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# Habitats Regulations Assessment of the Oxfordshire Minerals and Waste Plan Part 2

Oxfordshire County Council

Project number: 60572250

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## Quality information

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## Revision History

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# Table of Contents

## Figures



## Tables



## Appendix

# 1. Introduction

## Background to the Project

1.1 AECOM has been appointed by Oxfordshire County Council (hereafter 'the Council') to assist in undertaking a Habitats Regulations Assessment (HRA) screening of its Minerals and Waste Local Plan: Part 2 Site Allocations (hereafter 'the Plan' or 'Plan Part 2'). The Plan Part 2 sets out the Council's proposed strategy to meet its minerals and waste needs in the Planning Authority Area (the 'Area) to 2031.

1.2 In September 2017, the Council adopted its Minerals and Waste Core Strategy that sets out the vision, objectives, spatial planning strategy and policies for meeting development requirements for the supply of minerals and the management of waste in Oxfordshire over the period to 2031. That plan had an accompanying HRA which considered strategic issues such as traffic-related air quality. It was ultimately able to conclude that no likely significant effects would arise on any European sites. It is within this context that the Plan Part 2 is placed.

1.3 The objective of this assessment is therefore to go beyond the strategic issues that were discussed at the Core Strategy level and identify any specific allocations in the Plan Part 2 that would cause a likely significant effect on Natura 2000 sites, otherwise known as European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), (as a matter of Government policy) Ramsar sites, and 'potential' sites for any such designations), either in isolation or in combination with other plans and projects.

## Legislation

1.4 The need for HRA is set out within Article 6 of the EC Habitats Directive 1992 and transposed into British law by the Conservation of Habitats and Species Regulations 2017 (as amended). The ultimate aim of the 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 rather than the European sites themselves, although the sites have a significant role in delivering favourable conservation status.

1.5 The Habitats Directive applies the Precautionary Principle1 to European sites. 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. Plans and projects with predicted adverse effects on European sites 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 proceed. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

1.6 In order to determine whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question (Box 1).

[1] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as:
"*When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis*".

**Box 1: The legislative basis for Appropriate Assessment**

**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 and Species Regulations 2017 (as amended)**
Regulation 105 states that:
"*Where a land use plan… is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects)… the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives.*

1.7 The first stage of assessment is therefore determining whether a likely significant effect will arise. Over time the phrase 'Habitats Regulations Assessment' has come into wide currency to describe the overall process set out in the Habitats Directive from screening through IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an Appropriate Assessment.

# Scope of the Project

1.8 There is no pre-defined guidance that dictates the physical scope of an HRA of a Plan document. Therefore, the physical scope of the assessment was guided primarily by the identified impact pathways rather than by arbitrary 'zones'. Current guidance and the precedent set by the Core Strategy HRA suggests that the following European sites be included in the scope of assessment:

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

1.9 Briefly defined, impact pathways are routes by which a change in activity provided within a Plan document can lead to an impact on an internationally designated site. Ministry of Housing Communities and Local Government (MHCLG) guidance states that the HRA should be *"proportionate to the geographical scope of* the *[plan policy]"* and that *"an AA need not be done in any more detail, or using more resources, than is useful for its purpose"* (CLG, 2006, p.6)[2]. More recently, the Court of Appeal[3] ruled that, providing the Council (as competent authority) was duly satisfied that proposed mitigation could be '*achieved in practice'* such that the proposed development would have no adverse effect, this would suffice. This ruling has since been applied to a planning permission (rather than a Local Plan document)[4]. In this case the High Court ruled that for *"a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice, it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of the Habitats Regulations"*.

1.10 The following European sites lie (entirely or partially) within the County:

- Little Wittenham SAC;
- Oxford Meadows SAC;
- Cothill Fen SAC;
- Chiltern Beechwoods SAC (the element known as Aston Rowant Woods SSSI);
- Aston Rowant SAC;

[2] CLG. (2006) Planning for the Protection of European Sites, Consultation Paper.
[3] No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015.
[4] High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015.

- Hackpen Hill SAC; and
- Hartslock Wood SAC.

1.11 The following European sites are located within 10km of the County boundary (approximate distances from the County boundary are in brackets):

- River Lambourn SAC (at its closest located 3.4km south of the County in Berkshire)
- Kennet and Lambourn Floodplain SAC (the closest portion being the area known as Chiltern Foliat Meadows SSSI, located 9.9km south of the County in Wiltshire)

1.12 However, given the nature of the development being considered for allocation, and particularly the fact that no new Energy from Waste facilities are planned for the county, there are no impact pathways identified that link minerals and waste development in Oxfordshire with these two sites. Although the northern most reach of the River Lambourn is only a few kilometres south of Oxfordshire, the impact risk zones for the similarly named River Lambourn SSSI do not overlap with the county.

1.13 The location of these European sites is illustrated in Appendix A, Figure A1

# This Report

1.14 The following sets out the structure of this document: Chapter 2 of this report explains the process by which this HRA has been carried out. Chapter 3 explores the relevant pathways of impact. Chapter 4 presents the screening results for the site allocations in relation to the relevant European sites. Chapter 5 details the main conclusions and recommendations arising from the HRA.

1.15 Appendix A shows the allocated minerals and waste sites in relation to the European sites identified as relevant to impact pathways arising from the Plan. Appendix B provides a detailed introduction, the qualifying features, conservation objectives and threats / pressures to the site integrity of these European sites. Detailed screening of LSEs is provided for minerals and waste site allocations in Appendices B and C respectively.

# 2. Methodology

## Introduction

2.1 This HRA has been carried out in the continuing absence of formal central Government guidance, although general EC guidance on HRA does exist[5]. The Ministry of Housing Communities and Local Government (MHCLG) released a consultation paper on the Appropriate Assessment of Plans in 2006[6]. As yet, no further formal guidance has emerged. However, Natural England has produced its own internal guidance[7], as has the RSPB[8]. Both of these have been referred to in undertaking this HRA.

2.2 Figure 1 below outlines the stages of HRA according to current draft MHCLG 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. Because this document is an HRA screening report, only Task 1 is discussed in detail in the following section.

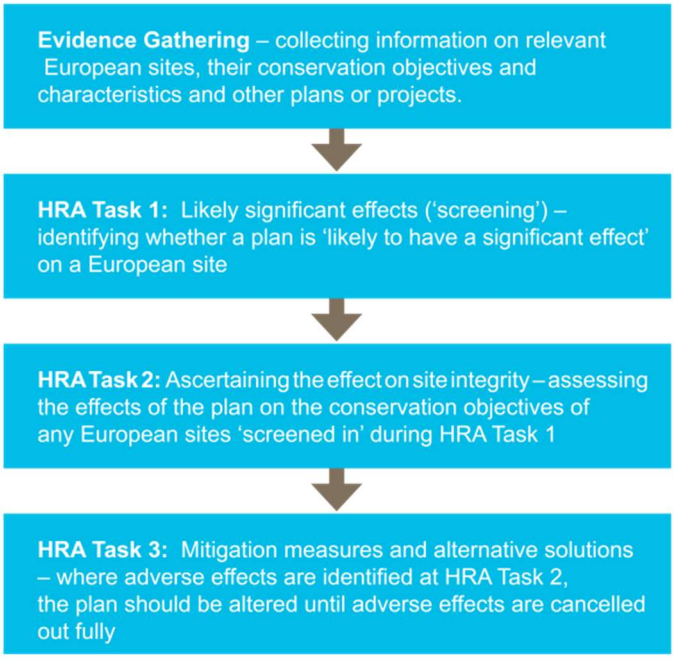



**Figure 1: Four stage approach to Habitats Regulations Assessment (MHCLG, 2006)**

## HRA Task 1: Screening (Test of Likely Significant Effects)

2.3 Following evidence gathering, the first stage of any Habitats Regulations Assessment is a Test of Likely Significant Effects. This is essentially a risk assessment to decide whether the full subsequent stage known as Appropriate Assessment is required. The essential question is:

[5] European Commission. (2001) *Assessment of plans and projects significantly affecting Natura 2000 Sites*: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.
[6] MHCLG (2006) Planning for the Protection of European Sites, Consultation Paper.
[7] http://www.ukmpas.org/pdf/practical_guidance/HRGN1.pdf
[8] Dodd, A.M., Cleary, B.E., Dawkins, J.S., Byron, H.J., Palframan, L.J.& Williams, G.M. (2007) *The Appropriate Assessment of Spatial Plans in England: a guide to why, when and how to do it.* The RSPB, Sandy.

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

2.4 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 a European site.

2.5 In evaluating significance, AECOM has relied on professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the European sites considered within this assessment.

2.6 The level of detail in land use plans concerning developments that will be permitted under the plans is rarely sufficient to allow the fullest quantification of potential adverse effects. It is therefore necessary to be cognisant of the fact that HRAs for plans can be tiered, with assessments being undertaken with increasing specificity at lower tiers. This is in line with MHCLG guidance and court rulings that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitats Regulations, should be 'appropriate' to the level of plan or project that it addresses. This 'tiering' of assessment is summarised in Figure 2.

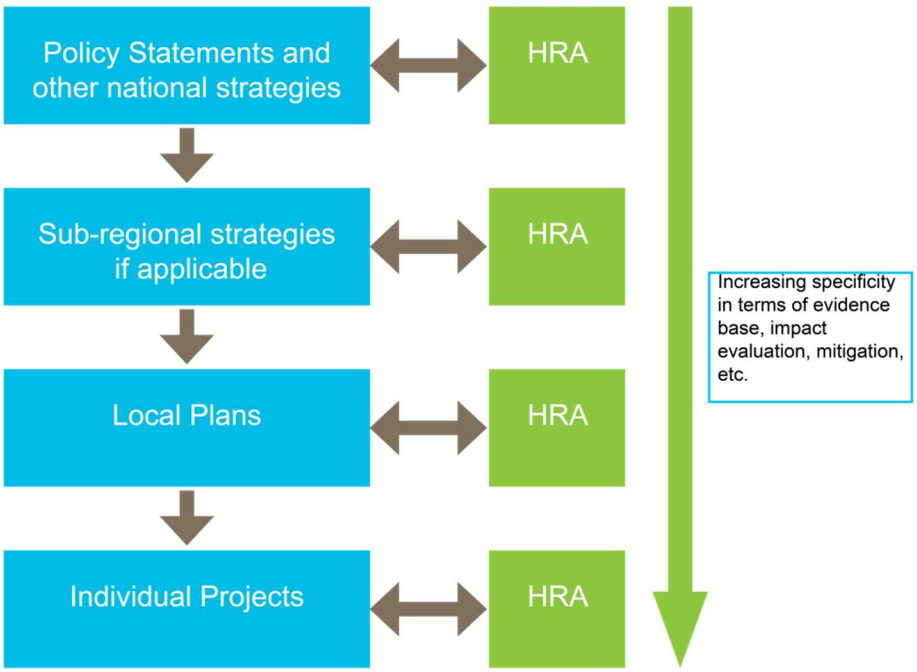



**Figure 2: Tiering in HRA of land use plans**

2.7 On these occasions the advice of Advocate-General Kokott[9] to the European Court of Justice is worth considering. She commented that: *"It would …hardly be proper to require a greater level of detail in preceding plans* [rather than planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure"* [emphasis added].

2.8 A 2018 decision by the European Court of Justice[10] (ECJ) concluded that measures intended to avoid or reduce the harmful effects of a proposed project on a European site, but which are not an integral part of the project or plan, may not be taken into account by competent authorities at the LSE stage of HRA. This report complies with that ruling.

[9] Opinion of Advocate-General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49. http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN

[10] People Over Wind and Sweetman v Coillte Teoranta (C-323/17).

2.9 A more recent 2018 case[11] also confirmed that an appropriate assessment must consider the interest features of European sites even where those features may be found outside the strict boundaries of those sites and must also consider other habitat types or species, which are present on the site, but for which that site has not been listed but which are necessary to the conservation of the habitat types and species listed for the protected area. Given the nature of the European sites within Oxfordshire it is considered that this only applies to Little Wittenham SAC, which is designated for great crested newt, and Chiltern Beechwoods SAC, which is designated in part for its population of stag beetle.

