High Peak Local Plan Revised Preferred Options draft

Habitats Regulations Assessment
Draft version

Prepared for:
High Peak Borough Council

Prepared by:
ENVIRON
Exeter, UK

Date:
March 2014

Project or Issue Number:
UK18-18153

ENVIRON

Contract No:	UK18-18153
Issue:	2
Author (signature):	Charissa Poynton 
Project Manager/Director (signature):	Lesley Vining 
Date:	25 March 2014

This report has been prepared by ENVIRON with all reasonable skill, care and diligence, and taking account of the Services and the Terms agreed between ENVIRON and the Client. This report is confidential to the client, and ENVIRON accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by ENVIRON beforehand. Any such party relies upon the report at their own risk.

ENVIRON disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the Services.

Version Control Record

Issue	Description of Status	Date	Reviewer Initials	Author Initials
1	Draft	28 Feb 2014	LV	CYP
2	Final version	25 March 2014	LV	VP

Contents

List of Tables

Appendices

(provided as a separate document)

Executive Summary

This report presents the interim findings of the Habitats Regulations Assessment (HRA) of the Revised Preferred Options version of the High Peak Local Plan. This version will form the basis of the Submission version of the Local Plan.

HRA is required under the EU Habitats Directive (92/43/EEC) for any proposed plan or project which is likely to have a significant effect on one or more European sites and which is not necessary for the conservation management of those sites. European sites contribute to the protection of habitats and species of high nature conservation importance within the European Community. They include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). National planning policy also recommends that Ramsar sites should be afforded the same level of consideration as SPAs and SACs. The purpose of HRA is to determine whether or not significant effects are likely and to suggest ways in which they could be avoided. The High Peak Local Plan may only be adopted by the Council once it has determined that it will not adversely affect the integrity of any European sites.

The High Peak Local Plan sets out a spatial vision to guide development across the Plan Area up to 2031. It includes 7 Strategic policies, 10 Environmental Quality policies, 7 Economic policies, 7 Housing policies, 7 Community Facilities policies and 17 specific site allocations policies.

In February 2013 a Draft HRA Report was published for public consultation alongside the Preferred Options version of the Local Plan. That report concluded that one or more potential 'likely significant effects' (LSEs) could occur as a result of the Local Plan on the European sites shown in Table A, and these potential LSEs were progressed to the 'appropriate assessment' (AA) stage of the HRA process. Initial AA work, included in the Draft HRA Report, concluded that the Local Plan did not result in adverse effects on the South Pennine Moors Phase 2 SPA, so that European site was not considered further.

Table A. European sites for which potential likely significant effects were identified as a result of the High Peak Local Plan

SPAs	SACs
Peak District Moors (South Pennine Moors Phase 1)	South Pennine Moors
South Pennine Moors Phase 2	Peak District Dales

The edits to the High Peak Local Plan between the Preferred Options and Revised Preferred Options versions were re-screened in January 2014. Where it was concluded that an edit to the Local Plan had a material impact on the conclusions of the HRA screening, the change was taken into account in the AA of the appropriate issue.

The Revised Preferred Options version of the Local Plan has been subject to the next stage of HRA, Appropriate Assessment (AA).

This report presents the results of an AA of whether or not each of the potential LSEs identified during the screening stage could result in adverse effects on the integrity of any of the European sites.

At this stage, adverse effects could not be ruled out on the following European sites:

Peak District Moors (South Pennine Moors Phase 1) SPA

- Possible urban effects from development close to the site;
- Possible air quality effects from operation of employment development close to the site; and
- Possible effects of wind turbine development on designated birds.

South Pennine Moors SAC

- Possible urban effects from development close to the site; and
- Possible air quality effects from operation of employment development close to the site.

Peak District Dales SAC

- Possible urban effects from development close to the site;
- Possible air quality effects from operation of employment development close to the site; and
- Possible water quality effects on phosphate levels in the River Wye from housing development in Buxton

Mitigation measures have been suggested for the majority of the remaining potential adverse effects identified. Particularly in the case of water quality in the River Wye (part of the Peak District Dales SAC), we have recommended that a form of mitigation be proposed by the High Peak Borough Council, discussed and agreed with Natural England (and any other relevant organisations), and included within the Local Plan. Mitigation measures should be such that once the mitigation is included in a revised Appropriate Assessment, it will be possible to conclude that no adverse effects will occur on any European site as a result of the High Peak Local Plan.

1 Introduction

1.1 This Report

This document reports the draft findings of the Habitats Regulations Assessment (HRA) of the Revised Preferred Options version of the High Peak Local Plan. It is intended that the text of the Revised Preferred Options version will form the Submission version of the High Peak Local Plan.

1.2 The need for Habitats Regulations Assessment (HRA)

Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna, commonly known as the 'Habitats Directive,' provides for the protection of habitats and species of European Community importance. Article 2 of the Directive requires the maintenance (or restoration), at favourable conservation status, of habitats and species of European Community interest. This is partly implemented through a network of protected areas referred to as 'Natura 2000 sites' (N2K), or 'European sites', consisting of:

- Special Areas of Conservation (SACs) - designated under the Habitats Directive[1];
- Special Protection Areas (SPAs) - designated under the Wild Birds Directive[2].

'Ramsar sites', designated under the Ramsar Convention 1971, are treated by UK Government policy as if they were European sites in terms of the protection and management afforded to them. They should be included in assessment, where relevant.

Article 6(3) of the Habitats Directive requires 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."

This requirement is implemented in domestic English law through The Conservation of Habitats and Species Regulations 2010, with Regulation 102 setting out the obligations of the Directive's Article 6 placed upon local plan-making authorities:

102 (1) Where a land use plan –

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

(b) is not directly connected with or necessary to the management of the site,

the plan-making authority 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.

(4) In the light of the conclusions of the assessment, and subject to regulation 103 (considerations of imperative reasons of overriding public interest), the plan-making authority… must give effect to the land use plan only after having ascertained that it will

[1] Council Directive 94/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive')

[2] Council Directive 79/409/EEC on the conservation of wild birds. The 'Wild Birds' Directive.

not adversely affect the integrity of the European site or the offshore European marine site (as the case may be).

Undertaking of these particular requirements is often termed a 'Habitats Regulations Assessment'.

The purpose of an HRA is to assess the significance of potential impacts of a plan on relevant European sites. The assessment should determine whether the plan would adversely affect the integrity of the site in terms of its nature conservation objectives. Where negative effects are identified, other options should be examined to avoid any potential for damaging effects.

2 The High Peak Local Plan

High Peak Borough Council has prepared a Local Plan as a replacement for the discontinued Joint Core Strategy with Derbyshire Dales District Council. The Local Plan is now at the Submission version stage, which it is intended will be based on the text of the Revised Preferred Options version of the High Peak Local Plan.

Like the Core Strategy, the new High Peak Local Plan will provide strategic planning guidance on matters such as housing, employment, the natural and historic environment, transport and retail. In addition, the new High Peak Local Plan will also include details of specific sites identified for future development or protection. The new Local Plan will cover the period up to 2031.

The Local Plan Area is shown in Figure A1 in Annex A.

The Local Plan has been prepared using comments provided by the public and other stakeholders and assessment work relating to HRA and Sustainability Appraisal. The Revised Preferred Options version of the Local Plan consists of 57 policies which have been subject to HRA: either HRA screening; or full Appropriate Assessment (AA), the results of which are presented within this report.

3 Methodology and European sites

3.1 HRA Methodology

An outline of the overall HRA process in accordance with current guidance[3,4,5] is set out below.

Stage 1: Screening for likely significant effects

- Identify European sites that should be considered in the appraisal;
- Gather information about the European sites;
- Discretionary consultation with statutory nature conservation body (Natural England) on the list of European sites, method and scope of screening;
- Screen the plan for likely significant effects (LSEs)[6] on a European site, including the potential for effects in combination with other plans or programmes;
- Apply mitigation measures, in order to avoid potential effects;
- Rescreen the plan after mitigation measures applied; and
- Prepare a draft record of the HRA (HRA Screening report).

If it can be determined, taking into consideration the mitigation measures, on the basis of objective information, that there will be no significant effects on any European sites then the HRA process may stop here.

If significant effects cannot be ruled out (applying the precautionary principle), then the effect must be reported as likely, and the HRA must progress to Stage 2: Appropriate Assessment. Section 4 presents the results of the screening that was undertaken for this HRA, with the detailed screening table in Annex C.

LSEs have been identified as a result of the High Peak Local Plan and therefore the HRA process has progressed to Stage 2: Appropriate Assessment.

Stage 2: Appropriate assessment

- Undertake an appropriate assessment in view of the conservation objectives of the European site(s);
- Apply mitigation measures until there is no adverse effect on site integrity;

---

[3] Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland v2.0 (David Tyldesley and Associates; August 2012) Note although this guidance was originally prepared for Scottish Natural Heritage it is recognised as an authoritative source of guidance throughout the UK

[4] The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulators and land/marine managers (DEFRA; December 2012)(Draft for public consultation)

[5] European Commission: 'Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (European Communities, 2002)

[6] The accepted meanings of 'likely' and 'significant' in the context of HRA come from the European Court of Justice (ECJ) ruling on 7 September 2004. Case C-127/02 Waddenzee cockle fishing. 'Likely' - "if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site…": 'significant' – "Where a plan or project has an effect on that site but it is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on that site."

- Consult Natural England (and other stakeholders and the public if appropriate) on the HRA;
- Screen any amendments for likelihood of significant effects and carry out appropriate assessment if required.
- Re-consult Natural England if necessary on amendments; and
- Complete and publish final HRA Report.

Should the situation arise where there were no alternative solutions and adverse impacts remain, then the plan could only proceed if it meets the test of Imperative Reasons of Overriding Public Interest (IROPI test), and all necessary compensatory measures are secured. However, it should be noted that the guidance states that this should only be undertaken in exceptional circumstances, and to date no UK plan has reached this stage.

The HRA process is iterative and should be revisited as policies develop, in response to consultation and as more information becomes available. This report is a draft HRA Report. The final HRA Report will be published once the Council has responded to the mitigation measures set out in Section 10 at which point the final conclusions of the HRA can be made.

3.1.2 In-combination effects

The potential for in-combination effects from activities within neighbouring areas to the Plan Area has been considered within the AA. Specific neighbouring authority plans have been considered including those prepared by the Peak District National Park Authority, Greater Nottingham Councils, High Peak Borough Council and Stockport Council. The two issues of air quality (see Section 5) and recreational pressure (see Section 6) considered in-combination effects by assuming increases in people / traffic across the region, rather than increases only from the Plan Area.

In a consultation response to the High Peak Local Plan Draft HRA Report (February 2013), Stockport Council suggested that their Local Plan HRA should be reviewed. This has been undertaken and no cross-boundary issues have been identified that required further consideration.

3.2 The Identified European sites

The European sites considered in the AA phase of this HRA Report are listed in Table 3.1 and shown in Figure A1 in Annex A. The draft HRA Report, which included a screening stage and initial AA work, was published for consultation alongside the Local Plan Preferred Options in February 2013. In its response to that consultation, Natural England confirmed that the HRA had identified the European nature conservations sites that are likely to be affected by the preferred allocation options[7]. The conclusion of the February 2013 draft HRA report was that adverse effects were not expected to occur as a result of the Local Plan on the South Pennine Moors Phase 2 SPA, and therefore that site is not considered further in this HRA report.

Table 3.1: European sites considered in the Appropriate Assessment of the High Peak Local Plan

[7] John King, Natural England, Consultation response dated 22 April 2013, by email

SPAs	SACs
Peak District Moors (South Pennine Moors Phase 1)	South Pennine Moors
	Peak District Dales

Detailed information relating to the reasons for designation of the sites, their conservation objectives, requirements to maintain favourable condition status of the site and the key factors affecting site integrity are all set out in Annex B. A brief description of each site, providing information to inform the assessments, is given below. The information regarding the sites has been obtained from the following sources:

- Peak District Core Strategy Habitats Regulations Assessment Screening Report (April 2009);
- ENVIRON Derbyshire Dales and High Peak Joint Core Strategy Draft HRA Report May 2010;
- JNCC website: http://www.jncc.gov.uk/; and
- Natural England.

3.2.1 Peak District Moors (South Pennine Moors Phase 1) SPA

The South Pennine Moors SPA (including the proposed extension to encompass Eastern Peak District Moors SSSI) includes the major moorland blocks of the South Pennines from Ilkley in the north to Leek and Matlock in the south. There are two SPA sites on the South Pennine Moors: the South Pennine Moors Phase 2 SPA (to the north of the Peak District National Park boundary); and the Peak District Moors (South Pennine Moors Phase 1) SPA, (to the south and largely within the Peak District National Park). Adverse effects on the Phase 2 SPA have been ruled out (see previous Draft HRA Report[8]) and therefore this report only considers the Phase 1 SPA site. It covers extensive tracts of semi-natural moorland habitats including upland heath and blanket mire. The site is of European importance for several upland breeding species, including birds of prey and waders. Both Merlin and Golden Plover spend some of their time feeding outside the SPA on adjacent areas of in-bye land.

The following factors affect the integrity of the sites:

- Maintenance of habitats on site;
- Maintenance of bird feeding areas outside the site (avoidance of agricultural intensification), in particular Golden Plover;
- Ground nesting birds - Maintaining low levels of disturbance and predation, i.e. where humans, dogs and predators are. Management of human access should direct disturbance away from sensitive areas;
- Wet heaths - Maintaining hydrological conditions. Water quality, including lack of eutrophication and maintenance of oligotrophic character;
- Avoidance of fires;

[8] ENVIRON UK Ltd (February 2013) Habitats Regulations Assessment of the High Peak Local Plan, High Peak Local Plan – Preferred Options HRA Report. Available on the High peak Borough Council website.

- Air quality - Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths;
- Mires and bogs – changes in hydrology and maintenance of natural regimes, water quality, and water table levels; and
- Absence of barriers e.g. wind farms.

3.2.2 South Pennine Moors SAC

This SAC is largely co-located with the South Pennine Moors (Phases 1 and 2) SPA. The site is representative of upland dry heath at the southern end of the Pennine range, the habitat's most south-easterly upland location in the UK. Dry heath covers extensive areas, occupies the lower slopes of the moors on mineral soils or where peat is thin, and occurs in transitions to acid grassland, wet heath and blanket bogs. The upland heath of the South Pennines is strongly dominated by heather *Calluna vulgaris*. On the higher, more exposed ground *Vaccinium myrtillus – Deschampsia flexuosa* heath becomes more prominent. In the cloughs, or valleys, which extend into the heather moorlands, a greater mix of dwarf shrubs can be found together with more lichens and mosses. The moors support a rich invertebrate fauna, especially moths, and important bird assemblages.

The site also includes blanket bog in the south Pennines, the most south-easterly occurrence of the habitat in Europe. The bog vegetation communities are botanically poor. Hare's-tail cottongrass is often overwhelmingly dominant and the usual bog-building Sphagnum mosses are scarce. Where the blanket peats are slightly drier, heather, crowberry and bilberry become more prominent. The uncommon cloudberry is locally abundant in bog vegetation. Bog pools provide diversity and are often characterised by common cottongrass.

Around the fringes of the upland heath and bog of the South Pennines are blocks of old sessile oak woods, usually on slopes. These tend to be dryer than those further north and west, such that the bryophyte communities are less developed (although this lowered diversity may in some instances have been exaggerated by the effects of 19th century air pollution). Other components of the ground flora such as grasses, dwarf shrubs and ferns are common. Small areas of alder woodland along stream-sides add to the overall richness of the woods.

The following factors affect the integrity of the site:

- Maintenance of habitats on site;
- Heaths - Maintaining hydrological conditions. Water quality, including lack of eutrophication and maintenance of oligotrophic character;
- Avoidance of fires;
- Air quality - Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths; and
- Mires and bogs – changes in hydrology and maintenance of natural regimes, water quality, and water table levels.

3.2.3 Peak District Dales SAC

Peak District Dales is composed of a group of sites (classified individually as SSSIs) spread out over the Peak District. The SAC includes one of the most extensive surviving areas in England of *Festuca ovina – Avenula pratensis* grassland. Grasslands at this site range from hard-grazed short turf through to tall herb-rich vegetation, with transitions through to

calcareous scrub and *Tilio-Acerion* forests – a diversity of structural types unparalleled in the UK. There is also a great physical diversity due to rock outcrops, cliffs, screes and a variety of slope gradients and aspects. The Dales provide good examples of woodland-scrub-grassland transitions, with associated rich invertebrate populations and plant communities. Among the uncommon plants present in the woods are mezereon and green hellebore, as well as whitebeam on the crags.

The following factors affect the integrity of the site:

- Grasslands – maintain management including appropriate grazing or rotational cutting;
- Calaminarian Grasslands - sporadic management such as occasional light grazing may be beneficial;
- Alkaline fens - air quality, water quality and water levels;
- Calcareous rocky habitats - Maintenance of natural processes such as erosion;
- Crayfish - Maintenance of extent of habitat and water quality. Absence of introduced species and crayfish plague. Maintain visitor awareness initiatives, sympathetic management of fishery practices and regular monitoring; and
- Fish - Bullhead and Brook Lamprey – maintenance of the rivers' natural structure and form. Avoiding creation of artificial barriers. Maintaining sustainable fish populations.

4 The HRA to date

4.1 Introduction

This section outlines the stages of the HRA to date and summarises the findings of the latest screening exercise. This HRA work follows on from the HRA undertaken on the Derbyshire Dales and High Peak Joint Core Strategy, the preparation of which was discontinued in April 2012 due to changes to the planning system. The latest report of the HRA of the Joint Core Strategy was the Derbyshire Dales and High Peak Joint Core Strategy Draft Habitats Regulations Assessment Report (ENVIRON, May 2010)[9].

