Oxford City Council

Habitat Regulations Assessment: Appropriate Assessment (Stage 2)

Final | January 2024

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1. Introduction

1.1 This report discusses Stage 2 (Appropriate Assessment) of the Habitat Regulations Assessment (HRA for the Oxford Local Plan 2040.

1.2 The Oxford Local Plan proposed submission document:

- Sets a capacity-based/ constraint-based housing target aimed at meeting as much housing need as possible with appropriate consideration of other policy aims. As a result of this policy option the level of housing development proposed by the Local Plan 2040 will deliver more than 9,500 homes throughout the plan period.
- Proposes to meet as much employment need as possible on existing employment sites and in accessible locations i.e., city and district centres (but prioritises other uses, in particular housing, even if employment needs cannot be met in full in the city).
- Proposes to modernise, intensify and regenerate existing employment sites in the city as well as proposing the diversification of employment sites including allowing an element of housing delivery on certain employment sites;
- Recognises the need to continue to work neighbouring authorities to help deliver opportunities for housing or employment needs that cannot be met within Oxford's administrative boundary
- Allows employment sites that are not considered to be important to Oxford's economy to be redeveloped (e.g., for housing).
- Proposes to develop a detailed site allocation policy for the Northern Gateway strategic site as the Northern Gateway AAP expires in 2026.

Requirements of the Habitat Regulations

1.3 Appropriate Assessment of plans that could affect Special Conservation Areas (SACs), Special Protection Areas (SPAs) and Ramsar Sites (jointly called 'European sites) is required by paragraph 63 of the Habitat Regulations 2017 (as amended)[1], which states:

63. (1) A competent authority, before deciding to undertake, or give any consent, permission of other authorisation for a plan or project which

(a) is likely to have a significant effect on a European site or European offshore marine site (in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.

[1] The Conservation of Habitats and Species Regulations 2017 (as amended) SI No. 1012 https://www.legislation.gov.uk/uksi/2017/1012/contents/made

1.4 Paragraph 64 discusses alternative solutions, the test of 'imperative reasons of overriding public interest' (IROPI) and compensatory measures:

> *64. (1) if the competent authority is satisfied, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which subject to paragraph 2) may be of a social or economic nature, it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be).*

1.5 The precautionary principle is applied to European sites which are subject to appropriate assessment. Plans and projects can only be permitted if it can be shown that they will have no significant adverse effect on the integrity of any European site, or if there are no alternatives to them and there are imperative reasons of overriding public interest as to why they should go ahead. In such cases, compensation will be necessary to ensure the overall integrity of the site network.

Methodology used for this Habitat Regulations Assessment

1.6 A Habitat Regulations Assessment can involve up to a four stage process.

1. **Screening.** Determining whether or not a plan 'alone or in-combination' is likely to have a significant effect on a European site.

2. **Appropriate Assessment.** Determining whether, in view of the site's conservation objectives, the plan 'alone or in-combination' would have an adverse effect (or risk of this) on the integrity of the site. If not, the plan can proceed.

3. **Assessment of alternative solutions.** Where the plan is assessed as having an adverse effect (or risk of this) on the integrity of a site, there should be an examination of alternatives.

4. **Assessment where no alternative solutions remain and where adverse impacts remain.**

Stage 1 Screening

1.7 Oxford City Council prepared a Stage 1 screening report in September 2023[2] and a supplementary Air Quality Screening Addendum in November 2023[3]. The HRA Screening considered the three European sites within 20km of the Oxford City Council administrative boundary. (Table 1.1 and Figure 1.1). For the Cothill Fen SAC and the Little Wittenham SAC, it found that the Oxford Local Plan 2040 does not propose any policies or new allocations that

[2] Available online at: https://www.oxford.gov.uk/downloads/file/8607/habitat_regulations_assessment_hra_for_local_plan_2040_sept_2023

[3] Available online at: https://www.oxford.gov.uk/downloads/file/8776/hra_screening_addendum_-_air_quality_november_2023

would be like to have a significant effect on those SACs. As such it screened those two designated sites out of any further assessment.

Table 1.1 - European sites within 20km of Oxford City Council boundary		
Name of site	Distance from boundary	Reason for designation[4]
Oxford Meadows SAC	Within City Boundary, extending into administrative area for Cherwell District Council and into the administrative boundary of West Oxfordshire District Council.	**Annex I habitats that are a primary reason for selection of this site** **6510 Lowland hay meadows** (Alopecurus pratensis, Sanguisorba officinalis) Together with North Meadow and Clattinger Farm, also in southern England, Oxford Meadows represents **lowland hay meadows** in the Thames Valley centre of distribution. The site includes vegetation communities that are perhaps unique in the world in reflecting the influence of long-term grazing and hay-cutting on **lowland hay meadows**. The site has benefited from the survival of traditional management, which has been undertaken for several centuries, and so exhibits good conservation of structure and function. **Annex II species that are a primary reason for selection of this site** **1614 Creeping marshwort** Apium repens Oxford Meadows is selected because Port Meadow is the larger of only two known sites in the UK for **creeping marshwort** Apium repens.
Cothill Fen SAC	Located 7km from the city boundary	**Annex I habitats that are a primary reason for selection of this site** **7230 Alkaline fens** This lowland valley mire contains one of the largest surviving examples of **alkaline fen** vegetation in central England, a region where fen vegetation is rare. The M13 Schoenus nigricans – Juncus subnodulosus vegetation found here occurs under a wide range of hydrological conditions, with frequent bottle sedge Carex rostrata, grass-of-Parnassus Parnassia palustris, common butterwort Pinguicula vulgaris and marsh helleborine Epipactis palustris. The alkaline fen vegetation forms transitions to other vegetation types that are similar to M24 Molinia caerulea – Cirsium dissectum fen-meadow and S25 Phragmites australis – Eupatorium cannabinum tall-herb fen and wet alder Alnus spp. wood.
Little Witteham SAC	Located 19km from the city boundary	**Annex II species that are a primary reason for selection of this site** **1166 Great crested newt** Triturus cristatus One of the best-studied great crested newt sites in the UK, Little Wittenham comprises two main ponds set in a predominantly woodland context (broad-leaved and conifer woodland is present). There are also areas of grassland, with sheep grazing and arable bordering the woodland to the south and west. The River Thames is just to the north of the site, and a hill fort to the south. Large numbers of **great crested newts** Triturus cristatus have been recorded in the two main ponds, and research has revealed that they range several hundred metres into the woodland blocks

[4] www.jncc.gov.uk

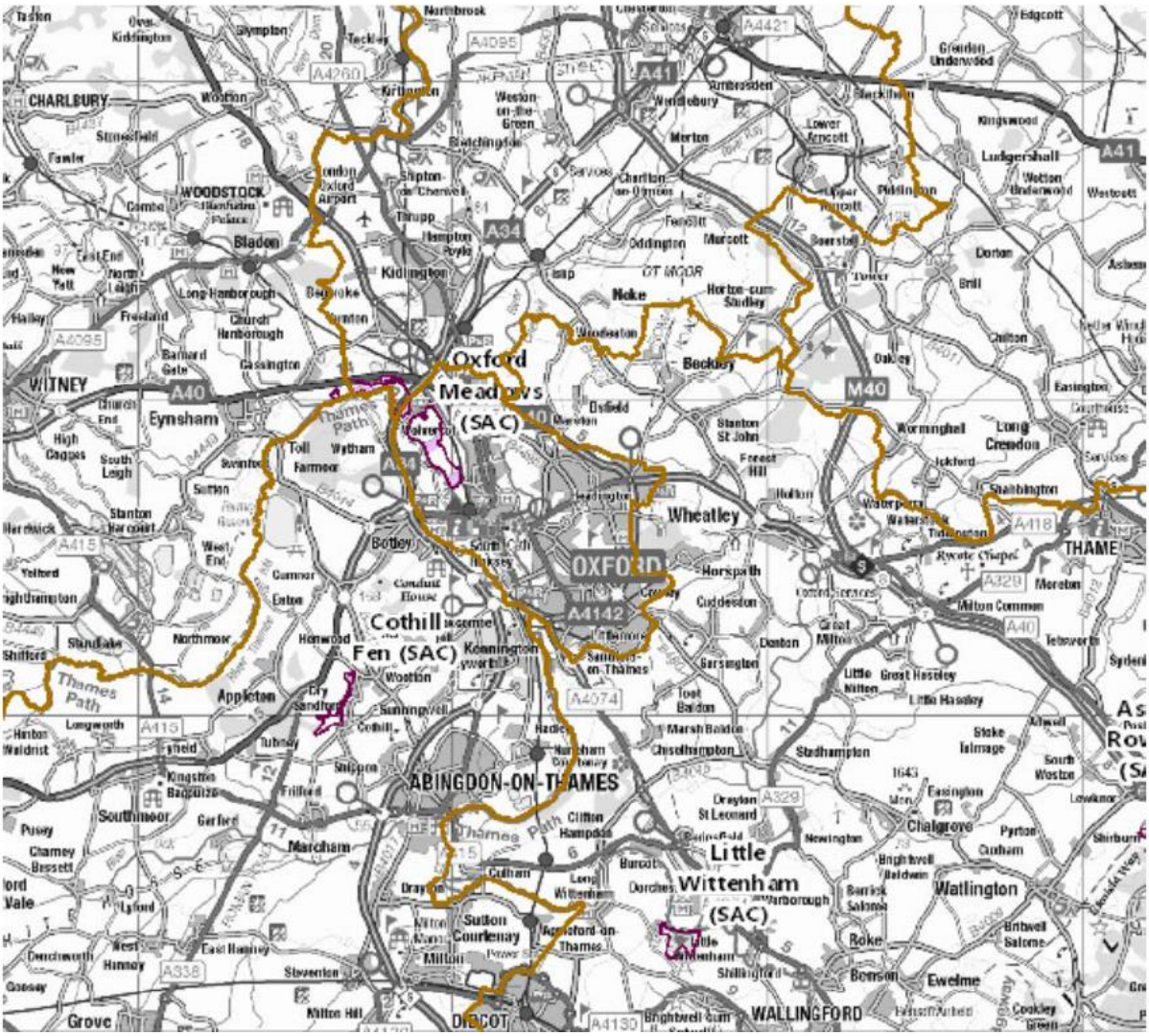

Figure 1.1 Locations of SACs within 20km of Oxford City Council boundary
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1.8 However the screening report found that the integrity of the Oxford Meadows SAC could potentially be affected by the Local Plan 2040, and that this should be considered further in an appropriate assessment.