# Principal Other Plans and Projects that May Act 'In Combination'

2.10 It is a legal requirement to consider the impacts of a plan not only 'alone' but also 'in combination' with other plans and projects. In practice, in combination assessment is of greatest relevance when the Plan would otherwise be screened out because its individual contribution is inconsequential. Plans and projects that could cause effects in combination with the Plan are:

- Oxfordshire County Council Minerals and Waste Local Plan Core Strategy (adopted September 2017)
- Local Plan documents for Oxfordshire authorities:
  - South Oxfordshire Core Strategy (adopted 2012)
  - Vale of White Horse Local Plan 2031 Part 1
  - West Oxfordshire Local Plan 2031 (adopted 2018)
  - Cherwell Local Plan 2011 – 2031 Part 1(adopted 2016)
  - Oxford City Local Plan (2036)
- Minerals and Waste Plans of neighbouring authorities:
  - Warwickshire Minerals Plan (Submission Plan)
  - Warwickshire Waste Core Strategy (adopted 2013)
  - Northamptonshire County Council Minerals and Waste Local Plan (Adopted 2017)
  - Buckinghamshire Minerals and Waste Local Plan 2016 – 2036 (Proposed submission)
  - West Berkshire Preferred Options Waste and Minerals Local Plan (2017)
  - The Central and Eastern Berkshire Minerals and Waste Plan. Issues and Options Consultation (2017)
  - Wiltshire and Swindon Minerals Core Strategy (2006 – 2026)
  - Wiltshire and Swindon Waste Core Strategy (2006-2026)
  - Gloucestershire Minerals Local Plan (adopted 2003)
  - Gloucestershire Waste Core Strategy (adopted 2012)
- Local Plan documents of neighbouring authorities:
  - Stratford on Avon Cores Strategy (adopted 2016)
  - West Northamptonshire Joint Core Strategy Local Plan (Part 1) (Adopted 2014)
  - West Berkshire Core Strategy (adopted 2012)
  - Reading Borough Local Development Framework Core Strategy (altered 2015)
  - Wokingham Borough Council, Council Plan

[11] Holohan et al vs. An Bord Pleanála (C-461/17)

- Swindon Borough Local Plan 2026 (adopted 2015)
- Gloucestershire Joint Core Strategy (adopted 2017)

# 3. Pathways of Impact

## Introduction

3.1 When carrying out an HRA it is important to determine the various ways in which land use plans can affect internationally designated sites. This means studying the pathways along which development can be connected with internationally designated sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a plan document or development can lead to an effect upon an internationally designated site.

3.2 There are a number of ways in which minerals and waste development can affect European sites. These are discussed at length in the HRA of the adopted Core Strategy but are also covered below, including use of updated information where relevant.

3.3 Direct landtake of European sites is a theoretical impact pathway but there are no minerals sites within Oxfordshire that lie within the boundary of any European sites and no prospect that any new minerals or waste sites will be allocated within European site boundaries.

3.4 Minerals and waste development can also cause disturbance due to either noise or visual stimuli. However, this is not considered relevant for this HRA because only one European site within Oxfordshire is designated for an animal species (Little Wittenham SAC) and that species (the great crested newt) is not sensitive to noise[12] or visual disturbance. Therefore, these impact pathways are not discussed further.

3.5 In summary, the following impact pathways have been identified as requiring further analysis in this HRA:

- Loss of functionally-linked land;
- Atmospheric pollution (nitrogenous pollution, dust, bio-pathogens); and
- Water quality and flows.

## Loss of Functionally Linked Land

3.6 As discussed in paragraph 2.2.7, two European sites within Oxfordshire are designated for mobile species that cannot be assumed to confine themselves entirely to the boundary of the European site. These are Little Wittenham SAC, which is designated for great crested newt and Chiltern Beechwoods SAC which is designated in part for stag beetle.

3.7 In the case of Chilterns Beechwoods SAC, habitat containing abundant deadwood near to Aston Rowant Woods SSSI (the only part of the SAC in Oxfordshire) may be used by stag beetles hailing from the European site. However, such habitats will generally constitute large rural/suburban gardens that contain lots of trees and partially buried dead wood. It is unlikely that such a site would ever be selected for minerals or waste development in Oxfordshire. Moreover, stag beetles are not a notified feature of this SSSI (Aston Rowant Woods) and it is understood that the core of the stag beetle population in the SAC is located further east. Impacts on stag beetle are therefore not discussed further.

3.8 Great crested newts breed at ponds within Little Wittenham SAC but are known to routinely forage and over-winter up to 250m, and sometimes up to 500m, from their breeding ponds (occasionally further). Given this, loss of suitable habitat within 500m of the SAC boundary could adversely affect the ability of the SAC to support its great crested newt population. Therefore, this report considers impacts on suitable habitats for great crested newt that lie within 500m of the SAC.

[12] Unlike frogs, newts do not have a tympanum (ear-type external membrane). It is therefore generally assumed that their sense of 'hearing', if it exists at all, is extremely poor.

# Atmospheric Pollution

3.9 Mineral extraction and waste processing activities have the potential for air quality impacts on European sites, both by increasing levels of pollutants (e.g. through increased vehicle use) and through the spread of dust.

## Nitrogenous pollution

3.10 The main pollutants (summarised in Table 1) of concern for European sites are oxides of nitrogen (NOx), ammonia ($NH_3$) and sulphur dioxide ($SO_2$). Ammonia can be directly toxic to vegetation, and research suggests that this may also be true for NOx at very high concentrations (hundreds or thousands of micrograms per cubic metre). More significantly, greater NOx or ammonia concentrations within the atmosphere lead to greater rates of nitrogen deposition to vegetation and soils. An increase in the deposition of nitrogen from the atmosphere is generally regarded to increase soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats.

**Table 1: Main sources and effects of air pollutants on habitats and species**

| Pollutant | Source | Effects on habitats and species |
|---|---|---|
| Acid deposition | $SO_2$, NOx and ammonia all contribute to acid deposition. Although future trends in $SO_2$ emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased NOx emissions may cancel out any gains produced by reduced $SO_2$ 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 the expansion in agricultural livestock numbers. 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 (and 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 deposited rapidly, 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 (e.g. nitrates ($NO_3$), nitrogen dioxide ($NO_2$) and nitric acid ($HNO_3$)) can lead to 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. |
| 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 nitrogen eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated nitrogen levels. Nitrogen deposition can also increase the risk of damage from abiotic factors (e.g. drought, 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 increased | Concentrations of $O_3$ above 40ppb 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 |

| Pollutant | Source | Effects on habitats and species |
|---|---|---|
| | combustion of fossil fuels in the UK has led to a large rise in background ozone concentration, increasing the number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at an international level to reduce levels of the precursors that form ozone. | 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 compositions of plant andassociated animal communities. The significance of impacts depends deposition levels and the buffering capacity of soils. |

## Traffic emissions

3.11 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. Emissions of nitrogen oxides are dominated by the output of vehicle exhausts. 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"*[13]. This distance has therefore been used in this HRA to determine whether European sites are likely to be significantly affected by development under the Local Plan (Figure 3).

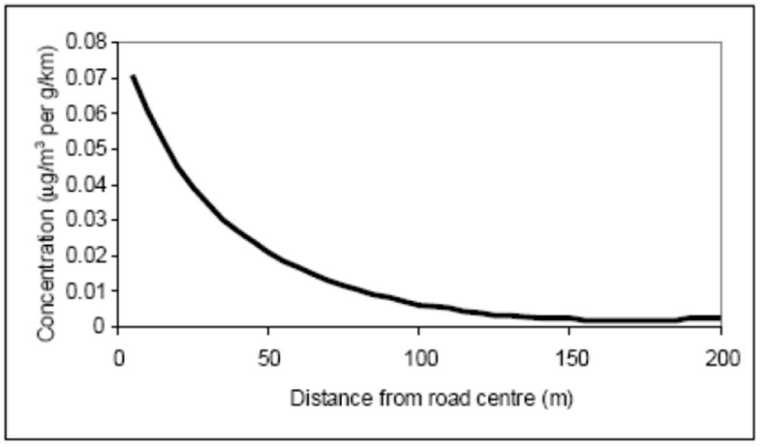



**Figure 3: Generalised example of traffic contribution to pollutant concentrations in relation to the distance from a road**

3.12 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 $\mu gm^{-3}$; the threshold for sulphur dioxide is 20 $\mu gm^{-3}$. In addition, ecological studies have determined 'critical loads'[14] of atmospheric nitrogen deposition (that is, NOx combined with ammonia $NH_3$).

## Energy from Waste

3.13 While traffic makes the largest overall contribution to NOx, some individual point sources can also result in substantial increases in the local NOx concentration. Of those point sources associated with waste treatment, thermal treatment / Energy from Waste facilities[15] have the

[13] www.webtag.org.uk/archive/feb04/pdf/feb04-333/pdf
[14] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.
[15] Energy from Waste (or Waste to Energy) refers to those types of thermal treatment that incorporate energy recovery technology.

potential to emit the greatest amounts, as any form of thermal treatment involves the emission of exhaust gases.

3.14 The Environment Agency guidance on screening point-source pollution emitters for more detailed assessment[16] lists the presence of a Natura 2000 site within 10km as one of the indicators that detailed assessment (i.e. dispersion-modelling) may be required for a planning application or Agency consent. The implication of this is that the emissions of a point-source can normally be considered effectively inconsequential on sites located more than 10km distant. While this would not apply to major emitters such as large power stations, refineries and steel works, it would apply to smaller ones such as thermal waste treatment facilities.

3.15 While the Plan allocates two sites for residual waste treatment, this treatment would not take the form of Energy from Waste or facilities with stack emissions. Therefore, this impact pathway is not considered further in this HRA.

### Landfill

3.16 A landfill gas flare (or utilisation engine) will produce an emission of exhaust gases such as sulphur dioxide, NOx, unburnt hydrocarbons, carbon monoxide and hydrogen chloride. However, the volume of exhaust gases is likely to be small in comparison to other combustion facilities and at a distance of >1km from the European site may well be inconsequential[17]. The 1km figure has therefore been used throughout this screening report as a basis on which to screen landfill issues in or out of assessment with regard to air quality issues.

3.17 Migration of landfill gas outside the perimeter of landfill sites taking biodegradable waste can occur, but only where sites have been inadequately engineered. In such circumstances the gas will exclude oxygen from the soil and lead to the exposure and possible death of plants and soil fauna. Such effects are unlikely beyond a 0.5km radius[18] in any case, but since they are a result of poor engineering design, and any current landfill sites will be required to conform to all modern authorisations, they are not considered further in this assessment.

### Other types of waste facility

3.18 Atmospheric emissions of NOx from other types of facility are negligible. For example, anaerobic digestion[19] does result in the generation of biogas but not NOx. The emissions to the air are well controlled; some emissions may arise from biogas under positive pressure in the tank, but under normal operating conditions biogas is not released direct to air[20]. Equally, waste transfer stations[21] and mechanical biological treatment[22] plant can incorporate a number of different processes in a variety of combinations and can be built for various purposes, but air emissions and health impacts are most likely to be linked to traffic movements. In general therefore, the view has been taken in this screening report that waste sites other than landfill and Energy from Waste facilities are unlikely to have a significant air quality effect on European sites (other than through associated vehicle exhaust emissions).

## Dust

3.19 In the absence of control measures, dust generation is most likely to occur from minerals development, during soil stripping (and from wind blow of associated spoil heaps), extraction or rock blasting, screening, crushing, track out and operation of conveyors. It may also occur during

[16] Environment Agency. 2012. Integrated Pollution Prevention and Control - Environmental Assessment and Appraisal of BAT. Horizontal Guidance Note IPPC H1
[17] Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance.
http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf
[18] Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance
http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf
[19] The biological treatment of biodegradable organic waste in the absence of oxygen, utilising microbial activity to break down the waste in a controlled environment
[20] Defra. 2004. Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes. Defra Publication, London, UK
[21] In which waste is transported from waste producers (industry, commerce and the general public) to be treated, recycled and/or disposed
[22] A generic term for an integration of several processes commonly found in other waste management technologies, such as Materials Recovery Facilities, sorting and composting plant

soil manipulation as part of site restoration. The effects of dust will depend on the prevailing wind direction, and the transport distance is related to particle size. Dust particle size is important as smaller particles can enter or block stomata and thus interfere with gas exchange, while sufficient coverage of leaves by larger particles may prevent light penetration to the chloroplasts. In cases of prolonged accumulation in low rainfall environments (which generally does not apply to the UK), plant death can result.