HRA has been undertaken as the Local Plan has developed. The list below describes the HRA work undertaken to date on the High Peak Local Plan:

- HRA screening of the High Peak Local Plan Options Consultation Glossopdale September 2012;
- HRA screening of the High Peak Local Plan Options Consultation Buxton Area September 2012;
- HRA screening of the High Peak Local Plan Options Consultation Central Area September 2012;
- HRA of proposed Development Site Options in October and November 2012;
- HRA of preferred options Local Plan (including draft policies): screening in December 2012 and Draft HRA Report issued in February 2013[10];
- HRA of the Revised Preferred Options version of the Local Plan (this Report; February 2014).

The findings of the HRA of the Development Site Options in 2012 were taken into account in the choice of preferred options policies presented within the High Peak Local Plan - Preferred Options (February 2013). An HRA Report[11] was published for consultation alongside the High Peak Local Plan in February 2013.The screening table for the Preferred Options version of the Local Plan, showing the potential effects identified for each policy on each European site, is presented in Annex C.

The edits to the High Peak Local Plan between the Preferred Options and Revised Preferred Options versions were re-screened in January 2014. Where it was concluded that an edit to the Local Plan had a material impact on the conclusions of the HRA screening, the change was taken into account in the AA of the relevant issue.

Policies for which no likely significant effects (LSEs) were identified have been screened out of the HRA process. The policies for which LSEs were identified (either alone or as a cumulative effect) for one or more European sites are below. These policies have been subject to AA.

- Policy S2 Settlement Hierarchy

---

[9] http://www.highpeak.gov.uk/hp/council-services/core-strategy/draft-plan-consultation-2010

[10] http://www.highpeak.gov.uk/sites/default/files/documents/pages/Draft%20HRA%20Report%20Local%20Plan%20Preferred%20Options.pdf

[11] ENVIRON UK Ltd (February 2013) Habitats Regulations Assessment of the High Peak Local Plan, High Peak Local Plan – Preferred Options HRA Report. Available on the High peak Borough Council website.

- Policy S3 Strategic Housing Development
- Policy S4 Maintaining and Enhancing an Economic Base
- Policy S5 Glossopdale Sub-area Strategy
- Policy S6 Central Sub-area Strategy
- Policy S7 Buxton Sub-area Strategy
- Policy EQ1 Climate Change
- Policy EQ7 Green Infrastructure
- Policy E1 New Employment Development
- Policy E2 Employment Land Allocations
- Policy E3 Primary Employment Zones
- Policy E4 Change of use on existing business land and premises
- Policy E6 Promoting Peak District Tourism and Culture
- Policy E7 Chalet accommodation, caravan and camp site developments
- Policy H1 Location of Housing Development
- Policy H3 Housing Allocations
- Policy H6 Rural Exception Sites;
- Policy H7 Gypsies, Travellers and Travelling Show People;
- Policy CF3 Local Infrastructure Provision
- Policy DS3 Charlestown Works, Charlestown Road, Glossop (site code G31)
- Policy DS12 Land at Hogshaw, Buxton (site codes B3 & B4)
- Policy DS13 Land west of Tongue Lane, Fairfield, Buxton (site code B8)
- Policy DS14 Land off Dukes Drive, Buxton (site code B10)
- Policy DS15 Land off Ashbourne Road and Foxlow Farm, Buxton (site code B21).

LSEs were identified in relation to:

- Decreased water quality;
- Air quality impacts;
- Recreational pressure;
- Urban effects from new residential development; and
- Potential effects on birds from wind turbines.

LSEs have been identified in relation to the following European sites:

- Peak District Moors (South Pennine Moors Phase 1) SPA;
- South Pennine Moors SAC; and
- Peak District Dales SAC.

5 Appropriate Assessment: air quality

5.1 Introduction

Potential effects on air quality may arise as a result of increased traffic from housing, employment or tourism development, and were identified in the screening and most recent Draft HRA Report[12] regarding the Peak District Dales SAC. Furthermore, the Fairfield Link Road was noted as having the potential for adverse effects on the Peak District Dales SAC.

In addition, although effects on air quality from operation of employment developments close to a European site was screened out of the HRA in the Draft HRA Report[13], policy EQ4, which provided protection against any adverse effects on a European site from any proposed development, has since been edited and no longer provides protection against effects resulting from employment development. Therefore the effect of employment development on air quality is included in this assessment regarding the Peak District Moors (South Pennine Moors Phase 1) SPA, South Pennine Moors SAC and Peak District Dales SAC.

Potential LSEs on air quality could result from the following policies:

- Policy S2 Settlement Hierarchy
- Policy S3 Strategic Housing Development
- Policy S4 Maintaining and Enhancing an Economic Base
- Policy S5 Glossopdale Sub-area Strategy
- Policy S6 Central Sub-area Strategy
- Policy S7 Buxton Sub-area Strategy
- Policy E1 New Employment Development
- Policy E2 Employment Land Allocations
- Policy E3 Primary Employment Zones
- Policy E6 Promoting Peak District Tourism and Culture
- Policy H1 Location of Housing Development
- Policy H3 Housing Allocations
- Policy CF3 Local Infrastructure Provision
- Policy DS16 Tongue Lane (land south of tongue Lane Industrial Estate, Buxton)

5.2 Background

The Local Plan could potentially cause an adverse effect on the Peak District Dales SAC where traffic, and therefore emissions to air, is expected to increase between the settlements in the Plan Area or beyond the Plan Area as a result of trips to access employment or other facilities such as cultural or retail. This could result in an increase in nitrogen deposition, which could have an effect on those habitats sensitive to additional

[12] Habitats Regulations Assessment of the High Peak Local Plan – Preferred Options HRA Report. ENVIRON, February 2013.

[13] ENVIRON UK Ltd (February 2013) Habitats Regulations Assessment of the High Peak Local Plan, High Peak Local Plan – Preferred Options HRA Report. Available on the High peak Borough Council website.

nitrogen through eutrophication (i.e. fertilisation). This can result in effects such as a change in species composition. In terms of employment developments, certain business uses have the potential to have direct impacts on air quality, including emissions of nitrogen compounds.

The Air Pollution Information System (APIS) website (http://www.apis.ac.uk/) was consulted to review the likely sensitivities of designated interest features on these sites to air pollution and to confirm the sites' critical loads for acid and nitrogen deposition. The results are summarised in Annex D.

Natural England has advised that emissions from road sources more than 200 m from the boundary of a site can be considered negligible[14] (this does not mean that there is not the possibility of impacts due to increasing emissions from diffuse sources). A GIS exercise was undertaken to identify any European sites within 200 m of an A road within the Peak District region . This analysis was based on the assumption that only traffic on A roads is significant. This exercise identified a number of A roads which pass within 200 m of the Peak District Dales SAC. Approximately 12% (about 296 ha) of the SAC lies within 200 m of A roads (listed below).

The Strategic Transport Issues Report[15] used 2001 census data of journeys to work to identify the main destinations for residents of High Peak. The major outflows from High Peak are to the Greater Manchester area, which is in the opposite direction to the Peak District Dales SAC component sites. The main destinations are: the Greater Manchester area (including Stockport and Tameside); Macclesfield (east Cheshire); Derbyshire Dales; and the main towns within High Peak itself. As the proportion of the Peak District Dales SAC that could potentially be affected was high, combined with the fact that a small, but measurable percentage of commuter traffic (3.4% of car driver trips) is to Derbyshire Dales (which would be via A roads within 200 m of parts of this European site), the draft HRA Report on the Preferred Options Local Plan concluded that further work on this issue was required. Furthermore, the Fairfield Link Road was noted as having the potential for adverse effects on the Peak District Dales SAC. AA has therefore been carried out of the potential impacts of increased traffic from a number of existing roads, and also of potential impacts from the Fairfield Link Road, on air quality on the Peak District Dales SAC.

5.3 Peak District Dales SAC

All the plant communities that are qualifying interest features for the site are vulnerable to any additional deposition of nitrogen. They are less vulnerable to further acidification.

5.3.1 Potential Effects from Increases in Traffic

Roads which pass within 200 m of a component of the Peak District Dales SAC are shown in Figure A2 in Annex A, and the SSSI and relevant habitats are shown in Table 5.1, and can be summarised as follows:

- A623 between Chesterfield and Chapel-en-le-Frith passing through Baslow (Cressbrook Dale SSSI);

[14] Letter from English Nature to Runnymede Borough Council, dated 16th May 2006, regarding Conservation (Natural Habitats &C.) Regulations 1994 Runnymede Borough Local Development Framework

[15] Scott Wilson (march 2010) North Derbyshire Local Development Frameworks: High Peak and Derbyshire Dales

- The A6 between Bakewell and Buxton (Topley Pike and Deep Dale SSSI and the Wye Valley SSSI) and between Matlock and Cromford (Matlock Woods SSSI);
- The A515 between Buxton and Ashbourne (Topley Pike and Deep Dale SSSI); and
- The A5012 between Buxton and Cromford (leading to Matlock and Wirksworth) (Long Dale and Gratton Dale SSSI and Via Gellia Woodlands SSSI).

Air quality is an issue that could result from the combined effects of more than one land use plan. Therefore, to be precautionary, an estimate has been made of the potential in-combination effects on traffic levels on these roads with other Local Plans. From data in the Housing Requirement Technical Note[16], the predicted population increase for High Peak over the Plan period 2011 – 2031 is 14,773, which was suggested in the Technical Note to result in a housing need of 9,020 dwellings over this period (at a ratio of 1.64 population per dwelling). High Peak Borough Council used this evidence when reviewing its assessed needs in December 2013, and agreed a housing target of 7,280 houses over the Plan Period. This housing target is predicted to accommodate a population increase of 11,939 (using the 1.64 population per dwelling ratio), which is an increase of 13.1% over the current population. We have assumed that the population increase from neighbouring Plan Areas would be a similar figure. We have also assumed that the increase in numbers of cars, and also the increase in traffic, might be approximately twice the increase in population, which would generate an increase in traffic of 26.2% between 2011-2031 (see Annex D for details of air quality assessment methodology used). It has been assumed that this would also include traffic increases from tourism. This traffic increase is taken as the in-combination effect from all neighbouring Local Plan Areas that use the roads studied, and is therefore a precautionary approach. Table 5.1 shows the effects of a 26.2 % increase in traffic flows over the plan period on the roads considered.

Table 5.1 Traffic flows on A roads that pass within 200 m of a component of Peak District Dales SAC

Component SSSI	Road	Relevant habitat for air quality analysis[1]	Critical Load[2] (kg N ha^{-1} yr^{-1})	Baseline AADT[3]	Increased AADT (by 26.2%)	Increase in AADT[4]
Cressbrook Dale SSSI	A623	Sub-Atlantic semi-dry calcareous grassland	15	6367	8035	**1668**
Long Dale & Gratton Dale SSSI	A5012	Sub-Atlantic semi-dry calcareous grassland	15	3220	4064	844
Matlock Woods SSSI	A6	Meso- and eutrophic Quercus woodland	15	12,512	15,790	**3278**

16 Nathaniel Lichfield & Partners (2013). Housing Requirement Technical Note, published on High Peak Borough Council's website

Table 5.1 Traffic flows on A roads that pass within 200 m of a component of Peak District Dales SAC

Component SSSI	Road	Relevant habitat for air quality analysis[1]	Critical Load[2] (kg N ha^{-1} yr^{-1})	Baseline AADT[3]	Increased AADT (by 26.2%)	Increase in AADT[4]
Topley Pike and Deep Dale SSSI	A515	Sub-Atlantic semi-dry calcareous grassland	15	6786	8564	**1778**
	A6	Sub-Atlantic semi-dry calcareous grassland	15	5504	6946	**1442**
Via Gellia Woodlands SSSI	A5012	Sub-Atlantic semi-dry calcareous grassland	15	3711	4683	972
		Meso- and eutrophic Quercus woodland	15			
Wye Valley SSSI	A6 (section 1)	Sub-Atlantic semi-dry calcareous grassland	15	5504	6946	**1442**
		Meso- and eutrophic Quercus woodland	15			
	A6 (section 2)	Sub-Atlantic semi-dry calcareous grassland	15	5344	6744	**1400**
		Meso- and eutrophic Quercus woodland	15			

Notes

[1] Habitats are those given by the APIS website for air quality assessment, based on the designated habitats of the SAC

[2] Critical Load values taken from APIS. In all cases the recommended number, at the bottom of the range of values, was used.

[3] AADT – Annual Average Daily Traffic. Traffic counts were obtained from the website of the Department for Transport (see methodology in Annex D)

[4] Increases in AADT of 1000 or more are considered potentially significant, and are shown in **bold**

According to the Design Manual for Roads and Bridges[17] , in terms of nitrogen deposition from traffic emissions, only increases in Annual Average Daily Traffic (AADT) of 1000 AADT or more are considered significant. It is therefore possible to conclude that there will not be adverse effects from increased traffic on air quality from the A5012, which passes close to Long Dale & Gratton Dale SSSI and Via Gellia Woodlands SSSI, as predicted traffic increases on this road are below 1000 AADT.

An assessment was made of the increase in nitrogen deposition that could result from traffic flow increases on the relevant sections of roads with predicted increases of 1000 AADT or more: the A623; A6; and A515. The methodology for this assessment can be found in Annex D and the results are presented in Table 5.2 below. The estimated traffic increase of 26.2% is calculated to result in a maximum increase in nitrogen deposition of 0.75% of the Critical Load at the boundary of the SSSI sites closest to the A roads (see Table 5.2). Below a threshold of 1%, it can be concluded that increased nitrogen deposition as a result of increased traffic will not have an adverse effect on the habitat and therefore on site integrity[18].

[17] DMRB Volume 11 Section 3 Part 1 HA207/07 http://www.dft.gov.uk/ha/standards/DMRB/vol11/index.htm

[18] Confirmed by Natural England within a personal communication dated 17/01/14

Table 5.2 Effect of estimated increased traffic on A roads that pass within 200 m of a component of Peak District Dales SAC

Component SSSI	Road	Critical Load for relevant habitat for air quality analysis[1]	Baseline AADT[2]	Increased AADT (26.2%)	Backgound NO_2 ($\mu g\ m^{-3}$)	Total NO_2 with baseline AADT ($\mu g\ m^{-3}$)	Total NO_2 with increased AADT ($\mu g\ m^{-3}$)	Total N deposition with baseline AADT (kgN ha^{-1} yr^{-1})	Total N deposition with increased AADT (kgN ha^{-1} yr^{-1})	Difference in N deposition due to increased traffic (kgN ha^{-1} yr^{-1})	Difference as % of critical load
Cressbrook Dale SSSI	A623	15 kg N ha^{-1} yr^{-1}	6367	8035	10.30	13.37	14.16	1.337	1.416	0.079	0.53%
Matlock Woods SSSI	A6	15 kg N ha-1 yr-1	12,512	15,790	12.22	15.98	16.8	1.598	1.68	0.082	0.55%
Topley Pike and Deep Dale SSSI	A515	15 kg N ha^{-1} yr^{-1}	6786	8564	9.55	10.02	10.14	1.002	1.014	0.012	0.08%
	A6		5504	6946	9.66	14.03	15.15	1.403	1.515	0.112	0.75%
Wye Valley SSSI	A6 (section 1)	15 kg N ha^{-1} yr^{-1}	5504	6946	9.66	14.03	15.15	1.403	1.515	0.112	0.75%
	A6 (section 2)	15 kg N ha^{-1} yr^{-1}	5344	6744	8.974	12.71	13.67	1.271	1.367	0.096	0.64%

Notes

[1] Habitats are those given by the APIS website for air quality assessment, based on the designated habitats of the SAC. Critical Load values taken from APIS.

[2] AADT – Annual Average Daily Traffic. Traffic counts were obtained from the website of the Department for Transport (see methodology in Annex D)

5.3.2 Potential Effects from Fairfield Link Road

The Draft HRA report for the Preferred Options Local Plan noted uncertain effects from the Fairfield Link Road on air quality, both for operation of the road and the construction phase. While this project is not specified in a policy of the Local Plan, the delivery of at least two specific development policies within the plan are reliant on delivery of this infrastructure project (housing development site B8, Land west of Tongue Lane; and employment development site Policy DS16, Tongue Lane (land south of Tongue Lane Industrial Estate)). The draft HRA report recommended offsetting the Fairfield Link Road by 200 m from the Wye Valley SSSI, which is a component of the Peak District Dales SAC. High Peak Borough Council has confirmed[19] the route of the road on the proposals map to accompany the Local Plan. This shows that the route of the Fairfield Link Road as being slightly further than 200 m from the north-west boundary of the closest component of the Wye Valley SSSI. Therefore, it is concluded that no effects on air quality would result from operational phase of the Fairfield Link Road on the currently proposed route. Furthermore, guidance[20] from the Institute of Air Quality Management states that a detailed assessment of air quality effects of construction is only needed if there is an ecological receptor within 50 m of the boundary of the site; or 50 m of the routes used by construction vehicles on the public highway, up to 500 m from the site entrance. The Wye Valley SSSI is further that 50 m from the proposed road route (as outlined above) and there are no roads within 50 m of the Wye Valley SSSI that would be used by construction traffic that are within 500 m of any potential site entrance to the road development. Therefore, it can be concluded, based on the information currently available, that no adverse effects have been identified from the Fairfield Link Road project on the Peak District Dales SAC.

5.3.3 Potential Effects from operation of employment developments

The Local Plan as currently worded could result in future employment development close to a European site. In view of this uncertainty, it is not currently possible to conclude no adverse effects from the employment policies S4 and E1. Mitigation against this risk is proposed in Section 10.

