Affordable housing schemes will be permitted within and on the edges of villages, on sites that	Development on such a small scale

Exception Sites	would not otherwise be acceptable for housing development, if all of the following criteria can be met: i. the scheme would meet a clearly established local need that cannot be met by development in accordance with other policies in this plan ii. the scheme is within or adjacent to the existing built-up area of the village and would not harm its character or setting, particularly in Areas of Outstanding Natural Beauty iii. the scheme would not undermine the functions or visual amenities of the Oxford Green Belt iv. the scheme is designed to meet the established need in terms of dwelling numbers, types, sizes and affordability, and v. secure arrangements will be made to ensure that all the houses will be occupied by local people in need of affordable housing and that the benefits of the low cost provision will remain available to local people in the long term. Where robust evidence establishes that viability issues would prevent the delivery of an exception site, the minimum level of market housing required to make the development viable will be favourably considered where it would ensure the provision of the additional affordable housing to meet local needs.	has reduced likelhihood of leading to LSE on European sites, and there are no defined villages adjacent to either Cothill Fen SAC or Hackpen Hill SAC, and therefore there is no likelihood of significant effects on these sites.
Core Policy 20 - Density	On all new housing developments a minimum density of 30 dwellings per hectare (net) will be required unless specific local circumstances indicate that this would have an adverse effect on the character of the area, highway safety or neighbouring amenities. This is a minimum and higher densities should be sought in locations with good access to services and public transport.	The nature of housing provision does not have HRA implications.
Core Policy 21 – Housing Mix	An appropriate mix of dwelling types and sizes to meet the needs of current and future households will be sought on all new residential developments. This should be in accordance with the council's current Housing Needs Assessment unless robust evidence identifies the need for a degree of flexibility by establishing a:	The nature of housing provision does not have HRA implications.

	i. different mix based on the need of a specific settlement, or ii. variation of mix is necessary due to viability constraints.	
Core Policy 22 – Meeting the Needs of Gypsies, Travellers and Travelling Showpeople	The council will enable or provide for 13 pitches for gypsy and travellers within the plan period to 2029. The identified need will be provided by a combination of: i. implementation of extant planning permissions ii. safeguarding existing sites iii. extending existing sites where possible to meet the needs of existing residents and their families, and iv. allocating specific deliverable sites through Local Plan 2029 Part 2 to meet any remaining identified need. Proposals to meet the identified need will be permitted where it has been demonstrated that the following criteria have been met: v. the site is not located within the Oxford Green Belt vi. the development will not harm the Area of Outstanding Natural Beauty, areas of high landscape or ecological value or heritage assets vii. the development will not have an adverse impact on the character of the area, highway safety or the amenities of neighbouring properties viii. the site is located within a reasonable distance of key local services including a primary school, a local shop and a public transport service, and ix. the site can be viably provided with safe vehicular and pedestrian access, electricity, mains drinking water, sewage connections and waste disposal facilities.	The provision outlined in this policy is small in scale, and there is a commitment to avoid harm to areas of high ecological value. Therefore it can be concluded that this policy may be screened out of the HRA.

Core Policy 23 – Accommodating the Current and Future Needs of the Ageing Population	In order to meet the needs of current and future households in the context of an ageing population the following requirements will be sought, where appropriate, subject to the viability of provision on each site: i. all new homes, excluding flats above ground level, should be built to current Lifetime Homes standards ii. residential dwelling houses designed for older people (with or without care) should be provided in the strategic site allocations in Local Plan 2029 Part 1 and other suitable locations in accordance with the spatial strategy iii. where residential dwelling houses for older people (with or without care) are provided, it should be on a mixed-tenure basis in accordance with the requirements in Core Policy 18 Affordable Housing. iv. other forms of specialist accommodation for older people will also be supported in suitable locations as long as they accord with other policies within the Development Plan, and v. where standards that would apply to general housing have been relaxed in response to the special needs of the occupiers of the scheme the occupancy will be limited to accord with the nature of the scheme.	This policy deals with the type rather than number and location of new dwellings or facilities and therefore would not lead to LSE
Core Policy 24 – New Employment Development on Unallocated Sites	Proposals for new employment development (use classes B1, B2 or B8) will be supported on unallocated sites provided that: i. the proposals will not cause unacceptable harm to the amenities of nearby residents and occupiers ii. safe site access can be provided for pedestrians and cyclists and for all types of vehicles likely to visit the sites and the proposals include measures to promote the use of sustainable modes of transport where possible iii. the scale nature and appearance of the employment does not harm the character of the area	As it stands, this policy would allow new employment development within the district at unallocated sites. Since the sites are unallocated it is clearly not possible to evaluate them in detail (except in as much as they will contribute to flows on the A34 and A40 past Oxford Meadows SAC). However, Core Policy 39 (Conservation and Improvement of Biodiversity) does

	and respects the local townscape and landscape character, and iv. it can be demonstrated that the proposal will benefit the local economy and will not undermine the delivery of the strategic employment allocations. In the rural areas the preference is for the re-use, conversion or adaptation of suitable existing buildings.	state that the highest level of protection will be provided to European sites. Any specific proposals that posed a risk to any European sites would need to be subject to project level assessment. On this basis it is concluded that no likely significant effects will occur.
Core Policy 25 – Change of use of Existing Employment Land and Premises	The strategic employment sites, as listed in the sub-area strategies, form part of the district's long term reserve for employment land and will be safeguarded for employment (B1, B2 and B8) uses. Alternative uses will be considered if they provide ancillary supporting services or meet a need identified through the local plan review process, or exceptionally where a reassessment of the district wide 2013 Employment Land Review demonstrates that these sites are no longer needed over the full plan period. Elsewhere in the district, applications for the change of use of land or premises that are currently, or were last, used for employment purposes will need to demonstrate that at least one of the following criteria is met: i. there is no reasonable prospect of the land or premises being used for employment purposes ii. the land or premises is unsuitable for business use on grounds of amenity, environmental or highway safety issues iii. the land or premises has no long term or strategic requirement to remain in employment use, or iv. the proposed use will be ancillary to the use of the land or premises for employment purposes.	This policy is not promoting new development, and therefore there is no likely significant effect on European sites.
Core Policy 26 – Further and Higher Education	The council will support the development and enhancement of further and higher education facilities to help support the local economy and to ensure the local labour force is equipped to	The policy is unlikely to lead to adverse effects on European sites,

	take advantage of the opportunities likely to arise in the future. The most appropriate locations for further and higher education provision are: i. by the extension or more intensive use of existing education or other suitable community facilities ii. within identified strategic employment locations, provided that the training offered is clearly relevant to meet the needs of businesses in that strategic employment location, and iii. in the main settlements and other locations with good pedestrian and cycle access and well served by public transport connections between the proposed facility and its likely student catchment.	since it promotes access by public transport and foot/cycle, and use of existing facilities. It is unlikely that significant numbers of students would access such facilities via road transport north of Oxford via the A34.
Core Policy 27 – Tourism-related Development	The council encourages new tourism related development for leisure and business purposes. Tourism proposals will be supported as follows: i. within the built-up areas of the Market Towns and Local Service Centres, larger scale tourism developments including conference facilities, museums, heritage centres, hotels, guest houses and associated tourist facilities ii. within the built-up areas of the Larger and Smaller Villages, smaller and proportionately scaled tourism developments that are in keeping with the character of the settlement, including museums, heritage centres, hotels, guest houses, self-catering accommodation and associated tourist facilities iii. at Milton Park and Harwell Oxford, ancillary business hotel and conference facilities, and iv. on service areas on the main transport corridors, hotel accommodation for travellers. Outside the above locations, small-scale tourism development including farm diversification will be supported provided that proposals are in keeping with the scale and character of the locality. Larger developments will only be supported exceptionally, for example to re-use a historic building, or to proportionally support or enhance enjoyment of a significant and established	If tourism-related development were to attract significantly more visitors, then there could be implications for increased traffic on the A34 past Oxford Meadows SAC. The site may also be subject to greater visitor pressure. Increased tourism at locations such as Wantage and Faringdon could potentially increase visitor pressure on Hackpen Hill SAC also. However, the Local Plan 2029 Part 1 does not actually propose any specific tourism development and Core Policy 39 (Conservation and Improvement of Biodiversity) does state that the highest level of protection will be provided to European sites. Any specific