3.20 For the purposes of screening of the adopted Core Strategy a 200m precautionary distance was used to screen out dust deposition effects. According to more recent guidance from the Institute of Air Quality Management[23] *"an assessment will normally be required where there is…an 'ecological receptor' within: 50m of the boundary of the site; or 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s)".* This is based on a view that heavy dust soiling is most likely to adversely affect vegetation and this will rarely occur more than 50m from dust generating activities even in the absence of mitigation measures such as wetting. Nonetheless, for consistency with the Core Strategy HRA a precautionary figure of 200m is used in this assessment.

## Bio-pathogen emissions

3.21 Some composting sites can result in the production of bio-pathogens, which if released into the environment can result in adverse effects on vegetation within European sites located close to the facility. In previous work in Sussex we have agreed with Natural England a screening distance of 1km to be applied to such facilities.

# Water Quality and Flows

3.22 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.

3.23 Water quality may be adversely affected by waste sites through:

- Pollution through water runoff from hard surfaces carrying oils, heavy metals and/or de-icing compounds. While these effects can be dispersed throughout the downstream water catchment, they will be most visibly manifested within tens of metres to a few hundred metres of the site[24]; and
- Discharges of leachate from landfill sites can add ammonia, other nutrients and chemical pollutants to surface water bodies. Leachate can also penetrate groundwater. Leachate can escape from landfill sites by leakage through a barrier / containment system, 'break out through a cap, or overtopping containment.

[23] IAQM. (2016) *Guidance on the assessment of dust from demolition and construction*. The Institute of Air Quality Management. Version 1.1.
[24] Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance.
http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf

3.24 Oxfordshire County Council are not planning to allocate new landfill sites, so the main impact pathway is potential surface water runoff. In practice, it is illegal to pollute watercourses (whether or not they are designated as European sites) under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and Environmental Permitting (England and Wales) Regulations 2016 so any site where a risk exists will build protection measures into their construction and operational procedures.

3.25 There are several ways in which quarrying / mining can affect water quality/resources:

- Quarries and mines that are below the water table will require dewatering on a regular basis. Dewatering[25] can lead to a reduction in the water table and "draw down" from hydraulically linked groundwater dependent habitats (including streams and rivers);
- The physical presence of a new quarry in the unsaturated zone (i.e. above the water table) can increase the possibility of aquifer contamination and result in a direct reduction in temporary groundwater storage capacity;
- If the water that is pumped from a quarry as a result of dewatering has a high proportion of clays and suspended particles, or is contaminated with metals, it can reduce water quality within those watercourses that receive the water; and
- Backfilling a dormant quarry with overburden or imported fill may cause changes to groundwater levels, quality and flow paths in adjoining areas.

3.26 A detailed technical report investigating the hydrological impacts of potential minerals sites in Oxfordshire was undertaken in 2012 to support the Minerals and Waste Core Strategy[26]. This report contained hydrological calculations estimating the potential effects of sites in particular locations on the Oxford Meadows SAC and Cothill Fen SAC (the most hydrologically sensitive European sites in Oxfordshire) and made recommendations regarding the strategy for allocating sites. The outcome of that analysis is drawn upon to inform the assessment in this report.

# Screening Distance Summary

3.27 Table 2 below summarises the screening distances used for each impact pathway. The 'screening distance' is the distance within which (using the guidance on pathways available from the Environment Agency and other sources) different sources of impact or types of waste/minerals site should be taken forward for more detailed consideration of impacts. The screening distance does not imply that all sites within that zone will lead to an adverse effect on a European site, merely that impacts/effects cannot be screened out.

**Table 2: Screening distances used for each source of impact**

| Pathway | Screening distance |
|---|---|
| Atmospheric pollution – Energy from Waste | 10km from European site. |
| Atmospheric pollution – Landfill gas flares | 1km from European site. |
| Atmospheric pollution - Dust | 200m from European site. |
| Atmospheric pollution – Vehicle emissions | NA (already examined at Minerals & Waste Core Strategy level) |
| Water quality and flows | No standard distance – use Source/Pathway/Receptor approach. |
| Bio-pathogens | 1km from European site |

[25] Dewatering is most commonly carried out by intermittent pumping from a sump located in the deepest part of the quarry, to keep pace with the inflow of groundwater.
[26] Land Use Consultants and Maslen Environmental. 2012. Habitats Regulations Assessment for Oxfordshire Minerals Planning Strategy Technical Supplement https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/environmentandplanning/planning/mineralsandwaste/mw2016/5SupportingDocs/5.1-5.2/5.2a_HRA_MineralsStrategy_TechnicalSupplement_January2012.pdf

# 4. Screening of Likely Significant Effects (LSEs)

4.1 This section discusses the potential for likely significant effects from all sites that were put forward for assessment. Note that not all sites discussed in this section constitute preferred options proposed for inclusion in the Preferred Options Plan. Those options included in the Preferred Options Plan are identified in section 5 of this report.

## Loss of functionally linked land

4.2 The following European sites were determined to be potentially susceptible to the impact pathway loss of functionally linked land because they support mobile species:

- Little Wittenham SAC
- Chilterns Beechwood SAC

4.3 As discussed, the loss of functionally linked land adjacent to European sites could affect the integrity of those sites, if it represents and area used by qualifying species for offsite breeding, foraging or roosting. While this impact pathway is most relevant to birds, other species such as bats, great-crested newts and stag beetles can also be affected by it.

### Little Wittenham SAC

4.4 Little Wittenham is designated for its significant population of great-crested newt (GCN). The GCN is a relatively mobile species that regularly migrates between breeding ponds and terrestrial habitats. However, the majority of newts will generally remain within 500m of their breeding pond. The nearest site to Little Wittenham SAC is a Sand and Gravel (SG) site 665m away, but all other sites are at least several kilometres from the SAC. Therefore, potential impacts to Little Wittenham SAC due to the loss of functionally linked land are screened out from Appropriate Assessment.

### Chilterns Beechwoods SAC

4.5 One component of the Chilterns Beechwoods SAC is located in Oxfordshire County and the SAC is partly designated for supporting a population of stag beetles. This species is strongly linked to a supply of partially buried deadwood and Natural England's Site Conservation Objectives Supplementary Advice does not flag that the species is sensitive to the loss of functionally linked land. Nevertheless, it is considered possible that a proportion of the population uses the deadwood supply in semi-urban parks and gardens surrounding the SAC. The closest sites identified for consideration were three waste sites (277, 274, 279) between 7.6km and 8.6km away. This is considered much too far to have any relevance for stag beetles. As such, potential impacts to the Chilterns Beechwoods SAC as a result of the loss of functionally linked land are screened out from Appropriate Assessment.

### In-combination Assessment

4.6 The Oxfordshire Minerals and Waste Local Plan Part 2 Site Allocations document assessed in this HRA outlines the locations of minerals and waste sites throughout Oxfordshire. Its overarching Part 1 Core Strategy was subjected to HRA in 2015 and was then adopted in 2017. The Core Strategy provided for the supply of aggregate minerals and waste processing infrastructure in relation to development in Oxfordshire. This development has already been assessed in overarching Local Plans of the surrounding authorities, which determined no adverse effects on any European site in relation to the loss of functionally linked land.

4.7 It is therefore concluded that there will be no LSEs of this Plan in-combination with plans and projects of nearby authorities.

# Atmospheric pollution – Vehicle emissions

4.8 The following European sites are deemed to be potentially susceptible to the impact pathway atmospheric pollution, because increased pollutant levels might cause changes in soil processes, nutrient imbalance and a shift in community composition:

- Oxford Meadows SAC
- Cothill Fen SAC
- Chilterns Beechwoods SAC
- Aston Rowant SAC
- Hackpen Hill SAC
- Hartslock Wood SAC

4.9 The general long-term trend for NOx has been one of improvement (particularly since 1990) despite an increase in vehicles on the roads[27]. Total nitrogen deposition[28] to the UK decreased by 13% between 1988 and 2008, while NOx concentrations decreased by 50% over the same time period[29]. Similar trends have been observed and documented throughout the European Union[30]. These results are the (inter)national manifestation of a trend which can also be discerned locally. As an example, data for Oxford Meadows SAC are presented in Figure 4 below.

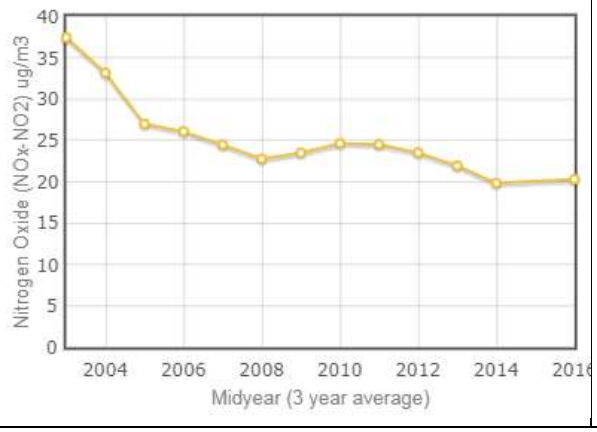
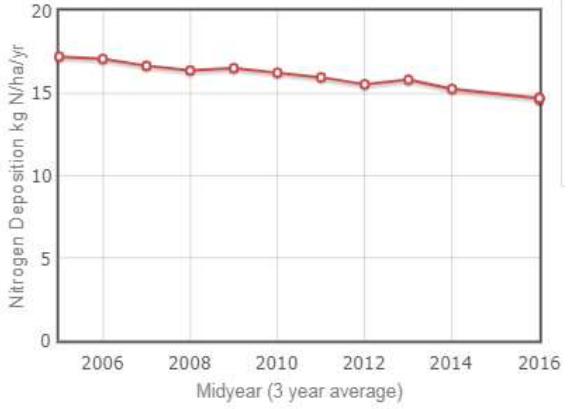
| Trend in background NOx concentrations at Oxford Meadows SAC | Trend in background total nitrogen deposition at Oxford Meadows SAC |
|---|---|
|  |  |



**Figure 4: Recent trends in NOx and total nitrogen deposition at Oxford Meadows SAC (Source: APIS, 2019)**

4.10 The graphs in Figure 4 relate to the 5km grid square (for nitrogen deposition) and 1km grid square (for NOx) within which the SAC is situated. They are the latest data taken from APIS in July 2019. They show that both NOx concentrations and total nitrogen deposition rates fell consistently over the c. 10 years to 2016 (the latest year for which data are currently available). A similar trend is recorded for Aston Rowant SAC. Average NOx concentrations across Oxford Meadows SAC fell from 37 $\mu gm^{-3}$ in 2003 to 20 $\mu gm^{-3}$ in 2014 - 2016, while total nitrogen deposition fell from 17 kgN/ha/yr in 2005 to 15 kgN/ha/yr in 2014-2016 (approximately 0.2 kgN/ha/yr per annum on

[27] Emissions of nitrogen oxides fell by 69% between 1970 and 2015. Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579200/Emissions_airpollutants_statisticalrelease_2016_final.pdf [accessed 04/07/18]

[28] Oxidised nitrogen derives from combustion, such as vehicle exhausts, while reduced nitrogen results from ammonia primarily from agriculture. Total nitrogen deposition is both oxidised and reduced nitrogen combined.