Policy DS16 Tongue Lane (land south of tongue Lane Industrial Estate, Buxton) allocates land for business and industrial use. In the Preferred Options Local Plan this was to be 4.3 ha, although in the Preferred Options Additional Consultation (December 2013) High Peak proposed reducing this to 2 ha. This site is very close (80 m for the 4.3 ha site; 170 m for the revised 2 ha site) to the Peak District Dales SAC at Wye Valley SSSI. There is insufficient information to enable a detailed assessment of the site at this stage, so project-level HRA for this site is recommended, once details of the employment use and site layout have been finalised.

5.4 Conclusions

It is concluded that the policies within the Local Plan will not result in an adverse effect on the integrity of the Peak District Dales SAC with regards to air quality, either through increased traffic, or through effects of the Fairfield Link Road.

---

[19] High Peak Borough Council planning policy officer, *pers comm* by email on 14 August 2013

[20] Holman *et al.* (2014) Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf

However, given the uncertainty around final uses of employment sites near to European sites, and therefore the possible effects on air quality, it is not possible to conclude that the policies of the Local Plan will not result in an adverse effect on site integrity. Suggestions for mitigation are presented in Section 10 below.

6 Appropriate Assessment: recreational pressure

6.1 Introduction

A potential effect of trampling of habitats or disturbance of birds as a result of increased recreational pressure from housing development and from increased tourism within the Plan Area was identified in the screening regarding the following European sites:

- Peak District Moors (South Pennine Moors Phase 1) SPA; and
- South Pennine Moors SAC.

This potential LSE could result from one or more of the following policies:

- Policy S2 Settlement Hierarchy
- Policy S3 Strategic Housing Development
- Policy S5 Glossopdale Sub-area Strategy
- Policy S6 Central Sub-area Strategy
- Policy S7 Buxton Sub-area Strategy
- Policy EQ7 Green Infrastructure
- Policy E6 Promoting Peak District Tourism and Culture
- Policy H3 Housing Allocations

6.2 Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC

The South Pennine Moors (Phases 1) SPA and SAC are almost entirely co-located, and when referred to together are termed the 'South Pennine Moors (Phase 1) SPA / SAC'. This section presents a combined AA of the potential effects of increased recreational pressure for the two sites. The possible effects of relevance to this assessment are disturbance of the bird species for which the Phase 1 SPA is designated (either by people or by accompanying dogs), and trampling or erosion of the habitats for which the SAC is designated. Note that potential effects of fires and of localised recreational pressure (taken to mean from people who can walk directly from their home onto a European site) have been considered with other localised effects in the Section on 'Urban effects' (Section 317). The assessment in this Section considers more dispersed effects, from people from across the Plan Area, on the European sites.

In order to assess the potential effects from increased recreation pressure, information has been gathered with regards to the potential for the High Peak Local Plan to increase visitor numbers and with regards to possible visitor behaviour on the SPA/SAC. The SPA/SAC is located within the Peak District National Park (with the exception of some very small areas that extend just beyond the boundary). Therefore, in the absence of visitor data to the European sites, data on visitor numbers to the National Park have been used. This section of the assessment also considers the results of a separate HRA of Local Plans of a group of councils known as the 'Greater Nottingham' area, which are pertinent to this assessment. The information regarding the Greater Nottingham HRA includes a summary of the management and mitigation measures currently available to the various organisations responsible for managing the land of the South Pennine Moors (Phase 1) SPA / SAC.

Estimates of visitor numbers

Data from the Peak District Visitor Survey (2005[21]); from STEAM[22] analysis by the National Park Authority (see the Park Authority's website[23]); and from population increase estimates calculated from a Housing Requirement Technical Note[24], have been used to estimate the increase in visitor numbers to the Peak District National Park as a result of population increases in the High Peak Plan Area. This is outlined in Box 6.1.

Box 6.1 Estimation of increase in visitor numbers to the Peak District National Park as a result of population increases in the High Peak Plan Area 2011-2031

- Data from STEAM analysis estimated that the total number of tourist days spent (by visitors spending over 3 hours) in the park has remained around 10.5 million for the last six years (STEAM doesn't capture visitors spending less than 3 hours).
- Approximately half of visitors spend less than 3 hours in the Park[1]; therefore approximately half spend more than 3 hours. 10.5 million is half the number of annual visitors, therefore there are 21 million total annual visitors.
- 77% of respondents (2005 Survey) were 'day respondents' = 16.2m
- 19% of day respondents came from a Derby postcode (NB this is a much larger area than High Peak Local Plan Area). 19% of 16.2m is 3.1 m.
- The population of Derbyshire is 0.76 million, so if this population is responsible for 3.1m visits, that means each resident makes an average of 4.1 visits per year.
- We have assumed that as residents of theHP Plan Area are the closest in the County to the National Park, they would make proportionately more visits, so to be conservative, we have assumed they might visit twice as often as other residents of the County.

Therefore, it is assumed an average of 8.2 visits per person per year for a resident of the High Peak Plan Area.

- The resident population of the High Peak Local Plan Area was 83,000 as of 2011.
- Data in the Housing Requirement Technical Note outlines the predicted population increase across the High Peak Borough (which is larger than the Local Plan Area) over the period 2011-2031.
- This data has been used to predict a 13.1% increase in population within HP Plan Area between 2012 and 2031 – the end of the plan period.

A 13.1% increase represents an increased population within the Local Plan Area of 10,873 people by 2031.

21 Peak District National Park Visitor Survey, Peak District National Park Authority,2005

22 Scarborough Tourism Economic Activity Monitor; an assessment model that has been adopted by several national parks

23 http://www.peakdistrict.gov.uk/microsites/sopr/welcoming/tourism Accessed 30th October 2013.

24 Nathaniel Lichfield & Partners (2013). Housing Requirement Technical Note, published on High Peak Borough Council's website

A projected population increase in the Plan Area of 10,873 people by 2031 (the end of the plan period), with an estimated 8.2 visits per person per year by residents in the Plan Area, has been calculated to generate an increase in visits to the National Park of approximately **89,160 visits per year in 2031**. Whilst this is not a small number, to put it in context, it represents 0.4% of the current annual total visitor numbers to the Park of approximately 21 million. It should be emphasised that these figures are for visits to the whole of the Peak District National Park, not the SPA/SAC areas (see below for discussion of the National Park). It should also be noted that whilst the Local Plan makes provision for more houses, some increase in population would be expected without the Plan. There is no data available on population figures in the Plan Area with and without the Plan, and we are unable to estimate what proportion of the population increase, and therefore the recreation pressure, would be likely to happen in the absence of the Plan, and have assumed that all the increase is as a result of the Local Plan.

Visitor behaviour and accessibility to the SPA / SAC

It should be noted that much of the South Pennine Moors (Phase 1) SPA/SAC is also Open Access Land, and as such, the public has the right to enter and remain on the access land for the purposes of open-air recreation as permitted by the Countryside and Rights of Way Act ('CRoW', 2000; subject to certain restrictions). Considering the different regions of the European sites closest to the Plan Area: firstly, in the vicinity of the northern part of the Plan Area, the moorland of the SPA/SAC is also designated as the Dark Peak SSSI. Within this area of moorland, there is a relatively sparse network of rights of way leading from the Plan Area up onto the moorland. There are two major long distance trails in the area: the Pennine Way and the Pennine Bridleway. The Pennine Way runs down the centre of the moorland, with some access points off the moor. The Pennine Way mostly follows along the edge of the designated land, although crosses a couple of the 'spurs' on the edge of the moor. As these are both national long distance trails, they would be expected to be actively managed. Walkers who keep to footpaths result in relatively little disturbance to birds[25], or damage to habitats, especially in areas where the spatial extent of the habitat is large and/or the network of footpaths is relatively sparse, as is the case with the South Pennine Moors (Phase 1) SPA/SAC in this location. Furthermore, evidence from Finney *et al.* (2005) showed that maintenance of footpaths, in that case resurfacing of the Pennine Way in 1994, resulted in a significant decrease both in the percentage of walkers who strayed from the trail and also on the recorded disturbance of golden plover. Annex E presents the abstract of this article.

Therefore, in this region, significant recreational disturbance would only be expected from people who walk across the open moor, away from the footpaths. It is difficult to predict the proportion of people who would walk across the open moor, away from footpaths. One source of evidence for this is an Access Management Report published by Natural England[26](NE). A summary of the results from this NE study is given in Box 6.2.

[25] Finney, S.K; Pearce-Higgins, J.W; Yalden, D.W (2005) The effect of recreational disturbance on an upland breeding bird, the golden plover Pluvialis apricaria. Biological Conservation, Volume 121 (1) pp 53-63

[26] Countryside and Rights of Way (CROW) Act 2000 (Part 1): National Open Access Visitor Survey (2006-2008), Natural England Commissioned Report NECR036c, published September 2011.

Box 6.2 Summary of results from Natural England's National Open Access Visitor Survey (NECR036c; 2011)

This study used a variety of methods to investigate both whether people walked on public rights of way (PRoW), tracks, or open access land, and also how this use may have changed since the introduction of the CRoW Act. The evidence is not straightforward to interpret. One of the methods used was to interview recreational users and ask them to show on a map the route that they had/were going to walk. This data was then digitized and the length and proportion of the walk on the 3 types of area: PRoW; non-PRoW tracks; and open access land calculated. This showed that visitors spent an average of 34% of their walk on open access land (averaged over the three years of the survey). However, an average of 89% of visitors spent at least some part of their walk on open access land, although it should be noted that any activity that wasn't on a PRoW or track was allocated to the 'open access' category, and this included car parks, picnic areas and other areas. As the percentage of visitors spending at least some part of their walk off PROW was much greater than the proportion of a walk off PROW, it was concluded that many visitors only go off PRoW for a short time or distance.

It was also noted that "*the mapping software assumed a 20m buffer zone around the line of the PRoW or track to calculate the lengths of walk on PRoW or path, with the rest of the walk length then deemed to be on Open Access Land. The spatial analysis of a walk off PRoW or track will include those who are recorded as being just off a path as well as those who are wandering away from paths completely. Visual analysis of the routes plotted and of the observation data suggests that the estimates of usage of Open Access Land from the spatial analysis are high, that is, the majority of people do actually follow the general alignments of established routes, and the number of people who wander completely away from paths and tracks is actually quite small*."

"*Going off PRoW to exercise dogs was mentioned by only 3% of those respondents at moorland sites compared with 8% at lowland sites, and by 4% at sites with biodiversity designations compared with 10% at other sites*."

In terms of how far people walked, "*The average walk length when at a site (i.e. within the boundary of an Open Access Land site) is 2.29km. This is often part of a longer walk however, with the total recorded walk length averaging at 3km. More than a quarter of walks are less than a km in length, and half are between 1 and 3km. Only 6% are more than 7km (4.3miles)."*

One of the areas studied was the South Pennine Moors, although north of the European sites considered in the assessment of the High Peak Local Plan - the two locations studied were Ilkley Moor and Bingley Moor. They concluded that there was no direct impact of CRoW, as the areas were being used before CRoW came into force. On Ilkley Moor most users stayed on PRoW in sensitive areas and on Bingley Moor all users interviewed and observed stayed on PRoW, although one dog owner was observed allowing their dog to roam, in contravention of an exclusion in force at the time. In this area there was pre-existing 'linear' use (on two long distance trails, the Dales Way Link and the Millenium Way).

The study concluded that "*it appears that CRoW has legitimised usage of land off PRoW rather than changed usage at this early period in the life of the new CRoW rights of access*."

Therefore, while it is difficult to put a number on the percentage of visitors who would walk across the open access land of the moors, i.e. significantly away from the network of footpaths / rights of way, it is suggested in the light of the evidence above, that it would likely be a minority of visitors, especially where footpaths are well maintained. Given the small number of access points to the moors, the sparse network of rights of way on the moors, and the presence of two long distance trails in the area, which would be expected to be well maintained and draw a significant proportion of walkers, recreational pressure is not considered likely to result in an adverse effect on the South Pennine Moors (Phase 1) SPA/SAC in the vicinity of the Dark Peak SSSI

Considering the southern part of the Plan Area, part of the South Pennine Moors (Phase 1) SPA/SAC is to the west of Buxton, and this area is also designated as Goyt Valley SSSI (to the north) and Leek Moors SSSI (to the south). This area of moorland is a smaller block than the Dark Peak SSSI mentioned above, and the network of rights of way is more dense, although with only four access points leading from the Plan Area up onto the designated area of moorland[27]. However, while there is a relatively greater density of rights of way, a large proportion of them (over half) are on or close to the boundary of the designated land. Recreational use on these rights of way would not be expected to result in significant effects on the SPA or SAC. One of the rights of way across the moor is the long distance trail the Dane Valley Way, which starts in Buxton and runs south-west. This trail would be expected to be well maintained, with relatively little disturbance of birds or effect on habitats as a result[28]. In addition, the Midshires Way runs from the south-east, through Buxton, and just to the north of the designated area of the SPA/SAC at Goyt Valley SSSI. Recreational use of this trail would not be expected to have any adverse effect on the SPA/SAC as it is outside the designated area, and could in fact have a positive effect, by alleviating recreational pressure on the designated area. Given the fact that there are relatively few footpaths across the centre of moor, that there are a network of rights of way around the edge of the designated area and that there are two long distance trails in the area, which should be well maintained and draw a significant proportion of walkers, recreational pressure is not considered likely to result in an adverse effect on the South Pennine Moors (Phase 1) SPA/SAC in the vicinity of Goyt Valley SSSI and Leek Moors SSSI.

Current provision of open space accessible to residents of High Peak

Peak District National Park

As the large majority of the South Pennine Moors (Phase 1) SPA / SAC is within the Peak District National Park, the remainder of the National Park forms the most closely comparable alternative for recreational activities. The Peak District National Park Management Plan (2012) describes how the Peak District National Park Authority is actively managing recreation, rather than discouraging it, including making it more accessible. To support this aim, the National Park Authority also has a strategy for recreation, 'Active in the Outdoors'[29], which includes an Action Plan. The Peak District has a multitude of footpaths, including a number of long distance trails

[27] Ordnance Survey Explorer Map OL24

[28] Finney, S.K; Pearce-Higgins, J.W; Yalden, D.W (2005) The effect of recreational disturbance on an upland breeding bird, the golden plover Pluvialis apricaria. Biological Conservation, Volume 121 (1) pp 53-63

[29] http://www.peakdistrict.gov.uk/__data/assets/pdf_file/0005/79196/recreationstrategy.pdf accessed 30th October 2013

Current provision of open space across the region

An assessment of open spaces across the combined planning areas of Derbyshire Dales District Council, the Peak District National Park Authority and High Peak Borough Council was carried out in 2009 and reported within the 'Peak sub-region, PPG17 Open space, Sport and Recreation Study'[30]. This was a PPG17-compliant Audit and Needs Assessment and was commissioned -as part of the evidence base for the Local Development Framework. . . The study found that within the previous 12 months, 33% of residents had assessed a 'civic space' (e.g. civic and market squares); 32% had accessed 'green corridors' (e.g. footpaths); 27% had accessed publicly accessible parks and 17% had accessed a 'nature area' (also termed 'natural and semi-natural greenspaces'). 36% of residents had not accessed any form of open space during the previous 12 months, the main reason given was 'lack of interest'.

In general, the residents of the assessed area felt that open space was well provided, although a concern was expressed about the possible loss of open space to new developments (e.g. which might result in coalescence of neighbouring settlements, which was seen as a negative outcome); and also a concern about the perceived level of dog foul in open spaces.

With regards to 'natural and semi-natural greenspaces', although the quality scores were often below a 'green flag' threshold, the study noted that these sites tend to score poorly against criteria such as bins and benches, and that the scoring system may not be appropriate for natural / semi-natural spaces. High value was placed on these types of spaces and availability was regarded to be good. Residents were willing to travel 15-30 minutes by bus or car to access nature areas. Whilst the provision of Local Nature Reserves in High Peak was below the recommended threshold of one hectare Local Nature Reserve per 1000 population[31], there are seven National Nature Reserves in High Peak, and also 20 Derbyshire Wildlife Trust nature reserves across the sub-region, the total area of which exceeded the recommended threshold value. Wildlife Trust reserves do not have the statutory designation of a Local Nature Reserve but were considered by the study to meet a similar need.

Residents considered the provision of parks in the study area to be adequate, both in terms of quality and quantity. This type of open space scored the highest in terms of the value placed on them by residents. It was noted that in addition to the parks officially included in the assessment, the study area had three parks that were outside the scope of the assessment as they had restricted access in terms of times, or an entrance fee. These were Chatsworth Park, Lyme Park and Ilam Hall Parkland. These were considered to be an important recreational resource, and the study concluded that they made a significant contribution to residents' perceptions on open space provision.

Green corridors are sites that offer opportunities for walking, cycling or horse riding, whether for leisure purposes or travel and opportunities for wildlife migration. This also includes river and canal banks, road and rail corridors, cycling routes within towns and cities, pedestrian paths within towns and cities, rights of way and permissive paths. Five green corridors were identified within the study area, plus an extensive public right of way network. Almost a third

[30] Peak sub-region, PPG17 Open space, Sport and Recreation Study; Open Spaces Assessment Report. Prepared by Knight, Kavanagh & Page, February 2009

[31] English Nature, 1996

of residents used green corridors, with 73% of this group doing so at least once per week. Walking or rambling was noted as a popular pastime for residents. The provision of footpaths was felt to be sufficient in terms of quantity, although quality was more varied, and a potential improvement of greater connectivity of paths was noted. Bridleway provision was not as good and it was noted that the existing bridleway network was heavily used.

In summary the current provision of open space within and surrounding the Plan Area is considered to be good.

The future of open space provision: management and improvement

Peak District National Park

As mentioned above, through the Peak District National Park Management Plan (2012) and strategy for recreation, 'Active in the Outdoors', the Peak District National Park Authority is actively managing recreation, while protecting the environmental and historical assets of the National Park, including making it more accessible.