	tourist attraction where this cannot reasonably be achieved from a town or village location.	proposals that posed a risk to any European sites would need to be subject to project level assessment. On this basis it is concluded that no likely significant effects will occur.
Core Policy 28 – Retailing and Other Main Town Centre Uses	The Market Towns and Local Service Centres defined in the settlement hierarchy are the preferred locations for larger scale development or redevelopment for retailing and other main town centre uses. For activities in Use Class A first consideration should be given to opportunities in the primary and secondary shopping frontages where designated in the Local Plan 2011 and the redevelopment sites identified in Core Policies 7 and 8 for the Charter area of Abingdon on Thames and the Botley Central Area. For other town centre uses first consideration should be given to opportunities within the designated town centre areas that are well linked to the retail core by foot, including identified redevelopment sites, before more peripheral locations are considered. Proposals for new retail development or changes of use to retail or other main town centre uses will be supported elsewhere as follows: i. for development primarily intended to serve the day to day needs of the local community, within the Larger and Smaller Villages, and in the local shopping centres located within Abingdon on Thames, Faringdon, Grove and Wantage, as defined in the 2011 Local Plan ii. ancillary and proportionate food, drink and convenience retailing within and primarily servicing the users of designated employment areas, and iii. offices in employment locations where office use is identified elsewhere in this plan to be appropriate. Proposals for retail or other main town centre uses that are on the edge of or outside the town or local shopping centres, and are not supported by local plan policies, will only be supported if	New attractive retail development in town centres such as Abingdon, could, in theory, attract greater traffic on the A34 past Oxford Meadows SAC through visitors travelling to such facilities. Further consideration within the main body of this report is required before a decision can be made on whether LSE on European sites can be ruled out.

	it is demonstrated that the proposal satisfies the sequential approach to site selection, and, where the proposal exceeds the local floorspace thresholds set out below, an impact assessment confirms that there are no likely significant adverse impacts on the vitality and viability of nearby centres. The impact assessment methodology and assumptions are to be agreed with the council in advance. The local floorspace thresholds for impact assessment are as follows: iv. 1,000 sq m gross retail floorspace for development likely to have an impact on Abingdon on Thames or Wantage town centres, and v. 500 sq m gross retail floorspace elsewhere in the district.	
Core Policy 29 – Promoting Sustainable Transport and Accessibility	The council will work with Oxfordshire County Council and others to: i. actively seek to deliver the transport infrastructure and measures which improve movement in the Science Vale UK area as identified in the County Council's Local Transport Plan's (LTP), Science Vale UK Area Strategy and the Science Vale UK Integrated Transport Package, in partnership with South Oxfordshire District Council ii. actively seek to ensure that the impacts of new development on the strategic and local road network are adequately mitigated iii. support measures identified in Oxfordshire County Council's LTP including the relevant local area strategies for the district iv. support improvements for accessing Oxford v. ensure that transport improvements are designed to minimise effects on the amenities of the surrounding area vi. encourage the use of sustainable modes of transport and support measures that enable a modal shift to public transport, cycling and walking in the district vii. promote and support improvements to the transport network that increase safety, improve	This policy is positive in that it will help to reduce atmospheric pollutants through shifts away from car use to more sustainable forms of movement. There are also requirements for Travel Plans and an emphasis on encouraging home working, and reducing travel between businesses

	air quality and/or make our towns and villages more attractive viii. ensure adequate parking is delivered on new developments in accordance with Oxfordshire County Council's published standards ix. all developments that generate significant amounts of movement must be supported by an appropriate transport assessment or statement and travel plan that is agreed by Oxfordshire County Council, and x. promote electronic communications allowing businesses and residents to operate throughout the district and to provide services and information that reduce the need to travel.	
Core Policy 30 – Sustainable Design and Construction	All new development, including building conversions, refurbishments and extensions, will be required to incorporate climate change adaptation and design measures to combat the effects of changing weather patterns. Wherever practicable the following measures should be used, and their application to the development outlined in the Design and Access Statement: i. planting, shading and advanced glazing systems to reduce solar heat gain ii. materials to prevent penetration of heat, including use of cool building materials and green roofs and walls iii. increasing natural ventilation and removing heat using fresh air iv. orientating windows of habitable rooms within 30 degrees of south and utilising southern slopes, and v. locating windows at heights that maximise heating from lower sun angles during the winter. All new residential development will meet a minimum standard of Code for Sustainable Homes Level 4 in full. Achieving higher Code levels in the 'Water' and 'Surface Water Run-off' categories will be particularly encouraged. All new non residential development will meet the BREEAM 'Very Good' standard. The council will expect the policy requirements to be met unless it can be demonstrated that it would be	This policy is positive in that it considers mitigation approaches that should help to ensure protection of water resources and water quality within the District through achievement of CSH and BREEAM standards for new development.

	unviable to do so or where historic assets would be affected. A sensitive approach will need to be taken to safeguard the special character of the heritage assets e.g. in a conservation area.	
Core Policy 31 – Renewable Energy	The council encourages schemes for renewable and low carbon energy generation. Planning applications for renewable and low carbon energy generation will be supported where they do not unacceptably impact on: i. landscape, both designated AONB and locally valued ii. biodiversity including protected habitats and species and Conservation Target Areas iii. historic environment both designated and non designated assets iv. the visual amenity and openness of the Green Belt v. local residential amenity, and vi. traffic generation.	The policy states that any renewable energy schemes should be assessed for impacts on protected habitats and species. Therefore there is no likelihood that schemes would have an adverse effect on European sites.
Core Policy 32 – Flood Risk	With regard to flood risk, the sequential approach will be strictly applied across the district, in accordance with national guidance. Development within areas of flood risk from any source of flooding, including areas with a history of groundwater or surface water flooding, will only be accepted if it is demonstrated that it is appropriate at that location, and that there are no suitable and available alternative sites at a lower flood risk. Planning permission will not be granted for any development in the functional floodplain (Flood Zone 3b) except water-compatible uses and essential infrastructure. For all developments over 1 hectare and/or development in any area of flood risk from rivers (Flood Zone 2 or above) or other sources, developers must carry out a full Flood Risk Assessment (FRA) demonstrating that the proposed development will not increase flood risk. Unless it is shown not to be feasible, all developments will be expected to incorporate sustainable drainage systems or techniques to limit surface water runoff from new development, and reduce the existing rate of run-off.	This policy does not contain measures that would lead to any LSE on European sites. It also contains measures that would help to ensure good water quality within the district through sustainable drainage systems and techniques.

Core Policy 33 – Natural Resources	All development proposals will be required to make provision for the efficient use of natural resources, including: i. making adequate provision for the recycling of waste ii. using recycled and energy efficient materials iii. minimising waste iv. maximising passive solar heating, lighting, natural ventilation, energy and water efficiency and reuse of materials v. causing no deterioration and, where possible, achieving improvements in water and air quality vi. ensuring that the land is of a suitable quality for development and that remediation of contaminated land is undertaken where necessary, and vii. re-using previously developed land provided it is not of high environmental value.	This policy is positive, in that it promotes water efficiency, and commits to there being no deterioration in water or air quality.
Core Policy 34 - Landscape	The Vale's distinct landscape character and key features will be protected against inappropriate development and where possible enhanced. High priority will be given to conservation and enhancement of the natural beauty of the North Wessex Downs AONB and planning decisions will have regard to its setting. Proposals that support the economy and social well being of communities located in the AONB, including affordable housing schemes, will be encouraged provided they do not conflict with the aims of conservation and enhancement. Locally valued landscape and its features will be protected, maintained and where possible, enhanced, in particular:	There is no LSE on European sites as a result of this policy.

	i. features such as trees, hedgerows, woodland, field boundaries, watercourses and water bodies ii. the landscape setting of settlements iii. topographical features iv. features of cultural and historic value v. important views and visually sensitive skylines, and vi. tranquillity and the need to protect against intrusion from light pollution, noise, and motion. Where development is acceptable in principle, measures will be sought to integrate it into the landscape character of the area. Proposals will need to demonstrate how they have responded the above aspects of landscape character. As well as documents produced by the council, development proposals should have regard to the information and advice contained in the Oxfordshire Wildlife and Landscape Study (OWLS) and the North Wessex Downs AONB Landscape Character Assessment and Management Plan.	
Core Policy 35 – Green Infrastructure	A net gain in green infrastructure, including biodiversity, will be sought either through on site provision or off-site contributions and the targeted use of other funding sources. Proposals for new development must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing green infrastructure and how this will be retained and enhanced. Where appropriate, proposals will be required to contribute to the delivery of new green infrastructure and/or the improvement of existing assets including Conservation Target Areas in accordance with the standards in the forthcoming Oxfordshire Green Infrastructure Strategy. A net loss of green infrastructure, including biodiversity, through development proposals will be resisted.	There is no LSE on European sites as a result of this policy.
Core Policy 36 –	Opportunities for biodiversity gain, including the connection of sites, large-scale habitat	This policy contains measures that