1.9 This report consequently covers Stage 2 (appropriate assessment) of the HRA for the Oxford Local Plan 2040. The screening report is shown at Appendix 1.

Oxford Meadows SAC

1.10 Table 1.1 explains the reasons for which the Oxford Meadows have been designated as an SAC. Natural England's SSSI condition assessment[5] shows that the majority of SSSI units that make up the Oxford Meadows SAC are in a favourable condition. However, the majority of these assessments are from 2010 so conditions may have changed in the intervening time.

1.11 The following are the key requirements to support the integrity of the Oxford Meadows SAC[6]:

- Minimal air pollution;
- Absence of nutrient enrichment of waters/ good water quality;
- Balanced hydrological regime – alteration to adjacent rivers may alter flooding regime and botanical diversity;
- Maintenance of traditional hay cut and aftermath grazing;
- Absence of direct fertilisation;
- Ensuring recreational impacts are maintained at a reasonable level

1.12 In addition to the above requirements, this HRA considers the vulnerabilities listed in the Natura 2000 – Standard Data Form for the Oxford Meadows SAC submitted by DEFRA to the European Commission in December 2015[7]. This form states that the Oxford Meadows SAC is vulnerable to impacts from the following sources:

- Pollution to surface waters (limnic & terrestrial, marine & brackish);
- Invasive non-native species; and,
- Human induced changes in hydraulic conditions.

1.13 Requirements for the maintenance of traditional hay cut and light aftermath grazing; and the absence of direct fertilisation are related only to the management of the SAC. They are not affected by the location of, for example, housing or employment development.

1.14 Also, the control of invasive species cannot be easily influenced by the planning regime. A Site Improvement Plan for the Oxford Meadows SAC[8] issued by Natural England in December 2014 highlights that the rare Apium repens could be affected by Crassula and other invasive species. However, the Plan does not indicate that the concern of Crassula spreading to the lower areas of Port Meadow could be dealt by control mechanisms directly linked to, or facilitated by new development. Instead, the Plan suggests that these mechanisms need to be identified at the national level. The other requirements are the subject of this report.

[5] https://designatedsites.naturalengland.org.uk/

[6] Originally agreed at a screening workshop for the South East Plan and now available through the following Natural England publication: https://publications.naturalengland.org.uk/publication/5815888603250688

[7] Available at: http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0012845.pdf

[8] Available at: http://publications.naturalengland.org.uk/publication/4942743310696448

1.15 As such, the screening report concluded that maintenance of traditional hay cut and light aftermath grazing, and absence of direct fertilisation could be screened out, as they are related to activities directly at the site, which the Oxford Local Plan 2040 will not affect. The Air Quality Screening Addendum also set out why air quality could be screened out. This Appropriate Assessment therefore focuses on:

- Recreational pressure; and
- Water levels and water quality.

The Oxford Local Plan 2040

1.16 For the HRA of the Oxford Local Plan 2036, Natural England recommended that the effects of the plan be categorised in the form of a schedule. This approach has been adopted for the Oxford Local Plan 2040. This allows policies with no negative effect on European sites to be eliminated (screen out) from further appraisal, so that the appraisal can concentrate on those policies with possible effects.

1.17 The schedule previously applied by the City Council is as follows:

A – Policies or proposals cannot have any negative impact
B – Effects will be addressed in assessments "down the line", including project assessment under Regulation 48
C – Could have an effect, but would not be likely to have a significant (negative) effect (alone or in combination with other plans or projects)
D – Likely to have a significant effect alone and would require an Appropriate Assessment
E – Likely to have a significant effect in combination with other plans or projects and which require Appropriate Assessment of those combinations
F – Likely to have a significant effect, alone or in combination with other plans or projects, but which would not adversely affect the integrity of a European site
G – Likely to have a significant effect, alone or in combination with other plans or projects, and for which it cannot be ascertained that they would not adversely affect the integrity of a European site

1.18 Table 2.2a of the screening report (Appendix A) shows the results of applying the schedule to the Local Plan preferred options, with detailed explanations of the results. Table 1.2 is based on the findings of the screening report and does not repeat the detailed findings. Air Quality impacts are dealt with separately in the Screening Addendum (November 2023).

Table 1.2 Key environmental considerations that could affect the integrity of the Oxford Meadows SAC as a result of policies in the Oxford Local Plan 2040

	Recreational	Hydrological regime	Water quality
1. Vision & Strategy			
S1 Spatial Strategy	D	D	D

S2 Design Code	A	A	A
S3 Infrastructure	A	A	A
S4 Plan Viability	A	A	A
2. A healthy, inclusive city to live in			
H1 Housing requirement	D	D	D
H2 Affordable housing	A	A	A
H3 Affordable housing contributions (student acc.)	A	A	A
H4 Affordable housing contributions (older persons)	A	A	A
H5 Employer-linked affordable housing	A	A	A
H6 Housing mix	A	A	A
H7 Loss of dwellings	A	A	A
H8 HMOs	A	A	A
H9 Location of new student acc.	A	A	A
H10 Linking new academic facilities with provision of student acc.	A	A	A
H11 Homes for travelling communities	A	A	A
H12 Homes for Boat Dwellers	D	A	A
H13 Older persons and other specialist acc.	A	A	A
H14 Self-build and custom housing	A	A	A
H15 Hostels	A	A	A
H16 Boarding school acc.	A	A	A
3. A fair and prosperous city with a globally important role in learning, knowledge and innovation			
E1 Employment Strategy	D	D	D
E2 Warehousing and Storage uses	A	A	A
E3 Affordable workspaces	A	A	A
E4 Community Employment and Procurement Plans	A	A	A
E5 Tourism and short-stay accommodation	A	A	A
4. A green biodiverse city that is resilient to climate change			
G1 Protection of GI	A	A	A
G2 Enhancement and provision of new green and blue features	A	A	A

G3 Provision of new GI features – Urban Greening Factor	A	A	A
G4 Delivering mandatory biodiversity net gain	A	A	A
G5 Enhancing on-site biodiversity	A	A	A
G6 Protecting Oxford's biodiversity	A	A	A
G7 Flood Risk and Flood Risk Assessments (FRAs)	A	A	A
G8 Sustainable Drainage Systems (SuDS)	A	A	A
G9 Resilient design and construction	A	A	A
5. A city that utilises its resources with care, protects the air, water and soil and aims for net zero carbon			
R1 Net Zero buildings in operation	A	A	A
R2 Embodied carbon in the construction process	A	A	A
R3 Retro-fitting existing buildings	A	A	A
R4 Air quality assessments and standards	A	A	A
R5 Land contamination	A	A	A
R6 Soil quality	A	A	A
R7 Amenity and environmental health impacts of development	A	A	A
6. A city of culture that respects its heritage and fosters design of the highest quality			
HD1 Conservation Areas	A	A	A
HD2 Listed Buildings	A	A	A
HD3 Registered Parks and Gardens	A		
HD4 Scheduled Monuments	A	A	A
HD5 Archaeology	A	A	A
HD6 Non-designated heritage assets	A	A	A
HD7 Principles of high-quality design	A	A	A
HD8 Using context to determine appropriate density	A	A	A
HD9 Views and Building Heights	A	A	A
HD10 Health Impact Assessment	A	A	A
HD11 Privacy, daylight and sunlight	A	A	A

HD12 Internal Space Standards	A	A	A
HD13 Outdoor amenity space	A	A	A
HD14 Accessible and adaptable homes	A	A	A
HD15 Bin and bike stores and external servicing features	A	A	A
7. A liveable city with strong communities for all			
C1 Town centre uses	A	A	A
C2 Maintaining vibrant centres	A	A	A
C3 Protection, alteration and provision of local community facilities	A	A	A
C4 Protection, alteration and provision of learning and non-residential institutions	A	A	A
C5 Protection, alteration and provision of cultural venues and visitor attractions	A	A	A
C6 Transport Assessments, Travel Plans and Service and Delivery Plans	A	A	A
C7 Bicycle Parking design standards	A	A	A
C8 Motor Vehicle Parking design standards	A	A	A
C9 Electric Vehicle Charging	A	A	A

Table 1.3 Key environmental considerations that could affect the integrity of the Oxford Meadows SAC as a result of site allocations in the Oxford Local Plan 2040			
	Recreational	Hydrological regime	Water quality
North Infrastructure Area			
NEOAOF (Northern Edge of Oxford Area of Focus	A	A	A
SPN1 Northern Gateway	D	D	D
SPN2 OUP Sports Ground	D	D	D
SPN3 Diamond Place	D	D	D
South Infrastructure Area			
CBLLAOF (Cowley Branch Line and Littlemore Area of Focus)	A	A	A
SPS1 ARC Oxford	A	A	A
SPS2 Kassam Stadium and Ozone Leisure Park	A	A	A
SPS3 Overflow Car Park, Kassam Stadium	A	A	A
SPS4 MINI Plant Oxford	A	A	A
SPS5 Oxford Science Park	A	A	A
SPS6 Sandy Lane Recreation Ground	A	A	A
SPS7 Unipart	A	A	A
SPS Bertie Place Recreation Ground	A	A	A
SPS9 Blackbird Leys Centra Area	A	A	A
SPS10 Knights Road	A	A	A
SPS11 Cowley Marsh Depot	A	A	A
SPS12 Templars Square	A	A	A
SPS13 Land at Meadow Lane	A	A	A
SPS14 Former Iffley Mead Playing Field	A	A	A
SPS15 Redbridge Paddock	A	A	A
SPS16 Crescent Hall	A	A	A
SPS17 Edge of Playing fields, Oxford Academy	A	A	A
SPS18 474 Cowley Road (Former Powell's Timber Yard)	A	A	A
East Infrastructure Area			
MRORAOF (Marston Road and Old Road Area of Focus)	A	A	A
SPE1 Government Buildings and Harcourt House	A	A	A