It is considered reasonable to assume that the scale of the increased number of recreational visits calculated above (an average of 8.2 visits per person per year for a resident of the High Peak Plan Area – see Box 6.1), as a result of population increase in the High Peak Local Plan Area, should be accommodated within the scope of the Peak District National Park Management Plan and Recreational Strategy. Considering cumulative effects, it is furthermore assumed that similar increases in visits from neighbouring Local Plan Areas would also be accommodated within the National Park's plans.

Management and improvement of Open Space and Recreational Facilities within the High Peak Local Plan

There are a number of plan-wide Policies in the High Peak Local Plan which are relevant to the provision of open space and recreational facilities. These are:

- Policy EQ7 Green Infrastructure
- Policy CF4 Provision of Open Space, Sports and Recreation Facilities

Amongst other things, these policies aim to: encourage improvement to existing recreation facilities; provide open space, including greenspace for residents; safeguard existing open spaces from development; ensure that development proposal, where appropriate, contribute towards the creation of new or enhancement of existing green infrastructure, including (among others) open space, recreation areas, parks, local nature reserves and local green spaces; and require a financial contribution (where appropriate) towards the delivery, improvement and management of off-site provision of open space and recreational facilities . These policies would be expected to contribute towards the provision of a variety of alternative recreational facilities, which have the potential to alleviate some of the recreational pressure on the South Pennine Moors (Phase1) SPA/SAC

Other management of open space within the wider Derbyshire area

There is a legal duty on landowners to maintain access to PRoW and therefore there is reason to believe that the network of footpaths will be at least maintained, if not improved during the next few years. Derbyshire County Council produced its first Rights of Way

Improvement Plan[32] (RoWIP) in November 2007. Recently, a new Statement of Action has been produced for the period to 2017. This includes aims to provide a more connected, safe and accessible network of paths suitable for all users and improve the use of the network.

Derbyshire County Council also has a number of 'Greenway strategies'[33], which have identified routes that meet the goals of Natural England and create a user-friendly network to link communities and places of interest across Derbyshire and through the Peak District National Park. The aim of the strategies at this stage is to identify the potential for developing a network of Greenways across Derbyshire. No dedicated funding has been approved to implement the strategies, but it is hoped that they will provide the basis to safeguard the routes and pursue funding as and when opportunities arise. These plans have the potential to provide high-quality outdoor recreational facilities close to the Plan Area, with the potential to draw some visitors away from the European sites.

The Greater Nottingham Aligned Core Strategy HRA

Further evidence regarding potential effects of increased recreational effects on the Peak District Moors (South Pennine Moors Phase 1) SPA and the South Pennine Moors SAC can be found within the HRA[34] of the 'Greater Nottingham' Aligned Core Strategy (ACS). This is a group of Councils: Broxtowe Borough Council; Erewash Borough Council; Gedling Borough Council; Nottingham City Council; and Rushcliffe Borough Council. It is our understanding that the results of this HRA have been accepted by Natural England. The full HRA can be found through the link below, but the section of that assessment regarding effects of recreational pressure on the European sites referred to above is included as Annex F to this document. In addition, some relevant information of the Greater Nottingham HRA is summarized or reproduced below.

Firstly, it is important to note that the Greater Nottingham HRA assessment was based on the assumption that all the local planning authorities around the Peak District National Park would be providing for a similar population increase. In that assessment, a 7% increase in total visitors was taken as the 'in-combination' assessment of the increase in visitors from all areas around the National Park, and while more recent population data has suggested a higher percentage increase in population in the High Peak Plan Area, the conclusions of that assessment are still felt to be relevant to the HRA of High Peak Local Plan.

Discussion for the Greater Nottingham assessment with officers from The Peak District National Park Authority and Natural England concluded: firstly, that a 7% increase in visitors from a 7% increase in population was unlikely, but represented a 'worst-case scenario'; and secondly, that "*none of the officers raised immediate concerns about such a potential increase in visitor numbers to the three European sites*".

The assessment on the South Pennine Moors (Phase 1) SPA / SAC considered three effects:

- erosion of surface vegetation;
- disturbance of birds; and

---

[32] http://www.derbyshire.gov.uk/leisure/countryside/access/improvements/default.asp accessed 30th October 2013

[33] http://www.derbyshire.gov.uk/leisure/countryside/access/greenways/strategies/ accessed 30th October 2013

[34] Habitats Regulations Appraisal Screening Record, David Tyldesley and Associates, 2010. Obtained through http://www.nottinghamcity.gov.uk/article/23500/ACS---Examination-Library-Core-Documents (accessed 12 December 2013); Document code CD/REG/11, dated June 2012.

- increased fire risk.

The effects of erosion were considered to be negligible, they noted that "*most visitors do stay on paths*" (although there was no citation for this assertion), and "*the spatial impact therefore would be very localized. The worst affected areas are and would be subject to repair, maintenance and improvement works, limiting the extent of damage.*"

Disturbance was noted as "*potentially significant*". However, it was also noted that "*Defining the effects of disturbance as a result of increased visitors is not straightforward and appears not to be proportional to a defined increase in visitor numbers (apart from core 'honey pot' sites)*". "*Rather, the observed effects of disturbance are more acute when small numbers of people act in such a way as to cause potential harm.*"

As regards fire risk, the Greater Nottingham HRA states *"… an increase in recreation pressure related to an increase in fire risk has the potential to be a significant effect on the moorland European sites*."

Box 6.3 presents the existing management or mitigation measures considered in Greater Nottingham HRA for the South Pennine Moors (Phase 1) SPA / SAC and the analysis of the effects of these measures. In summary, the measures were considered sufficient to manage any potential effects resulting from an increase in visitor numbers to the Peak District National Park, including the European sites within the Park. Box 6.4 contains the conclusion of the Greater Nottingham HRA regarding recreational pressure.

Box 6.3 Existing management or mitigation measures considered in Greater Nottingham HRA regarding the South Pennine Moors (Phase 1) SPA / SAC

"In terms of mitigation measures, the officers saw these as a combination of several inter-related factors and measures all capable of reducing the likelihood of significant effects, rather than a single measure. These include but are not limited to:

- *Moorland management plans*
- *'Soft' visitor management (e.g. controlling parking, positioning access styles, education, ranger patrols and voluntary agreements)*
- *Higher Level Stewardship agri-environment agreements*
- *Natural England powers and measures*
- *Local Access Forum agreements on use by key stakeholders.*

Powers vested in the NPA as Rights of Way and Access Authority by the CROW Act are significant. Landowners or bodies can request that access be restricted in a number of circumstances including:

- *S.24 – a landowner may request closure for up to 28 days per year – a power commonly utilised on the moors during May (nesting season);*
- *S.25 – the NPA can close the moors, at any time, for any period, when fire risk is deemed high; again a frequently and effectively used measure;*
- *S.26 – Natural England can request closure or other restrictions in the interests of conservation of flora and fauna.*

However, indicative of the lack of a perceived threat to the integrity of the moorland European sites, Natural England has never made such a request nor did it seek to constrain access at the introduction of the CRoW Act provisions. This may in part reflect the effectiveness of voluntary agreements which had been in place for many years before the new legislation.

Natural England can also control some larger or specialist events under the powers of the Wildlife and Countryside Act, as operations likely to damage the underpinning SSSIs. Natural England is also a member of Local Access Forum which ensures the European sites are considered in moorland issues, discussions and decision making. However, with the moorland management tools and initiatives in place, there is no need to assert the primacy of maintaining the integrity of the European sites, and the managed and voluntary integration of recreation and other users is the preferred and so far most effective way of moorland management.

Even in light of a potential 7% increase in visitors to the moors, the officers all felt that the existing raft of management initiatives and powers of the CRoW Act will continue to be sufficient to avoid a significant effect on the European sites, even if experience in the future indicated that these measures, such as closure due to high fire risk, may need to be used more often or for longer. Well tried and tested habitat and access management measures are available to respond to any perceived adverse effect on the European sites before they became significant in conservation terms."

Box 6.4 Conclusion of Greater Nottingham HRA regarding recreational pressure on the South Pennine Moors (Phase 1) SPA, the South Pennine Moors SAC and the Peak District Dales SAC

"In light of this analysis, all the objective information available points to the conclusion that there is no likelihood of a significant effect on the South Pennine Moors SPA or SAC [or the Peak District Dales SAC] as a result of an increase in visitor pressure to the sites, arising from an increase in population provided for by the ACS, either alone or in combination with other plans or projects."

6.2.2 Conclusions

There is a good choice of alternative outdoor recreation facilities, open spaces (including accessible natural green space) and rights of way across the rest of the Peak District National Park, as well as within the Plan Area itself, which are readily accessible to residents of High Peak. There is commitment from High Peak Borough Council and Derbyshire County Council to maintain and where possible improve these facilities. The Peak District National Park Authority has a Management Plan and Recreational Strategy, which supports the aim of increasing accessible recreation opportunities, while protecting the environmental and historical assets of the National Park, and it is considered that the management of the estimated increase in visitor numbers to the National Park resulting from the High Peak Local Plan, as well as from neighbouring local plans, can be accommodated within these National Park plans. Commitment is given in the High Peak Local Plan to ensure that development proposals, where appropriate, contribute towards the creation of new or enhancement of existing green infrastructure. Finally, a separate HRA, of a group of 'Greater Nottingham' councils' Aligned Core Strategy, has concluded no significant effect as the result of an in-combination assessment regarding recreational pressure on the Peak District Moors (South Pennine Moors Phase 1) SPA and the South Pennine Moors SAC resulting from predicted levels of population growth across the region.

Combining the results of the appropriate assessment work for the High Peak Local Plan presented above, with the conclusions of the HRA Screening Record for the Greater Nottingham ACS, it is therefore concluded that the policies within the High Peak Local Plan will ***not*** *result in an adverse effect on site integrity of the South Pennine Moors (Phase 1) SPA / SAC with regards to recreational pressure.*

6.2.3 Potential effects from changes to recreational routes

A potential effect of provision of recreational routes on encouraging or increasing access to the SPA/SAC was identified in the screening regarding Policy EQ7 Green Infrastructure, particularly the bullet point "Working with the Dark Peak Nature Improvement Area and other partners to help create better access routes linking High Peak settlements into the surrounding countryside for tourism and recreation". It is possible that if new or improved recreational routes under this policy encouraged access onto the SPA/SAC this could result in increased recreational pressure. However, the aim of 'creating better access routes' stated above will be delivered in partnership with the Dark Peak Nature Improvement Area initiative. This is a partnership of a number of organisations, including the RSPB, the Peak

District National Park Authority and Natural England. The aims of the initiative are to "plan and deliver significant improvements for wildlife and people through the sustainable use of natural resources, restoring and creating wildlife habitats, connecting local sites and joining up local action."[35] In addition, the programme of work includes monitoring of some of the designated habitats of the South Pennine Moors SAC, and of upland bird species, which would provide information to inform future management of the European sites. Therefore, any projects to improve access routes would be expected to have the protection of both the habitats of the SAC and bird species of the SPA as a central consideration. Natural England, as a partner in the initiative and the UK organisation responsible for ensuring the protection of European sites, would have the opportunity to ensure this was the case. Research has also shown that maintenance of footpaths resulted in a significant decrease both in the percentage of walkers who strayed from the trail and also on the recorded disturbance of golden plover[36]. Finally, the effects of this policy have the potential to mitigate for the effects of development by drawing recreational users away from the sensitive areas of European sites.

6.2.4 Conclusions

*It is therefore concluded that Policy EQ7 will **not** result in an adverse effect on the integrity of the South Pennine Moors (Phase 1) SPA / SAC as regards effects of improvements to the green infrastructure.*

35 http://www.moorsforthefuture.org.uk/dark-peak-nia-0 accessed 27 February 2014

36 Finney, S.K; Pearce-Higgins, J.W; Yalden, D.W (2005) The effect of recreational disturbance on an upland breeding bird, the golden plover Pluvialis apricaria. Biological Conservation, Volume 121 (1) pp 53-63

7 Appropriate Assessment: urban effects

7.1 Introduction

New residential development close to the boundary of a European site is not precluded by the Local Plan. This was identified as resulting in potential LSEs in the HRA screening of Local Plan Options (September 2012) from pet predation on the Peak District Moors (South Pennine Moors Phase 1) SPA and possible 'urban encroachment' on the Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC. Initial AA work (draft HRA Report, February 2013) concluded that none of the specified housing allocation sites were close enough to a European site to result in an adverse effect from these issues. However, Natural England, in its consultation response[37] to the Preferred Options Local Plan consultation (February 2013), noted that pet predation, as well as other 'urban effects', which may include fly tipping and increased fire risk, required further assessment. Natural England's response also noted that the HRA should justify the appropriateness of use of a 400 m zone in the High Peak area (which has been applied elsewhere), within which these effects are likely to occur. Site B8 (Land West of Tongue Lane, Buxton) was specifically mentioned as requiring assessment with regards recreational and urban effects, as it is close to a component of the Peak District Dales SAC.

As a result of research undertaken for the AA, a number of issues have been included under the assessment of 'urban effects' (see sub-section 7.2 for the definition of urban effects). This has included assessment of localised recreational effects (i.e. effects from people walking directly from their homes onto the European site), and therefore includes the assessment of any specific housing allocation site policies that are close to a European site. Urban effects could potentially affect the following European sites:

- Peak District Moors (South Pennine Moors Phase 1) SPA;
- South Pennine Moors SAC; and
- Peak District Dales SAC.

Potential LSEs from urban effects could result from one or more of the following policies, including any policy with residential or tourism development in unspecified locations:

- Policy S2 Settlement Hierarchy
- Policy S3 Strategic Housing Development
- Sub area Strategies: Policy S5 Glossopdale; Policy S6 Central area; and Policy S7 Buxton
- Policy E4 Change of use on existing business land and premises
- Policy E6 Promoting Peak District Tourism and Culture
- Policy E7 Chalet accommodation, caravan and camp site developments
- Policy H1 Location of housing development;
- Policy H3 Housing Allocations, including the following specific allocations:
    - Charlestown Works, Glossop, G31 (there is also a development site policy for this site: Policy DS3, see below)

[37] John King, Natural England, Consultation response dated 22 April 2013, by email

  - Hayfield Road, Hayfield, C1
  - New Mills Road, Hayfield, C2
  - Former car showroom, Leek Road / Macclesfield Road (no site code)
  - Land west of Tongue Lane, Fairfield, Buxton, B8 (there is also a development site policy for this site: Policy DS13, see below)
- Policy H6 Rural Exception Sites;
- Policy H7 Gypsies, Travellers and Travelling Show People;
- Policy DS3 Charlestown Works, Charlestown Road, Glossop (site code G31)
- Policy DS13 Land west of Tongue Lane, Fairfield, Buxton (site code B8)

7.2 Background

A variety of so-called 'urban effects' can result in adverse effects on European sites, those considered in particular are given below. This section gives an outline of the evidence regarding each of these effects, followed by a summary of the effects of relevance to each European site.

- Predation of bird or animal species (mainly by cats);
- Effects of dogs – disturbance of birds, eutrophication (mainly through faeces) and disturbance of grazing livestock;
- Localised recreational pressure (from people walking directly from their home to the European site),
- Fires; and
- Fly tipping / Litter.

A number of research projects have been carried out regarding recreational pressure and urban effects on the Thames Basin Heaths SPA, and also the Dorset Heathlands SPA. Those HRAs and subsequent work have been used as an evidence base for much HRA assessment on these issues in England since, and both the assessments and the recommended mitigation are often quoted. However, there are a number of important differences between these SPAs and the European sites considered in the HRA of High Peak that should be noted. Considering the two moorland sites: the Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC; firstly, the landscape and habitats are different – lowland heathland versus upland heathland and moorland. Secondly, the species for which the SPAs are designated are different. Thirdly, the size of the sites is different: Thames Basin Heaths SPA is 8275 ha, Dorset Heathland SPA is 8169 ha, whereas the Peak District Moors (South Pennine Moors Phase 1) SPA is considerably larger at 45,271 ha, and South Pennine Moors SAC is 64,983 ha. Finally, the surrounding areas are different: there is significant urban development up to the boundary of the Thames Basin Heaths and Dorset Heathlands, whereas the area surrounding Peak District Moors (South Pennine Moors Phase 1) SPA / SAC is more rural, although the major conurbations of Manchester and Sheffield are within reach. The Peak District Dales SAC is different again: a collection of smaller, non-contiguous SSSI sites totalling 2326 ha, mostly located within the Peak District National Park, with a mixture of woodland, grassland and fen habitats. These differences need to be kept in mind when applying the information from the HRAs regarding the Thames Basin Heaths and Dorset Heathland in this HRA of the High Peak Local Plan.

7.2.1 Pet predation

This is mainly an issue of cats preying on sensitive bird or animal species – the aquatic animal species for which the Peak District Dales SAC is designated (crayfish, bullhead and brook lamprey) are not known to be sensitive to cat predation, so in this case, this issue is confined to the effects on birds on the Peak District Moors (South Pennine Moors Phase 1) SPA.

7.2.2 Effects of dogs

Three possible effects of dogs on European sites have been considered: firstly, that of dogs disturbing the ground-nesting birds; secondly eutrophication from dog faeces causing fertilisation[38], potentially resulting in a change in species composition of habitats sensitive to nitrogen; and thirdly, the effects of dogs worrying grazing livestock. While this latter effect is an indirect effect, it can be substantial if grazing is an important component of the management regime (often recommended for grasslands and other habitats), and if farmers decide they will not allow their livestock to graze on certain land because of problems of dogs worrying their animals. This would upset the management programme. These effects are discussed in detail in Taylor et al[39]. .