Conservation and Improvement of Biodiversity	restoration, enhancement and habitat re-creation will be sought, with a primary focus on delivery in the Conservation Target Areas. If significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated or, as a last resort, compensated for, then planning permission will be refused. The highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species). Damage to nationally important Sites of Special Scientific Interest, Local Wildlife Sites, Local Nature Reserves, Priority Habitats, Ancient Woodland Protected or Priority Species and Locally Important Geological sites must be avoided unless the importance of the development outweighs the harm and the loss can be mitigated to achieve a net gain in biodiversity.	should help to avoid any LSE on European sites. Specifically, it commits to the following: "*If significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated or, as a last resort, compensated for, then planning permission will be refused*." It also states that "*the highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species)*."
Core Policy 37 - Design	All proposals for new development will be expected to be of high quality design, such that the layout, scale, mass, height, detailing, materials, landscaping and relationship to context make a positive contribution to the character of the locality. All new development schemes should also: i. connect to the surrounding area and existing development ii. relate well to existing and proposed facilities iii. have access to public transport where possible iv. have locally inspired or otherwise distinctive character	There is no LSE on European sites as a result of this policy.

	v. sensitively incorporate any existing distinctive features on site, such as landscape or structures, as well as having a suitable level of new landscaping vi. ensure that buildings and streets are well defined with landscaping and buildings that relate well to the street vii. be legible and easy to move through viii. encourage low vehicle speeds and allows streets to function as social spaces ix. have a sufficient level of well-integrated parking x. have clearly defined public and private spaces xi. include sufficient external space for bins, recycling and bicycles xii. ensure that public and communal spaces are overlooked in the interest of community safety, and xiii. be compatible with urban design principles, including Secured by Design and Active Design principles. Development will be expected to follow the design principles set out in relevant SPD and National Guidance.	
Core Policy 38 – The Historic Environment	Development should sustain and enhance the historic environment, both above and below ground, and not detract from the significance of heritage assets or their settings. Development should make a positive contribution to the local character and distinctiveness of the historic environment using the Residential Design Guide SPD, as well as other relevant SPDs, as a basis for information on character areas, types and materials. Development involving loss or damage to designated heritage assets and their settings will be resisted. Non designated assets will be assessed on a case by case basis and will be conserved taking into account the scale of any harm or loss and the significance of the asset.	There is no LSE on European sites as a result of this policy.

Core Policy 39 – The Wilts & Berks Canal	The council will continue to safeguard a continuous route for restoration of the Wiltshire & Berkshire Canal using the historic line and the diversion south of Abingdon-on-Thames to be identified on the Adopted Policies Map. The council will support schemes for restoration of the canal in line with the delivery plan identified in the Wiltshire Swindon & Oxfordshire Canal Partnership Strategy by: i. ensuring that development protects the integrity of the canal alignment and its associated structures ii. ensuring that where the canal is affected by development, the alignment is protected or an alternative alignment is provided, and iii. ensuring associated infrastructure of development does not prejudice the delivery of the canal. Proposals will be permitted that are designed to develop the canal's recreational and nature conservation potential, in particular, the use of the old line of the canal for walking and cycling. Proposals for the reinstatement of the canal along these historic alignments will need to demonstrate that the cultural, historic and natural environment will be protected and enhanced, with no overall adverse effect, and that potential impacts on ecology, landscape, flood risk, water resources (abstraction) and water quality have been fully assessed and taken into account. Proposals for the reinstatement of discrete sections of the canal will also need to demonstrate that the potential environmental impacts of the restoration project as a whole have been assessed and taken into account.	There is no LSE on European sites as a result of this policy.
Core Policy 40 – Delivery and Contingency	If policies are not delivered in accordance with the monitoring framework the contingency measures will apply. If the Authority's Monitoring Report shows that allocated development sites and/or development	There is no LSE on European sites as a result of this policy.

	to be bought forward through neighbourhood plans are not coming forward in a timely manner, we will consider: i. seeking alternative sources of funding if lack of infrastructure is delaying development, to bring delivery back on track ii. investigate mechanisms to accelerate delivery on other permitted or allocated sites iii. identifying alternative deliverable site(s) that are in general accordance with the spatial strategy of this plan, through the Local Plan 2029 Part 2 or other appropriate mechanism; and if required, and iv. through a full or partial review of the local plan.	

The following policies cannot be screened out without further consideration:

- CP3 – Housing Delivery
- CP4 – Meeting Business and Employment Needs
- CP6 – Spatial Strategy for Abingdon on Thames and Oxford Fringe Sub-Area
- CP8 – Botley Central Area
- CP10 – Harcourt Hill Campus
- CP12 – Spatial Strategy for South East Vale Sub Area
- CP13 – Didcot A Power Station
- CP17 – Spatial Strategy For Western Vale Sub Area
- CP28 – Retailing and Other Main Town Centre Uses

The major issues for further investigation are:

- Air Quality Effects on Oxford Meadows SAC (CP3, CP4, CP6, CP8, CP10, CP12, CP13, CP17, CP 28)
- Recreational Pressure on Oxford Meadows SAC (CP3, CP6, CP12)
- Water Quality on Oxford Meadows SAC (CP3, CP4, CP6, CP12)
- Recreational Pressure at Cothill Fen SAC (CP3, CP6, CP12)
- Water Resources at Cothill Fen SAC (CP3, CP4, CP6, CP12)
- Water Quality at Cothill Fen SAC (CP3, CP4, CP6, CP12)
- Air Quality Effects at Hackpen Hill SAC (CP3)
- Recreational Pressure at Hackpen Hill SAC (CP3, CP12)
- Water Quality at Little Wittenham SAC (CP3, CP4, CP6, CP12)

5 COTHILL FEN SAC

5.1 Introduction

Cothill Fen supports outstanding examples of nationally rare calcareous fen and moss-rich mire communities together with associated wetland habitats. It is one of a number of nationally important sites where the vegetation of the area over the past ten millennia can be interpreted from peat samples. Cothill Fen exhibits succession from open water to fen, scrub and carr, together with an adjacent area of ancient woodland. Plant distribution varies in conjunction with differences in water table, canopy cover, peat depth, soils and historical factors such as peat cutting and attempts at drainage. Over 330 vascular plants have been recorded, including species which are uncommon in southern England, together with many uncommon invertebrates. The site is located approximately 2km to the west of Shippon on the edge of Abingdon.

5.2 Features of European interest[21]

The site is designated as a SAC for its:

- Calcium-rich, spring-water-fed fens; and
- Alder woodland on floodplains

5.3 Conservation objectives

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the habitats of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (May 2009), 65% of the site was in favourable condition, with the remainder recovering from unfavourable status. This latter specifically related to the Parsonage Moor component which was previously unfavourable due to lack of management and low water levels.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Cothill Fen SAC currently exceeds the minimum critical load for nitrogen deposition. However, since it lies over 200m from the nearest major road, local air quality impacts associated with the development-related transport do not require consideration in this HRA.

5.4 Key environmental conditions

The key environmental conditions that support the features of European interest are:

- High water table;
- Good water quality;
- Appropriate grazing regime; and
- Calcareous, base-rich water supply.

[21] Features of European Interest are the features for which a European site is selected. They include habitats listed on Annex 1 of the Habitats Directive, species listed on Annex II of the EC Habitats Directive and populations of bird species for which a site is designated under the EC Birds Directive.

5.5 Potential effects of the plan

Three potential effects of the Local Plan 2029 Part 1 upon the SAC have been identified:

Recreational Pressure

Fenland sites are less likely to attract significant visitor numbers than other types of habitat because the terrain is generally more difficult for visitors to negotiate. Moreover, using the broad 4-5km figure as identifying the probable core recreational catchment, the SAC lies sufficiently far from the major housing areas of Didcot, Wantage and Grove and Harwell Science and Innovation Campus that they are unlikely to lead to a significant increase in recreational visits.