SPE2 Land surrounding St Clement's Church	A	A	A
SPE3 Headington Hill Hall and Clive Booth Student Village	A	A	A
SPE4 Oxford Brookes University Marston Road Campus	A	A	A
SPE5 1 Pullens Lane	A	A	A
SPE6 Churchill Hospital	A	A	A
SPE7 Nuffield Orthopaedic Centre (NOC)	A	A	A
SPE8 Warneford Hospital	A	A	A
SPE9 Bayards Hill Primary School part playing fields	A	A	A
SPE10 Hill View Farm	A	A	A
SPE11 Land West of Mill Lane	A	A	A
SPE12 Marston Paddock	A	A	A
SPE13 Manzil Way Resource Centre	A	A	A
SPE14 Slade House	A	A	A
SPE15 Thornhill Park	A	A	A
SPE16 Union Street Car Park and 159-161 Cowley Road	A	A	A
SPE17 Jesus and Lincoln College Sports Ground	A	A	A
SPE18 Ruskin College Campus	A	A	A
SPE19 Ruskin Field	A	A	A
SPE20 John Radcliffle Hospital	A	A	A
SPE21 Rectory Centre	A	A	A
Central and West Oxford Infrastructure Area			
NCCAOF (North of City Centre Area of Focus)	A	A	A
SPCW1 West Wellington Square	D	A	A
SPCW2 Land at Winchester Road, Banbury Road and Bevington Road	D	A	A
SPCW3 Land at Manor Place	A	A	A
SPCW4 Canalside Land, Jericho	D	A	A
WEAOF (West End and Botley Area of Focus)	A	A	A
SPCW5 Oxpens	A	A	A
SPCW6 Nuffield Sites	A	A	A

SPCW7 Osney Mead	A	A	A
SPCW8 Botley Road Retail Park	A	A	A

Table 1.4 Key environmental considerations that could affect the integrity of the Oxford Meadows SAC as a result of employment sites in the Oxford Local Plan 2040

	Recreational	Hydrological Regime	Water Quality
Radcliffe Observatory Quarter (Cat.1)	D	D	D
Oxford University Press, Walton St (Cat.1)	D	D	D
69-71 Banbury Road (Cat.2)	D	D	D
228-240 Banbury Road (Cat.2)	D	D	D
Barclay House, 242 Banbury Road (Cat.2)	D	D	D
Mayfield House, 256 Banbury Road (Cat.2)	D	D	D
264 Banbury Road (Cat.2)	D	D	D
265 Banbury Road (BBC Radio Oxford) (Cat.2)	D	D	D
267-269 Banbury Road (Prama House) (Cat.2)	D	D	D
Oxfam House, 274 Banbury Road (Cat.2)	D	D	D
285 Banbury Road (Cat.2)	D	D	D
Cranbook House, 297 Banbury Road (Cat.2)	D	D	D
Lambourne House, 311-321 Banbury Road (Cat.2)	D	D	D
Summertown Pavillion, Middle Way (Cat.2)	D	D	D

2. Recreational Impacts

2.1 Creeping marshwort (Apium repens) is a low-growing plant which is only found in two naturally occurring locations in the UK – Oxford Meadows SAC being one - and which relies on trampling by cattle to enlarge its territory. Natural England has previously confirmed that *A. Repens* is not particularly sensitive to trampling but is sensitive to dog-fouling. The increased population that would be housed in Oxford as a result of the Local Plan 2040 could own dogs, and those dogs could potentially have a significant impact on the integrity of the Oxford Meadows SAC. As such, it could be negatively affected by an increase in Oxford's population, as projected by policy H1; the policy on boat dwellers H13; and some proposed housing sites. It could also be impacted by the potential increase in residential dwellings on the city's employment sites, as set in policy E1; and some proposed development sites.

2.2 Public Consultation undertaken in 2005 by Scott Wilson as part of their 'Oxford City Green Space Study' revealed that residents of Oxford were generally willing to walk approximately 1,900m to large green spaces[9]. As such, where a proposed development site is over 1900m away, the site has been screened out for recreational impacts. Other sites within the 1,900m have been screened out (i.e., student accommodation) as it is only residential development that is likely to lead to an increase in dog-walkers at the Oxford Meadows SAC.

2.3 The Local Plan 2040 introduces into policy E1 an approach whereby, subject to meeting certain criteria, an element of housing can be introduced onto Category 1 and Category 2 employment sites in the city. Having reviewed the Category 1 and 2 sites that fall within 1,900m of the Oxford Meadows SAC, the majority of these are small sites with limited potential for the introduction of additional housing. This is because of the criteria included in the policy to ensure that there is no net loss of floorspace on Category 1 sites and no net loss of jobs (on Category 2 sites. As such the small Category 2 sites within 1,900m of the Oxford Meadows have not been taken forward for further assessment.

2.4 Figure 2.1 and Table 2.1 show those sites proposed in the Oxford Local Plan 2040 where residential development could occur (either those allocated for that purpose in the plan, or employment sites that have the potential to deliver an element of residential development).

[9] At the Thames Basin Heaths SPA – which hosts three species of birds that are sensitive to recreational impacts, notably dogs - visitors arriving on foot were found to tail off rapidly after 1.5km. A correlation of urban development and nightjar (one of the birds) populations was found up to 800m. The Assessor at the Examination in Public for the South East Plan suggested that a pragmatic zone for visitors arriving by foot would be 1km, and visitors arriving by car would be 5km. As such, this analysis in this HRA is quite precautionary compared to a more actively studied SPA affected by recreational visits. Burley P. (2007) Assessor's Report on Thames Basin Heaths SPA and the Draft Delivery Plan.

Figure 2.1: Proposed site allocations in the Oxford Local Plan 2040 within 1,900m of the access points to the Oxford Meadows SAC.

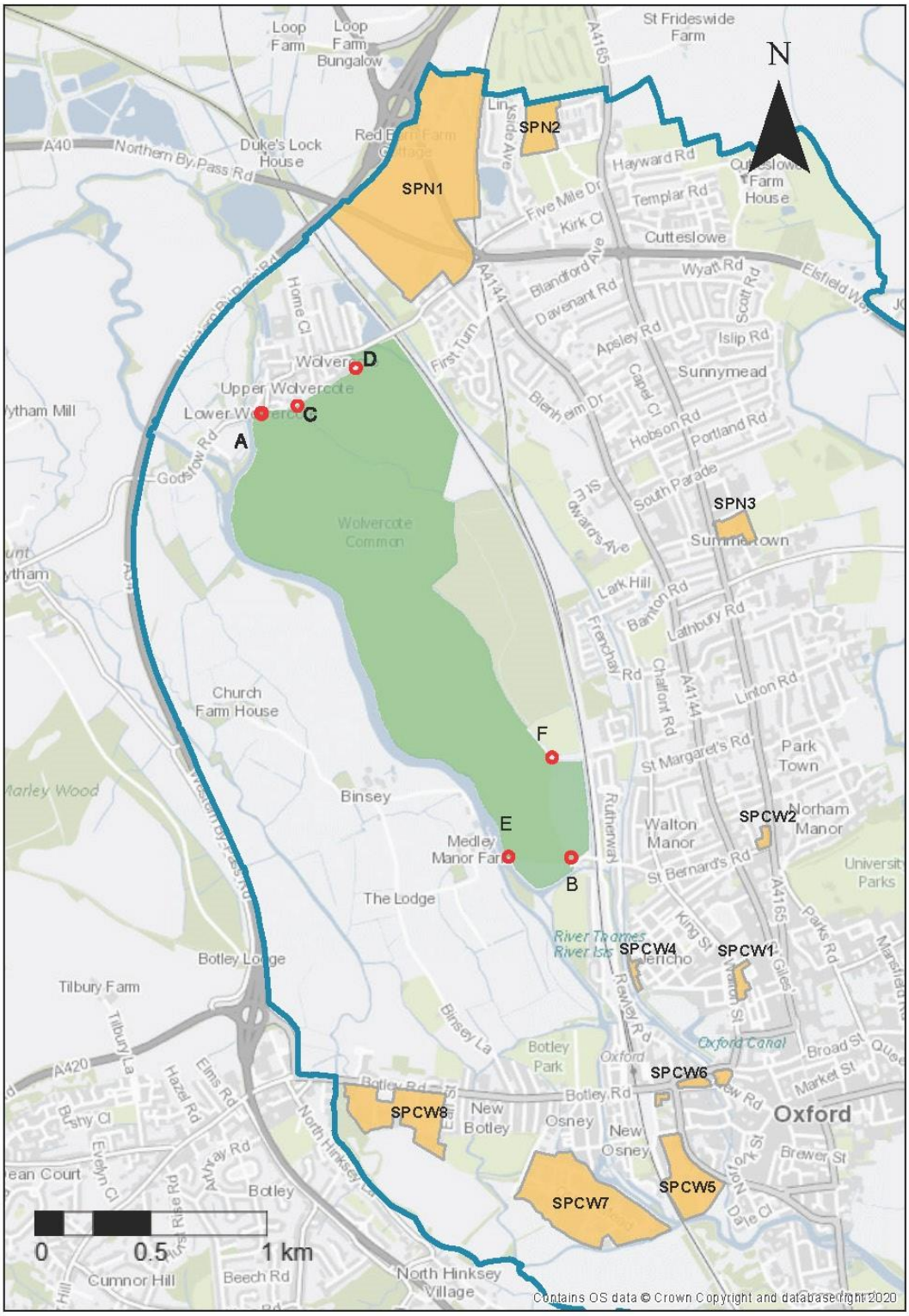

Table 2.1 Residential sites proposed within 1900m of Oxford Meadows SAC

Site Name	Distance from SAC (m)	No. Dwellings	Type of accommodation
SPN1 – Oxford North (Pear Tree Farm) SPN1 – Oxford North (Goose Green)	1300 360	122 20	'residential' 'residential'
SPN2 – Oxford University Press Sports Ground, Jordan Hill	1,060	130	'residential'
SPN3 – Diamond Place & Ewert House	1,240	180	'mixed-use' residential
SPCW1 – West Wellington Square	890	18	'student accommodation' or employer linked affordable housing
SPCW2 - Land at Winchester Road, Banbury Road and Bevington Road	800	52	'student accommodation'
SPCW4 – Canalside Land, Jericho	510	18	'residential' consented capacity
SPCW7 – Osney Mead	1,240	247	'student accommodation'. Due to flood risk issues, student accommodation most likely to come forward at the site.
TOTAL		**830**	