Where there are potential effects from dogs from developments close to a European site, and where there is not sufficient information for assessment at this stage, it is recommended that project-level HRA be carried out. It is difficult to find robust data on which to base a zone of influence concerning this issue. Data from Natural England's Monitor of Engagement with the Natural Environment (MENE) study[40] has been used to calculate that 95% of walks with dogs are to locations within 3.3 miles (5.3 km) of home. However, it is felt that a zone of influence of 5.3 km would be unreasonably large, and not in proportion to the risk. A distance of 1.6 km (as the crow flies) is suggested as a reasonable zone within which project-level HRA is recommended in response to potential effects from dog walking. This is based on calculations on MENE data: of those respondents who had walked to a 'natural environment' site from home, 63% of those walking with dogs, and 57% of those without, had walked to a site within 1 mile, or 1.6 km of home. Based on walking speeds of 3-5 km per hour, 1.6 km would take 19 – 32 minutes to walk, meaning a round trip walk of at least 38 - 64 minutes (plus any time within the site itself). This is expected to capture a large portion of regular dog-walks.

7.2.3 Localised recreational pressure

Localised recreational pressure is as a result of people living sufficiently close to a European site to be able to walk directly to it from their house. It is often associated with localised dog-walking, but 'footfall' effects of habitat trampling are possible from the people themselves, with or without a dog. Where potential adverse effects have been identified, the same mitigation is proposed as for effects of dogs: a distance of 1.6 km within which project-level HRA is recommended.

---

[38] This assumes that not all dog faeces is bagged and removed from the site.

[39] Ken Taylor, Ros Taylor (Asken Ltd) Penny Anderson, Kath Longden, Paul Fisher (Penny Anderson Associates) (2005). 'Dogs, access and nature conservation.' English Nature Research Reports, Report Number 649

[40] http://www.naturalengland.org.uk/ourwork/evidence/mene.aspx , accessed 20 December 2013

7.2.4 Fires

Fires can have significant effects, both on heathland and grassland habitats, and on the birds or animals that live on these habitats. Effects can be temporary, but they can also be long-term or even permanent.

There is evidence available on fires[41,42], although much of this is based on research on the lowland heathland in the Dorset Heaths. The principle causes of 'wild' fires are: deliberate fire-setting; camp fires that have got out of control; planned fires that have got out of control (e.g. part of moorland management for grouse); and bonfires that have got out of control.

There is some evidence that a significant proportion of deliberate fire setting is by school-aged children. Within the Kirby & Tantram research, a zone of 500m was used, and it was found that the degree of development within this zone correlated with incidence of fires (on Dorset Heathlands). The explanation given for the choice of this distance was previous reports suggesting that this is the maximum likely access distance for average users of greenspace[43,44]. On a precautionary basis, where there are potential effects on fire-setting from developments close to a European site, it is recommended that project-level HRA be carried out within at least a zone of 500 m from the European site, based on the issue of fire-setting alone. However, other urban effects (primarily dog walking) have a larger zone of influence, and the proposed mitigation against urban effects is for the larger zone – of 1.6 km – which captures all urban effects identified.

7.2.5 Fly-tipping / litter

This issue was discussed with a representative of the organisations responsible for management of the relevant European sites. The general conclusion from these conversations was that fly tipping / littering is considered more of a localised and visual problem, and not likely to result in an adverse effect on the integrity of the European sites considered.

7.3 Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC

The South Pennine Moors (Phases 1) SPA and SAC are almost entirely co-located, and when referred to together are termed the 'South Pennine Moors (Phase 1) SPA / SAC'. This section presents a combined AA of the potential effects of urban effects for the two sites.

One of the urban effects – pet predation – is restricted to the SPA. Cat predation was a cause of concern on the Thames Basin Heaths SPA, although, as noted above, there are a number of important differences between the Thames Basin Heaths SPA and the Peak District Moors (South Pennine Moors Phase 1) SPA, and these are particularly relevant to the issue of cat predation. Evidence was available both that cats visit lowland heathland, and also that cats had been recorded taking some (adult) heathland species including

---

41 J. C. Underhill-Day, (2005) 'A literature review of urban effects on lowland heaths and their wildlife', English Nature Research Reports, Number 623

42 J.S. Kirby & D.A.S Tantram (1999) 'Monitoring heathland fires in Dorset: Phase 1' Report to Department of the Environment, Transport and the Regions: Wildlife and Countryside Directorate

43 Harrison, C, Burgess, J, Millward, A, Dawe, G. 1995. Accessible greenspace in towns and cities: A review of appropriate size and distance criteria. English Nature Research Report No. 153. English Nature, Peterborough.

44 Box, J. & Harrison, C. 1993. Natural spaces in urban places. Town 19 Country Planning, 62(9): 231-235

Dartford warbler[45], which is one of the birds for which the Thames Basin Heaths SPA is designated.

However, no data has been found regarding how frequently domestic cats visit upland moorland. An opinion from the Peak District Park Authority Ranger Service[46] was that they would not expect cats to roam over the entirety of the moorlands, but that they would likely be confined to a relatively narrow band around the perimeter. Neither has any data been found regarding cat predation of the species of interest in the Peak District Moors (South Pennine Moors Phase 1) SPA: merlin, short-eared owl, golden plover, peregrine falcon or dunlin. In the absence of scientific evidence, and based on common sense, it is expected that predation of these species by domestic cats would be significantly less than of species such as the Dartford Warbler. This is partly based on size[47]: Dartford Warbler is 12 cm in length, whereas merlin is 28 cm, short-eared owl is 38 cm, golden plover is 28 cm, peregrine falcon is 42 cm and dunlin is 18 cm. Furthermore, three of the designated species of the South Pennine Moors Phase 1 SPA are birds of prey, and it is considered highly unlikely that a domestic cat would successfully kill these adult birds.

However, four of the designated birds of the Peak District Moors (South Pennine Moors Phase 1) SPA are ground-nesting (except peregrines, which nest in a scrape usually on a rocky ledge), and there is insufficient evidence to rule out the possible effect of cats attacking young birds in the nest. However, it is considered unlikely that domestic cats would have a significant effect on the populations of the designated bird species, in view of the fact that domestic cats are expected to be restricted to the edges of the SPA. Only a relatively small proportion of the boundary of the Peak District Moors (South Pennine Moors Phase 1) SPA is shared with the High Peak Plan Area, principally in the area west of Buxton. It has therefore been considered a 'minor' issue within urban effects and unlikely to result in an adverse effect on the site integrity of the SPA alone. To be precautionary, mitigation has been proposed regarding the combined results of all the urban effects considered.

The direct effects of dogs (disturbance of nesting birds or eutrophication) are not considered to be significant on the South Pennine Moors (Phase 1) SPA / SAC, given the size of the sites, the fact that a majority of walkers seem to stay on or near footpaths and the degree of management of walking activities within the Peak District National Park (see section 6 on recreational pressure for more details and references). Dogs usually defecate early during a walk and it is at least several hundred metres walk from a road to the SAC via any of the access points, so the majority of dogs would have defecated before they reached the SAC. As regards disturbance of birds, landowners can request restriction of access to their land for up to 28 days per year – a power already used on the moors during nesting season. Furthermore, Natural England can also request closure or other restrictions in the interests of conservation of flora and fauna. Therefore, it is concluded that even should a risk of increased dog walking on nesting birds be identified in the future, the existing powers are considered sufficient to manage and mitigate against this potential impact.

---

[45] Underhill-Day (2005); and see Annex G for further details.

[46] Andy Farmer, South Area Manager Ranger Team, Peak District National Park Authority 18 December 2013, *pers comm* by phone

[47] Sizes are from tip of beak to tip of tail and were obtained from British Trust for Ornithology website: http://www.bto.org/about-birds/birdfacts

The potential effect of dogs worrying grazing animals is harder to assess. This is an indirect effect, but has the potential to have significant impacts on management of the habitats, if a farmer decides to remove his livestock from an area of land due to problems with dog worrying. This has the potential to affect a wide area of land, and is not confined to a particular season of the year. Therefore, a potential for an adverse effect is recorded, with mitigation against this issue suggested.

Fires can have significant effects, both on the vegetation (particularly summer fires) and on ground-nesting birds (particularly spring fires). They also have the potential to affect large areas of land. These European sites are almost entirely within the Peak District National Park, and the PDNPA has very good arrangements for preventing and fighting fires. There is a Fires Operation Group within the Park, with a high national reputation: this includes the PDNPA, all the local fire services, landowners and organisations renting the land, and gamekeepers. They share equipment and knowledge, fight fires and raise awareness. On a precautionary basis, as there are potential effects from fire-setting from developments close to the SPA/SAC, it is recommended that project-level HRA be carried out for developments close to European sites within at least 500 m from the SPA/SAC based on the issue of fire-setting alone.

Evidence from a Manager from the Peak District National Park Authority[48], was that fly-tipping does occur, and is unsightly, but only at a local scale, and was not considered likely to result in a significant impact on the habitats as a whole. Therefore, it is concluded that fly-tipping would not result in an adverse effect on site integrity of the SPA/SAC.

An assessment has been made of the proposed housing development sites in the Local Plan that are within 1.6 km of the boundary of the South Pennine Moors (Phase 1) SPA / SAC.

- Former car showroom on junction of Leek Road / Macclesfield Road, Buxton. This has been removed as an allocation from the Submission version of the Local Plan, but is still available for development as it is within the settlement boundary. This is a small site, for a maximum of 10 dwellings. It is approximately 1 km walk to the boundary of the SPA/SAC, but from there it is a steep climb onto the moor. There are other footpaths in the area and Buxton Country Park is approximately a 200 m walk from the site, which are considered good alternatives for dog walking. Therefore, urban effects are not considered significant from this housing site.
- Site B5, Ambulance Station, The Glade, Buxton. This site has been removed as an allocation from the Submission version of the Local Plan, but is still available for development as it is within the settlement boundary. It is for maximum of 11 dwellings and is approximately 1.6 km as the crow flies to the boundary of the SPA/SAC, or approximately a 2.7 km walk on footpaths. Therefore, urban effects are not considered significant from this housing site.
- Site C2, New Mills Road, Hayfield. This has been removed as an allocation from the Submission version of the Local Plan, but will still be available for development as it is proposed to amend the settlement boundary to include the site. It is for a maximum of 17 dwellings. While the site lies within 1.6 km of the SPA/SAC as the crow flies, it is approximately 2.2 km walk to the nearest accessible part of the SPA/SAC, up a steep

[48] Andy Farmer, South Area Manager Ranger Team, Peak District National Park Authority 18 December 2013, *pers comm* by phone.

slope. It is unlikely that this route will be a popular day to day walk for dog walking. Therefore, urban effects are not considered significant from this housing site.

- G13, Hawkshead Mill, Old Glossop. This site is for a maximum of 31 dwellings. It is approximately a 1.5 km walk uphill from this site to the nearest accessible point of the SPA/SAC. Manor Park is a 60 acre park, which includes semi-natural woodland and paths, and as this is approximately 500 m from the site, is considered a good alternative for dog walking. Therefore, urban effects are not considered significant from this housing site.
- Site G16, Woods Mill, High Street East, Glossop. This is a large site, for a maximum of 104 dwellings. It is close to the centre of Glossop, and is approximately a 2.2 km walk uphill to the closest access point of the SPA/SAC. From the site, it is approximately a 200 m walk to Manor Park, which is considered a good alternative for dog walking. Therefore, urban effects are not considered significant from this housing site.
- G31, Charlestown Works, Glossop. This site is for a maximum of 76 dwellings and it is approximately a 840 m walk from the southern-most point of site G31 to the boundary of the SPA/SAC, and from that point, a further 1.1 km up a steep slope onto Shaw Moor. It is considered unlikely that the route up onto Shaw Moor would be used frequently by new residents of the site for dog walking, because of the gradient of the path. However, an alternative area of natural greenspace does not appear to be available with 1 km of the site, although there is a network of public footpaths in the area. Due to the lack of an alternative area for local recreation and dog walking, a potential for an adverse effect is recorded and mitigation is suggested regarding this site in Section 10.

7.3.1 Conclusions

It is not possible to conclude that the policies within the Local Plan will not result in adverse effects on site integrity of the South Pennine Moors (Phase 1) SPA / SAC with regards to urban effects, principally from indirect effects of dogs worrying grazing animals and from fire-setting. Suggestions for mitigation are presented in Section 10.

7.4 Peak District Dales SAC

There are possible urban effects on a component of the Peak District Dales SAC - Cunning Dale, which lies within the Plan Area, to the west of Buxton, and is a component of the Wye Valley SSSI. A description of Cunning Dale was obtained from Natural England[49]. Cunning Dale is a dry limestone dale, which runs north-west to south-east. It is steeply-sided, and the grassland interest, which is found on approximately two-thirds of the site, is mainly on the sides of the dale. The path itself was described as 'improved grassland', being approximately 1 m wide. Just past the north-westerly end of the dale, there are allotments. It is approximately 250-300 m from the allotments to the boundary of the SAC-designated area. It should be noted that the physical feature of Cunning Dale extends further north-west than the SAC boundary. The entire dale is a county wildlife site. At the south-easterly end of the dale, where the dale comes out near to the A6 road, the grassland changes to steeply-sloping woodland, which was described as "almost quarry cliffs on one side". At this

[49] Marion Andrews, Natural England, *pers comm* by phone 14 January 2014

southerly end of the dale, there is "no easy parking available". From Google Streetview™, it can be seen that the A6 is not a suitable walking route back into Buxton – there is no footpath, and furthermore, no grass verge to walk on, with the sides of the road being bordered by cliffs and a wall.

An important point to note is that due to the steep sides of the dale, it is considered unlikely that many people would scramble up or down the sides. Therefore, effects of localised recreational pressure, potentially resulting in trampling of the habitats, is not considered likely to result in an adverse effect. Furthermore, the steep sides mean that people would be unlikely to access the dale along its length as they'd have to scramble up and then down a bank. Additionally, there is no public access from the side nearest Buxton – the land adjoining the dale is private (marked as fields on the OS map[50]). Therefore, access would most likely be via the north-west end of the dale, possibly from the south-east end, or alternatively from a footpath that joins the dale on the north side (the side furthest from Buxton).

The direct effects of dogs causing eutrophication is not considered to be significant on this SAC. Dogs usually defecate early during a walk and it is at least several hundred metres walk from a road to the SAC via any of the access points, so dogs would have defecated before they reached the SAC.

There is the potential for dogs to worry grazing animals. This is an indirect effect, but has the potential to have significant impacts on management of the habitats, if a farmer decides to remove his livestock from an area of land due to problems with dog worrying. An informal discussion with Natural England[51] concluded that management of the site, e.g. by signs requesting that dogs be kept on leads when grazing animals are present, is likely to be sufficient to mitigate against this risk. However, it would be prudent to monitor the issue.

Fires can have significant effects, and can occur on grasslands. In this case, the most relevant cause of a fire would be fire setting (as opposed to e.g. moorland management fires that have got out of control, which are only relevant to moorland habitats). The ease of access is critical to assessment of this issue – only housing developments relatively close to the north-west access point of the dale have the potential for sufficient ease of access to result in a significant effect. On a precautionary basis, as there are potential effects from fire-setting from developments close to the SPA/SAC, it is recommended that project-level HRA be carried out for developments close to European sites within at least 500 m from the SPA/SAC, based on the issue of fire-setting alone.

Fly-tipping was considered to be unlikely to occur within Cunning Dale as there is no access by car close enough to the SAC for people to tip refuse – they would have to carry it several hundred metres to do this. It is also a localised issue, and not likely to result a significant impact on the habitats of the SAC as a whole. Therefore, it is concluded that fly-tipping would not result in an adverse effect on site integrity of the SAC.

An assessment has been made of the proposed housing development sites in the Local Plan that are within 1.6 km of the boundary of the Peak District Dales SAC.

- The closest is site B8 - Land west of Tongue Lane, Buxton (Policy DS13). This housing site is for approximately 215 dwellings and the site boundary is approximately

[50] OL 24

[51] [51] Marion Andrews, Natural England, *pers comm* by phone 14 January 2014

150 m from the boundary of Cunning Dale at the closest point (as the crow flies). The effects of trampling through localised recreation, eutrophication by dogs, and fly-tipping were not considered to result in a significant impact on the SAC for the reasons given above. An assessment was made of the distance required to walk from this site to the SAC via roads and footpaths. This is at least 1.3 km, depending on the final layout of the housing site, in particular the access points. This distance is considered sufficient to deter those people who might deliberately start fires and also considered sufficiently large that there would only be a small number of dog walks that would originate in the development that would walk into Cunning Dale. Therefore, no adverse effects from urban effects are considered likely from this housing allocation site. Furthermore, Policy DS13 includes project-level Habitats Regulations Assessment, which was supported by Natural England, and gives the developers and High Peak Borough Council the opportunity to consider site design, including access points and provision of suitable open space for residents, as part of the site design process.

- Sites B3 and B4 (Land at Hogshaw, Policy DS12), B9 and B10 (Land off Dukes Drive, Policy DS14) are also within 1.6 km (as the crow flies) of the boundary of the Peak District Dales SAC at Cunning Dale. However, the distance required to walk from these sites to the north-west access point of the SAC is greater than 1.6 km and therefore, no urban effects are predicted from these sites.

While it has been concluded that specific development sites proposed by the Local Plan will not result in an adverse effect on the SAC, it is still possible that future development within the Plan Area could be very close to the north-west access point to Cunning Dale. The current Buxton settlement boundary meets the northerly edge of the dale, approximately 250 m from the boundary of the SAC-designated portion. Cunning Dale would be expected to be a significant draw for local recreation, including dog walking, from any future residential development close to the access point to the dale. This would have the potential to result in urban effects from dog worrying of grazing animals or from fire-setting.

7.4.1 Conclusions

It is not possible to conclude that the policies within the Local Plan will not result in adverse effects on site integrity of the Peak District Dales SAC as regards urban effects, from indirect effects of dogs worrying grazing animals and from fire-setting. Suggestions for mitigation are presented in Section 10.

8 Appropriate Assessment: water quality

8.1 Introduction

A potential effect of the proposed level of housing growth in Buxton on water quality was identified in the screening regarding the Peak District Dales SAC.