Part of Cothill Fen is also a National Nature Reserve so access is already managed. Natural England and the Oxford Conservation Volunteers undertake footpath management/improvement specifically to ensure that people are discouraged from travelling 'off-track', while the marshy nature of the fen naturally assists in deterring off-track activity. The site is fairly remote (8 km south west of Oxford between the A338 and A34; 2 km south west of the B4017 and 0.5 km west of the village of Cothill) and generally accessible only by car. Car parking is limited which inherently limits the number of visitors at any time (according to the Natural England website, the nearest car park is 0.5km away).

For these reasons, we have concluded that likely significant effects will not occur as a result of development within the Vale of White Horse Local Plan 2029 Part 1.

However, as an additional safeguard within the Local Plan 2029 Part 1, Natural England requested in their consultation response of 17/06/10 on the previous versions of the Core Strategy that they would like to see that adequate green infrastructure is provided with all of the new development sites in line with Accessible Natural Greenspace Standards (ANGSt) to ensure that this is readily accessible for residents close to their homes.

Policy CP35 – Green Infrastructure does state that "*proposals for new development must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing green infrastructure and how this will be retained and enhanced. Where appropriate, proposals will be required to contribute to the delivery of new green infrastructure and/or the improvement of existing assets…*"

It would be appropriate for the Council to advise on the criteria for contributing to new green infrastructure – i.e. the policy would benefit from reference to ANGSt in line with advice provided by Natural England. The council has produced a Green Infrastructure Audit which includes an assessment against relevant ANGst standards. The audit identifies a deficit which will be addressed through the forthcoming county-wide GI Strategy. The forthcoming GI Strategy is referred to in the proposed Core Policy 35 (Green Infrastructure) in the LPP1 consultation document. The supporting text to Policy CP35 does indicate that the Council is working with partners (including statutory agencies) in order to produce a Green Infrastructure Strategy and this is cross-referenced in policy CP35 itself.

Other plans and projects

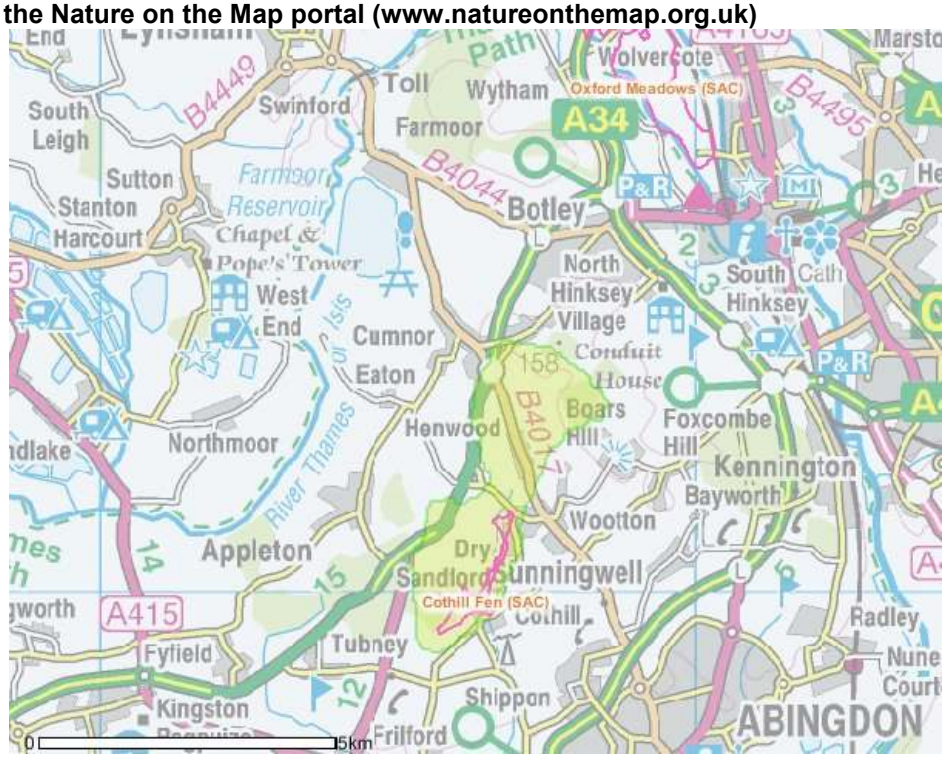
Although there will be population increases in neighbouring districts (16,750 new dwellings in Cherwell, 8,000 in Oxford, over 10,000 in South Oxfordshire, over 5,500 in West Oxfordshire, over 20,000 in Swindon, approximately 6000 in the Cotswold District (the Cotswold Core Strategy is at an early stage so is subject to change) and 850 in the Marlborough Area of Wiltshire) these all lie well outside the probable core recreational catchment of the SAC.

Water Resources

This site is particularly dependent on an adequate supply of high quality fresh water which is generally supplied from groundwater springs. The calcareous water from the springs ultimately drains through the SAC and into the Sandford Brook which is a southerly-flowing tributary of the River Ock. The HRA of the draft South East Plan indicated that water resource (drawdown) issues could arise from the Local Plan 2029 Part 1 and the Environment Agency's Vale of White Horse Catchment Abstraction Management Strategy (CAMS) indicates that the SAC is in hydraulic continuity with Water Resource Management Unit 2, which covers much of the district. Therefore, the Vale of White Horse Preferred Approaches that affect water levels close to this site could have an impact.

Cothill Fen SAC is one of the few European sites for which a digital hydrological catchment is available via the Nature on the Map portal (www.natureonthemap.org.uk) (see Figure 6 below).

Figure 6– Approximate hydrological catchment for Cothill Fen SAC as displayed within the Nature on the Map portal (www.natureonthemap.org.uk)



Development proposed within the Local Plan 2029 Part 1 is likely to result in increased water use, notably as a consequence of housing and business developments under the housing policies in the locations of Wantage and Grove, Didcot, Faringdon and Harwell and the

employment policies for the areas of Milton Park and the Harwell Science and Innovation Campus, in the context of providing 5,150 strategic home developments between 2012 and 2029 in the district and provision of employment sites and additional housing on non-strategic sites.

Unlike most of the indirect impacts on European sites that can derive from development (e.g. from recreational pressure or vehicle exhaust emissions) and which are generally not covered by any independent assessment or consenting regime, water supply is covered by a detailed abstraction licencing and Review of Consents process controlled by the Environment Agency. One of the principal functions of this regime is to ensure that the abstraction of water at volumes, rates or times of year that would result in adverse effects on internationally designated sites do not take place.

Avoiding adverse effects on European sites as a result of increased scales of abstraction to supply new housing must therefore be principally the responsibility of the water companies through their Water Resource Management Plans, water supply operations and abstraction licence applications and the Environment Agency through their licencing regime and Review of Consents process.

Thames Water Utilities Ltd commented on the Issues & Options HRA screening report that they currently do not have any groundwater sources in the catchment of Cothill Fen SAC and have no current plans to develop any. As such, it is unlikely that housing to be delivered in Vale of White Horse under the Local Plan 2029 Part 1 will have an adverse effect on water flows into Cothill Fen SAC provided that no housing is actually situated within the catchment shown on Figure 6. If housing is to be allocated within that catchment area it will be necessary to undertake an investigation to confirm that adverse effects can be avoided. However, the Local Plan 2029 Part 1 does not prescribe housing specifically within this catchment and is unlikely to do so. Moreover, there are a number of policies within the Preferred Approaches that should help to ensure that water resource efficiency within the Vale of White Horse is maximised:

- Policy CP5 – Providing Supporting Infrastructure and Services, states that “all new development will be required to provide, in a timely manner, the on-site and, where appropriate, off-site infrastructure requirements necessary for the development to be sustainably accommodated.” The policy also commits to partnership working with adjoining authorities and stakeholders such as the Environment Agency to ensure appropriate and timely infrastructure provision.
- Policy CP30 – Sustainable Design and Construction, states that “All new residential development will meet a minimum standard of Code for Sustainable Homes Level 4 in full. Achieving higher Code levels in the ‘Water’ and ‘Surface Water Run-off’ categories will be particularly encouraged.” It also recommends that “all new non residential development will meet BREEAM ‘Very Good’ standard.”
- Policy CP33 – Natural Resources, commits to new development proposals “maximising…water efficiency.”
- Policy CP36 – Conservation and Improvement of Biodiversity, seeks to protect European sites through stating that “if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated or, as a last resort, compensated for, then planning permission will be refused.” It also states that “the highest level of protection will be given to sites and species of international nature conservation importance (Special Areas of Conservation and European Protected Species).”