2.5 Several sites were within the 1900m buffer zone but had been screened out. These were sites in the West End (SPCW5 – Oxpens; and SPCW6 – Nuffield Sites). These sites proposed residential development with the potential to deliver an element of student accommodation given their location in the city centre. These sites were screened out because it was considered that there were numerous alternative locations which were more accessible to dog walkers such as Oxpens Meadow, Christchurch Meadow, University Parks, Oatlands Road Recreation Ground,

Botley Park and Grandpont Nature Park, Grandpont Recreation Ground and Hinksey Park. Botley Road Retail Park (SPCW8) was screened out because due to flood risk issues at the site, residential development was not proposed as a potential use in the site allocation.

2.6 As recommended by Natural England, a visitor survey to inform this HRA was carried out on six days in October 2017[10], resulting in 575 interviews. The aim of the survey was to understand how the Oxford Meadows SAC was used by residents of Oxford and by visitors from outside of the city. Appendix 2 shows the results of the visitor survey in full, and they are summarised at Table 2.2. The survey replicates a similar survey carried out in 2011, which resulted in 332 interviews and had broadly similar findings.

Table 2.2 Summary of visitor survey	
Total number of visitors recorded during this survey	1,343
Number of surveyed access points	2
Mean number of visitors per access point	671
Number of hours of surveying per access point	48
Total number of access points to the SAC	6

2.7 In order to interpret the survey data and project the total number of visitors to the site, the calculation shown in Table 2.3 was carried out. The methodology broadly follows that used by Bracknell Forest DC in the Thames Basin Heaths SPA analysis, as recommended by Natural England as best practice.

2.8 Table 2.3 suggests that, as a result of the Oxford Local Plan 2040, the Oxford Meadows SAC could see an increase of 6,851 - 9,130 visits, representing a 1.6-2.1% increase over current numbers. The survey was taken in the only two car parks of the six access points to the SAC, potentially skewing the numbers too high[11].

2.9 It is not visitor numbers however that are the potential problem, but the impact of dog fouling on the *Apium repens.* A 2007 Report[12] estimated that dog ownership in Oxford was a maximum of 24%. The survey results showed that 47% of groups visiting the SAC came with a

[10] At a series of meetings over the course of 2023 Natural England confirmed that the data from the 2017 survey could be re-used to inform the HRA for the Oxford Local Plan 2040.

[11] There are 6 access points to Oxford Meadows, shown at Figure 2.1: A Wolvercote car park; B car park off Walton Well Road, C Godstow Road, D right of way at the entrance to Wolvercote off Godstow Road, E bridge across the river from Binsey, and F bridge at Aristotle Lane. The two car parks (A and B) were used as survey points. This means that the survey results will, if anything, 1. be skewed towards arrivals by car, and 2. overestimate visitor numbers, as larger numbers are likely to arrive via the car parks than via other means.

[12] BMC Veterinary Research Vol. 3 (2007) Article entitled 'Factors associated with dog ownership and contact with dogs in a UK community' www.biomedcentral.com/1746-6148/3/5

dog, and 40% of respondents came with the main purpose of dog-walking. Clearly dog-walkers are more likely to visit the SAC, and probably more likely to visit on a daily basis than other visitors. This would re-balance the numbers in the opposite direction.

2.10 The survey results showed that 47% of groups visiting the SAC came with a dog, and 40% of respondents came with the main purpose of dog walking. Clearly, dog walkers are more likely to visit the SAC, and probably more likely to visit on a daily basis, than other visitors. This would rebalance the numbers above in the opposite direction.

Table 2.3 Projected visitor numbers based on visitor survey

	Calculation/ reference	**Result**	
Total number of visits over survey period	From survey data	A	1,343
Percentage of visits over survey period from within postcode sectors OX1 and OX2[1]	From survey data	B	66.7%
Projected total number of visits per annum	See note 2	C	Max 429,240
Projected total number of visits from within postcode sectors OX1 and OX2 per annum	(C ÷ 100) x B	D	286,423
Population of postcode sectors OX1 and OX2	2011 Census[5]	E	65,138
Projected visits per head from OX1 and OX2 population, per annum	D ÷ E	F	Max 4.4
Projected future population arising from new potential development	See Note 4	G	Max 2,075 Potential to own dogs 1,557
Projected visits per annum arising from projected future population	G x F	H	6,851 - 9,130
% of projected future visits, as it relates to current projected total visits	(H ÷ C)/ 100	I	**1.6 - 2.1%**

Notes:

1. This broadly represents a 1,900m radius around the Oxford Meadows SAC
2. Mean number of visitors per surveyed access point, per hour = 671/48 = 14
   Total active hours in a day (06:00-20:00) = 14
   Projected mean number of visitors per surveyed access point per day = 14 x 14 = 196
   Projected mean number of visitors per surveyed access point, per year = 196 x 365 = 71,540
   If all 6 access points had similar numbers of visitors, then projected total number of visits, per year = 429,240
3. This maximum includes small children, elderly people, etc. the most likely number is less than this.

4. Average household size at the time of the 2021 Census was 2.5. The maximum number of homes proposed (830 from Table 2.3) x 2.5 people per household = 2,075. Removing students and academic employer-linked accommodation (assuming these comprise 25% of new residents), would result in 1,557 future population that could own dogs.

2.11 Student accommodation does not allow pets, so this accommodation can be screened out of the assessment process. It can also be expected that at least some of the employer-linked accommodation provided by the universities would be for visiting academics coming for short periods, and who are also unlikely to have dogs. Roughly 40% of the proposed accommodation is proposed for students or academic employer-linked housing. Additionally, most of the proposed sites are further than 500m from the SAC, reducing the likelihood of their residents regularly using the SAC; other recreational facilities will be available to most of the sites; and the Local Plan 2040 establishes some mitigation measures especially to reduce recreational impacts on the SAC. The subsequent paragraphs consider each of the sites listed in Table 2.1 with respect to these points.

2.12 **SPN1 Oxford North** proposes a total of 142 dwellings. 20 dwellings at Goose Green and 122 dwellings that currently form part of the SP28 – Land at Pear Tree Farm, allocated through the Green Belt review undertaken in support of the production of the Oxford Local Plan 2036. All of the dwellings proposed as part of the Oxford Local Plan 2040 SPN1 Northern Gateway site allocation have been the subject of previous HRA work.

2.13 The HRA for the Northern Gateway AAP assessed three levels of residential development at the Northern Gateway site – 200, 500, and 800 dwellings. The AAP (adopted in 2015) proposed up to 500 dwellings at the site, of which 480 have been granted outline planning permission. Due to the proximity of this site to the Oxford Meadows SAC, mitigation was proposed (as part of the Stage 2 Appropriate Assessment that supported the HRA for the Northern Gateway AAP). The findings of this HRA showed that suitable mitigation for the delivery of 500 dwellings at the Northern Gateway would be to provide an increased level of public open space (15% rather than the usual 10% for qualifying developments). This would make it easier for dog-walkers to have the opportunity to access a more conveniently located alternative public open space than the Oxford Meadows SAC (in particular Port Meadow which is home to the protected creeping marshwort). The additional homes proposed at Goose Green make up the remaining number assessed as part of the HRA for the Northern Gateway AAP (i.e., 500 dwellings).

2.14 The remaining 122 homes proposed for allocation as part of Policy SPN1 Northern Gateway were previously assessed as part of the Oxford Local Plan 2036 HRA. These homes form part of an existing site allocation in the Oxford Local Plan 2036 (Policy SP28 – Land at Pear Tree Farm). Policy SP28 allocated the site for 122 dwellings and included a requirement for 10% open space. There has been no change to the redline boundary for this part of the site. The only change that has happened is that this site now forms part of the Northern Gateway allocation rather than forming its own allocation. Given the change is only in name, the City Council does not consider that a change to the amount of public open space provided under Policy SPN1 is required for these 122 dwellings. As Table 2.1 shows, this site is 1,300m away from the nearest

access point (as the crow flies). As such trips to the SAC would need to be made by private car and as set out above, there are no proposals to increase in the number of parking spaces at the Oxford Meadows SAC.

2.15 The allocation of dwellings at Goose Green are close to an existing access point to the Oxford Meadows SAC. Policy SPN1 therefore provides mitigation in the form of policy wording, that a higher level of public open space provision should be provided for this part of the site. Policy SPN1 states:

> *"The southwest part of the site (Canalside and Goose Green Close) lies less than 500m from the internationally protected Oxford Meadows Special Area of Conservation (SAC). To help protect this site from recreational pressure, a minimum of 15% publicly accessible green open space for the enjoyment and benefit of residents should be provided onsite as part of any residential development in this part of the Northern Gateway. Unless the proposal can demonstrate that the development is not likely to have a significant effect on the Oxford Meadows Special Area of Conservation, the application will be subjected to appropriate assessment under the Habitats Regulations and permission will be granted only if it is ascertained that the development will not adversely affect the integrity of that Special Area of Conservation."*

2.16 **SPN2 OUP Sports Ground** is more than 1km from the site and as the potential to deliver at least 130 new homes if the cricket pitch on-site is re-provided elsewhere. This site is expected to deliver at least 10% of the site as new public open space., which would be usable by not only the residents of the new development but also dog-walkers who currently use the SAC. Alternative exiting provision in the area includes Cuttleslowe Park, which is a more accessible larger recreation area than the Oxford Meadows SAC. Access from the site to Cutteslowe Park is via quiet side-roads, whereas accessing the Oxford Meadows SAC would involve crossing the busy Wolvercote roundabout.