This potential LSE could result from the following policies, which relate to residential development in Buxton:

- Policy S2 Settlement Hierarchy;
- Policy S3 Strategic Housing Development;
- Policy S7 Buxton Sub Area;
- Policy H3 Housing Allocations; and
- Policies DS12 – 15 inclusive (specific strategic development sites including residential development).

8.2 Background

The potential effects on water quality are specifically on the levels of phosphates in the River Wye within the Peak District. Particular sections of this river form part of the Wye Valley SSSI, which in turn is a component site of the Peak District Dales SAC. The Wye Valley SSSI is a complex site, with a number of different habitats. The White Peak of Derbyshire and Staffordshire is considered one of the most important areas of carboniferous limestone in Britain. The limestone is cut by valleys, the 'dales', which both expose areas of high geological and geomorphological interest and support a range of important semi-natural woodland, scrub, grassland and stream habitats. The SSSI is divided into a number of ‘Units’ for management and survey purposes. Of relevance to this assessment are Units 70 and 71, which are classified as ‘rivers and stream’ habitats, i.e. the River Wye components.

8.3 Peak District Dales SAC

The relevant qualifying features of this SAC to the issue of phosphate levels in the River Wye are:

- 1092 *Austropotamobius pallipes*; White-clawed (or Atlantic stream) crayfish;
- 1096 *Lampetra planeri*; Brook lamprey;
- 1163 *Cottus gobio*; Bullhead.

For completeness, it should be noted that the remaining qualifying features of the SAC[52] have been scoped out of this appropriate assessment. This is because they are either terrestrial habitats and/or are not present in this component of the SAC, and therefore there is no conceivable pathway of effect on them from increased phosphate discharge into the River Wye as a result of housing growth.

Conservation Objectives are set for each habitat or species of a SAC. Where the objectives are met, the site can be said to demonstrate a high degree of integrity and the site itself

[52] Semi- natural dry grasslands and scrubland facies on calcareous substrates; Tilio-Acerion forests of slopes, screes and ravines; European Dry Heaths; Calaminarian grasslands; Alkaline Fens; Calcareous and calcshist screes of the montane to alpine levels; and Calcareous rocky slopes with chasmophytic vegetation

makes a full contribution to achieving favourable conservation status for those features. The conservation objectives for the SAC are:

- With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features);
- Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.
- Subject to natural change, to maintain or restore:
  - The extent and distribution of qualifying natural habitats and habitats of qualifying species;
  - The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;
  - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
  - The populations of qualifying species; The distribution of qualifying species within the site.

The JNCC submitted a report on the status of all the habitats and species within UK SACs in 2008 [53,54]. The conservation status assessments for the three species of interest across the whole of the UK are presented in Table 8.1.

Table 8.1. UK-wide conservation status assessments for the species present as a qualifying feature of Peak District Dales SAC

	White-clawed crayfish *Austropotamobius pallipes*	**Brook lamprey *Lampetra planeri***	**Bullhead *Cottus gobio***
Range	Bad and deteriorating	Favourable	Favourable
Population	Bad and deteriorating	Unknown	Unknown
Habitat for the species	Inadequate and deteriorating	Inadequate but improving	Unknown
Future prospects	Bad and deteriorating	Favourable	Unknown
Overall assessment	Bad and deteriorating	Inadequate but improving	Unknown

8.3.1 Ecological effects of phosphate in river habitats

The mechanism by which phosphate can impact on the three qualifying species is because phosphate is an essential plant macronutrient, and increasing the phosphate available to the aquatic plants and algae causes a change in the plant species composition. This has knock-on effects on the aquatic habitats that the crayfish and fish require. A Natural England

53 http://jncc.defra.gov.uk/page-4479 accessed 4 December 2013

54 as required ever six years under Article 17 of the Habitats Directive; this period was January 2001 – December 2006

Report[55] summarised the key biodiversity concerns associated with nutrient enrichment in rivers as:

- *"Changes in the composition and increased abundance/biomass of the algal community, both attached (periphyton) and planktonic.*
- *Changes in the composition and increased abundance/biomass of the rooted macrophyte (i.e. plant) community, with a reduction in extent of species adapted to conditions of lower nutrient availability.*
- *A choking of river channels with submerged higher plants and algae, with high nocturnal respiration rates and diurnal sags in dissolved oxygen in the water column.*
- *Loss of macrophyte (i.e. plant) abundance associated with algal smothering of riverbed substrates, attracting enhanced siltation and causing poor substrate conditions for benthic invertebrates and fish species with a requirement for coarse open sediments with high interstitial dissolved oxygen concentrations.*
- *Changes in macroinvertebrate and fish community abundance and composition associated with changes in the plant community.*

The most direct (primary) effects of nutrient enrichment relate to the plant community, through which a range of indirect (secondary) impacts on fauna occur. Impacts on the plant community can be seen as a mixture of direct and indirect impacts: direct effects of nutrient availability on growth rates; and indirect effects of increased competition from plant species favoured by enrichment."

8.4 Phosphate levels in the River Wye

Preliminary data has been obtained on phosphate levels within the River Wye and is presented in Table 8.2. This is from monitoring carried out by the Environment Agency. All the monitoring locations between Buxton STW and the two river units of the Wye Valley SSSI show phosphate levels higher than the conservation target level for the SAC of 0.04 mg/l. It should be noted that Natural England is likely to be recommending that the phosphate target for the river within the SAC should be reduced to as low as 0.015 to 0.025 mg/l, although this recommendation has not yet been implemented. It should also be noted that there are no Environment Agency monitoring locations within either of the relevant SSSI Units, or downstream of Unit 71.

[55] Natural England Research Report NERR034. An evidence base for setting nutrient targets to protect river habitat. November 2010

Table 8.2. Phosphate levels in the River Wye (Data source: Environment Agency)

Monitoring location	Location in relation to Buxton STW	Location in relation to Wye Valley Units 70 & 71	Phosphate concentration (mg / l)
Ashwood Park	Upstream	Upstream	0.03 (Sept 2011-Sept 2012) 0.02 (6 data points 2013)
Buxton STW			
Ashwood Quarry	1.8 km downstream	Upstream	0.08 (2011-13 inc)
Kingsterndale	3.1 km downstream	Upstream	0.06[56]
Topley Pike	3.5 km downstream	1.6 km upstream of Unit 70	0.055 (11 data points 2013)
Unit 70, Wye Valley SSSI			
Miller's Dale	Approx 8.5 km downstream	Approx. 1.5 km downstream of unit 70, c500m upstream of unit 71	0.055[57]
Unit 71, Wye Valley SSSI			

There are no recent monitoring data of the animals that are the qualifying features of the SAC, and therefore, no evidence on whether phosphate levels within the River Wye are currently directly affecting these species.

The condition of Units 70 and 71 of the Wye Valley SSSI were last assessed by Natural England in December 2010 as "unfavourable no change". The draft Wye Valley SSSI Water Pollution Plan[58] cites the cause of the non-improving unfavourable condition as "*elevated levels of phosphate in the River Wye, which can be attributed, in part, to diffuse sources, but chiefly to point sources*". It is also noted that:

"The notable increase in P[hosphate] for the points downstream of the STW compared to Ashwood Park upstream indicates that Buxton STW is more accountable to the failure of the conservation objective target than diffuse sources. This is further backed up by the fact that further downstream, at Miller's Dale, the annual average for the most recent recorded period (April 2009 – April 2010) drops to 0.05 mg/l with distance from source (Buxton STW)

[56] From 4 data points in 2013: prior to this, this location had not been monitored since early 2010

[57] From 4 data points in 2013: prior to this, this location had not been monitored since early 2010

[58] A joint plan between Natural England and the Environment Agency, currently in preparation; the latest version is dated March 2013

allowing for dilution. However, it is possible that action taken to reduce the impact from point sources alone will not help achieve the SAC targets, based on the concentrations recorded at Ashwood Park, upstream of Buxton STW, being >0.02 mg/l. If action was taken against diffuse sources then P[hosphate] levels could be further reduced towards the target."

8.5 The Buxton Sewage Treatment Works

Information and data relating to Buxton STW have been obtained from Severn Trent Water. The Buxton STW includes a membrane bioreactor (MBR) plant[59]. Phosphate is removed from the sewage solution by chemical precipitation and flocculation: an iron (ferric) solution is added, and the bound iron-phosphate compound precipitates out of solution. The solid phase iron-phosphate 'flocs' are then filtered out by the membranes in the MBR plant. The phosphate-containing flocs are removed from the MBR plant, thickened and transported off-site to another plant (outside of the SAC) for further treatment. The solution that passes through the membranes is the final effluent from the plant and is discharged into the River Wye. Severn Trent Water has confirmed[60] that Best Available Technology is being used for phosphate removal at Buxton STW.

The phosphate discharge limit from Buxton STW is 1 mg/l. (This is based upon a maximum Dry Weather Flow of 7423m^3/d, with all flows up to 195 l/s receiving full treatment. Any storm flows above 195l/s are not subject to phosphate removal requirements.) Severn Trent Water has provided data on the phosphate concentrations in influent and effluent from Buxton STW between November 2012 and October 2013 (see Table 8.3).

The mean phosphate level in the influent to Buxton STW over this 12-month period was 6.04 mg/l. The mean phosphate level in the effluent over this period was 0.44 mg/l, which is significantly below the permitted discharge limit of 1 mg/l. The mean % removal of phosphate over the same period was 91.4%.

[59] For further details, including diagrams, see 'membrane bioreactor' on Wikipedia; http://en.wikipedia.org/wiki/Membrane_bioreactor ; accessed 29.11.2013.

[60] David Lowry, Severn Trent Water, 14 November 2013, *pers. comm*.

Table 8.3. Phosphate data for Buxton sewage treatment works (data courtesy of Severn Trent Water)

Date	Influent (mg/l)	Effluent (mg/l)	Cumulative Effluent [a] (mg/l)
06/Nov/12	2.800	0.570	0.570
30/Nov/12	9.700	0.240	0.405
09/Jan/13	7.600	0.210	0.340
08/Feb/13	8.900	0.240	0.315
10/Mar/13	5.800	0.580	0.368
23/Apr/13	5.300	0.800	0.440
18/May/13	5.600	0.270	0.416
04/Jun/13	4.000	0.230	0.393
17/Jul/13	6.600	0.830	0.441
09/Aug/13	4.500	0.310	0.428
26/Sep/13	9.500	0.750	0.457
28/Oct/13	2.200	0.260	0.441

[a] Cumulative effluent is a rolling 12-month average

Severn Trent Water[61] has provided the information in Box 8.1 below with regards to available headroom within the existing permitted discharge limit.

Box 8.1. Estimate of available headroom for treatment of sewage at Buxton STW from new houses
(Information sent by email from Severn Trent Water on 26.11.2013)

There are two criteria to consider: hydraulic capacity against the permitted Dry Weather Flow (DWF); and biological treatment capacity to treat the extra load.

On hydraulic capacity, we would normally look at the average measured 80%ile flow (see table below) versus Permit limit and convert this to a property equivalent: 1 m^3 headroom approximately equates to capacity for 3 new houses, at average occupancy and standard water usage.

Year	DWF	80%ile	90%ile
2008	7423	7334	6603
2009	7423	6096	5809
2010	7423	5628	5271
2011	7423	5591	5407
2012	7423	7061	6267
Average		6342	5871

The annual data for Buxton shows fairly significant variation year on year. (Note that 2008 and 2012 were unusually wet years, but 2010 and 2011 were unusually dry – hence there is some uncertainty over hydraulic capacity.) Given the sensitivity of the SAC I would advise a precautionary approach as follows:

- Based upon 2012 flow data, we have a hydraulic capacity of 362 m^3/d, which equates to around 1086 houses;
- On a longer term average, the hydraulic capacity is 1081 m^3/d which would equate to 3243 houses.

Based on the above, we confirm capacity at 1086 houses, and I would advise that there is probably capacity for a further 500 or so, but we will only be able to confirm this when we have the flow data for the full year 2013.

With regards to biological treatment capacity, Design Population Equivalent for the membrane replacement allowed for an increase of 1,687. However, this was just based upon a population projection up to year 2026, and isn't necessarily the limit of the capacity of the new membranes.

I can therefore confirm capacity for at least 718 houses on biological treatment capacity and advise that there may be additional capacity available, but subject to performance evaluation of the new membranes over the next 12 months or so.

[61] Severn Trent Water, *pers comm* by email, 18 November 2013

Severn Trent Water has also supplied details of their legal duties with regard to treating sewage from new homes – see Box 8.2.

Box 8.2. Severn Trent Water's Statutory Duties
(Information sent by email from Severn Trent Water on 26.11.2013)

Notwithstanding the information above concerning available headroom, we have a statutory duty to provide additional capacity as and when it may be required. Full description of this legal duty below:-

Severn Trent Water has a general duty under section 94 (clauses 1a and 1b) of the Water Industry Act 1991:

(a) to provide, improve and extend such a system of public sewers (whether inside its area or elsewhere) and so to cleanse and maintain those sewers and any lateral drains which belong to or vest in the undertaker as to ensure that that area is and continues to be effectually drained; and

(b) to make provision for the emptying of those sewers and such further provision (whether inside its area or elsewhere) as is necessary from time to time for effectually dealing, by means of sewage disposal works or otherwise, with the contents of those sewers.

In effect, this places an absolute obligation upon Severn Trent Water to provide such additional capacity as may be required to treat additional flows and loads arising from new domestic development. As a business, Severn Trent are specifically funded to discharge this legal obligation through our charging mechanism, as overseen by OFWAT through the five yearly Periodic Review process.

Severn Trent Water is also under a legal duty to comply with its sewage treatment works discharge permits, issued by the Environment Agency under the Water Resources Act 1991 (as amended by the Environment Act 1995). Should we be in a position of being unable to comply with a permit to discharge as a consequence of growth within the sewerage catchment, we are obliged to remedy the situation using our own resources.

Information supplied by Severn Trent Water[62] states that they have capacity available at Buxton STW to treat sewage from extra homes, both in terms of the permitted discharge and having the treatment capacity to maintain compliance with this discharge permit. As regards phosphate, proposed development is not anticipated to make a difference to the current discharge *concentrations* (approximately 0.45 mg/l over the last 12 months), but there will be an increase in the *volume* of effluent discharged, (but within the discharge permit limits). Given this position, Severn Trent Water are able to discharge their obligations under Section 94 of the Water Industry Act 1991.

62 Severn Trent Water, *pers comm*, 26 November 2013.

The discharge permit specifies a maximum polluting load that can be discharged (i.e. max volume multiplied by max allowable concentration). The works currently operates some way below this permitted maximum and would continue to do so after the proposed development. However, development would be expected to result in an increase in the *total quantity* of phosphate discharged (also known as the phosphate load) into the River Wye. This outcome is not consistent with Natural England's target to reduce the phosphate levels in the River Wye.

8.6 Conclusions

Based on the currently available information, it is not possible to conclude that the Local Plan as currently worded will not have an adverse effect on the integrity of the Peak District Dales SAC, as a result of increasing the total phosphate load to the River Wye via discharges from the Buxton Sewage Treatment Works (STW). Mitigation is required to address this issue.

9 Appropriate Assessment: wind turbines

9.1 Introduction

Policy EQ1 Climate Change is primarily about promoting energy efficiency of developments, but also encourages the provision of renewable and low-carbon technologies. As such, this may encourage proposals for wind farm developments.

The HRA screening of the Preferred Options Local Plan (December 2012) concluded that policies S1 and EQ4 provided sufficient protection against effects on birds from wind turbines. However, policy EQ4 has been edited in the Submission version of the Local Plan, limiting protection to residential development. This means the level of protection against effects of wind farms on designated bird species has been reduced, which has the potential to result in LSEs. Therefore, this issue has been included in the current iteration of the HRA, and been subject to AA.

Potential effect on birds as a result of wind turbine developments within the Plan Area was identified with regards to the Peak District Moors (South Pennine Moors Phase 1) SPA.

9.2 Peak District Moors (South Pennine Moors Phase 1) SPA

The birds for which the SPA is designated could be adversely affected by wind turbines (see Annex G for background information). This SPA is close to the Plan Area in several locations. As policy EQ1 Climate Change does not specify possible locations for renewable and low carbon energy generation developments, including wind turbine developments, its wide-ranging scope could potentially result in wind energy development being proposed close to this European site, which could create an adverse effect on the bird species.

9.3 Conclusions

It is concluded that, based on the currently available evidence, it is not possible to objectively demonstrate that policy EQ1 would not result in an adverse effect on the integrity of the South Pennine Moors Phase 1 SPA with regards to possible wind farm developments. Suggestions for mitigation are presented in Section 10.

10 Summary and Conclusions

10.1 Introduction

This report presents the interim results of a Habitats Regulations Assessment of the High Peak Local Plan. An earlier HRA screening report[63] identified a number of potential likely significant effects (LSEs) on European sites as a result of the draft policies. An AA of whether or not each of the potential LSEs could result in adverse effects on the integrity of any of the European sites is presented in Sections 5 to 9 of this report.

10.2 Remaining potential adverse effects

At this stage, adverse effects cannot be ruled out on the following European sites:

Peak District Moors (South Pennine Moors Phase 1) SPA

- Possible urban effects from development close to the site;
- Possible air quality effects from operation of employment development close to the site; and
- Possible effects of wind turbine development on designated birds.

South Pennine Moors SAC

- Possible urban effects from development close to the site; and
- Possible air quality effects from operation of employment development close to the site.

Peak District Dales SAC

- Possible urban effects from development close to the site;
- Possible air quality effects from operation of employment development close to the site; and
- Possible water quality effects on phosphate levels in the River Wye from housing development in Buxton

10.3 Suggested mitigation for remaining potential adverse effects

Table 10.1 presents suggested mitigation to remove the identified potential adverse effects (see over page).