Other plans and projects

No specific 'in combination' assessment is required with regard to this particular impact pathway since Thames Water Water Resource Management Planning is undertaken on a sub-regional strategic basis and therefore already takes account of development planned for authorities surrounding the Vale of White Horse. None of these authorities obtain water from the catchment of Cothill Fen SAC.

Water Quality

A corollary of the potential effects of reduced water resources through increased development is a reduction in water quality through increased wastewater and sewage generation. Cothill Fen SAC is sensitive to water quality (being identified as a site at risk of diffuse agricultural nutrient pollution as a result of nutrients leaching into the water from surrounding farmland). However, as far as can be determined there are no Sewage Treatment Works that discharge upstream of the SAC and as such, adverse effects from the development to be delivered through the Local Plan 2029 Part 1 are unlikely. In their consultation response of 17/06/10 Natural England asked that investigations into the potential adverse effect of surface water run-off from unallocated development with hydrological connections to SAC's was also included in policy. However, this would only be relevant if development was to be included within the catchment of the SAC as indicated in Figure 6 and the Local Plan does not include any plans to allocate development in this catchment.

As stated above for water resources, policy CP5 commits to provision of adequate and timely infrastructure, including for waste water treatment, in partnership with stakeholders and adjoining local authorities. Policy CP30 should ensure maximum water efficiency, meaning less need for waste treatment, whilst policy CP36 commits to a general protection of nature conservation, including European, sites. Moreover:

- Policy CP 32 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.
- Policy CP33 commits to new development proposals "*causing no deterioration and, where possible, achieving improvements in water quality*."

Other plans and projects

There are no other proposals identified which would lead to development within the surface water catchment of this SAC and therefore an 'in combination' effect.

5.6 Conclusion

Issues of recreational pressure, water resources and water quality have all been considered in relation to impacts of the Local Plan 2029 Part 1 on the Cothill Fen SAC. It is possible to conclude that likely significant effects on the SAC as a result of development within the Vale of White Horse District under the Local Plan 2029 Part 1 will not occur.

6 HACKPEN HILL SAC

6.1 Introduction

This unimproved chalk grassland site lies on the Middle Chalk and has all aspects and a wide range of slope-gradients represented. It has well-drained, silty soils of the Wantage 1 Series, with the thinner soils of the upper slopes containing a high proportion of large chalk nodules.

Hackpen Hill has slopes with a wide variety of aspect and gradient. Most of the grassland is dominated by red fescue *Festuca rubra*, but this is replaced by upright brome *Bromus erectus* on some middle and lower slopes. The herb flora includes horseshoe vetch *Hippocrepis comosa*, common rockrose *Helianthemum nummularium*, dwarf thistle *Cirsium acaule*, autumn gentian *Gentianella amarella*, fragrant orchid *Gymnadenia conopsea* and frog orchid *Coeloglossum viride*. An enclosed, ungrazed strip on Hackpen Down contains hawthorns and elder scrub, interspersed with upright brome grassland and herbs including sainfoin *Onobrychis viciifolia* and basil thyme *Acinos arvensis*.

Hackpen Hill SAC lies around 4km to the south-west of Wantage, within the Vale of White Horse district.

6.2 Features of European Interest

The site is designated as a SAC for its:

- Dry grasslands and scrublands on chalk or limestone
- Early gentian

6.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

- to maintain*, in favourable condition, the habitats of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (May 2008), the site was in favourable condition.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Hackpen Hill SAC currently exceeds the minimum critical load for nitrogen deposition.

6.4 Key Environmental Conditions

This site is a well-drained hill and therefore water resource and water quality issues are not relevant as key environmental conditions. The key environmental conditions that support the features of European interest are:

- Appropriate management: grazing.
- Minimal air pollution.
- Absence of direct fertilisation.

6.5 Potential Effects of the Plan

Two potential effects of the LDF Local Plan 2029 Part 1 upon the SAC have been identified:

- Recreational pressure
- Air quality

Recreational Pressure

The site is managed by cattle grazing. The site contains features that would be susceptible to increased recreational impact through direct fertilisation (dog fouling) and possibly via trampling. However, excessive rabbit grazing is currently more of a risk than trampling. Small-scale scattered erosion (as might arise from limited off-track movement) is not a negative impact since it creates niches for colonisation by early gentian, horsehoe vetch etc.

In the absence of specific data regarding the recreational catchment of Hackpen Hill SAC or the recreational behaviour of local residents regarding this type of site, we have taken as a proxy the figure of 4-5km which has been identified as the core recreational catchment for a wide range of other European sites. It should be noted that in defining these catchments the 4-5km is measured as the crow flies (i.e. in a linear distance) rather than following vehicle routes.

Using this distance, Wantage is the only significantly sized settlement that lies within relatively close proximity to the SAC. However, although it lies within 5km of the SAC as the crow flies (as do the two strategic development areas at Crab Hill and Monks Farm), it is a considerably longer distance by road (up to 10km for the Monks Farm site). Moreover, the closest area when people can park to access the site is on the Ridgeway at Sparsholt Firs, but this is over 600m from the SAC and requires traversing the ridgeway and a muddy footpath. This again naturally limits the accessibility of the site. There is only informal off road parking here which would accommodate approximately 30 cars. Hackpen Hill SAC is a site that is visited for its own intrinsic features by people (including holidaymakers) undertaking substantial walks along across country, rather than being used as a convenient piece of local greenspace for dogwalking etc. by large numbers of residents from nearby towns. In practice therefore, it is very likely that the majority of regular local resident visitors derive from the small settlements very close to the SAC. In addition, the number of available parking spaces inherently limits the number of vehicle-based visitors who can use the site; given the distances involved, visitors deriving from Wantage are bound to arrive at site by car. Given this, the delivery of 2,250 new dwellings at Wantage and Grove (even coupled with existing commitments) would be likely to have a limited effect on actual regular visitor activity within the SAC.

At the moment required access management is limited to ongoing footpath maintenance and signage and this may well prove sufficient to manage future visitor numbers. However, the local authority should be prepared to contribute to any enhanced access management that might be identified by Natural England in future as stemming from increased local population.

Other plans and projects

Although there will be population increases in neighbouring districts (16,750 new dwellings in Cherwell, 8,000 in Oxford, over 10,000 in South Oxfordshire, over 5,500 in West Oxfordshire, over 20,000 in Swindon, approximately 6000 in the Cotswold District (the Cotswold Core Strategy is at an early stage so is subject to change) and 850 in the Marlborough Area of Wiltshire) these all lie well outside the probable core recreational catchment of the SAC.

Air Pollution

The site is sensitive to air pollution, and modelling results suggest that the SAC is currently experiencing deposition rates exceeding the 'critical load' of this habitat for nitrogen deposition.

The closest road to the SAC is the B4001, but this lies 300m from the site at its closest, which is outside the distance from which vehicle exhaust emissions may be contributing to local nitrogen deposition. Coupled with the minor nature of this road and the fact that the SAC is physically situated above the road which will further limit the dispersal of pollution, it is highly unlikely that any increases in traffic flows resulting from development proposed in the Local Plan 2029 Part 1 would have a significant effect upon the qualifying interest of the SAC as a consequence of air pollution.

No avoidance or mitigation measures are therefore required with regards to air quality impacts of the Local Plan 2029 Part 1 on Hackpen Hill SAC. No 'in combination' assessment is required since local air quality from road traffic has been ruled out as an impact pathway.

6.6 Conclusion

Issues of recreational pressure and air quality have been considered in relation to impacts of the Local Plan 2029 Part 1 on the Hackpen Hill SAC. It is possible to conclude that likely significant effects will not arise from air quality issues on the Hackpen Hill SAC as a result of development within the Vale of White Horse District under the Local Plan 2029 Part 1. There is however a small risk of increased recreational pressure on Hackpen Hill SAC which may trigger the need for enhanced access management to the site. The local authority should be prepared to contribute to any enhanced access management that might be identified by Natural England in future as stemming from increased local population.

7 LITTLE WITTENHAM SAC

7.1 Introduction

This site supports one of the largest known breeding populations of great crested newt *Triturus cristatus* in the UK. The site also supports an outstanding breeding assemblage of amphibians, which include smooth newt, common frogs and common toads, and of dragonflies and damselflies.

The calcareous flushes in the woodland have extensive deposits of tufa and support a specialized invertebrate fauna which includes a number of rare species. These include the soldier flies *Oxycera analis* and *O. pardalina*.