2.17 **SPN3 Diamond Place & Ewert House** is located around 1,200m of the SAC as the crow flies. It would provide at least 180 dwellings. Policy SPN3 includes a requirement for at least 10% public open space to be provided on-site. This site is nearly 2km from the SAC by foot (via Aristotle Lane footbridge) or 3km by car (Walton Well Road car park). Access to the SAC includes crossing the often-busy Banbury and Woodstock Roads. Alternative provision for dog-walkers includes Sunnymead Recreation Ground to the north and the footpath along the River Cherwell to the west are more likely to attract dog-walkers from these sites than the Oxford Meadows SAC.

2.18 **SPCW1 West Wellington Square** is proposed for academic institutional, student accommodation, and employer-linked affordable housing. The plan assumes at least 18 dwellings for the site. As the housing at the site would likely be for students and academics, it is likely to generate limited (if any) dog walking activity. University Park is also more accessible from West Wellington Square than the Oxford Meadows SAC.

2.19 **SPCW2 Land at Winchester Road, Banbury Road and Bevington Road** is located around 800m from the SAC and is proposed for a mix of uses including academic institutional uses, student accommodation, and/or residential development. The site is allocated for at least 52 dwellings. It is likely that the site will come forward for student accommodation which is unlikely to generate any dog-walking activity.

2.20 **SPCW3 – Manor Place** is proposed for student accommodation or car-free residential development. The plan assumes at least 43 dwellings at this site. As it is a small site, it would not be expected to provide public open space. Closer alternative public open space is more easily accessible at locations such as University Parks.

2.21 **SPCW4 – Canalside Land** is for a mixed-use development with a consented capacity of 18 dwellings. It is located 510m from the SAC on an attractive direct route along the canal. Policy SPCW4 sets out that:

- *"Development proposals should be accompanied by an assessment of potential recreational pressure on the immediate setting including the canal towpath and the Oxford Meadows SAC that may arise from increased numbers of visitors, along with plans to mitigate this impact as necessary."*

2.22 **SPCW7 Osney Mead** would provide at least 247 dwellings, which is likely to be a mixture of student accommodation and residential development including employer-linked affordable housing. The site is approximately 1,240m from the SAC. Delivery of student accommodation at the site is unlikely to generate dog walking visits however the delivery of other residential accommodation at the site could. Osney Mead is adjacent to an extensive set of publicly accessible fields heading towards South Hinksey, and access to those fields are likely to be further enhanced through the Oxford Flood Alleviation Scheme. Access to the SAC is possible via a 2km drive up Binsey Lane and then an 800m walk via the Rainbow Bridge, but any future residents are unlikely to do this on a regular basis.

2.23 In addition to Northern Gateway/ Oxford North, there are two further Category 1 employment sites within 1,900m of the Oxford Meadows SAC. These sites are Oxford University Press on Walton Street, and the Radcliffe Observatory Quarter site which is located between Walton Street and Woodstock Road on the former site of the Old Radcliffe Hospital site. Oxford University Press is a publishing company with its offices located in the heart of the city. While Policy E1 provides an opportunity to deliver residential development on category 1 employment sites, neither Oxford University Press nor the Radcliffe Observatory Quarter have a bespoke site allocation. Given the constrained nature of Oxford University Press it is unlikely that residential development would come forward on this site. Any residential development at Radcliffe Observatory Quarter is likely to be either in the form of student accommodation or employer-linked affordable housing. As such, the opportunity for pets (in particular dog ownership) would be limited.

'In-combination impacts'

2.24 Cherwell District Council's adopted Local Plan 2011-2031 Part 1 Partial Review includes a number of development sites allocated to help address Oxford's unmet housing need. Two sites were allocated adjacent to Oxford's administrative boundary, and both within 1,900m of the access points to Port Meadow. These sites, known as PR6a – Land East of Oxford Road; and PR6b – Land West of Oxford Road are allocated for 690 dwellings (PR6a) and 670 dwellings (PR6b) respectively.

2.25 The average household size at the time of the 2021 Census was 2.5. As the total number of dwellings allocated in Cherwell's plan is 1,360, it is likely that this would result in an additional 3,400 residents.

2.26 As can be seen from Table 2.4 the proposed development allocated in the Cherwell District Local Plan 2011-2031 Partial Review could amount to up to 14,690 additional annual visits, representing a 3.5% increase over current numbers. It is worth noting that the survey was taken at the only two access points with car parks (out of a total of the six access points to the SAC). As set out above, this potentially skewed the numbers too high[13].

Table 2.4 In-combination Impacts			
Projected future population arising from 'in-combination impacts'	See paragraph 2.25	J	3,400
Projected visits per annum arising from projected future 'in-combination impacts' population	F x J	K	4.4 x 3,400 = 14,690
% of projected 'in-combination impacts' visits, as it relates to current projected total visits	(K ÷ C)/ 100	L	**3.5%**

2.27 The cumulative impact of the additional visits resulting from the Oxford Local Plan 2040 (6,851 - 9,130 or 1.6-2.1%) and the Cherwell Local Plan 2011-2031 Partial Review (14,690 or 3.5%) equates to between 21,541-23,820 or 5.1-5.6%).

2.28 As part of the Cherwell site allocations some recreation provision is proposed. Policy PR6a includes a requirement for the provision of public open space as an extension to Cutteslowe Park on 11 hectares of land. It is likely that this extension would serve as a more accessible alternative

[13] There are 6 access points to Oxford Meadows, shown at Figure 2.1: A Wolvercote car park; B car park off Walton Well Road, C Godstow Road, D right of way at the entrance to Wolvercote off Godstow Road, E bridge across the river from Binsey, and F bridge at Aristotle Lane. The two car parks (A and B) were used as survey points. This means that the survey results will, if anything, 1. be skewed towards arrivals by car, and 2. overestimate visitor numbers, as larger numbers are likely to arrive via the car parks than via other means.

recreation space for dog-walkers than the Oxford Meadows SAC for both of the Cherwell sites. Given the size and proximity of this recreation provision to the two Cherwell sites, it is considered that this would be suitable recreation provision likely to encourage new residents (in particular, dog-walkers) to use it as an alternative to the Oxford Meadows SAC.

2.29 There is no indication that current visitor numbers have a detrimental effect on the condition of *Apium repens* at the Oxford Meadows SAC. As such recreational impacts (dog fouling) impacts on the Oxford Meadows SAC will be minimal and will not affect the integrity of the SAC.

3. Balanced Hydrological Regime

3.1 "Three main sources of water to the meads have been identified to support the plant communities on the Oxford Meadows SAC. These are direct rainfall, surface water, and groundwater flowing in from outside the area. Any of these sources, or a combination, may contribute to the soil water, which supports the plant communities on the meads"[7].

3.2 HRAs for previous Plans in Oxford ruled out the likelihood of impacts on the SAC from surface water and direct rainfall. Previous HRA work explained that the abstraction license for Farmoor Reservoir did not impact the SAC, and no increases to this abstraction licence are proposed. As such, the amount of surface water is likely to remain the same throughout the Local Plan period.

3.3 The HRA Screening Report for the Draft Drought Plan (2022)[8] for Thames Water confirms that no likely significant effects are anticipated from any of the proposed drought schemes (in particular at Farmoor Reservoir) on the Oxford Meadows SAC, either alone, or in combination with other licenses and consents.

3.4 The Environment Agency's flood alleviation scheme for Oxford, which is likely to consist of enlargement of existing watercourse and/ or creating flood relief channels, may affect the flooding regime of the River Thames. Natural England has stipulated that a key requirement of the Oxford flood alleviation scheme is that it does not have an adverse impact on the Oxford Meadows hydrological regime. This is considered further in the section on 'in-combination' impacts below.

3.5 Figure 3.1, shows the location of the North Oxford gravel terrace in relation to the Oxford Meadows SAC. It should be read in conjunction with Figure 3.2 to provide the locational context of the direction of groundwater movement on the North Oxford Gravel Terrace.

3.6 Figure 3.1 shows the geology of Oxford, including the Oxford Meadows SAC. The salmon pink colouring reaching from the city centre right up through Summertown and beyond to the north represents the North Oxford Gravel Terrace. These deposits are a source of groundwater recharge to the Oxford Meadows. It is recognised that this is not the only source of groundwater recharge, as it is likely that there is a much larger groundwater catchment area that serves the Oxford Meadows.

3.7 Figure 3.2 shows a conceptual model of groundwater flow for Oxford including the area surrounding the Oxford Meadows SAC. Previous HRAs have taken a precautionary approach which assumes that the direction of groundwater flow follows the direction of travel shown here. The model in Figure 3.2 shows that groundwater flows from the city centre away from the SAC. This means that proposed development at sites in this area will not affect the hydrology of the SAC since the direction of travel of the groundwater is away from the SAC.

3.8 Previous HRA work to support the Northern Gateway Area Action Plan (AAP) investigated the issue of connectivity between the North Oxford Gravel Terrace and the Oxford Meadows SAC

and confirmed that there is a large catchment area for groundwater recharge supporting the Oxford Meadows. A full discussion of the catchment area is documented in the HRA for the Oxford Local Plan 2040 dated September 2023.