[29] Rowe EC, Jones L, Stevens CJ, Vieno M, Dore AJ, Hall J, Sutton M, Mills G, Evans CD, Helliwell RC, Britton AJ, Mitchell RJ, Caporn SJ, Dise NB, Field C & Emmett BA (2014) Measures to evaluate benefits to UK semi-natural habitats of reductions in nitrogen deposition. Final report on REBEND project (Defra AQ0823; CEH NEC04307)

[30] Jones, L., Milne, A., Hall, J., Mills, G., Provins, A. and Christie, M. (2018). Valuing Improvements in Biodiversity Due to Controls on Atmospheric Nitrogen Pollution. Ecological Economics, 152: 358-366. http://ec.europa.eu/environment/integration/research/newsalert/pdf/monetising_biodiversity_benefit_of_reducing_nitrogen_pollution_in_air_522na2_en.pdf

average). This means that across the SAC as a whole nitrogen deposition rates are already below the most stringent critical load for the SAC (20 kgN/ha/yr) and are falling[31].

4.11 This reduction occurred notwithstanding increased traffic growth over the same time period, and is most likely attributable to improvements in emissions technology in the vehicle fleet (i.e. motorists replacing more polluting vehicles associated with earlier Euro standards with less polluting vehicles associated with more recent Euro standards). This improving trend can be expected to continue, and indeed steepen, as drivers continue to replace older cars with newer vehicles and as further improvements in vehicle emissions technology are introduced. For example, the latest (Euro6/VI) emissions standard only became mandatory in 2014 (for heavy duty vehicles) and 2015 (for cars) and the effects are not therefore visible in the data available from APIS because relatively few people will have been driving vehicles compliant with that standard as early as 2016. In contrast, far more drivers can be expected to be using Euro6 compliant vehicles by the end of the Minerals and Waste Plan period (2031) since vehicles that are not compliant with Euro6 ceased manufacture in 2015.

## Oxford Meadows SAC

4.12 The lowland hay meadows and creeping marshwort present in the Oxford Meadows SAC are generally considered to be sensitive to atmospheric pollution. However, compared to many other European sites, the Oxford Meadows SAC has a relatively low sensitivity to nitrogen deposition because it is a naturally relatively nitrogen rich environment due to seasonal inundation from the River Thames. Accordingly, APIS attributes a relatively high minimum critical nitrogen load of 20 kgN/ha/yr to the SAC.

4.13 The Minerals and Waste Core Strategy HRA (2015) examined in detail the expected changes in traffic flows and resulting changes in atmospheric pollution due to the planned extent of minerals and waste growth in Oxfordshire to 2031. It identified that the Oxford Meadows SAC was within 200m of the A40 and A34, strategic routes used by minerals and waste lorries. However, the HRA concluded that the Core Strategy would not result in a sufficient increase in HDV movements to cause an adverse effect on the integrity of the Oxford Meadows SAC (a net decrease on the A40 and an increase of 105 AADT on the A34).

4.14 Given that the overarching Core Strategy HRA already modelled the air quality impacts of the anticipated minerals and waste infrastructure growth, which accounts for the sites proposed in this Part 2 Local Plan, it is considered that the conclusion of no Likely Significant Effects can be upheld for this HRA. An Appropriate Assessment for this impact pathway in relation to the Oxford Meadows SAC is not required.

## Cothill Fen SAC

4.15 The alkaline fens and the alluvial forests of the Cothill Fen SAC are considered to be air quality sensitive. They are classified as rich fens that have a critical load of total nitrogen deposition of 15-30 kg N/ha/yr. Exceedance of this critical load will lead to an increase in tall graminoid grasses and a decrease in bryophytes. However, the SAC does not lie within 200m of the key lorry routes used by waste or minerals traffic, as identified on the map in Appendix 3 of the Minerals and Waste Core Strategy HRA (2015)[32]. Potential impacts of atmospheric pollution on the site integrity of the Cothill Fen SAC deriving from the Plan are therefore screened out from Appropriate Assessment.

## Chilterns Beechwoods SAC

4.16 There is a potential for adverse effects from atmospheric pollution on the qualifying features, beech forests and semi-natural dry grasslands, of the Chilterns Beechwoods SAC. However, the components of this SAC within Oxfordshire are not within 200m of any of the proposed strategic routes for minerals and waste sites traffic and no change in traffic as a result of the plan is expected on any other roads. Potential impacts of atmospheric pollution on the site integrity of

[31] The reason why the fall in total nitrogen deposition is not as steep as the fall in NOx concentrations is primarily due to the fact that while NOx concentrations fell, ammonia concentrations (which are dominated by non-traffic sources such as agriculture) remained fairly static.
[32] Oxfordshire County Council. 2015. Oxfordshire Minerals and Waste Local Plan. Part 1 Core Strategy Habitats Regulations Assessment. 114pp.

the Chilterns Beechwoods SAC deriving from the Plan are therefore screened out from Appropriate Assessment.

### Aston Rowant SAC

4.17 The juniper communities on heaths and the beech forests, qualifying features of the Aston Rowant SAC, are both sensitive to increases in atmospheric pollution as a result of the implementation of the Plan. The Oxfordshire Minerals and Core Strategy HRA also highlighted that the SAC is within 200m of a potential strategic route used by lorries from minerals and waste sites, the M40. However, the HRA analysis concludes that there will be no change from the existing position of no Oxfordshire minerals and waste traffic on the M40, where this road passes within 200m of the Aston Rowant SAC. It is therefore considered that there are no adverse effects of the Plan on the Aston Rowant SAC in relation to atmospheric pollution.

### Hackpen Hill SAC and Hartslock Wood SAC

4.18 The remaining SACs, Hackpen Hill SAC and Hartslock Wood SAC, are both sensitive to increased atmospheric pollution. However, the closest major road (A338) to Hackpen Hill SAC that is highlighted as a route for minerals and waste HGVs is more than 3km away from the SAC. The closest major road to Hartslock Wood SAC (A4074) is also more than 3km from the SAC. Since both of these distances are beyond the screening limit for atmospheric pollution, It is considered that there are no adverse effects of the Plan on the Hackpen Hill SAC and the Hartslock Wood SAC in relation to atmospheric pollution.

4.19 Given the specific context for the European sites, the fact that this issue has already been investigated in some detail in the Core Strategy HRA, and that the scale of minerals and waste site development in the Part 2 Local Plan is consistent with that in the Core Strategy, the rest of this report focuses on other pollutant pathways, including dust (discussed above) and stack/flare emissions.

## Atmospheric pollution – Dust

4.20 The following European sites are deemed to be potentially susceptible to the impact pathway of dust emission, because they are designated for plant species and / or aquatic habitat:

- Oxford Meadows SAC
- Cothill Fen SAC
- Chilterns Beechwoods SAC
- Aston Rowant SAC
- Hackpen Hill SAC
- Hartslock Wood SAC

4.21 Non-toxic contamination, such as the emission of dust deriving from processed occurring in minerals and waste sites, can smother habitats and prevent natural processes. For plant species this could include the blocking of stomata, preventing normal gaseous exchange. Furthermore, dust deposition into aquatic habitats is likely to increase the turbidity of water and may contribute to nutrient enrichment. Several operations associated with such sites have the potential to result in increased dust deposition to the SAC, including mineral extraction, waste treatment and Heavy Duty Vehicle (HDV) usage. In identifying LSEs, consideration of the distance between source and receptor is most important. However, intervening habitats (e.g. woodland) that would act as avoidance buffers should also be considered.

4.22 Adverse effects relating to the deposition of dust are considered to be avoidable through relatively simple mitigation measures. These include a commitment to best practice working measures and the maintenance of sufficient buffers between site operations and the designated site. Nevertheless, the impact of dust deposition needs to be considered as such mitigation measures can only be taken into account in an Appropriate Assessment.

## Oxford Meadows SAC

4.23 Due to its designation for lowland hay meadows and creeping marshwort, and the requirement of sufficiently good water quality, the Oxford Meadows SAC is likely to be sensitive to the deposition of dust deriving from minerals and waste sites. However, all potential Minerals and Waste sites lie beyond the screening distance for the dust emission impact pathway. As such, potential impacts of dust deposition on the Oxford Meadows SAC are screened out from Appropriate Assessment.

## Cothill Fen SAC

4.24 Cothill Fen SAC, designated for its alkaline fens and alluvial forests, is also likely to be sensitive to dust deposition resulting from the implementation of the Plan. However, all potential Minerals and Waste sites lie far beyond the screening distance for the dust emission impact pathways. As such, potential impacts of dust deposition on the Cothill Fen SAC are screened out from Appropriate Assessment.

## Chilterns Beechwoods SAC

4.25 The Chilterns Beechwoods SAC, designated for its beech forests and semi-natural dry grassland, is potentially susceptible to dust deposition, which may block the stomata of plant species that contribute to the site's designation. However, the closest site considered for allocation in the plan is a waste site (ID = 277) that is located over 7km away from the SAC, which is beyond the screening distance for dust impacts. The potential effects of dust deposition on the Chilterns Beechwoods SAC is therefore screened out from Appropriate Assessment.

## Aston Rowant SAC

4.26 The Aston Rowant SAC, designated for its juniper heathlands and beech forests, is potentially susceptible to dust deposition, which may block the stomata of plant species that contribute to the site's designation. However, similar to the Chilterns Beechwoods SAC, the closest site considered for allocation in the plan is a waste site (ID = 277) that is located over 6km away from the SAC, which is beyond the screening distance for dust impacts. The potential effects of dust deposition on the Chilterns Beechwoods SAC is therefore screened out from Appropriate Assessment.

## Hackpen Hill SAC

4.27 Hackpen Hill SAC, designated for semi-natural dry grassland and scrubland facies, and early gentian, is likely to be vulnerable to dust deposition arising from the implementation of the Plan, because this may block the stomata of qualifying plant species. However, the SAC is located in the south-western corner of Oxfordshire and the closest site considered for allocation in the plan is a waste site (ID = 245) over 4km from the SAC. This is beyond the screening distance for dust impacts and the SAC is therefore screened out from Appropriate Assessment in relation to this impact pathway.

4.28 Hackpen Hill SAC, designated for semi-natural dry grassland and scrubland facies, and early gentian, is likely to be vulnerable to dust deposition arising from the implementation of the Plan, because this may block the stomata of qualifying plant species. However, the SAC is located in the south-western corner of Oxfordshire and the closest site considered for allocation in the plan is a waste site (ID = 245) over 4km from the SAC. This is beyond the screening distance for dust impacts and the SAC is therefore screened out from Appropriate Assessment in relation to this impact pathway.

## Hartslock Wood SAC

Regarding the Hartslock Wood SAC, designated for the presence of semi-natural dry grassland and yew woodlands, the same potential impact of dust on its vegetation communities exists. However, the closest site considered for allocation in the plan is a SG site (ID = SG-12) which is over 6km from the SAC. This is beyond the screening distance for dust impacts and the SAC is therefore screened out from Appropriate Assessment in relation to this impact pathway.

### In-combination Assessment

4.29 Due to the distance of all minerals and waste sites from the nearest European sites, it is concluded that there will be no LSEs of this Plan in-combination with plans and projects of nearby authorities.

## Atmospheric pollution – Landfill gas flare (Waste Sites)

4.30 The following European sites are deemed to be potentially susceptible to the impact pathway of landfill gas flares, because their habitats and / or qualifying species are impacted by the deposition of excess NOx and sulphur dioxide:

- Oxford Meadows SAC
- Cothill Fen SAC
- Chilterns Beechwoods SAC
- Aston Rowant SAC
- Hackpen Hill SAC
- Hartslock Wood SAC

4.31 As discussed in the section on impact pathways, landfill gas flares (or utilisation engines) will produce an emission of exhaust gases such as sulphur dioxide, NOx, unburnt hydrocarbons, carbon monoxide and hydrogen chloride. The previous section already discusses the features in these SACs that are vulnerable to atmospheric pollution from vehicle exhausts, and this information will not be repeated here.