10.4 Conclusion

The interim conclusion of the HRA is that the Local Plan as currently worded could potentially result in adverse effects on European designated sites and measures are needed in order to avoid such effects.

Mitigation measures have been suggested for the remaining potential adverse effects identified. Particularly in the case of water quality in the River Wye (part of the Peak District

[63] ENVIRON UK Ltd (February 2013) Habitats Regulations Assessment of the High Peak Local Plan, High Peak Local Plan – Preferred Options HRA Report. Available on the High peak Borough Council website.

Dales SAC), we have recommended that a form of mitigation be proposed by High Peak Borough Council, discussed and agreed with Natural England (and any other relevant organisations), and included within the Local Plan. Mitigation measures should be such that once the mitigation is included in a revised Appropriate Assessment, it will be possible to conclude that no adverse effects will occur on any European site as a result of the High Peak Local Plan.

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
All policies with residential / tourism development in uncertain locations: • Policy S2 Settlement Hierarchy • Policy S3 Strategic Housing Development • Policy S5 Glossopdale Sub area Strategy • Policy S6 Central area; Sub area Strategy • Policy S7 Buxton Sub area Strategy • Policy EQ3 Countryside and Greenbelt Development • Policy E4 Change of use on existing business land and premises • Policy E6 Promoting Peak District Tourism and Culture • Policy E7 Chalet accommodation, caravan and camp site developments • Policy H1 Location of housing development • Policy H6 Rural	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC; Peak District Dales SAC;	Potential urban effects (including dogs disturbing grazing animals, or fire setting)	Edit text of Policy EQ 4 – Biodiversity as follows: *"Requiring a project level Habitats Regulations Assessment (HRA) where new development is proposed ~~that would result in a net increase in residential accommodation~~ within ~~400m~~ 1.6 km of the boundary of the South Pennine Moors Phase 2 SPA; Peak District Moors (South Pennine Moors Phase 1) SPA; Peak District Dales SAC and South Pennine Moors SAC, in order to satisfy the Council that there will be no significant adverse effects on the ecological integrity of the sites".* Include in the supporting text of Policy Policy EQ 4 – Biodiversity: *"The draft HRA report, which is available as a supporting document, has identified the potential for adverse effects from development within the Peak District Moors (South Pennine Moors Phase 1) SPA, the South Pennine Moors SAC, and the Peak District Dales SAC from residential or tourist development within 1.6 km of their boundaries. Such adverse effects could be the result of fire setting or disturbance of grazing animals used for site management. Policy* EQ 4	

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
Exception Sites • Policy H7 Gypsies, Travellers and Travelling Show People			*therefore requires project-level HRA for developments proposed within 1.6 km of a nature conservation site of international importance."* In addition, direct edits to some of the policies listed are suggested below.	
Policy with residential / tourism development in uncertain locations: • Policy S5 Glossopdale Sub area Strategy	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC;	Potential urban effects	Add the following text in a suitable place in the list of protected sites in the first bullet point: "*European sites,* "	
Policy with residential / tourism development in uncertain locations: • Policy S6 Central area; Sub area Strategy	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC;	Potential urban effects	Add the following text in a suitable place in the list of protected sites in the second bullet point: "*European sites,* "	
Policy with residential / tourism development in uncertain locations: • Policy S7 Buxton Sub area Strategy	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC; Peak District Dales SAC;	Potential urban effects	Add the following text in a suitable place in the list of protected sites in the fourth bullet point: "*European sites,* "	
Policy with residential / tourism development in	Peak District Moors (South Pennine Moors	Potential urban effects	Edit text of Policy H6 as follows:	

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
uncertain locations: • Policy H6 Rural Exception Sites	Phase 1) SPA; South Pennine Moors SAC; Peak District Dales SAC;		"*The development takes full account of environmental considerations, including European sites*."	
Policy with residential / tourism development in uncertain locations: • Policy H7 Gypsies, Travellers and Travelling Show People	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC; Peak District Dales SAC;	Potential urban effects	Edit text of Policy H7 as follows: "*The development does not have an adverse impact upon the character or appearance of the landscape of sites/areas of nature conservation value, including European sites*."	
Employment policies: • Policy S4 Maintaining and Enhancing an Economic Base • Policy E1 New Employment Development	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC; Peak District Dales SAC;	Possible direct effects of operation of the employment use at development close to a European site on air quality.	Edit text of Policy EQ9 Pollution Control and Unstable Land as follows: *"only if the potential adverse effects are mitigated to an acceptable level by other environmental controls or by measures included in the proposals. This should include any adverse effects identified on European sites. This may be achieved by…"* **Also**: Edit text of Policy E1 New Employment Development as follows: *"Supporting business development within the countryside that accords with Local Plan Policy EQ3 – Countryside Development and Policy EQ4 Biodiversity."*	

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
Policy EQ1 Climate Change	Peak District Moors (South Pennine Moors Phase 1) SPA	Effects of wind turbines on bird species	Include in text of policy EQ1: *"Ensuring that any wind turbine developments demonstrate that they will not have an adverse effect on the integrity of any European sites, including project-level HRA where appropriate."* Include in supporting text for policy EQ1: *"Where a wind turbine development scheme, alone or in combination with other plans and projects, has the potential to have an impact on a European site, developers must carry out a project-level Habitats Regulations Assessment of the likely significant effect(s) of the scheme, in accordance with the Habitats Regulations. In order to gain planning permission, wind turbine developments must demonstrate that they will not have an adverse effect on the integrity of any European sites."*	
Policies relating to housing development in Buxton: • Strategic Policies S2,3,7 • Housing Policy H3 • Strategic Development Site policies DS 12-17	Peak District Dales SAC (Wye Valley SSSI component site)	Possible effects on water quality in River Wye of increased phosphate from Buxton STW	Mitigation to be proposed by High Peak Borough Council. At time of writing the draft HRA report, HPBC have proposed drafting a Memorandum of Understanding between the Council, Natural England and the Environment Agency	

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
inclusive			regarding actions to mitigate against this issue. Agreement to this approach is required from NE.	
Specific Allocation Policies:				
Policy DS 3 – Charlestown works (mixed use site, with business use and residential development of approximately 76 dwellings)	Peak District Moors (South Pennine Moors Phase 1) SPA; South Pennine Moors SAC	Possible urban effects (including pet predation, fire setting, dog eutrophication / effects on grazing animals, localised recreational impacts), as there is no open space for recreation close to the site.	Site DS 3 will require project-level HRA once the details of the site (employment uses, site layout etc.). Add to the list of requirements in the policy text box: *"Project-level Habitats Regulations Assessment in order to address potential urban effects"* With regards to the potential effect of increased localised recreation on the Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC, High Peak BC is invited to propose a suitable text edit to include this requirement. The HRA has concluded at this stage that it is not considered likely that new residents of this site would frequently use the footpath to access the edge of the SAC/SPA and Shaw Moor, however, an alternative area of natural greenspace is not available in this part	

Table 10.1: Summary of potential adverse effects from High Peak Local Plan and suggested mitigation				
Policy	**European site/s**	**Effect**	**Suggested mitigation**	**Response from HPBC**
			of Glossop. Should the Local Plan require that a suitable area of greenspace is delivered as a part of this redevelopment, the HRA could conclude that no adverse effects on the SPA/SAC would result from this policy. Suitable alternative natural greenspace could be provided either on site or via contributions for off-site provision in the vicinity of the site.	
Policy DS 16 –Tongue Lane (land south of Tongue Lane Industrial Estate, Buxton). (Business / industrial site of 4.3 ha (size to be confirmed))	Peak District Dales SAC	Possible direct effects of operation of the employment use on air quality.	The Tongue Lane employment site DS 16 will require project-level HRA once the details of the site (employment uses, site layout etc.). Add to the list of requirements in the policy text box: *"Project-level Habitats Regulations Assessment in order to address potential air quality effects"*	

High Peak Local Plan Revised Preferred Options Draft

Habitats Regulations Assessment
Draft version

Annexes

Prepared for:
High Peak Borough Council

Prepared by:
ENVIRON
Exeter, UK

Date:
March 2014

Project or Issue Number:
UK18-18153

ENVIRON

Contract No:	UK18-18153
Issue:	1
Author (signature):	C Poynton
Project Manager/Director (signature):	J Curran
Date:	11/03/14

This report has been prepared by ENVIRON with all reasonable skill, care and diligence, and taking account of the Services and the Terms agreed between ENVIRON and the Client. This report is confidential to the client, and ENVIRON accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by ENVIRON beforehand. Any such party relies upon the report at their own risk.

ENVIRON disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the Services.

Version Control Record				
Issue	**Description of Status**	**Date**	**Reviewer Initials**	**Author Initials**
1	Draft	11/03/14	LV	CYP/VP

Contents

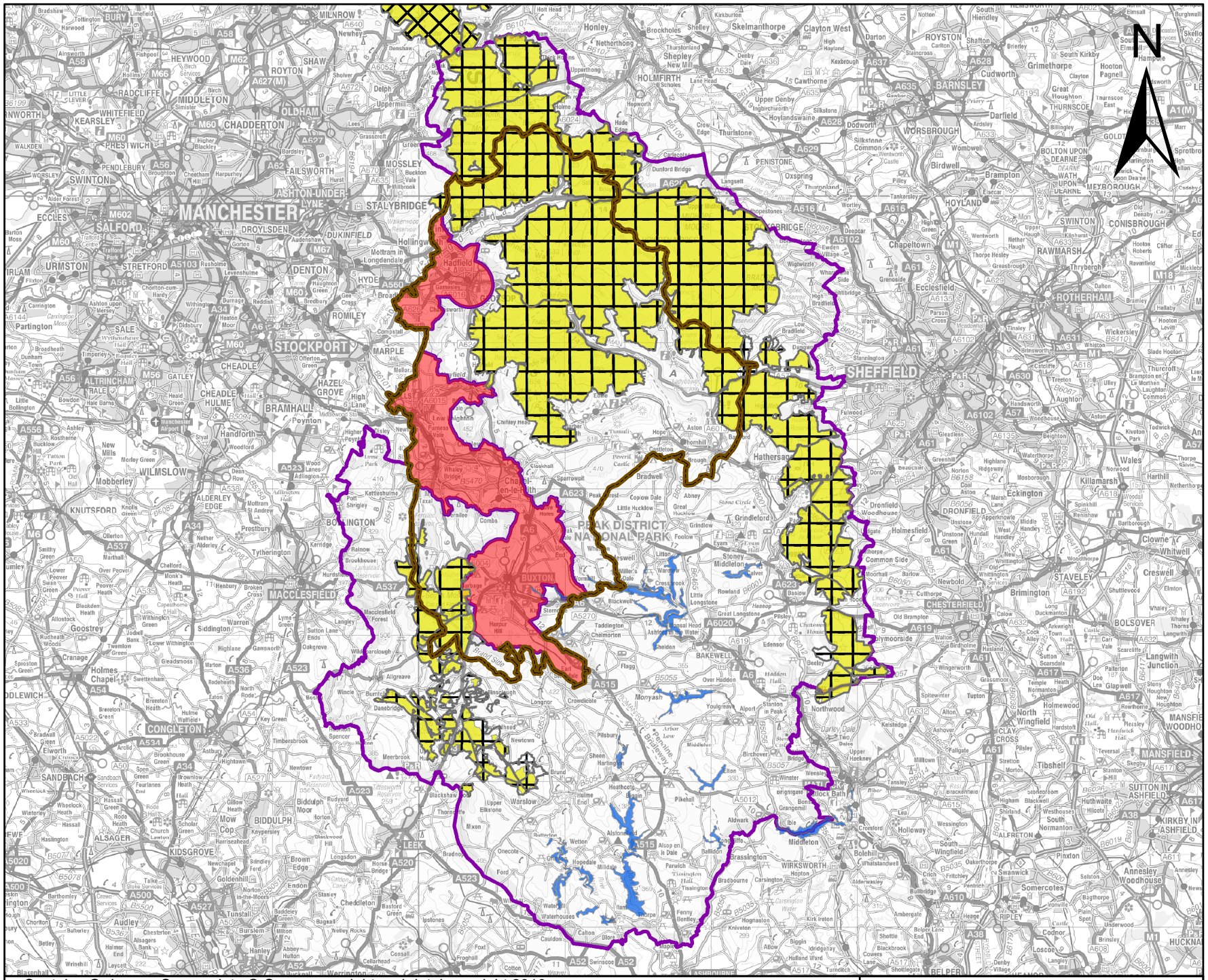
1 Introduction

This document contains the annexes of the Habitats Regulations Assessment Report draft version (ENVIRON, February 2014) for the High Peak Local Plan Revised Preferred Options version and should be read in conjunction with that document.

Annex A: Figures

Figure A1: European Designated Sites and Plan Area

Figure A2: 'A' Roads close to the Peak District Dales SAC



Legend

High Peak Borough Council Boundary

SPA

Peak District Moors (South Pennine Moors Phase 1)

South Pennine Moors Phase 2

SAC

Peak District Dales

South Pennine Moors

Plan Area

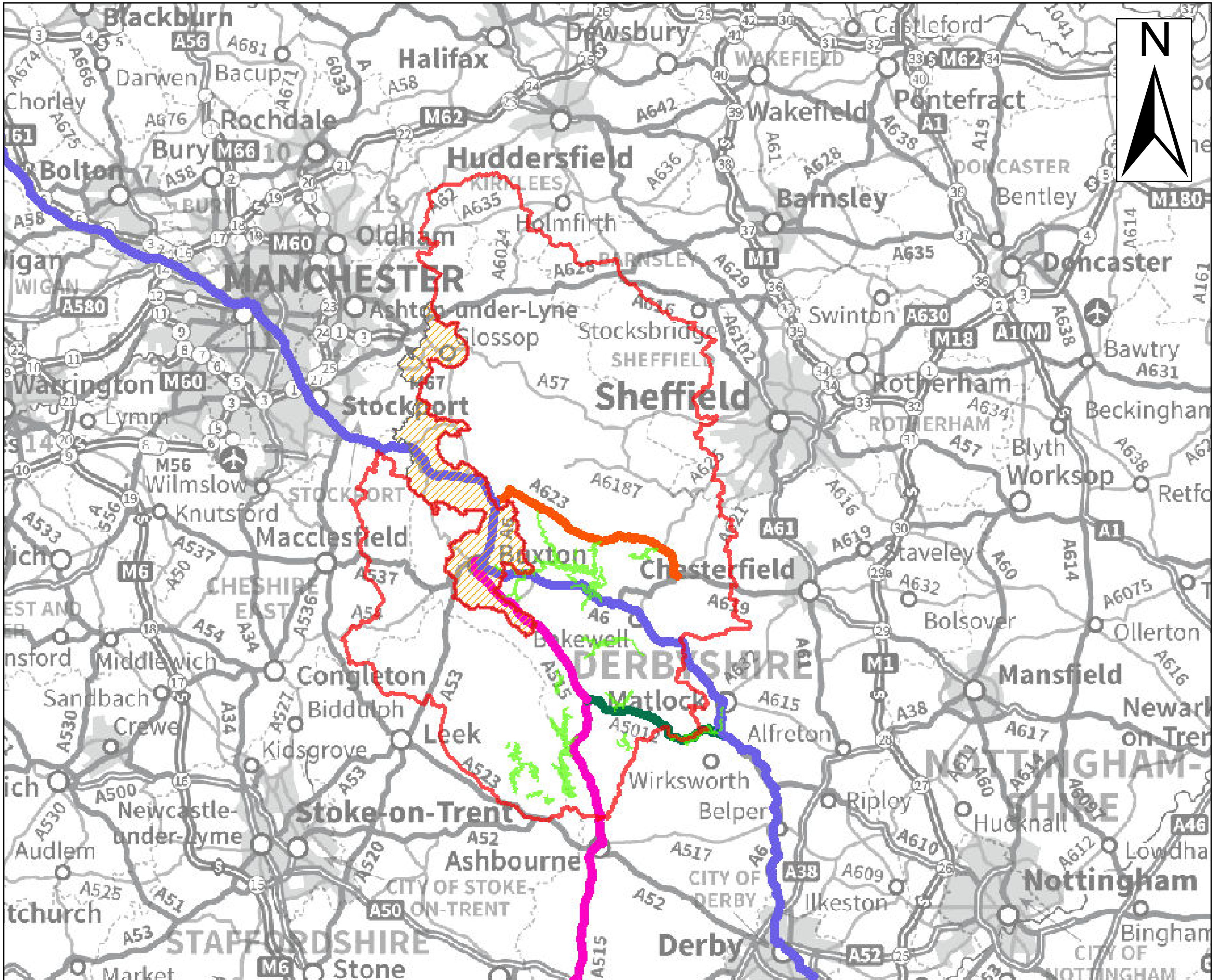
National Park Boundary

Note:
Refer to report for further information

Title: Figure A1: European Designated Sites and Plan Area

Site:	High Peak Borough
Client:	High Peak Borough Council
Project No.	UK18-18153
Issue:	1
Date:	9th Jan 2013
Drawn By:	CD

ENVIRON



Contains Ordnance Survey data © Crown copyright and database right 2010

0 3.5 7 14 21 28 Kilometers

Legend

- National Park Boundary
- Peak District Dales
- High Peak Planning Area
- A5012
- A515
- A6
- A623

Note:
Refer to report for further information

Title:	Figure A2 A Roads Close to Peak District Dales SAC
Site:	High Peak Borough
Client:	High Peak Borough Council
Project No.	UK18-18153
Issue:	1
Date:	March 2014
Drawn By:	CD

ENVIRON

Annex B: Detailed European sites information

Detailed European sites information

Introduction

The information on European sites is largely taken from the 'Natura 2000 Standard data form'; the information on Ramsar sites is largely taken from the 'Information Sheet on Ramsar Wetlands'; these are available on the JNCC's website[1].