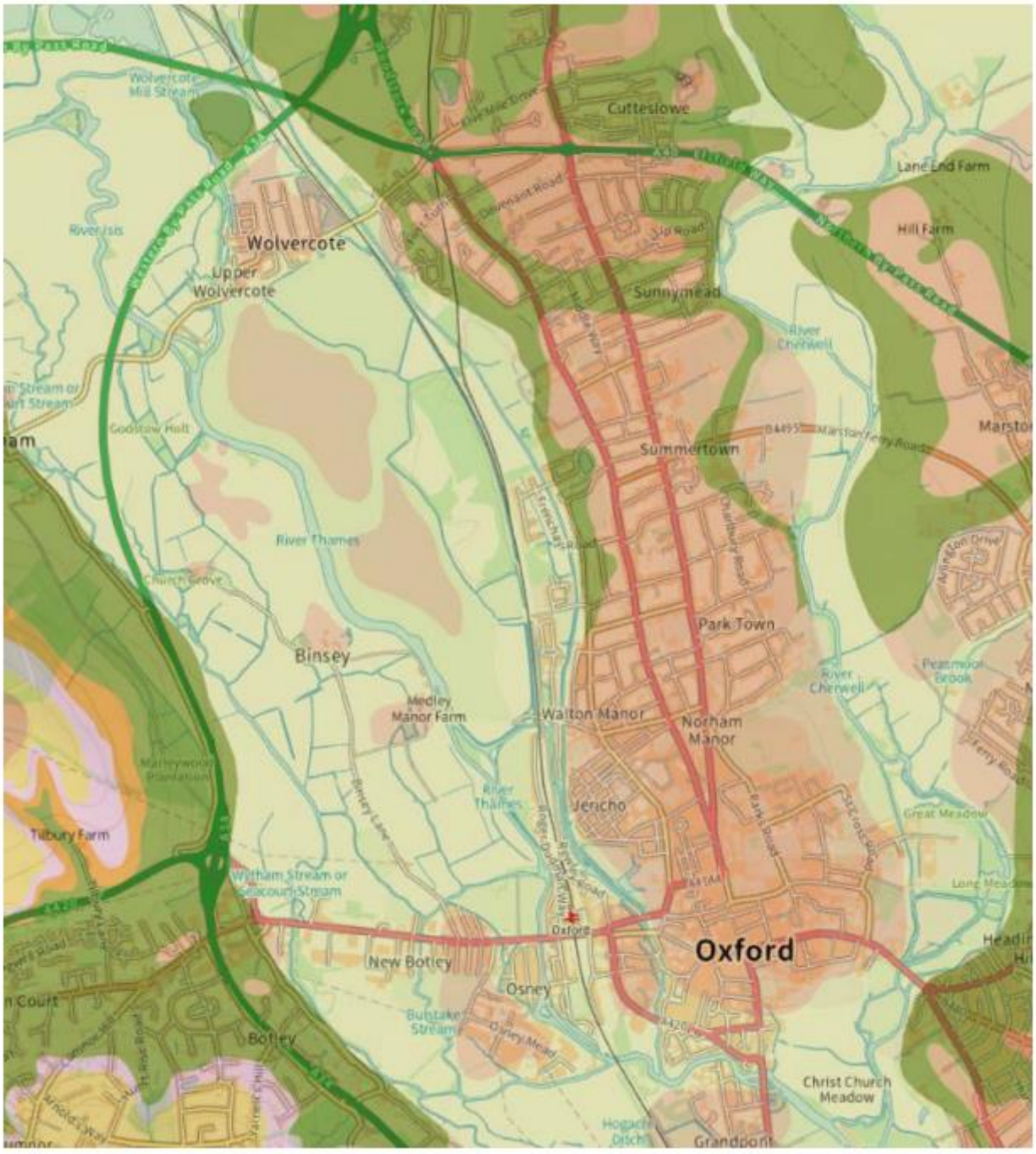

Figure 3.1 Map showing the North Oxford Gravel Terrace and Port Meadow within the context of Oxford (Reproduced with the permission of the British Geological Survey © NERC. All rights Reserved')

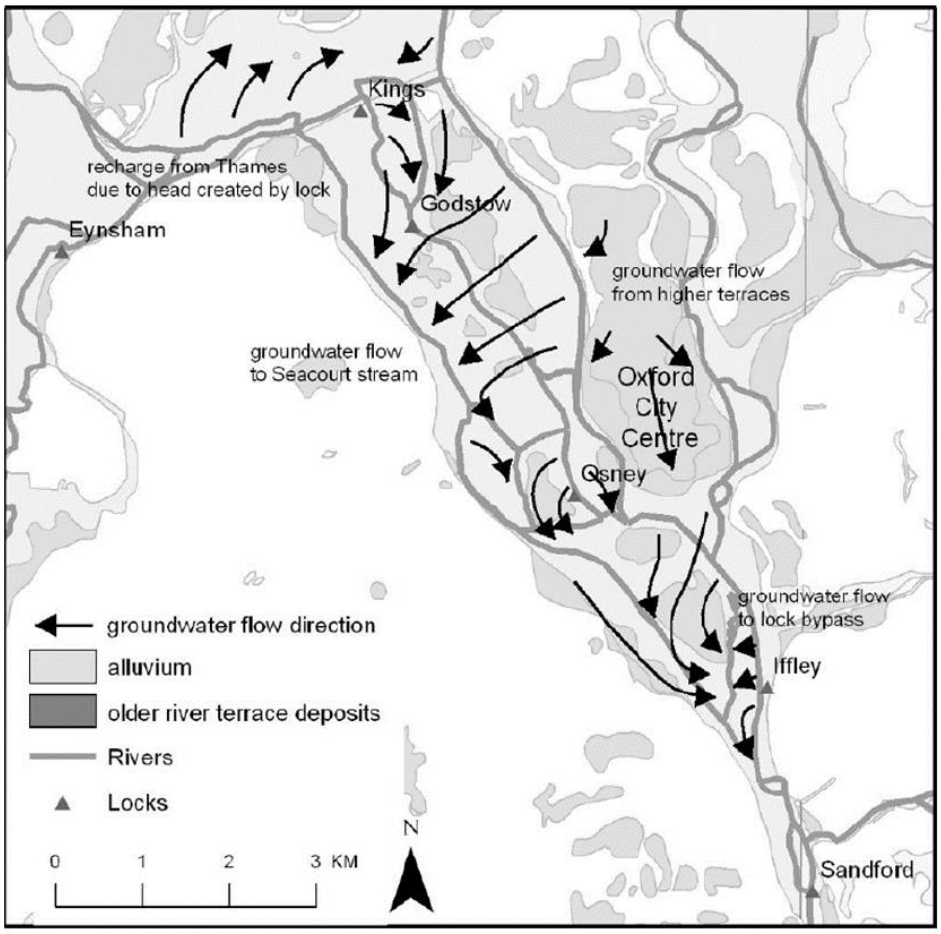

Figure 3.2 Conceptual model of groundwater flow for Oxford (2007) [14]

3.9 Previous HRA work advocated both a generic and a site-specific approach to providing mitigation for this conservation objective. A more holistic approach has been taken in the Local Plan 2040. This is because a wider range of circumstances need to be covered by the approach. For instance, certain employment sites (e.g., Category 2) do not benefit from bespoke site allocations. As such, a more generic approach was considered appropriate. Policy G6 therefore includes the following policy wording:

> *Development will not be permitted that would have an adverse effect on the integrity of the Oxford Meadows Special Area of Conservation (SAC) or an adverse effect on any Site of Special Scientific Interest (SSSI).*

[14] D MacDonald, A Dixon, et al, (2007) Investigating the Interdependencies between surface and groundwater in the Oxford area to help predict to timing and location of groundwater flooding and to optimise flood mitigation measures. Presented at the 42nd Flood and Coastal Management Conference, York, 2007

3.10 It is supported by some additional wording at paragraph 4.39 of the supporting text, which is duplicated here:

> *Areas of the city are potentially vulnerable to changes in hydrology that could arise from development and these impacts will need to be fully considered and mitigated where relevant. For example, Oxford Meadows SAC is potentially sensitive to changes in groundwater flows stemming from development on the North Oxford gravel terrace and new subterranean development on the gravel terrace will need to demonstrate through a hydrogeological assessment that there will be no significant adverse effect upon the integrity of the SAC through changes to groundwater flows.*

In-combination effects

3.11 The Environment Agency's flood alleviation scheme for Oxford, which will create a flood relief channel downstream of the SAC, has the potential to affect the flooding regime of the River Thames. Figure 3.3 shows the scheme in relation to the SAC. However, the scheme is downstream of the SAC, and Natural England has stipulated that a key requirement of the Oxford flood alleviation scheme is that it does not have an adverse impact on the Oxford Meadows hydrological regime. As such, 'in combination' with the Oxford Local Plan, there will not be an impact on the hydrology of the Oxford Meadows SAC.

Figure 3.3 Oxford Flood Alleviation Scheme in relation to the Oxford Meadows SAC ('Port Meadow')

4. Water Quality

4.1 Oxford is located within the River Basin District covered by the Thames River Basin Management Plan[15] (TRBMP). This was last updated by the Environment Agency in 2022. The aim of the River Basin Management Plans is to enhance nature and the natural water assets that are the foundation of everyone's wealth, health and wellbeing, and the things people value including culture and wildlife. The TRBMP describes the challenges that threaten the local water environment in the Thames River Basin District and how these challenges can be managed. It includes data on the condition of the waterbodies within the river basin, with surface waters being assessed for ecological status or potential and chemical status, and groundwaters assessed for quantitative status and chemical status.

4.2 The most recent assessment data available for the waterbodies within Oxford's administrative boundary is from 2019 (Cycle 3 of the River Basin Management Plans) and is summarised in the tables below (Figure 4.1). For reference, the previous condition assessments used in the 2019 study are also shown (these relied on 2016 data from Cycle 2 of the River Basin Management Plans).