The woodland ponds and streams support a wide diversity of dragonflies and damselflies. A total of 16 species are known to breed on the site including the brown hawker *Aeshna grandis*, migrant hawker *A. mixta*, emperor dragonfly *Anax imperator* and ruddy darter *Sympetrum sanguineum.*

Additional aquatic habitat is provided by a backwater of the River Thames which provides suitable conditions for the white-legged damselfly *Platycnemis pennipes*, club-tailed dragonfly *Gomphus vulgatissimus* and red-eyed damselfly *Erythromma najas*. The associated riverine woodland supports the Loddon lily *Leucojum aestivum*.

The nationally scarce plant greater dodder *Cuscuta europaea* is regularly seen growing parasitically on nettle *Urtica dioica* alongside the River Thames.

The site is approximately 6km south-east of Abingdon, less than 4km from Didcot, and less than 3km from the district boundary.

7.2 Features of European Interest

The site is designated as a SAC for its:

- Great crested newt populations.

7.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

• to maintain*, in favourable condition, the species of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (October 2010), the entire site was in favourable condition.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is currently suffering from poor air quality. Little Wittenham SAC currently exceeds the minimum critical load for nitrogen deposition.

7.4 Key Environmental Conditions

The key conditions that support the features of European interest are:

- Suitable foraging and refuge habitat within 500m of the pond.

- Relatively unpolluted water of roughly neutral pH.
- Some ponds deep enough to retain water throughout February to August at least one year in every three.
- In a wider context, great crested newts require good connectivity of landscape features (ponds, hedges etc) as they often live as metapopulations in a number of ponds.

7.5 Potential Effects of the Plan

One potential effect of the Local Plan 2029 Part 1 upon the SAC has been identified – water quality. Recreational pressure has been discounted as an impact pathway for two reasons: firstly, the site is relatively isolated being over 3km from the nearest sizeable settlements (Didcot and Wallingford) and secondly great crested newts have a low susceptibility to recreational activity (other than fishing which cannot be considered a probable corollary of new housing in Vale of White Horse) as they do not have highly specific habitat requirements. Water resource impacts have been discounted because there is not abstraction for the Public Water Supply in Vale of White Horse from the Little Wittenham pools. Air quality has been discounted because no significant roads lie within 200m of the SAC.

Water Quality

A reduction in water quality can occur through increased wastewater and sewage generation. Little Wittenham SAC is sensitive to water quality, as it relies on unpolluted water. As it lies adjacent to the River Thames, any pollution events upstream could affect the integrity of the site if flooding is possible. The upstream Thames forms the eastern boundary of the Vale of White Horse, and flows past Abingdon and Oxford.

A small proportion of the site along its northern edge was designated as flood zone risk 2 or 3[22] during the Strategic Flood Risk Assessment carried out as part of the LDF evidence base studies.

Waste water treatment facilities and sewage treatment works will need to be able to cope with increased capacity as a result of new development. In terms of the protection of the SAC it is important to avoid pollution of the River Thames. The Environment Agency does not highlight requirements for any new infrastructure to meet forecast demands for increases in housing development[23] under the South East Plan within the Vale of White Horse District, although phosphorous levels in discharge from the Abingdon STW need to be reduced.[24]

Given the capacity of the existing STWs and the small area of the site designated as being at risk of flooding, it is considered unlikely that the development outlined within the Local Plan 2029 Part 1 will result in an adverse effect on the Little Wittenham SAC.

In their consultation response of 17/06/10 Natural England asked how surface water from the allocation of dwellings at Didcot will be treated and whether there was a hydrological connection e.g. drainage ditches/streams between the Didcot development and the River Thames upstream of the SAC. The strategic location at Didcot is on the western side of the town (the opposite side to Little Wittenham) and is 6km from the SAC at its closest. The details of surface water treatment have not been devised as yet but they will be required to adhere to Environment Agency policy and national pollution prevention legislation which would prohibit

[22] Flood risk zone 2 refers to the risk of flooding being at least once every thousand years. Flood risk zone 3 refers to the risk of flooding being at least once every hundred years.
[23] Environment Agency (2006) Creating a better place: Planning for water quality and growth in the south east.
[24] Environment Agency. What's in your backyard? River Quality and Urban Waste Water Treatment Map. http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=riverquality

the discharge of surface water into existing watercourses if there was a water quality risk or if the discharge would result in a net increase in flows above existing Greenfield runoff rates. Given this and the distance between the Didcot strategic housing area and Little Wittenham SAC there is considered to be a negligible risk of an impact through surface water runoff.

Within the Preferred Approaches Policy CP5 commits to provision of adequate and timely infrastructure, including for waste water treatment, in partnership with stakeholders and adjoining local authorities. Policy CP30 should ensure maximum water efficiency, meaning less need for waste treatment, whilst policy CP36 commits to a general protection of nature conservation, including European, sites. Moreover:

- Policy CP 32 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.
- Policy CP33 commits to new development proposals "*causing no deterioration and, where possible, achieving improvements in water quality*."

Other plans and projects

There are no other proposals identified which would lead to development within the surface water catchment of this SAC and therefore an 'in combination' effect.

7.6 Conclusion

The issue of water quality has been considered in relation to the impacts of the Local Plan 2029 Part 1 on the Little Wittenham SAC. It is possible to conclude that likely significant effects on the Little Wittenham SAC as a result of development within the Vale of White Horse District under the Local Plan 2029 Part 1 will not occur.

8 OXFORD MEADOWS SAC

8.1 Introduction

Port Meadow is a classic site for studying the effects of grazing on plant communities. The site consists of a series of neutral grasslands situated in the Thames floodplain. Despite the generally low species-diversity of Port Meadow compared with adjoining hay fields a total of 178 flowering plants have been recorded. These include the Red Data Book species creeping marshwort *Apium repens*, for which Port Meadow is now one of only two sites in Britain.

Wolvercote Meadows, bordering the River Thames consists of unimproved and semi-improved neutral grassland that continues to be managed traditionally for hay and pasture and support a rich flora. Pixey and Yarnton Meads are unimproved floodplain meadows on alluvium over calcareous gravel on the first terrace bordering the River Thames and are internationally renowned. They are amongst the best remaining examples of neutral grassland in lowland England. Cassington Meadows are a cluster of neutral hay meadows and fen, which are surviving remnants of semi-natural vegetation in an area now characterised by intensive arable farming and gravel extraction. Oxford Meadows SAC is adjacent to the north-eastern boundary of Vale of White Horse district.

8.2 Features of European Interest

The site is designated as a SAC for its:

- Lowland hay meadows
- Creeping marshwort

8.3 Condition Assessment

The Conservation Objectives for the European interests on the SSSI are, subject to natural changes:

• to maintain*, in favourable condition, the habitats and species, of European importance.

* maintenance implies restoration if the feature is not currently in favourable condition

During the most recent Condition Assessment process (June 2009), 99% of the site was in favourable condition, with the remainder recovering.

From examination of the UK Air Pollution System (www.apis.ac.uk) it can be seen (Table 6) that the SAC is not currently suffering from poor air quality.

8.4 Key Environmental Conditions

The key conditions that support the features of European interest are:

- Maintenance of traditional hay cut.
- Maintenance of light aftermath grazing.
- Minimal air pollution.
- Absence of direct fertilisation.
- Balanced hydrological regime –alteration to adjacent rivers may alter flooding regime and reduce botanical diversity.

- Absence of excessive nutrient enrichment of floodwaters

8.5 Potential Effects of the Plan

Three potential effects of the Local Plan 2029 Part 1 upon the SAC have been identified.

Recreational Pressure

The site contains features that would be susceptible to increased recreational impact through direct fertilisation (dog fouling) and possibly via trampling. According to the HRA of the Cherwell Core Strategy '*Oxford Meadows SAC is a popular place for walking, particularly for residents of and visitors to Oxford*'[25]. A visitor survey undertaken during October 2011 by Oxford City Council to inform the Oxford Sites and Housing DPD identified that over 80% of visitors to the SAC live within 5km of the site. The majority of respondents (82%) indicated that they were residents of Oxford with only 4% being resident in other parts of Oxfordshire. Those settlements within Vale of White Horse from which visitors originated were Kennington, Botley, North Hinksey and Wytham. However, considerably less than 4% of visitors to the SAC derived from these settlements. It is clear from this survey that visitor pressure on the SAC stems almost entirely from Oxford, with other settlements making a negligible contribution.