4.32 Landfill gas flares are only an element of landfill sites; the following three waste sites considered for allocation in the plan are relevant in this context (the distance to the closest European site susceptible to the impact pathway is also shown):

- Site 222 (Land north of Wroxton Fields Quarry, Wroxton) – 32km to the Oxford Meadows SAC
- Site 230 (Chinham Farm, Stanford in the Vale) – 10.2km to the Hackpen Hill SAC
- Site 287 (Ardley Fields) – 15.6km to the Oxford Meadows SAC

4.33 The distances of these three sites to the nearest susceptible European sites are beyond the 1km screening distance for landfill gas flares. It is therefore concluded that there will be no LSEs of landfill gas flares on any European site. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

### In-combination Assessment

4.34 While the screening section of this report considers atmospheric pollution impact pathways separately (e.g. vehicle emissions, landfill gas flares, dust), the in-combination assessment considers atmospheric pollution at a more strategic level.

4.35 The Oxfordshire Minerals and Waste Local Plan Part 2 Site Allocations document assessed in this HRA outlines the locations of minerals and waste sites throughout Oxfordshire. Its overarching Part 1 Core Strategy was subjected to HRA in 2015 and was then adopted in 2017. The Core Strategy provided for the supply of aggregate minerals and waste processing infrastructure in relation to development in Oxfordshire. This development has already been assessed in overarching Local Plans of various surrounding authorities, which determined no adverse effects on any European site in relation to atmospheric pollution.

4.36 It is therefore concluded that there will be no LSEs of this Plan in-combination with plans and projects of nearby authorities.

# Water level and flows (Minerals Sites)

4.37 The following European sites are sensitive to changes in water level and flows, because their plant communities depend on strict hydrological regimes, such as seasonal flooding:

- Oxford Meadows SAC
- Cothill Fen SAC
- Little Wittenham SAC

## Oxford Meadows SAC

4.38 The grassland habitats of the Oxford Meadows SAC depend on seasonal flooding derived from both groundwater and surface water sources. Understanding the interplay of these two sources is therefore essential in determining how a changing land use will affect the SAC. The surface water network of the SAC is dominated by the River Thames, which is the Thames valley catchment upstream of Oxford. However, groundwater monitoring has shown that the groundwater table at times lies near to or at the surface, resulting in groundwater flooding and a locally high water-table even during the summer. Due to the SAC's location in the Thames valley, its groundwater catchment approximates that of the whole Thames groundwater catchment.

4.39 In the hydrogeological assessment supplementary note to the Core Strategy HRA (2015), the following site allocations upstream of the Oxford Meadows SAC were identified[33], which might result in impacts on the water level and flows supplying the SAC (sites not considered for allocation in 2019 are not listed):

- SG-08 (Land at Lower Road, Church Hanborough)
- SG-20 (Land between Eynsham and Cassington)
- SG-20a (Wharf Farm)
- SG-20b (Land at Eynsham)
- SG-29 (Sutton Farm, Sutton)
- SG-31 (Land at Friars Farm)

4.40 It was further identified that the site SG-20a was potentially hydrologically connected with the Oxford Meadows SAC. Site SG-20a is 288m from the Oxford Meadows SAC and has no hydraulic boundary separating it from the SAC. A drawdown in water levels at this site could theoretically decrease water levels in the River Thames (and thus flooding of the SAC) if large enough and undertaken at a time of low flows. However, the lack of connectivity in terms of a groundwater flow line means that there will be no input of pollutants and sediment from site SG-20a into the SAC.

4.41 Dewatering is not consumptive abstraction (i.e. a net removal). Rather the water is immediately returned to the same catchment as close as possible to the point of abstraction and thus is not removed from the water supply of the river. However, extraction of sand and gravel occurred at Cassington Pit from 1989 on the northern side of the A40. Groundwater modelling and monitoring showed groundwater drawdown occurring during dewatering across the SAC until a clay hydraulic cut-off was built and keyed into the underlying Oxford Clays. This stopped the drawdown but led to concerns about rising water levels on the mead, which led to the cutting of an additional drain to lower water levels (called the Eastern Discharge Drain). These observations clearly show that the sand and gravel deposits have the potential to form a good hydraulic connection between the SAC and nearby mineral workings, and to transmit the water table drawdown caused by dewatering.

4.42 Excavations at site SG-20a would be to a depth of 4.5m. It is yet to be determined whether excavations would be wet or dry, and thus whether any dewatering would in fact be required.

[33] Note that some of these have been removed since and have thus been marked as 'proposed to eliminate'. They are included here for completeness.

However, given the findings of the previous hydrogeological assessment and the fact that historic mineral workings did lead to drawdown at the SAC until mitigation measures were devised, **it is considered that an appropriate assessment of this site would need to be undertaken if it was retained for inclusion in the Part Two Plan.**

### Cothill Fen SAC

4.43 The alkaline fen vegetation in the Cothill Fen SAC is known to be dependent on the water levels within the site, which are maintained largely by groundwater flow and occasional surface water flooding. The groundwater table beneath the SAC is at, or close to, the surface. Its main recharge area is high ground in the northern, north-western and western part of the SAC, with limited groundwater recharge from its eastern area.

4.44 In the hydrogeological supplementary note to the Core Strategy HRA (2015), the following site considered for allocation in 2019 and located in the vicinity of the Cothill Fen SAC was identified[34], as requiring consideration of whether it would affect the water level and flows supplying the SAC:

- SS-05 (Kingston Bagpuize)

4.45 Hills Quarry Products Ltd. propose sand extraction to a depth of 5m, noting that dewatering is likely to be required.

4.46 However, the Technical Supplement for the HRA of the Oxfordshire Minerals Planning Strategy outlines that there is no connecting flow path between site SS-05 and the SAC, and therefore no potential for inputs of contaminants or sediments from the minerals site. This is because the site is not within the same surface water or groundwater catchment as the SAC. Quarry dewatering is expected to lower the water table, forming a cone of depression. This would expand until it meets a recharge boundary that replenishes the water removed from pumping. However, hydrogeological calculations for the cone of depression at this site, estimate a zone of influence of approximately 1.8km, which is very unlikely to affect the SAC located at more than twice this distance (3.5km away). It is therefore concluded that the soft sand extraction site SS-05 would not affect the water level and flows in the Cothill Fen SAC.

4.47 It is also noted that Policy M4 (Sites for working aggregate minerals) in the Oxfordshire Minerals and Waste Local Plan Part 1 states that the following will be taken into account when allocating minerals sites: '*avoidance of locations likely to have an adverse effect on sites and species of international nature conservation importance and Sites of Special Scientific Interest*'. While no specific reference to the Cothill Fen SAC is made, this is a protective policy that provides for the protection of the SAC from quarrying-related impacts.

4.48 Site SS-05 proposes considerable dewatering as part of its operation and is the closest mineral site to the SAC that is being considered for allocation in 2019. Given that the hydrogeological assessment for allocation SS-05 indicates there will not be a material effect on water flows supplying the SAC, it is unlikely that any of the minerals sites proposed further away will result in LSEs on the Cothill Fen SAC. More distant minerals sites to the north-west of the SAC, its main area of groundwater recharge, are separated from the SAC by the River Thames, which is an effective recharge boundary. Overall, it is concluded that there will be no LSEs of the Minerals and Waste Local Plan on the water level in the Cothill Fen SAC. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

## Little Wittenham SAC

4.49 The Little Wittenham SAC, designated for its abundant great-crested newt population, is also dependent on the maintenance of a consistent water supply. In Natural England's European Site Conservation Objectives Supplementary Advice, it is clearly identified that the species' breeding ponds should be permanent, and that an inadequate water supply might affect the structure and function of newt ponds.

[34] Note that some of these have been removed since and have thus been marked as 'proposed to eliminate'. They are included here for completeness.

4.50 The following sand and gravel sites considered for allocation in 2019 within 5km of the Little Wittenham SAC have the potential to affect the water level and flows in the area:

- SG-17 (Land at Culham)
- SG-62 (Appleford)
- SG-09 (Land north of Drayton St. Leonard and Berinsfield)
- SG-59 (Land at Stadhampton)

4.51 From its south-western edge on high ground, Little Wittenham SAC extends to its northern boundary on lower ground adjacent to the River Thames. The nearest site being considered for allocation at Little Wittenham SAC is a Sand and Gravel (SG) site 665m away. The sand and gravel will be an aquifer but according to Natural England's supplementary advice for this SAC the ponds that support the great crested newt population are artificial; they will therefore be unconnected to the underlying aquifer. All other sites are at least several kilometres from the SAC. The woodland area, which is the main supporting element of the great-crested newt population, is known not to be dependent on the hydrology of the Thames floodplain[35]. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

### In-combination Assessment

4.52 The Oxfordshire Minerals and Waste Local Plan Part 2 Site Allocations document assessed in this HRA outlines the locations of minerals and waste sites throughout Oxfordshire. Its overarching Part 1 Core Strategy was subjected to HRA in 2015 and was then adopted in 2017. The Core Strategy provided for the supply of aggregate minerals and waste processing infrastructure in relation to development in Oxfordshire. This development has already been assessed in overarching Local Plans of various surrounding authorities, which determined no adverse effects on any European site in relation to water levels / flows. None of the HRAs of Oxfordshire Local Plans have identified any adverse effects on the integrity of European sites through water resources or flow. Water supply in Oxfordshire is provided by Thames Water. However, the HRA of their latest Water Resource Management Plan concludes no adverse effects on any Oxfordshire European sites.

4.53 It is therefore concluded that there will be no LSEs of this Plan in-combination with plans and projects of nearby authorities.

## Water quality

4.54 The European sites that are sensitive to changes in water quality, are likely to be congruent with those discussed in the preceding section. This is because these same aquatic habitats and their species also rely on sufficient water quality that may be threatened by discharge of water from dewatering, chemical pollutants or leachate from landfill sites. The identified sites are:

- Oxford Meadows SAC
- Cothill Fen SAC
- Little Wittenham SAC

### Oxford Meadows SAC

4.55 As identified in the Site Conservation Objectives Supplementary Advice for the Oxford Meadows SAC, both the lowland hay meadows and the creeping marshwort are critically dependent on sufficient water quality. Therefore, both contaminants from dewatering discharge and groundwater leachate from landfill sites have the potential to affect these qualifying features.

[35] Lamberth C. 2003. Geology, Hydrology and Water Quality of Little Wittenham cSAC and Hill Farm, Oxfordshire. Monitoring and interpretation of the interactions between the habitats and the geology and hydrology of the site. Report for the Northmoor Trust.

4.56 The following minerals sites considered for allocation in 2019 are in potential hydrological connectivity with the Oxford Meadows SAC and were discussed in the previous section (sites not considered for allocation are not listed)[36]:

- SG-08 (Land at Lower Road, Church Hanborough)
- SG-20 (Land between Eynsham and Cassington)
- SG-20a (Wharf Farm)
- SG-20b (Land at Eynsham)
- SG-29 (Sutton Farm, Sutton)
- SG-31 (Land at Friars Farm)

4.57 Site SG-20a was identified in the previous section as being in hydrological connectivity to the SAC. The Technical Supplement of the HRA for the Oxfordshire Minerals Planning Strategy concludes that activities at this site could affect the water quality in the SAC through release of sediment and / or chemical contaminants. However, it also concluded that there was no direct connection for pollution through groundwater due to the hydraulic separation of the site from the SAC.

4.58 In practice it would be an offence for any minerals site to release pollutants into watercourses, namely the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016. As a result, all minerals operations will always include measures to ensure water quality is protected, secured through the permit for the site. This requirement is reflected in the Oxfordshire Minerals and Waste Part 1 Core Strategy which contains a policy framework making specific reference to the protection of the water environment. **Policy C4 (Water Environment)** stipulates that '*Proposals for minerals and waste development will need to demonstrate that there would be no unacceptable adverse impact on or risk to the quantity or quality of surface or groundwater resources required for habitats, wildlife and human activities.*' Furthermore, **Policy C5 (Local environment, amenity and economy)** sets out that '*proposals for minerals and waste development shall demonstrate that they will not have an unacceptable adverse impact on the local environment*.'