Table 4.1 Summary of water body status for main watercourses in Oxford

	2019 Water Cycle study recorded condition		**Current condition assessment data**	
Water Body	**Water Body Ecological status**	**Water Body Chemical Status**	**Water Body Ecological Status**	**Water Body Chemical Status**
Thames (Evenlode to Thame)	Moderate	Fail	Moderate	Fail
Cherwell (Ray to Thames) and Woodeaton Brook	Poor	Good	Poor	Fail
Bayswater Brook	Poor	Good	Poor	Fail
Northfield Brook (source to Thames) at Sandford	Poor	Good	Moderate	Fail

Source: Environment Agency monitoring.

4.3 Water body ecological status is either poor or moderate within the city. This is due to a range of factors including agricultural land practices, invasive species and drought. However, sewage discharge is a major contributing factor to the failure to reach good status in three of the four waterbodies. Sewage discharges by Thames Water into waterbodies are regulated by the Environment Agency (EA) through a series of permits and licences.

4.4 The Oxford City Council Water Cycle Study Scoping Report LP2040 (WCS) includes a detailed discussion about the reasons for the scores attributed to each main watercourse and

[15] https://www.gov.uk/guidance/thames-river-basin-district-river-basin-management-plan-updated-2022

provides suggestions about how and when issues can and should be addressed through the planning system. The overarching message is that any impacts on the quality of water flowing through watercourses in Oxford resulting from development proposals can be satisfactorly addressed through the appropriate use of Sustainable Drainage Systems (SuDS).

4.6 The HRA Screening Document considered that further consideration was needed for the following policies and sites allocations with regard to their potential impacts on the Oxford Meadows SAC.

- S1 – Spatial Strategy
- H1 – Housing Requirement
- E1 – Employment Strategy
- SPN1 Northern Gateway
- SNP2 OUP Sports Ground
- SPN3 Diamond Place and Ewert House
- Category 1 sites (Oxford University Press and Radcilffe Observatory Quarter)
- Category 2 sites (numerous located primarily around Banbury Road, see Table 1.4 for full details)

4.7 Policies S1, H1 and E1 are all overarching policies from which other policies are put forward to deliver. These policies are not likely to have an impact on the SAC. Instead, it is through the development of site allocations employment sites, and windfalls (which make up a source of housing supply in Policy H1, for example) which have a potential to impact the Oxford Meadows.

4.8 Given the range of policies which could be impacted, a more general approach was considered to be appropriate. As set out in section 3 above, Policy G6 provides overarching mitigation to ensure that development proposals will not have an adverse impact on the integrity of the Oxford Meadows.

4.9 As set out above in section 3 of this report, it is groundwater recharge which has the most potential to be impacted upon by developments associated with the Oxford Local Plan 2040. It is therefore important that the quality of any groundwater recharged is maintained. As such, an over-arching policy on Sustainable Drainage Systems has been included in the plan. Policy G8 requires that all development proposals manage surface water through Sustainable Drainage Systems where feasible. The full text of Policy G8 is included below:

> ***Policy G8: Sustainable Drainage Systems (SuDS)***
>
> *All development proposals will be required where feasible to manage surface water through Sustainable Drainage Systems (SuDS).*
>
> *SuDS must be designed in a way that incorporates reuse, infiltration, retention or conveyance methods which utilise natural, green and blue infrastructure rather than*

unnatural, artificial components. Below ground features such as pipe systems or underground attenuation tanks will not be permitted, unless exceptional site conditions justify an alternative approach which has been agreed with the Council. Multi-functionality of SuDS should be maximised in their design, such as where they are incorporated into public open space.

Where a site has potential for contamination, SuDS that rely on infiltration will be discouraged and other suitable methods should be adopted to protect the water environment unless it can be demonstrated that there will be no pathway of contamination.

Surface water runoff should be managed to greenfield runoff rates as close to its source as possible, in line with the following drainage hierarchy:

a) store rainwater for later use; then:
b) discharge into the ground (infiltration); then:
c) discharge to a surface water body; then:
d) discharge to a surface water sewer, highway drain or other drainage system; and finally:
e) discharge to a combined sewer (only in exceptional circumstances).

Details of the SuDS must be submitted as part of a drainage strategy or FRA where required.

A SuDS maintenance plan must be submitted alongside any planning application for minor or major development, demonstrating how SuDS will be managed and remain effective for the lifetime of the development. The plan must clearly explain what maintenance measures will take place, how frequently they will occur and for how long and will be secured by condition.

For major developments, Oxfordshire County Council (as Lead Local Flood Authority) are a statutory consultee, and as such proposals will be expected to be adhere to their SuDS standards.

Developers must separate foul and surface water sewers on all new development. Where opportunities present during works on existing development, including householder extensions, applicants are encouraged to separate existing combined foul and surface water sewer arrangements.

A Foul and Surface Water Drainage Strategy must be provided for all new build residential development of 100 dwellings or more; non-residential development of 7,200m^2 or more; or student accommodation of 250 study bedrooms or more, to demonstrate how foul water and surface water drainage will be managed to reduce run off and improve water quality in line with national policy.

4.10 The inclusion of Policy G6 alongside Policy G8 – Sustaianble Drainage Systems (SuDS), which requires that SuDS are implemented for all development proposals, means that it is unlikely that that the policies in the Oxford Local Plan 2040 will have a significant adverse effect on the integrity of the Oxford Meadows SAC with regard to this ensuring the water quality of groundwater that is recharged within Oxford is maintained.

4.11 It is worth noting that Oxford has one Sewage Treatment Works at Sandford. Thames Water have confirmed that upgrades to the Sandford Sewage Treatment Works are confirmed and are likely to take place in the first half of the plan period. Thames Water confirmed that these works are fully funded and costed and are not impacted by any external factors as they are scheduled to take place with the most recent Asset Management Plan cycle of projects.

'In-combination' effects

4.11 The other authorities' Water Cycle Studies for this current local plan cycle are at various stages of production. As such, Water Cycle Studies to complement the most recent plan stages are not always available. Table 4.2 sets out the most recent Water Cycle Studies for each local authority. Each Water Cycle Study presents where there are potential flow capacity or treatment issues for Wastewater Treatment Works (WWTW) in the respective districts. Of the other Oxfordshire authorities, only Cherwell has produced a Water Cycle Study for their most recent Local Plan. The other Oxfordshire authorities Water Cycle Studies are related to their current adopted plans (rather than their emerging plans).

Table 4.2 Oxfordshire local authority water cycle studies

Local authority	Date of WCS	Weblink for WCS
Cherwell	January 2023	https://www.cherwell.gov.uk/info/112/evidence-base/848/local-plan-review---environmental-and-energy-evidence/9
South Oxfordshire	November 2014	http://www.southoxon.gov.uk/sites/default/files/Water%20Cycle%20Study%20Phase%20I%20-%20S%20Oxfordshire%20District%20Council.pdf
Vale of White Horse	March – September 2017	http://www.whitehorsedc.gov.uk/java/support/dynamic_serve.jsp?ID=923019311&CODE=923CCD62AAE90D5E9096D81C78BCF194 + addendum http://www.whitehorsedc.gov.uk/java/support/dynamic_serve.jsp?ID=923019312&CODE=923CCD62AAE90D5EF95E0A4D92A16B54 + update http://www.whitehorsedc.gov.uk/java/support/dynamic_serve.jsp?ID=923019312&CODE=923CCD62AAE90D5EF95E0A4D92A16B54
West Oxfordshire	November 2016	https://www.westoxon.gov.uk/media/1572197/ENV11-West-Oxfordshire-Water-Cycle-Study-Phase-1-Scoping-Study-November-2016-.pdf

4.12 Each Water Cycle study highlights where there are potential issues at WWTW in the respective districts. For instance, in Cherwell District Council there are potential capacity issues at four out of the twenty-five assessed WWTW, which will require intervention during the plan period. As set out above, the data for the other districts is historical and shows the situation for their adopted plans. It is included here for completeness. In South Oxfordshire there were concerns about fifteen of the sixteen WWTWs. In the Vale of the White Horse, ten out of thirteen WWTWs would need upgrading to accommodate the levels of development proposed. Finally historical data from West Oxfordshire showed that the Cassington WWTW required upgrading to accommodate the level of growth proposed.

4.13 However these constraints are being taken into account by the local authorities, in discussions with Thames Water, and are not expected to act 'in-combination' with the Oxford Local Plan 2040.

5. Conclusions

5.1 This HRA concludes that the Oxford Local Plan 2040 will not affect the integrity of the Oxford Meadows SAC through recreational (dog fouling) impacts, impacts on water levels or quality.

Appendix 1: HRA Screening Report and HRA Screening Addendum – Air Quality

Both documents are available online at the following weblink:

https://www.oxford.gov.uk/info/20067/planning_policy/1460/oxford_local_plan_2040/9

Appendix 2: Oxford Meadows SAC Visitor Survey Report

OXFORD MEADOWS SAC VISITORS SURVEY REPORT

INTRODUCTION

A visitor survey of Oxford Meadows was commissioned to understand how the site is currently used by the population of Oxford and by visitors from outside of the city.

METHOD

Through discussions with Natural England and investigations of best practice examples, an on-site visitor survey questionnaire was designed.

The survey was carried out:

- on 6 days including a range of weekend and weekday dates (20 Oct. 2017, 21 Oct. 2017, 23 Oct. 2017, 30 Oct. 2017, 31 Oct. 2017, 02 Nov. 2017)
- both within and outside of the school October half term
- during four 2-hour periods each day (07:00-09:00, 10:00-12:00, 13:00-15:00, 16:00-18:00)
- at two locations (one to the north at the Wolvercote car park off Godstow Road, and one to the south at the car park off Walton Well Road)

The survey questionnaire asked a series of 11 questions:

About you:

- Question 1: How many adults, children and dogs make up your group?
- Question 2: Which postcode have you travelled from to visit this site?
- Question 3: Which best describes you?

About today's visit:

- Question 4: How did you get here today?
- Question 5: How long have you spent / will you be spending here today?
- Question 6: What is the main purpose of your visit today?