Moreover, the distance between even the closest major strategic housing location outlined in the Vale of White Horse Local Plan 2029 Part 1 and the Oxford Meadows SAC is far in excess of 5km. Cherwell District and West Oxfordshire District have strategic sites that are closer (3,000 dwellings at Bicester and 1,000 dwellings at Witney respectively). As such, it is considered that visitors from the housing locations outlined in the Local Plan 2029 Part 1 are unlikely to significantly contribute to recreational pressure at the site.

It is therefore considered that no avoidance or mitigation measures are required under the Local Plan 2029 Part 1 with regards to recreational impacts on Oxford Meadows. However, as an additional safeguard within the Local Plan 2029 Part 1, Natural England requested in their consultation response of 17/06/10 that they would like to see that adequate green infrastructure is provided with all of the new development sites in line with Accessible Natural Greenspace Standards (ANGSt) to ensure that this is readily accessible for residents close to their homes.

Policy CP35 – Green Infrastructure does state that "*proposals for new development must be accompanied by a statement demonstrating that they have taken into account the relationship of the proposed development to existing green infrastructure and how this will be retained and enhanced. Where appropriate, proposals will be required to contribute to the delivery of new green infrastructure and/or the improvement of existing assets…*"

It would be appropriate for the Council to advise on the criteria for contributing to new green infrastructure – i.e. the policy would benefit from reference to ANGSt in line with advice provided by Natural England. The council has produced a Green Infrastructure Audit which includes an assessment against relevant ANGst standards. The audit identifies a deficit which will be addressed through the forthcoming county-wide GI Strategy. The forthcoming GI Strategy is referred to in the proposed Core Policy 35 (Green Infrastructure) in the LPP1 consultation document. The supporting text to Policy CP35 does indicate that the Council is working with partners (including statutory agencies) in order to produce a Green Infrastructure Strategy and this is cross-referenced in policy CP35 itself.

[25] http://www.cherwell.gov.uk/media/pdf/o/5/Habitats_Regulations_Assessment_(Stage_1)_of_Options_for_Growth_-_Consultation_on_Directions_of_Grow.pdf

No specific 'in combination assessment' is required since the visitor survey on which this analysis is based took account of all sources of visitor origin for the SAC and the preceding analysis does consider impacts from Vale of White Horse within the context of those from Oxford City.

Air Quality

The total number of households in Vale of White Horse will have increased by at least 29% by 2029 under the Local Plan 2029 Part 1 (from 45,759 according to the 2001 census, to 59,053 when the additional 13,294 dwellings to be delivered under the lifetime of the Local Plan 2029 Part 1 are considered). Development proposed within the Local Plan 2029 Part 1 is likely to result in increased car use on roads that pass within 200m of the SAC (namely the A34 and A40), notably as a consequence of housing and business development. It is reasonable to assume that the increased population (both residential and business) will lead to increased vehicle movements. When coupled with the 97,240 new homes identified for the local authorities surrounding the Vale of White Horse, there is an even greater likelihood of an increase in traffic movements along the A34 and A40 which run adjacent to the Oxford Meadows SAC.

Department for Transport Guidance as expressed in the Design Manual for Roads and Bridges (DMRB)[26] states that the first process in determining air quality impacts from road schemes is to determine whether the road in question is an 'affected road' which is defined as, among other criteria, if it will experience an increase in flows of more than 1,000 Annual Average Daily Traffic (AADT) as a result of the planned development. Transport modelling was undertaken for the preferred option, to determine the change in flows on the A34 and A40 within 200m of the SAC. These take into account not only the Local Plan 2029 Part 1 housing figures, but also background population growth in surrounding authorities over the Local Plan 2029 Part 1 period, particularly Cherwell and Oxford itself.

For both roads increases in Average Annual Daily Traffic as a result of planned development in Vale of White Horse district were forecast to exceed 1,000 AADT. Air quality calculations were therefore undertaken. The results of the air quality calculations are summarised in Tables 8 - 12. Table 8 sets out the existing NOx concentrations at the relevant grid references, while Table 9 sets out the change in NOx concentration on the A34 due to development in Vale of White Horse district compared to the change that would occur due to background changes in traffic flow in response to population growth ('Do Some – Do Min'), at various distances from the roadside. Table 10 presents the change in nitrogen deposition rates attributable to the planned development in Vale of White Horse ('DS-DM'). Tables 11 and 12 then repeat the analysis for the A40.

Environment Agency guidance[27], to which Natural England also subscribe, advises that '*Where the concentration within the emission footprint* [i.e. the contribution of the project/plan in question] *in any part of the European site(s) is less than 1% of the relevant long-term benchmark (EAL, Critical Level or Critical Load), the emission is not likely to have a significant effect alone or in combination irrespective of the background levels'*. However, this does not mean that an increase in deposition rate equivalent to more than 1% of the critical level/load will lead to an adverse effect, but rather that further consideration is required.

The Site-Relevant Critical Load function on the UK Air Pollution Information System identifies that the appropriate minimum rate of nitrogen deposition to utilise as the 'critical load' for the

[26] Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1: Air Quality
[27] Environment Agency. 2007. Appendix ASC 1 Environment Agency Stage 1 and 2 Assessment of New PIR Permissions under the Habitats Regulations

site is 20 kg/N/ha/yr. The critical level for NOx concentrations is nationally set at 30 μgm^{-3} and is not habitat specific. These are therefore the figures used in the following analysis.

Table 8: **Background Pollutant Concentrations**

Site: Nearest Road	1 km x 1 km OS Grid Square	Year	Annual mean background NO_x concentrations ($\mu g/m^3$)
Oxford Meadows SAC: A34	478500 158500	2007	30.34
		2030	15.78
Oxford Meadows SAC: A40	480500 158500	2007	32.88
		2030	17.43

Table 9: NO_X Concentrations at Oxford Meadows SAC @ A34

Distance from named link* (m)	Annual Mean NO_x ($\mu g/m^3$)			Change ($\mu g/m^3$)	
	2007 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
14	113.39	57.32	**58.35**	**+1.03**	-55.04
50	64.01	32.62	**33.04**	**+0.42**	-30.97
100	40.33	20.77	**20.90**	**+0.12**	-19.43

* This is distance from named road. Other roads included within calculation if within 200m
** Calculation carried out for 2025 as that is the limit of the emission factor tools
The Critical Level for NOx is 30 μgm^{-3} and therefore 1% of the critical level is 0.3 μgm^{-3}

Table 10: NO_X Concentrations at Oxford Meadows SAC @ A40

Distance from named link* (m)	Annual Mean NO_x ($\mu g/m^3$)			Change ($\mu g/m^3$)	
	2007 Base	2030** Do-Min	2030** Do-Some	Do-Some – Do-Min	Do-Some – Base
13	62.38	34.23	**36.68**	**+2.45**	-25.70
50	44.38	23.97	**24.93**	**+0.96**	-19.45
100	36.31	19.38	**19.66**	**+0.29**	-16.65

* This is distance from named road. Other roads included within calculation if within 200m
** Calculation carried out for 2025 as that is the limit of the emission factor tools

Table 11: Nitrogen Deposition Rates at Oxford Meadows SAC @ A34

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
14	2007 Base	1.71	17.92	19.63
	2030** DM	1.05	11.26	12.31
	2030** DS	1.07	11.26	12.33
	DS-DM	**-**	**-**	**+0.02**
	DS-Base	-	-	-7.30
50	2007 Base	0.83	17.92	18.75
	2030** DM	0.49	11.26	11.75
	2030** DS	0.50	11.26	11.76
	DS-DM	**-**	**-**	**+0.01**
	DS-Base	-	-	-6.98
100	2007 Base	0.28	17.92	18.20
	2030** DM	0.16	11.26	11.42
	2030** DS	0.16	11.26	11.42
	DS-DM	**-**	**-**	**+<0.01**
	DS-Base	-	-	-6.77
Critical Load				20 kgN/ha/yr (1% of critical load is therefore 0.2 kgN/ha/yr)

* This is distance from named road. Other roads included within calculation if within 200m
** Calculation carried out for 2025 as that is the limit of the emission factor tools

Table 12: Nitrogen Deposition Rates at Oxford Meadows SAC @ A40 (Option A)