4.59 The standard measures used by minerals sites to achieve this include:

- Appropriate spillage and emergency procedures
- Appropriate storage and delivery of oils and fuels
- Frequent checks of site machinery and vehicles for oil leaks, etc.
- Careful assessment of storage options for excavated material
- Limiting and controlling sediment runoff
- Sheeting and bunding of spoil and overburden to prevent leaching
- Ensuring that any water removed during a dewatering operation passes through filters before being discharged back into the environment

4.60 These measures can be taken into account in determining LSEs because, in this instance, they are not specifically being introduced to avoid or reduce harm to any European site. Given that these measures will inevitably be a requirement for any minerals site, it is considered that there would in fact be no likely significant effect on the Oxford Meadows SAC.

4.61 Three landfill waste sites are considered for potential allocation, namely site 222 (Land north of Wroxton Fields), site 230 (Chinham Farm, Stanford in the Vale) and site 287 (Ardley Fields). Landfill sites, which is where non-recyclable waste is stored permanently, are associated with a

[36] Note that some of these have been removed since and have thus been marked as 'proposed to eliminate'. They are included here for completeness.

particularly high risk of pollutant and / or nutrient leachate infiltrating into groundwater or local surface water bodies. However, these sites are located at distances of 32km, 21km and 16km respectively. Consequently, it is considered very unlikely that these landfill sites will result in material changes to the water quality in the SAC.

4.62 Given that only **one** sand and gravel site is considered to have a demonstrable risk of impact on the Oxford Meadows SAC, and that this risk can be addressed through a 'Code of Good Practice', it is considered that implementation of the Plan would not result in LSEs on the water quality in the Oxford Meadows SAC. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

## Cothill Fen SAC

4.63 The Site Conservation Objectives Supplementary Advice for the Cothill Fen SAC, designated for its alkaline fens and alluvial forests, outline that maintaining good water quality, and especially avoiding any pollution incidents, is crucial for the integrity of the SAC. Therefore, both quarrying contaminants and groundwater leachate from landfill sites would have the potential for impacting the Cothill Fen SAC.

4.64 The following minerals sites in potential hydrological connectivity with Cothill Fen SAC were discussed in the previous section[37]:

- SS-05 (Kingston Bagpuize)

4.65 The Soft Sand site SS-05 is the only remaining allocated minerals site close to the Cothill Fen SAC. However, the hydrogeological assessment carried out by Land Use Consultants in 2012 determined that there was no significant source-pathway-receptor linkage between the proposed site and the SAC. This was decided on the basis that site SS-05 and the SAC are in different groundwater and surface water catchments, and there being no hydrological flow path through which pollutant or sediment flow into the SAC could occur. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

## Little Wittenham SAC

4.66 The northern boundary of Little Wittenham SAC (an area of woodland) is on lower ground adjacent to the River Thames. While there is a potential impact pathway for contaminated discharge from minerals sites to reach the eastern edge of the SAC, this could only occur when the River Thames is in flood and in practice, as already discussed, minerals site operators will not be permitted to pollute the Thames. Moreover, any flood of the River Thames would have to be exceptionally severe to inundate the pools within which great crested newts breed in this SAC and is not considered likely to ever occur. Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

## In-combination Assessment

4.67 The Oxfordshire Minerals and Waste Local Plan Part 2 Site Allocations document assessed in this HRA outlines the locations of minerals and waste sites throughout Oxfordshire. Its overarching Part 1 Core Strategy was subjected to HRA in 2015 and was then adopted in 2017. The Core Strategy provided for the supply of aggregate minerals and waste processing infrastructure in relation to development in Oxfordshire. This development has already been assessed in overarching Local Plans of various surrounding authorities, which determined no adverse effects on any European site in relation to water quality. None of the HRAs of Oxfordshire Local Plans have identified any adverse effects on the integrity of European sites through water quality.

4.68 It is therefore concluded that there will be no LSEs of this Plan in-combination with plans and projects of nearby authorities.

[37] Note that some of these have been removed since and have thus been marked as 'proposed to eliminate'. They are included here for completeness.

# Bio-pathogens (Waste sites)

4.69 The following European sites are deemed to be potentially susceptible to the impact pathway of bio-pathogen transmission, because their habitats and / or qualifying species might be impacted by changes in species distributions and / or introduction of invasive spores:

- Oxford Meadows SAC
- Cothill Fen SAC
- Chilterns Beechwoods SAC
- Aston Rowant SAC
- Hackpen Hill SAC
- Hartslock Wood SAC

4.1 Some composting sites can result in the production of bio-pathogens, which if released into the environment can result in adverse effects on vegetation within European sites located close to the facility. In previous work in Sussex we have agreed with Natural England a screening distance of 1km to be applied to such facilities.

4.2 The emission of bio-pathogens is a risk that is specifically associated with biological waste and composting sites. Only two waste sites being considered for allocation are relevant in this context (the distance to the closest European site susceptible to the impact pathway is also shown):

- Site 226 (Dewars Farm) – 15km to the Oxford Meadows SAC
- Site 249B (High Cogges Farm, Witney) – 8.1km to the Oxford Meadows SAC

4.3 The distances of these two biological waste / composting allocations to the nearest susceptible European sites are beyond the 1km screening distance for bio-pathogens. It is therefore concluded that there will be no LSEs of bio-pathogen emissions on any European site. An Appropriate Assessment and mitigation measures will therefore not be required regarding this impact pathway.

# Summary

4.4 In summary, an appropriate assessment is only considered necessary to further explore potential effects on European sites if site SG-20a (Wharf Farm) was allocated, due to its potential hydrological connectivity to Oxford Meadows SAC. If that site is not allocated then a conclusion of no likely significant effect can be reached and no further assessment is required.

# 5. Preferred Site Options and Reasonable Alternatives

5.1 Following the detailed site assessment work, Oxfordshire County Council identified a number of reasonable site alternatives for mineral and waste development and then from this list selected sites to be taken forward as Preferred Options in the Oxfordshire Minerals and Waste Local Plan Part 2 Site Allocations document.

## Minerals Sites

5.2 The following minerals sites were identified as **Preferred Options**:

Sand and Gravel Sites

New quarries:

- SG20b – Land between Eynsham and Cassington
- SG42 – Land at Nuneham Courtenay

Soft Sand and Crushed Rock

- SS12 & CR12 – Land at Chinham Farm
- SS18 & CR22 – Hatford Quarry West Extension

5.3 The following minerals sites were identified as **Reasonable Alternatives but were not then taken forward as Preferred Options**:

Sand and Gravel Sites

Extensions to existing quarries:

- SG18 – Land near Standlake
- SG11 & SG65 – Land situated NE of Sonning Eye

New quarries:

- SG08 – Lower Road, Church Hanborough
- SG20 – Land between Eynsham and Cassington
- SG20a – Land between Eynsham and Cassington
- SG29 – Sutton Farm, Sutton
- SG9 & SG59 – Land at Drayton St. Leonard & Berinsfield
- SG62 Appleford

Soft Sand and Crushed Rock

- CR13 – Dewars Farm Quarry East Extension
- CR15 – Land off the B4100 Baynards Green
- CR19 – Dewars Farm Quarry South Extension
- SS03 & CR17 – Hatford Quarry South Extension
- SS07 & CR24 – Home Farm Shellingford

- SS15 & CR11 – Hatford Quarry North Extension
- SS16 & CR21 – Hatford Quarry Stanford Extension
- SS19 & CR23 – Home Farm Carswell

5.4 In the preceding screening report, site SG-20a was the only minerals site identified as requiring Appropriate Assessment. This was due to hydrological connectivity with the Oxford Meadows SAC and a potential drawdown of the water level in the SAC resulting from site operation. However, site SG-20a is not among the Preferred Options proposed for the Minerals and Waste Part 2 Local Plan. If site SG-20a is no longer be taken forward, it could be concluded that there are no likely significant effects of this Plan on the Oxford Meadows SAC regarding water level and flows. Accordingly, an Appropriate Assessment would not be required.

# Waste Sites

5.5 The following waste sites were identified as **Reasonable Alternatives** and then also identified as **Preferred Options**:

- 011 – Finmere Quarry, Finmere
- 026 – Whitehill Quarry, Burford
- 103 – Lakeside Industrial Estate, Standlake
- 229 – Shellingford Quarry, Shellingford / Stanford in the Vale
- 249B – High Cogges Farm, Witney
- 274 – Moorend Lane Farm, Thame
- 279 – Rear of Ford Dealership, Ryecote Lane
- 287 – Ardley Fields, Ardley
- 289 – Overthorpe Industrial Estate, Banbury

5.6 None of the waste sites listed here as Preferred Options and Reasonable Alternatives were identified as having LSEs on European sites regarding dust deposition, bio-pathogens or other impacts. It was concluded that an Appropriate Assessment would not be needed. Therefore, it is considered that all of the above listed sites could come forward without having negative impacts on European sites.

# 6. Conclusions and Recommendations

6.1 The Minerals and Waste Local Plan: Part 2 – Site Allocations Document allocates specific sites for minerals and waste site developments throughout Oxfordshire, within the policy parameters set by the Minerals and Waste Core Strategy. It effectively provides for all minerals and waste related development in the county for the period to 2031.

6.2 While the HRA identified numerous potential impact pathways arising from the allocated minerals and waste sites, it shows that effects on all sites can be screened out. Generally, this is due to the long distances between allocations and the European sites. For example, the impact pathway loss of functionally linked land is screened out because none of the allocations lies within 500m (screening distance for great-crested newts) of the Little Wittenham SAC.

**6.3** A conclusion of no likely significant effect was reached for all sites concerning water quality. This is because the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016 (as well as policy in the adopted Minerals and Waste Core Strategy) makes it illegal to pollute watercourses such as the River Thames. In practice therefore all sites will be required to protect water quality as a matter of course irrespective of the presence or otherwise of European sites and therefore no likely significant effect on hydrologically connected European sites would arise.

6.4 One Sand and Gravel site (SG-20a) was determined to have a potential impact on groundwater levels in the Oxford Meadows SAC, due to hydrological connectivity with the SAC and historic evidence of nearby quarry operations causing groundwater drawdown. However, that site is not proposed as a Preferred Option. Therefore, it is possible to conclude that no likely significant effect on European Sites will arise from the Oxfordshire Minerals and Waste Plan Part 2.

# Appendix A Maps

## Appendix 1: Minerals and Waste sites considered for allocation in 2019, in relation to relevant European sites.

# Appendix B Relevant European sites

## Little Wittenham SAC

### Introduction

6.5 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.

6.6 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*.

6.7 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*.

6.8 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*.

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

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

### Reasons for Designation[38]

6.11 The site is designated as a SAC for its:

- Great crested newt populations.

### Conservation Objectives[39]

*6.12* '*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

- *The extent and distribution of habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site. '*

### Threats / Pressures to Site Integrity[40]

6.13 The Site Improvement Plan for Little Wittenham[41] indicates the following threats that, at the least, are identified as requiring investigation:

[38] http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030184 [Accessed 22/07/2019]
[39] http://publications.naturalengland.org.uk/file/6500910130003968 [Accessed 22/07/2019]
[40] http://publications.naturalengland.org.uk/publication/6567758347108352 [Accessed 23/07/2019]
[41] http://publications.naturalengland.org.uk/publication/6567758347108352 [Accessed 23/07/2019]

- Invasive species; and
- Public access / disturbance.

## Impact Pathways Potentially Linking to the Plan

- Loss of functionally linked land
- Atmospheric pollution
- Dust
- Water quality and / or level

# Oxford Meadows SAC

## Introduction

6.14 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.

6.15 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.

## Reasons for Designation[42]

6.16 The site is designated as a SAC for its:

- Lowland hay meadows
- Creeping marshwort

## Conservation Objectives[43]

*6.17 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

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

[42] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0012845 [Accessed 23/07/2019]
[43] http://publications.naturalengland.org.uk/file/5150991062401024 [Accessed 23/07/2019]

## Threats / Pressure to Site Integrity[44]

6.18 The Site Improvement Plan for Little Wittenham[45] indicates the following threats that, at the least, are identified as requiring investigation:

- Hydrological changes
- Invasive species

## Impact Pathways Potentially Linking to the Plan

6.19 The following impact pathways in relation to the Plan have been identified:

- Water quality and / or level
- Atmospheric pollution
- Dust

# Cothill Fen SAC

## Introduction

6.20 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 north west of Shippon on the edge of Abingdon-on-Thames.