About other visits:

- Question 7: How often do you visit this site?
- Question 8: Do you tend to visit this site at a certain time of day?
- Question 9: What time of year do you visit this site?
- Question 10: Aside from this location do you visit any other places for similar purposes?
- Question 11: What facilities do you think are important to your enjoyment of open spaces in the Oxford area?

RESULTS

575 interviews were conducted, comprising a total of 933 visitors. The visitor log recorded a further 410 visitors who were not interviewed. As a total, 1343 people visited the site during the survey.

Question 1: Size of group as percentage of all interviews (575); and percentage of all interviews (575) with 1 or more dogs

	1 person	2 people	3 people	4 people	5+ people
TOTAL	60%	29%	5%	4%	2%

with dog
47%

Age of visitors, as percentage of responses given (933 visitors)

	Under 18	18-40	41-65	65+
TOTAL	13.2%	38.2%	32.4%	16.3%

Question 2: Postcode of visitor origin, as percentage of responses given (568)

Oxfordshire	**%**	**Outside Oxfordshire**	**%**	**Outside UK**	**%**
OX1	11.6	HA4	0.2	Germany	0.2
OX2	55.1	BH8	0.2	Indonesia	0.2
OX3	4.0	TN30	0.2	Italy	0.2
OX4	5.8	DY13	0.2	New Zealand	0.2
OX5	6.3	HP18	0.7	South America	0.2
OX7	0.2	BN16	0.2	Spain	0.2
OX9	0.2	NW3	0.2	Sweden	0.2
OX11	0.2	HG4	0.2	Switzerland	0.2
OX12	0.7	SN7	0.2	USA	0.9
OX13	1.2	W2	0.2	**TOTAL**	**2.3**
OX14	0.7	IP12	0.2		
OX15	0.2	NN13	0.2		
OX17	0.5	B90	0.2		
OX18	0.5	CB22	0.2		
OX20	0.4	RH15	0.2		
OX25	0.5	NW9	0.2		
OX26	1.1	HA8	0.2		
OX27	0.4	PL6	0.2		
OX28	0.4	EH10	0.2		
OX29	0.5	SM8	0.2		
OX33	0.4	GL56	0.2		
OX44	0.4	CO4	0.2		
TOTAL	**91.2**	W3	0.2		
		N13	0.2		
		SN6	0.4		
		PO18	0.2		

NN4	0.2
SM6	0.2
N4	0.2
GL52	0.2
RG4	0.2
SE3	0.2
TOTAL	**6.5**

Question 3: Resident or visitor, as percentage of responses given (927)

	Permanent resident of Oxford	Temporary resident of Oxford	Resident elsewhere in Oxfordshire	Visitor/ Holiday maker
TOTAL	66.5%	8.5%	12.2%	12.8%

Question 4: Mode of travel to arrive at site, as percentage of responses given (913)

	Walk	Cycle	Bus	Car	Other
TOTAL	43.3%	4.9%	1.4%	43%	7.3%

Question 5: Length of visit, as percentage of responses given (919)

	Less than 1 hour	1-2 hours	2-3 hours
TOTAL	61.8%	33.5%	4.7%

Question 6: Purpose of visit, as percentage of responses given (1007)

	Dog walking	Walking	Jogging/ running	Cycling	Family outing	Nature	Other
TOTAL	40.3%	35.3%	8.9%	2.6%	3.2%	2.9%	6.9%

Question 7: Frequency of visit(s), as percentage of responses given (845)

	Daily	Weekly	Monthly	Occasionally	N/A
TOTAL	23.8%	55.7%	9.5%	6.5%	4.5%

Question 8: Time(s) of visit(s), as percentage of responses given (1121)

	Before 09:00	09:00-12:00	12:00-14:00	14:00-16:00	After 16:00	Don't know/ first visit
TOTAL	15.9%	23.3%	17.6%	22%	17.8%	3.4%

Question 9: Season(s) of visit(s), as percentage of responses given

	Year-round	Spring	Summer	Autumn	Winter
TOTAL	79.9%	3.9%	5.6%	7.7%	3.1%

Question 10: Other site(s)/area(s) visited for similar purpose(s), and number of independent mentions (570)

Site/ Area	# of mentions	Site/ Area	# of mentions
University Parks	179	Kidlington	2
Shotover	62	Other nature reserves	2
Canal Towpath	51	Otmoor	2
Cutteslowe Park	48	Sunnymead	2
Christchurch Meadow	38	Trap Grounds	2
Wytham Woods	27	Wolfson College	2
Thames Path	18	Bagley Woods	1
Blenheim Palace	16	Berinsfield	1
South Park	15	Bernwood Forest	1
Stratfield Brake	10	Bicester	1
Boars Hill	6	Botley Road Nature Reserve	1
Burgess Field	6	Brasenose Woods	1
Hinksey Park	6	Donnington Bridge	1
Wolvercote	6	Grandpont Nature Reserve	1
Florence Park	5	Godstow	1
Headington	5	Hog Acres Common	1
Marston Meadows	5	Islip	1
Aristotle Park	4	Monk's Way	1
Binsey	4	Nuneham Courtney	1
Botanical Gardens	4	Oriel College Fields	1
Farmoor Reservoir	4	Osney	1
Iffley	4	Sandford Lock	1
Thrupp	4	South Oxfordshire	1
Eynsham	3	The Kidneys	1
Other parks in Oxford	3	Wantage	1
Abbey Meadows	2	Willow Walk	1
Cumnor	2	Wittenham Clumps	1

Question 11: Rating of importance of individual factors in enjoyment of open spaces in Oxford area, as percentage of responses given (V : very important / Q : quite important / N : not important)

	Park furniture			Litter bins			Dog bins		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	20.2%	26.4%	53.4%	67.4%	18.8%	13.8%	71.2%	7.4%	21.4%
	Information boards			Car-parking			Cycle parking		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	21.8%	42%	36.3%	45.4%	8.3%	46.3%	28.7%	21.6%	49.7%

	Toilets			Signposted paths			Well-maintained paths		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	39.9%	20.9%	39.2%	28.3%	31.6%	40.1%	43.9%	33.7%	22.5%

	Length/ variety of paths			Accessibility			Views		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	38.7%	35.9%	25.4%	27.8%	17.8%	54.4%	91.5%	6.2%	2.2%

	Wildlife/ biodiversity			Habitat variety			Access to water		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	92.6%	5.7%	1.7%	88.8%	9.2%	2.1%	77.0%	12.8%	10.2%

	Feeling of safety			Quietness			Dog freedom		
	V	Q	N	V	Q	N	V	Q	N
TOTAL	77.2%	17.3%	5.5%	69.6%	25.2%	5.2%	56.1%	4.8%	39.0%

ANALYSIS

In order to interpret the survey data and project the total number of visitors to the site the following calculation was carried out. The methodology broadly follows that used by Bracknell Forest DC in the Thames Basin Heaths SPA analysis as recommended by Natural England as best practice.

	Calculation and/ or reference	Result	
Total number of visits over survey period	Taken from survey data	A	1,343
Percentage of visits over survey period from within postcode sectors OX1 and OX2	Taken from survey data	B	66.7%
Projected total number of visits, per annum	See Table 1 below	C	429,240
Projected total number of visits from within postcode sectors OX1 and OX2, per annum	(C/100) x B	D	286,423
Population of postcode sectors OX1 and OX2	Taken from 2011 Census	E	65,138
Projected visits per head of OX1 and OX2 population, per annum	D/E	F	4.4
Projected future population arising from new potential development	See Table 2 below	G	2,075
Projected visits per annum arising from projected future population	G x F	H	9,130
% of projected future visits, as it relates to current projected total visits	(H/C) x 100	I	**2.1%**
Projected future population arising from 'in-combination impacts'	See Table 3 below	J	3,400
Projected visits per annum arising from projected future 'in-combination impacts' population	F x J	K	14,690
% of projected 'in-combination impacts' visits, as it relates to current projected total visits	(K/C) x 100	L	**3.5%**
% of projected 'alone' and 'in-combination impacts' visits as it relates to current total projected visits			**5.6%**

Table 1

Total number of visitors recorded during this survey	1,343
Number of surveyed access points	2
Mean number of visitors per surveyed access point	671
Number of hours of surveying per access point	48
Mean number of visitors per surveyed access point, per hour	14
Total active hours in day (06:00 – 20:00)	14
Projected mean number of visitors per surveyed access point, per day	196
Projected mean number of visitors per surveyed access point, per year	71540
Total number of access points to the SAC	6
Projected total number of visitors per year to the SAC	**429420**

Table 2: - Local Plan 2040 'alone' impacts

Site	Number of units	Number of residents
Oxford Local Plan 2040 (sites within 1,900m of SAC)	830	2,075

Table 3 – Local Plan 2040 'in-combination impacts'

Site	Number of units	Number of residents
Cherwell DC sites (within 1,900m of SAC)	1,360	3,400

POINTS TO BE NOTED

The interviews were conducted in autumn and visitor access patterns may, as a consequence, be different when compared to the rest of the year. The surveys included the school half term period in order to reflect the difference between school holidays and term-time.

The data shows that dog walkers visit more frequently than other users, many of them walking daily on the same site. As dogs need exercising on a daily basis, the dog walkers interviewed are therefore likely to represent a relatively constant sample of visitors, and usage would be likely to be similar throughout the year. During the winter, the proportion of dog walkers to other users may well be higher as the numbers of people cycling, picnicking, etc., would likely be less.

There are 6 access points to Oxford Meadows (via the Wolvercote car park; via the right of way at the entrance to Wolvercote off Godstow Road; via Godstow Road; via the bridge at Aristotle Lane; via the bridge across the river from Binsey; and via the car park off Walton Well Road). The two survey points that were selected are both car parks and so it is possible that the survey results are slightly skewed towards arrivals by car – although this does not seem to be particularly evident for the southern access point that was surveyed.