Distance from named link* (m)	Year	Nitrogen deposition rate (kg N/ha/yr)		
		Road Contribution	Average Rate in 5km square	Total
13	2007 Base	0.88	18.20	19.08
	2030** DM	0.60	11.44	12.03
	2030** DS	0.66	11.44	12.09
	DS-DM	**-**	**-**	**+0.06**
	DS-Base	-	-	-6.98
50	2007 Base	0.46	18.20	18.66
	2030** DM	0.32	11.44	11.75
	2030** DS	0.34	11.44	11.78
	DS-DM	**-**	**-**	**+0.03**
	DS-Base	-	-	-6.88
100	2007 Base	0.24	18.20	18.44
	2030** DM	0.18	11.44	11.61
	2030** DS	0.18	11.44	11.62
	DS-DM	**-**	**-**	**+0.01**
	DS-Base	-	-	-6.82
Critical Load				20 kgN/ha/yr (1% of critical load is therefore 0.2 kgN/ha/yr)

* This is distance from named road. Other roads included within calculation if within 200m
** Calculation carried out for 2025 as that is the limit of the emission factor tools

From the preceding analysis the following key facts emerge:

- The change in nitrogen deposition rates within the Oxford Meadows SAC attributable to the planned development in Vale of White Horse district does not exceed 1% of the critical load, either along the A34 or the A40. Following Environment Agency and Natural England guidance it can therefore be concluded that the contribution of additional traffic arising from Vale of White Horse would be sufficiently trivial that there would be no adverse effect on the SAC either alone or in combination with other projects and plans as a result of nitrogen deposition.
- The change in NOx concentration along the A34 attributable to planned development in Vale of White Horse does exceed 1% of the Critical Level but only within 50m of the A34. The predicted total NOx concentrations within 50m of the A34 at 2030 would exceed the critical level for the SAC and therefore the vegetation in this band may be subject to air quality effects; however, it should be noted that even without development planned for Vale of White Horse the NOx concentrations immediately adjacent to the road would already exceed the critical level, illustrating that the primary source of atmospheric NOx in this area is the existing traffic, which arises from across the South East (in fact the planned development in Vale of White Horse would be responsible for only 1-2% of NOx concentrations at that location by 2030). In addition the critical level for NOx would only be exceeded to a small degree except immediately adjacent to the road. Given this, coupled with the small area of the SAC that would exceed the critical level, the relatively subtle nature of any vegetative changes that may occur within this zone and the fact that this strip immediately adjacent to the road is highly likely to be subject to other edge effects due to the presence of the road that will have a much greater influence on vegetation, it is considered that this would be unlikely to lead to a significant effect on the SAC.
- The change in NOx concentration along the A40 attributable to planned development in Vale of White Horse would exceed 1% of the Critical Level but only within 50m of the A40. Importantly, the predicted total NOx concentrations along the A40 at 2030 would be below the critical level for the SAC except immediately adjacent to the road (13m from the roadside) and therefore only the vegetation in this band may be subject to air quality effects; moreover, it should be noted that even without development planned for Vale of White Horse the NOx concentrations immediately adjacent to the road would already exceed the critical level, illustrating that the primary source of atmospheric NOx in this area is the existing traffic, which arises from across the South East. Given the small area of the SAC that would exceed the critical level (equivalent to 0.3% of the SAC), the relatively subtle nature of any vegetative changes that may occur within this zone and the fact that this strip immediately adjacent to the road is highly likely to be subject to other edge effects due to the presence of the road that will have a much greater influence on vegetation, it is considered that this would be unlikely to lead to a significant effect on the SAC.

Habitats at the roadside are often subject to qualitative deteriorations that may have little to do with atmospheric nitrogen deposition – for example the process of road construction can affect local drainage and can involve the importation of fill materials that are different in character to the substrates in the wider area, which can in turn affect vegetation composition. Moreover, vegetative changes that theory identifies as being likely to result from atmospheric nitrogen deposition can fail to appear in practice since they are relatively subtle and can be dwarfed by changes in management regime.

The Preferred Approach document already contains a range of transport measures designed to reduce congestion (which causes reductions in air quality) and encourage use of more

sustainable forms of transport such as buses and bicycles. These measures are likely to partially counterbalance the increase in dwellings/employment land and thus reduce the calculated air quality impacts identified above:

- Policy CP5 commits to partnership working with adjoining authorities and relevant stakeholders, in order to ensure sufficient and timely provision of infrastructure to support development. Such measures may include infrastructure to improve traffic flows and traffic management.
- Policy CP36 commits to a general protection of nature conservation, including European sites.
- Policy CP29 – Promoting Sustainable Transport and Accessibility aims to:
  - support a modal shift toward public transport, cycling and walking
  - improve air quality through improvements to the transport network
  - require transport assessments and travel plans for relevant developments
  - promote electronic communications.
- Policy CP33 commits to new development proposals *"causing no deterioration and, where possible, achieving improvements in air quality."*

All such measures should reduce road transport and therefore contribute to an improvement in air quality.

Other Plans and Projects

Development of new housing in adjacent local authorities (16,750 new dwellings in Cherwell, 8,000 in Oxford, over 10,000 in South Oxfordshire, over 5,500 in West Oxfordshire, over 20,000 in Swindon, approximately 6000 in the Cotswold District (the Cotswold Core Strategy is at an early stage so is subject to change) and 850 in the Marlborough Area of Wiltshire) is likely to lead to increased road transport on the A34 and A40 that pass through, or within 200m of, Oxford Meadows SAC. However, as has been demonstrated in the calculations above, the contribution of proposed development in Vale of White Horse district would make a very small contribution to any increase in deposition.

Water Quality

The Council currently intends to deliver at least 5,150 strategic new homes across the district by 2029. The Swinford Sewage Treatment Works currently discharges to the River Thames upstream of the Oxford Meadows SAC. Depending upon the headroom and treatment processes (e.g. phosphorus stripping) available at this STW it is possible that new housing located within the Vale of White Horse may indirectly contribute to phosphorus loadings in the River Thames upstream of the Oxford Meadows SAC and may therefore indirectly contribute to a deterioration in the water quality of the SAC since the SAC relies on floodwaters that are free from risk of nutrient enrichment. According to the Environment Agency, the SAC has a 1 in 100 year risk of flooding. However, the Thames upstream of the SAC is assessed by the Environment Agency as having in places, 'poor' biological status[28].

Waste water treatment facilities and sewage treatment works will need to be able to cope with increased capacity as a result of new development. In terms of the protection of the SAC it is important to avoid pollution of the River Thames. The Environment Agency does not highlight

[28] Environment Agency (2008) http://maps.environment-agency.gov.uk/wiyby/wiybyController?latest=true&topic=riverquality&ep=query&lang=_e&x=445829.2916666667&y=209798.66666666666&scale=4&layerGroups=2&queryWindowWidth=25&queryWindowHeight=25

requirements for any new infrastructure to meet forecast demands for increases in housing development[29] under the South East Plan within the Vale of White Horse District.

Given the capacity of the existing STWs, it is considered unlikely that the development outlined within the Local Plan 2029 Part 1 will result in an adverse effect on the Oxford Meadows SAC.

In their consultation response of 17/06/10 Natural England commented that a balanced hydrological regime is a key condition for this SAC. Therefore Natural England would like to see that a measure is included within Local Plan 2029 Part 1 policy that will ensure the protection of water quality in existing watercourses (particularly the River Thames). The following policies should ensure that this is achieved:

- Policy CP5 – Providing Supporting Infrastructure and Services, states that "all new development will be required to provide, in a timely manner, the on-site and, where appropriate, off-site infrastructure requirements necessary for the development to be sustainably accommodated." The policy also commits to partnership working with adjoining authorities and stakeholders such as the Environment Agency to ensure appropriate and timely infrastructure provision.
- Policy CP 32 – Flood Risk - includes a commitment to incorporate sustainable drainage systems or techniques to limit surface run-off from development.
- Policy CP33 commits to new development proposals "*causing no deterioration and, where possible, achieving improvements in water quality*."

Other plans and projects

There are no other proposals identified which would lead to development within the surface water catchment of this SAC and therefore an 'in combination' effect.

8.6 Conclusion

Issues of recreational pressure, air quality and water quality have all been considered in relation to impacts of the Local Plan 2029 Part 1 on the Oxford Meadows SAC. It is possible to conclude that likely significant effects on the Oxford Meadows SAC as a result of development under the Vale of White Horse Local Plan 2029 Part 1 will not occur, either alone, or in combination with other plans and projects.

[29] Environment Agency (2006) Creating a better place: Planning for water quality and growth in the south east.

9 CONCLUSION

Pending consultation with Natural England, this Habitat Regulations Assessment concludes that the development set out in the Vale of White Horse Local Plan 2029 Part 1 will not lead to likely significant effects on any European sites, either alone or in combination with other projects or plans.