## Reasons for Designation[46]

6.21 The site is designated as a SAC for its:

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

## Conservation Objectives[47]

*6.22* '*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

- *The extent and distribution of qualifying natural habitats*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

## Threats / Pressure to Site Integrity[48]

6.23 The Site Improvement Plan for Cothill Fen indicates the following threats that, at the least, are identified as requiring investigation:

[44] http://publications.naturalengland.org.uk/publication/4942743310696448 [Accessed 23/07/2019]
[45] http://publications.naturalengland.org.uk/publication/6567758347108352 [Accessed 23/07/2019]
[46] http://jncc.defra.gov.uk/protectedsites/SACselection/sac.asp?EUcode=UK0012889 [Accessed 23/07/2019]
[47] http://publications.naturalengland.org.uk/file/5387395700883456 [Accessed 23/07/2019]
[48] http://publications.naturalengland.org.uk/publication/6482436405854208 [Accessed 23/07/2019]

- Hydrological changes;
- Water pollution; and
- Air pollution.

## Impact Pathways Potentially Linking to the Plan

6.24 The following impact pathways in relation to the Plan have been identified:

- Water quality and / or level
- Atmospheric pollution
- Dust

# Chiltern Beechwoods SAC

## Introduction

6.25 The Chilterns Beechwoods represent a very extensive tract of *Asperulo-Fagetum* beech forests in the centre of the habitat's UK range. The woodland is an important part of a grassland-scrub-woodland mosaic. A distinctive feature in the woodland flora is the occurrence of the rare coralroot *Cardamine bulbifera*.

## Reasons for Designation[49]

6.26 This site is designated as an SAC for its annex I habitats and annex II species:

- *Asperulo-Fagetum* beech forests
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)
- Stag beetle *Lucanus cervus*

## Conservation Objectives[50]

*6.27 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

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

## Threats / Pressure to Site Integrity[51]

6.28 The Site Improvement Plan identifies that the site is vulnerable to the following pressures and threats:

- Forestry and woodland management

[49] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0012724 [Accessed 23/07/2019]
[50] http://publications.naturalengland.org.uk/file/4961243408629760 [Accessed 23/07/2019]
[51] http://publications.naturalengland.org.uk/publication/6228755680854016 [Accessed 23/07/2019]

- Deer
- Changes in species distribution
- Invasive species
- Disease
- Public access/ disturbance
- Air pollution (atmospheric nitrogen deposition)

## Impact Pathways Potentially Linking to the Plan

6.29 The following impact pathways in relation to the Plan have been identified:

- Atmospheric pollution
- Dust

# Aston Rowant SAC

## Introduction

6.30 The Aston Rowant SAC is a 124.89ha site comprising a variety of habitats and located in southern England. Habitats include heath / scrub (14%), broad-leaved deciduous woodland (23%) and dry grassland / steppes (62.5%).

6.31 Aston Rowant represents *Juniperus communis* formations near the northern edge of the habitat's range on the chalk of southern England where it is rare and declining. The juniper population has been estimated to be between 1,000 and 2,000 individuals of various age-classes. It is one of the best remaining examples in the UK of lowland juniper scrub on chalk.

## Reasons for Designation[52]

6.32 Designated as an SAC for its Annex I habitats:

- Juniper communities of heaths or calcareous grasslands
- *Asperulo-Fagetum* beech forests

## Conservation Objectives[53]

*6.33* '*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

- *The extent and distribution of qualifying natural habitats*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

## Threats / Pressure to Site Integrity[54]

6.34 The Site Improvement Plan for the SAC identified the following pressures/ threats:

- Unsustainable on site population or habitat
- Changes in species distribution
- Deer

[52] http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030082 [Accessed 23/07/2019]
[53] http://publications.naturalengland.org.uk/file/5085928322498560 [Accessed 23/07/2019]
[54] http://publications.naturalengland.org.uk/publication/4960794580090880 [Accessed 23/07/2019]

- Conflicting conservation objectives
- Disease
- Atmospheric pollution: atmospheric nitrogen deposition

## Impact Pathways Potentially Linking to the Plan

6.35 The following impact pathways in relation to the Plan have been identified:

- Atmospheric pollution
- Dust
- Bio-pathogens

# Hackpen Hill SAC

## Introduction

6.36 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.

6.37 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*.

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

## Reasons for Designation[55]

6.39 The site is designated as a SAC for its:

- Dry grasslands and scrublands on chalk or limestone
- Early gentian *Gentianella anglica*

## Conservation Objectives[56]

*6.40* '*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

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

[55] http://publications.naturalengland.org.uk/file/5239436077957120 [Accessed 23/07/2019]
[56] http://publications.naturalengland.org.uk/file/5119299878649856 [Accessed 23/07/2019]

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

## Threats / Pressures to Site Integrity[57]

6.42 The Site Improvement Plan for the SAC identified no current pressures/ threats to site integrity.

## Impact Pathways Potentially Linking to the Plan

6.43 Potential linking impact pathways that could link the European site to the Plan is:

- Atmospheric pollution
- Dust

# Hartslock Wood SAC

## Introduction

6.44 Hartslock Wood SAC is a 34.16ha site of mixed woodland (87%) and dry grassland / steppes (13%) in southern England. The site hosts the priority habitat type 'orchid rich sites'. It consists of steep slopes on the Chilterns chalk, comprising a mosaic of chalk grassland, chalk scrub and broadleaved woodland. The chalk grassland is mainly composed of the following NVC communities: CG2 *Festuca ovina – Avenula pratensis* and CG3 *Bromus erectus*. Significantly, the site supports one of only three populations of the monkey orchid *Orchis simia*, a species in the Red Data Book.

6.45 The SAC is also designated for common yew *Taxus baccata* woodlands on a steep slope above the River Thames. As a result of recent storms and landslips, the age structure of the population is diverse. Open patches have a high diversity of flora, including southern wood-rush *Luzula forsteri*, wood barley *Hordelymus europaeus* and the narrow-lipped helleborine *Epipactis leptochila*.

## Reasons for Designation[58]

6.46 The site is designated as an SAC for its Annex I habitats:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-*Brometalia*)
- Yew *Taxus baccata* woods of the British Isles

## Conservation Objectives[59]

*6.47 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

- *The extent and distribution of the qualifying natural habitats*
- *The structure and function (including typical species) of the qualifying natural habitats, and,*
- *The supporting processes on which the qualifying natural habitats rely'*

[57] http://publications.naturalengland.org.uk/publication/5938642669273088 [Accessed 23/07/2019]
[58] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUCode=UK0030164 [Accessed 23/07/2019]
[59] http://publications.naturalengland.org.uk/file/4776557130547200 [Accessed 23/07/2019]

## Current Pressures[60]

6.48 The Site Improvement Plan for the SAC identified the following pressures/ threats:

- Atmospheric pollution: atmospheric nitrogen deposition

## Impact Pathways Potentially Linking to the Plan

6.49 Potential linking impact pathways that could link the European site to the Plan is:

- Atmospheric pollution
- Dust

[60] http://publications.naturalengland.org.uk/publication/4874314121740288 [Accessed 23/07/2019]

# Appendix C Screening Tables (Test of Likely Significant Effects) of Minerals and Waste Site Allocations

**Appendix 2: Results of LSEs screening for minerals site allocations described in the Plan. Site allocations in green do not have the potential for LSE on any European sites, and are therefore screened out at this stage. Only the impact pathways for the closest European site are discussed in detail, whereas a general comment on the screening outcome for the remaining sites is made.**

| **Allocated Minerals Sites** | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| **Sharp Sand and Gravel Allocations** | | | |
| SG-08 | Lower Road, Church Hanborough | Extension or New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 2.3km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment in the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-09 + SG59 | Land north of Drayton St. Leonard and Berinsfield and land at Stadhampton | New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 3.8km. Little Wittenham is considered not to be susceptible to changes in the Thames Valley water catchment |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | and site SG-09 is considered to be too far to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-11 & SG-65 | Land situated Northeast of Sonning Eye (Caversham pahses 'D' & 'E') | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European sites to this allocation are the Hartslock Wood SAC and the Chilterns Beechwoods SAC at distances of over 9km. This distance is far greater than any of the screening distances used for the identified impact pathways. These site allocations will therefore not result in LSEs on any European sites.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>These minerals sites would be screened out from Appropriate Assessment. |
| SG-17 | Land at Culham | New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 2.4km. Little Wittenham is considered not to be susceptible to changes in the Thames Valley water catchment and site SG-17 is considered to be too far to result in LSEs on this European site through impacts on the water level and / or quality. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-18 | Land near Standlake | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 5.8km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The site is also beyond the screening distances for the other impact pathways identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-20 | Land between Eynsham & Cassington | Extension or New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 1.3km. However, there is no hydrological connectivity and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | This minerals site would be screened out from Appropriate Assessment. |
| SG-20a | Land between Eynsham & Cassington | Extension or New | **This sand and gravel site has the potential for LSEs on European sites**.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 288m. Due to the proximity of the allocation to the Oxford Meadows SAC and a previous hydrogeological assessment, **the following impact pathways were initially identified:**<br><br>• **Water level / flows**<br>• **Water quality**<br>While there is potential hydrological connectivity with the SAC, this is not considered to result in LSEs on this European site through impacts on the water level quality (see screening section for detail).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>However, due to the close proximity and hydrological connectivity of the site to the Oxford Meadows SAC, the fact that dewatering may occur and the fact that historic minerals workings close to the SAC have resulted in drawdown of groundwater within parts of the site without mitigation, a conclusion of likely significant effects is drawn. If this site is selected for inclusion in the final plan an appropriate assessment will be required in which the effectiveness of mitigation measures (e.g. construction of a clay bund keyed into the underlying clay to create a hydraulic barrier, or prohibition on dewatering) will be investigated. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| SG-20b | Land between Eynsham & Cassington | Extension or New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 1.5km. However, there is no hydrological connectivity and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-23 | Windrush North, Gill Mil | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 9.9km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-27 | Vicarage Pit, Cogges Lane | New | This sand and gravel site does not have the potential for LSEs on European sites. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | The closest European site to this allocation is the Oxford Meadows SAC at a distance of 7.2km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-29 | Sutton Farm, Sutton | New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 4.2km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-42 | Nuneham Courtenay | New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 5.9km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality. Furthermore, the site is beyond the 500m screening distance for the loss of functionally linked great-crested newt land.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-60 | White Cross Farm | New | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 5.2km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality. Furthermore, the site is beyond the 500m screening distance for the loss of functionally linked great-crested newt land.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-62 | Appleford | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 3.6km. However, the allocation and the SAC |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality. Furthermore, the site is beyond the 500m screening distance for the loss of functionally linked great-crested newt land.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-63 | Finmere Quarry | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 26.1km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SG-67 | Sutton Wick Quarry | Extension | This sand and gravel site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 5.5km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| **Soft Sand Allocations** | | | |
| SS-03 | Hatford Quarry South Extension | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 9.5km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions)..<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-04 | Land at Pinewoods Road | New | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 7km. However, the allocation and the SAC are not |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-05 | Land at Kingston Bagpuize | New | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 3.5km.<br>Due to the proximity of the allocation to the Cothill Fen SAC, **the following impact pathways were initially identified:**<br><br>• **Water level**<br>• **Water quality**<br><br>However, it was identified that the site allocation is not in the same groundwater catchment as the SAC, and as such there is no potential for LSEs on the Cothill Fen SAC (see LSEs section of the report).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| SS-07 | Home Farm | New | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 9.2km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-08 | Shellingford Quarry (Western Extension) | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.1km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | This minerals site would be screened out from Appropriate Assessment. |
| SS-12 | Land at Chinham Farm (Chinham Hill) | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.5km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-15 | Hatford Quarry North Extension | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.2km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | This minerals site would be screened out from Appropriate Assessment. |
| SS-16 | Hatford Quarry Stanford Extension | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.9km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-18 | Hatford Quarry West Extension | Extension | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.6km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions). |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| SS-19 | Home Farm, Carswell | New | This soft sand site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.8km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| **Crushed Rock Allocations** | | | |
| CR-07 | Adjacent to Whitehill Quarry | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 27km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-10 | Burford Quarry SW Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 18.7km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-11 | Hatford Quarry North Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.2km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-12 | Land at Chinham Farm (Chinham Hill) | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.5km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-13 | Dewars Farm Quarry East Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 15.6km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-15 | Land off the B4100, Baynards Green | New | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 19.4km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-16 | Shellingford Quarry Western Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.1km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-17 | Hatford Quarry South Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 9.5km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-19 | Dewars Farm Quarry South Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 14.5km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-21 | Hatford Quarry Stanford Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.9km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-22 | Hatford Quarry West Extension | Extension | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.6km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route |

| Allocated Minerals Sites | | | |
|---|---|---|---|
| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-23 | Home Farm, Carswell | New | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.8km. The site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |
| CR-24 | Home Farm, Shillingford | New | This crushed rock site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 9.2km. The site is beyond the 200m screening distance used for the emission of dust. It is also far |

| Allocated Minerals Sites | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **New or Extension** | **Screening Outcome** |
| | | | beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by minerals traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This minerals site would be screened out from Appropriate Assessment. |

**Appendix 3: Results of LSEs screening for waste site allocations described in the Plan. Site allocations in green do not have the potential for LSE on any European sites, and are therefore screened out at this stage. Only the impact pathways for the closest European site are discussed in detail, whereas a general comment on the screening outcome for the remaining sites is made.**

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| 002 | Prospect Farm, Chilton | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 9.2km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land or atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 003 | Dix Pit (Area 2), Stanton Harcourt | Non-Hazardous (C&I and MSW) Wate Recycling | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 6.2km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | Furthermore, the allocation and the SAC are not located in the same groundwater / surface water catchment.<br><br>The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 005 | Playhatch Quarry, Playhatch | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hartslock Wood SAC at a distance of 11.8km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| 008 | New Wintles Farm, Eynsham | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 2.8km. Due to the proximity of the allocation to the Oxford Meadows SAC, **the following impact pathways were initially identified:**<br><br>• **Water quality**<br><br>There are general risks of water runoff from hard surfaces, carrying oils and heavy metals into waterbodies. This will be most prominent within a few hundred metres of the site.<br><br>However, there is a legal obligation (unrelated to the Habitats Regulations) to prevent the pollution of waterbodies in the UK. Therefore, the risk of pollution events should be minimised by employing a Code of Good Practice (see LSEs screening chapter). Since this mitigation measure is not specifically recommended regarding a European site, it can be taken into account at the LSEs stage.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 009 | Worton Farm Areas C&D, Yarnton | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | The closest European site to this allocation is the Oxford Meadows SAC at a distance of 510m. Due to the proximity of the allocation to the Oxford Meadows SAC, **the following impact pathways were initially identified:**<br><br>• **Water quality**<br><br>There are general risks of water runoff from hard surfaces, carrying oils and heavy metals into waterbodies. This will be most prominent within a few hundred metres of the site.<br><br>However, there is a legal obligation (unrelated to the Habitats Regulations) to prevent the pollution of waterbodies in the UK. Therefore, the risk of pollution events should be minimised by employing a Code of Good Practice (see LSEs screening chapter). Since this mitigation measure is not specifically recommended regarding a European site, it can be taken into account at the LSEs stage.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 010 | (Area 3) Sutton Courtenay Landfill Area 3, Sutton Courtenay/Appleford | Residual Waste Treatment | Energy from Waste pollutant emissions | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 4.6km. The allocation is beyond the 500m screening distance for the loss of |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land or atmospheric pollution (dust and vehicle emissions).<br><br>While this is a residual waste treatment site, this is not going to be an energy from waste plant, for which a 10km screening distance would apply.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 011 | Finmere Quarry | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 25.6km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | This waste site would be screened out from Appropriate Assessment. |
| 013 | Ewelme No.2 Site, Goulds Gove | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 6.9km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land or atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 018 | Holloway Farm, Waterstock/Milton Common | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 12.6km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 023 | Alkerton Landfill and Civic Amenity Site, Alkerton | Non-Hazardous (C&I and MSW) Wate Recycling | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 33.3km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 026 | Whitehill Quarry | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 18.9km. However, the allocation and the SAC are not located in the same |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 103 | Lakeside Industrial Estate, Standlake | Residual Waste Treatment | Energy from Waste pollutant emissions | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 8.4km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. Furthermore, the allocation and the SAC are not located in the same groundwater / surface water catchment. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution and impacts on the water level and / or quality.<br><br>While this is a residual waste treatment site, this is not going to be an energy from waste plant, for which a 10km screening distance would apply.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | This waste site would be screened out from Appropriate Assessment. |
| 138 | Woodside, Old Henley Road, Ewelme | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 7.8km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land or atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 152 | Ewelme No.1 Site | Hazardous or Radioactive Wastes | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 7.2km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | strategic route used by waste traffic. The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land or atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 180 | Elmwood Farm, Black Bourton | Non-Hazardous (C&I and MSW) Wate Recycling | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 17.8km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. Furthermore, the allocation and the SAC are not located in the same groundwater / surface water catchment. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| 222 | Land north of Wroxton Fields Quarry, Wroxton | Landfill | Landfill gas flare | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 32km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 226 | Dewars Farm | Landfill | Bio-pathogens | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 15km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | This waste site would be screened out from Appropriate Assessment. |
| 229 | Shellingford Quarry, Shellingford/Staford in the Vale | Composting / Biological Treatment | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.5km. The allocation is beyond the 1km screening distance set for bio-pathogens. Furthermore, the site is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Finally, the allocation and the SAC are not located in the same groundwater / surface water catchment. Overall, the site is therefore not considered to result in LSEs on this European site through bio-pathogens, atmospheric pollution (dust and vehicle emissions) and impacts on water quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 230 | Chinham Farm, Stanford in the Vale | Soft Sand | Landfill gas flare | This waste site does not have the potential for LSEs on European site.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.2km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 232 | Banbury Sewage Treatment Works | Landfill | Phosphorus Input To Waterways | This waste site (Sewage Treatment Works) does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 29.1km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 233 | Witney Sewage Treatment Works | Waste Water Treatment | Phosphorus Input To Waterways | This waste site (Sewage Treatment Works) does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 11.3km. However, the allocation and the SAC are not located in the same |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 234 | Didcot Sewage Treatment Works | Waste Water Treatment | Phosphorus Input To Waterways | This waste site (Sewage Treatment Works) does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 4.8km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. Since the ponds for the main population of great-crested newts in the woodland on higher ground are not connected to the Thames floodplain, there is no potential for effects on water quality and / or level.<br><br>The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land, atmospheric pollution (dust and vehicle emissions) and water quality and / or level. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 236 | Sheehan Recycled Aggregates Plant, Dix Pit Complex | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 7.2km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. Furthermore, the allocation and the SAC are not located in the same groundwater / surface water catchment. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 245 | Challow Marsh Farm, West Challow | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 4.8km. The allocation is beyond the 200m screening distances for dust emissions and |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 250 | Broughton Poggs Business Park | Recycled & Secondary Aggregates and Waste Management Facilities | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 22.5km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 265 | Woodeaton Quarry | Non-Hazardous (C&I and MSW) Waste Recycling | Dust | This waste site (Sewage Treatment Works) does not have the potential for LSEs on European sites. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | The closest European site to this allocation is the Oxford Meadows SAC at a distance of 4.5km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 274 | Moorend Lane Farm | Recycled & Secondary Aggregates and Waste Management Facilities | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Chilterns Beechwoods SAC at a distance of 8.4km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| 276 | Oday Hill, Sutton Wick | Recycled & Secondary Aggregates and Waste Management Facilities | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Cothill Fen SAC at a distance of 5.2km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste site traffic. Furthermore, the allocation and the SAC are not located in the same groundwater / surface water catchment. The allocation is therefore not considered to result in LSEs on this European site through atmospheric pollution and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 278 | Land off the B4100, Baynards Green, Ardley/Fritwell | Recycled & Secondary Aggregates and Watse Management Facilities | Dust | This waste site (Sewage Treatment Works) does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 19.4km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this European site through impacts on the water level and / or quality. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 279 | Rear of Ford Dealership, Ryecote Lane, Thame | Crushed Rock | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Aston Rowant SAC at a distance of 8.6km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 280 | Oxford Shooting School, Enstone Airfield | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 17.1km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 281 | Farringdon Quarry, Farringdon/Little Coxwell | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 10.7km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 282 | Land at Field Barn Farm, North of A417, Ardington, Wantage | Non-Hazardous (C&I and MSW) Wate Recycling | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 7.6km. The allocation is beyond the 200m screening distances for dust emissions and |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 283 | Hatford Quarry Stanford Extension, Stanford in the Vale (subject to review by PD) | Inert (CDE) Waste Recycling including Recycled Aggregates | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Hackpen Hill SAC at a distance of 8.9km. The allocation is beyond the 200m screening distances for dust emissions and Heavy Duty Vehicle (HDV) strategic routes. Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions).<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 285 | (Magnox) Harwell Site, Harwell Campus | Hazardous or Radioactive Wastes | Dust | This waste site does not have the potential for LSEs on European sites. |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | The closest European site to this allocation is the Little Wittenham SAC at a distance of 10.5km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. Since the ponds for the main population of great-crested newts in the woodland on higher ground are not connected to the Thames floodplain, there is no potential for effects on water quality and / or level.<br><br>The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land, atmospheric pollution (dust and vehicle emissions) and water quality and / or level.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 287 | Ardley Fields | Landfill, HWRC and ERF site | Landfill gas flare | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 15.6km. However, the allocation and the SAC are not located in the same groundwater / surface water catchment and the site is therefore not considered to result in LSEs on this |

| Allocated Waste Sites | | | | |
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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | European site through impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 288 | Brize Norton Road, Minster Lovell | Crushed Rock | Dust | This waste site does not have the potential for LSEs on European site.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 14.8km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation and the SAC are not located in the same groundwater / surface water catchment.<br><br>Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions) and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |

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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| 289 | Overthorpe Industrial Estate, Banbury | Non-Hazardous (C&I and MSW) Wate Recycling | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 29.4km. The allocation is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation and the SAC are not located in the same groundwater / surface water catchment.<br><br>Overall, the site is therefore not considered to result in LSEs on this European site through atmospheric pollution (dust and vehicle emissions) and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 290 | Culham Science Centre | Hazardous or Radioactive Wastes | Dust | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Little Wittenham SAC at a distance of 3.4km. The allocation is beyond the 500m screening distance for the loss of functionally linked newt land. It is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. Since the ponds for |

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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | the main population of great-crested newts in the woodland on higher ground are not connected to the Thames floodplain, there is no potential for effects on water quality and / or level.<br><br>The allocation is therefore not considered to result in LSEs on this European site through the loss of functionally linked land, atmospheric pollution (dust and vehicle emissions) and water quality and / or level.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |
| 249B | High Cogges Farm, Witney | Composting / Biological Treatment | Bio-pathogens | This waste site does not have the potential for LSEs on European sites.<br><br>The closest European site to this allocation is the Oxford Meadows SAC at a distance of 8.1km. The allocation is beyond the 1km screening distance for bio-pathogens. Furthermore, the site is beyond the 200m screening distance used for the emission of dust. It is also far beyond 200m of any Heavy Duty Vehicle (HDV) strategic route used by waste traffic. The allocation and the SAC are not located in the same groundwater / surface water catchment.<br><br>Overall, the site is therefore not considered to result in LSEs on this European site through bio-pathogens, |

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| **Site Allocation Reference** | **Site Allocation Name** | **Type of Waste Facility** | **Likely Impact Pathway Associated with this Type of Facility** | **Screening Outcome** |
| | | | | atmospheric pollution (dust and vehicle emissions) and impacts on the water level and / or quality.<br><br>The allocation is also beyond the screening distances for impact pathways in relation to other European sites identified to be relevant for the Plan.<br><br>This waste site would be screened out from Appropriate Assessment. |