[1] http://jncc.defra.gov.uk/page-4 accessed 5 December 2013

Peak District Moors (South Pennine Moors Phase 1) SPA

Table B.1 - Peak District Moors (South Pennine Moors Phase 1) SPA	
Name	Peak District Moors (South Pennine Moors Phase 1) SPA UK9007021
Location with regards to plan area	To the north and north-west of the plan area, with the most south-eastern tip of the site extending into the plan area: approximately 2 km^2 of the site is within the plan area itself.
Reason(s) for designation:	
This site qualifies under Article 4.1 of the Directive (79/409/EEC) as during the breeding season the area regularly supports: • Short-eared owl *Asio flammeus* at least 2.2% of the GB breeding population Count, as at 1990 and 1998 • Merlin *Falco columbarius* at least 2.3% of the GB breeding population Count as at 1990 and 1998 • Golden plover *Pluvialis apricaria* (North-western Europe - breeding) at least 1.9% of the GB breeding population Count, as at 1990 and 1998 Additional Qualifying Features Identified by the 2001 UK SPA Review[2]: • A103 *Falco peregrinus*; Peregrine falcon (Breeding) • A466 *Calidris alpina schinzii;* Dunlin (Breeding)	
Component SSSI sites	• The Dark Peak SSSI • Eastern Peak District Moors SSSI • Goyt Valley SSSI • Leek Moors SSSI
Conservation objectives	Avoid the deterioration of the habitats of the qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution

[2] Additional Qualifying Features identified by the 2001 UK SPA Review: although not yet legally classified, are, as a matter of Government policy, treated in the same way as classified features (Natural England's European Site Conservation Objectives for this site)

Table B.1 - Peak District Moors (South Pennine Moors Phase 1) SPA	
	to achieving the aims of the Birds Directive. Subject to natural change, to maintain or restore: • The extent and distribution of the habitats of the qualifying features; • The structure and function of the habitats of the qualifying features; • The supporting processes on which the habitats of the qualifying features rely; • The populations of the qualifying features; • The distribution of the qualifying features within the site.
Vulnerability Major urban and industrial centres near to the Peak District Moors provide significant visitor pressure and approximately two-thirds of the moorlands are open to public access. Habitat damage through physical erosion or fire, combined with disturbance of breeding birds, can be significant. Initiatives for sustainable recreation are being developed. Many habitats are sub-optimal (in vegetation terms) as a consequence of historic air pollution, high grazing pressure and wildfire burns. Grazing pressure is generally being lowered and appropriate burning encouraged by two separate ESAs which encourage and support habitat restoration. Notwithstanding these schemes, evidence suggests that breeding birds in the south-west of the area may be declining on both open moorland and enclosed rough grazing land, possibly due to general agricultural improvement of the surrounding areas which are used by some species for some of their habitat requirements; e.g. golden plovers feed on in-bye land off the moor.	
Requirements to maintain favourable condition status of site (relating to conservation objectives)	**Key factors affecting site integrity (relating to designated features)**
• Requires maintenance of the extent of suitable habitat mosaic including areas of tall mature heath and grass sward suitable for nesting short-eared owl and merlin whilst maintaining shorter, recently grazed and burnt areas suitable for nesting golden plover. • Maintaining low levels of disturbance and predation are especially important for ground nesting birds and management of human access should direct disturbance away from sensitive areas. (particularly recreational disturbance - Major urban and industrial	• Maintenance of habitats on site • Maintenance of bird feeding areas outside the site (avoidance of agricultural intensification), in particular Golden Plover. • Ground nesting birds - Maintaining low levels of disturbance and predation, i.e. where humans, dogs

Table B.1 - Peak District Moors (South Pennine Moors Phase 1) SPA	
centres near to the Peak District Moors provide significant visitor pressure and 524KM^2 of the moorlands are open to public access)[3].Predator control may be required. • Avoidance of fires (Many habitats are sub-optimal in vegetation terms) as a consequence of wildfire burns) • Maintenance of the extent of habitats suitable for providing adequate food supply such as small mammals, nesting birds and invertebrates. • Avoidance of air pollution (Many habitats are sub-optimal (in vegetation terms) as a consequence of historic air pollution) • Appropriate grazing regimes are required to maintain the extent of the moorland and heaths, the structural diversity including undisturbed dwarf shrub, varied age structure and vegetational mosaic. Grazing plays an important role in this management. The control of inappropriate and invasive species is required. • Maintaining hydrological conditions as wet heaths require wet soils during winter with a dry surface in summer. Also importance of water quality, including lack of eutrophication and maintenance of oligotrophic character. • Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths. • Mires and Bogs are sensitive to changes in hydrology and maintenance of natural regimes, water quality, and avoidance of water table lowering are important factors.	and predators are. Management of human access should direct disturbance away from sensitive areas. • Wet heaths - Maintaining hydrological conditions. Water quality, including lack of eutrophication and maintenance of oligotrophic character. • Avoidance of fires. • Air quality - Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths. • Mires and bogs – changes in hydrology and maintenance of natural regimes, water quality, and water table levels. • Absence of barriers e.g. wind farms

[3] JNCC data form (05/05/06) http://www.jncc.gov.uk/pdf/SPA/UK9007021.pdf

South Pennine Moors SAC

Table B.2 - South Pennine Moors SAC	
Name	South Pennine Moors SAC UK0030280
Location with regards to plan area	To the north and north-west of the plan area, with the most south-eastern tip of the site extending into the plan area: approximately 2 km^2 of the site is within the plan area itself. (Area of 64,983 ha)
Reason(s) for designation:	
ANNEX 1 Primary • 4030 European dry heaths. • 7130 Blanket bogs * Priority feature • 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles. Non Primary • 4010 Northern Atlantic wet heaths with *Erica tetralix.* • 7140 Transition mires and quaking bogs	
SSSI component sites	• The Dark Peak SSSI • Goyt Valley SSSI • Eastern Peak District Moors SSSI • Leek Moors SSSI
Conservation objectives	Maintenance of the Annex I habitats that are a primary reason for selection of this site and maintenance of non-primary habitats.
Vulnerability The South Pennine Moors SAC is largely enclosed on two sides by large industrial urban areas, which means that large numbers of people use the area for	

Table B.2 - South Pennine Moors SAC

recreational activities. Around two-thirds is within the Peak District National Park. Land management is primarily driven by agriculture, rough grazing for sheep, and grouse-shooting.

Access management has been a key issue, and with proposals under the Countryside and Rights of Way Act, will continue as such. Mechanisms for addressing access management issues include a range of fora, research and the role of organisations such as the Peak District National Park and its Ranger Service. Accidental fires can cause extensive damage to vegetation. The National Park Authority has produced a strategic Fire Plan and areas are closed to the public at times of high fire risk.

Maintenance of the ecosystems relies primarily on appropriate grazing levels and burning regimes. There are a number of key pressures upon the site; these include overgrazing by sheep, burning as a tool for grouse moor management and inappropriate drainage through moor-gripping. All these issues are being tackled, and an integrated management strategy and conservation action programme has been produced as part of an EU funded LIFE project for the area to the north of the National Park. Within the Park, the MAFF-funded North Peak and South West Peak Environmentally Sensitive Areas are important mechanisms in attempts to achieve balanced management. MAFF's Countryside Stewardship Scheme and English Nature's Wildlife Enhancement Scheme (WES) are also being used to achieve favourable management. Management of the site, especially north of the National Park, is further complicated by the large number of commons. The National Park Authority owns a significant area of moorland, as does the National Trust.

Atmospheric pollution over the last few hundred years has depleted the lichen and bryophyte flora and may be affecting dwarf-shrubs. The impact has arguably been greatest on blanket bog, wet heath and transition mire where the bog-building *Sphagnum* mosses have been largely lost. Combined with historical overgrazing, burning (accidental and deliberate), drainage and locally trampling, large areas of blanket bog have become de-vegetated and eroded. It is unclear at this stage whether the effects are irreversible. Attempts over recent decades to reverse these processes have achieved mixed and limited results. The combination of these effects means that most if not all of the blanket bog will not be classed as favourable according to English Nature's condition assessment criteria. Whilst all efforts can be made to control current factors such as current grazing and burning patterns, current atmospheric pollutant levels and access impacts, it is unclear whether this can fully mitigate the long-term influence of the historical factors such as atmospheric pollution, past burning and overgrazing. The situation is further complicated by a view that some erosion features can be considered natural phenomena of intrinsic interest. It may not therefore always be appropriate to try and revegetate bare peat even if suitable techniques exist.

The former extensive cover of woodland has declined over many centuries to the point that it is fragmented, relatively small-scale and largely restricted to steeper valley sides. There is no woodland included in the site to the north of the National Park. Remaining woods are often unfenced and open to grazing which restricts tree regeneration. In some *Rhododendron* has invaded, choking out native flora. These issues are being tackled through the Forestry Commission's Woodland Grant Scheme and Challenge Fund for creating new native woodland, MAFF's North Peak ESA and English Nature's WES though more incentive and resources are needed. As well as restoring existing stands of woodland there is an emphasis on re-creation to expand and link fragments which inevitably involves changing existing habitats. This will raise questions over the balance of vegetation types we wish to see on the site but given woodland would naturally have covered much of the area we need to treat it's expansion seriously. The flora of woodlands, quality as with bog and heath, has suffered from poor air quality. Again, it is less clear what can be done to reverse this situation other than to try and ensure continued improvements in air quality to allow affected species to recolonise if they can.

Table B.2 - South Pennine Moors SAC	
Requirements to maintain favourable condition status of site (relating to conservation objectives)	**Key factors affecting site integrity (relating to designated features)**
Heaths • Appropriate heathland management is required to maintain the extent of the heaths, the structural diversity including undisturbed dwarf shrub, varied age structure and vegetational mosaic. Grazing plays an important role in this management. The control of inappropriate and invasive species is required. Specific grouse moor management contributes to the maintenance of habitat mosaic. • Maintaining hydrological conditions as wet heaths require wet soils during winter with a dry surface in summer. Also importance of water quality, including lack of eutrophication and maintenance of oligotrophic character. • Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths. Mires and Bogs • Maintenance of habitat extent and species composition are important for this habitat, with some areas requiring management of scrub encroachment in addition to minimising the levels of trampling and damage from recreational activities including fire-setting. • Mires and Bogs are sensitive to changes in hydrology and maintenance of natural regimes, water quality, and avoidance of water table lowering are important factors. • Areas that have suffered previous damaging activities require enhancement including re-vegetation of bare peat, increased vegetational diversity in response to past heavy sheep grazing	• Maintenance of habitats on site • Heaths - Maintaining hydrological conditions. Water quality, including lack of eutrophication and maintenance of oligotrophic character. • Avoidance of fires. • Air quality - Air pollution and atmospheric deposition is likely to be an important cause of eutrophication for wet and dry heaths. • Mires and bogs – changes in hydrology and maintenance of natural regimes, water quality, and water table levels.

Table B.2 - South Pennine Moors SAC	
and a reduction of erosion through gullying. Woodlands • Appropriate woodland management is required in particular to maintain natural processes and create a diverse woodland structure, allow tree regeneration potential, control invasive species, and support characteristic species and habitat types. • To increase the extent of native character woodland without detriment to other key habitats.	

Peak District Dales SAC

Table B.3 - Peak District Dales SAC	
Name	Peak District Dales SAC UK0019859
Location with regards to plan area	Two of the component SSSI sites (Matlock Woods and Via Gellia Woodland) are within plan area; others are within the Peak District National Park, outside the Plan Area. (Total Area 2326 ha)
Reason(s) for designation:	
ANNEX 1 habitats: Primary: • 6210: Semi- natural dry grasslands and scrubland facies: on calcareous substrates. • 9180: Tilio-Acerion forests of slopes, screes and ravines * Priority feature. Non-primary: • 4030: European Dry Heaths. • 6130: Calaminarian grasslands. • 7230: Alkaline Fens. • 8120: Calcareous and calcshist screes of the montane to alpine levels. • 8210: Calcareous rocky slopes with chasmophytic vegetation.	ANNEX II species: Primary: • 1092: White-clawed (or Atlantic stream) crayfish. Non Primary: • 1096: Brook lamprey. • 1163: Bullhead.
SSSI component sites	• Ballidon Dale • Coombs Dale • Cressbrook Dale • Dove Valley and Biggin Dale • Hamps and Manifold Valleys • Lathkilldale • Longdale(Hartington)

Table B.3 - Peak District Dales SAC	
	• Longdale and Grassendale • Matlock Woods • Monks Dale • Wye Valley • Topley Pike and Deepdale • Via Gellia Woodlands
Conservation objectives	Maintenance of the Annex I habitats and Annex II species that are a primary reason for selection of this site and maintenance of non-primary habitats and species.

Vulnerability

The main threat to the limestone grasslands of the Peak District Dales is inappropriate grazing management. The ideal management for nature conservation purposes - light grazing throughout most of the year, with a break in grazing during the spring and early summer - tends to conflict with today's agricultural regimes. The result is either neglect and invasion by scrub, or overgrazing and the loss of the important vegetation communities. A number of the daleside grasslands are managed as part of a larger grazing unit with the richer improved plateau lands, with the result that any regulation of stocking levels in the dales becomes difficult. Some of the dalesides are now managed under Countryside Stewardship, which has brought about considerable improvements in their management. Similarly since 1996 English Nature's White Peak Wildlife Enhancement Scheme has been successful in attracting land managers and enhancing the conservation value of sites.

Proposed developments have the potential to interfere with drainage patterns within the site. The impact of dust from quarrying needs to be assessed. Potential adverse effects arising from such proposals will be dealt with under the provisions of the Habitats Regulations.

The woodlands within the SAC occupy very steeply-sloping dalesides, where access is always going to be problematic, and development pressures are therefore limited. Existing permission for limestone or mineral extraction is a potential threat to some of the woodlands on one part of the site. This will be addressed through the planning review procedures under the Habitats Regulations. Neglect has resulted in invasion by non-native species in some woods. This is now being addressed where possible through management under a Wildlife Enhancement Scheme. In some areas access by grazing livestock to some of the woodlands has resulted in a degraded ground flora, and limited regeneration of the shrub and canopy species. Once again, this is to be addressed, wherever practicable, through the Wildlife Enhancement Scheme. The dominance of sycamore and its regeneration potential are a problem whilst it is considered a non-native part of the woodland. Removal of sycamore with the eventual aim of eradication would be a very long-term goal. Assessment of the status of sycamore (naturalised?) is needed to put in perspective eradication proposals. Some mature sycamore should be left as veterans. This will in part make up for the fact that there are few veteran trees in the woods. To have a natural and diverse age structure is therefore a long-term aspiration.

In addition to grassland and woodland there are a range of scrub communities some of which are valuable for nature conservation. They are a key part of a natural woodland and an open daleside. The scrub also illustrates how neglected grassland will revert to woodland whilst grazed woodland may not regenerate. The balance between woodland, grassland and scrub needs to be struck.

Table B.3 - Peak District Dales SAC	
There will be a need to work closely with game fishing interests to ensure that fishery management does not adversely affect the freshwater features of the cSAC. The same is true of shooting tenants, who may impact on the overall ecology of the woodland.	
Requirements to maintain favourable condition status of site (relating to conservation objectives)	**Key factors affecting site integrity (relating to designated features)**
Grasslands Sward structure and composition provide a valuable indication of habitat quality. Maintaining appropriate grazing or rotational cutting may be used to retain the presence of positive indicator species and prevent domination by rank grasses and scrub, though some scrub can be ecologically beneficial. Calaminarian Grasslands Maintenance of suitable habitat with characteristic species assemblages, and substrate enriched with heavy metals, areas of bare ground with characteristically short sward structure and suitably low levels of dead plant matter. Sporadic management such as occasional light grazing may be beneficial. Woodlands Appropriate woodland management is required in particular to maintain natural processes and a diverse woodland structure, tree regeneration potential and a diverse age structure, control invasive species, and support characteristic species and habitat types. Heaths Without management heathland becomes progressively dominated by bracken, gorse and/or scrub and trees. Appropriate heathland management is therefore required to maintain the extent of the heaths, the structural diversity including undisturbed bare ground, age structure and vegetation mosaic. Grazing can play an important role in this management. The control of inappropriate and invasive species is required. Alkaline Fens Appropriate management, usually in the form of light grazing, is required to maintain sward structure and composition. The control of inappropriate and invasive species. Hydrology, water quality and air quality must be maintained. Although groundwater levels need to be high, standing water may be detrimental for alkaline fen communities.	• Grasslands – maintain management including appropriate grazing or rotational cutting • Calaminarian Grasslands - sporadic management such as occasional light grazing may be beneficial. • Alkaline fens - Air quality, water quality and water levels. • Calcareous rocky habitats - Maintenance of natural processes such as erosion • Crayfish - Maintenance of extent of habitat and water quality. Absence of introduced species and crayfish plague. Maintain visitor awareness initiatives, sympathetic management of fishery practices and regular monitoring. • Fish - Bullhead and Brook Lamprey – Maintain rivers' natural structure and form. Avoid creation of artificial barriers. Maintain sustainable fish populations.

Table B.3 - Peak District Dales SAC	
Calcareous rocky habitats Maintenance of the extent of habitat with characteristic pioneer calcicole and basiphilous species. Maintenance of natural processes such as erosion. Crayfish Maintenance of extent of habitat and water quality. The absence of introduced species and crayfish plague is especially important and can be introduced by human activity, therefore maintaining visitor awareness initiatives, sympathetic management of fishery practices and regular monitoring is important. Fish River's natural structure and form should be maintained to support a natural flow regime that will help ensure the provision of resting pools for fish, conserve the quality of the riverbed as fish spawning habitat, and avoid the creation of artificial barriers to the passage of migratory fish. Any exploitation of fish populations or other native animals or plants should be at a sustainable level, without manipulation of the river's natural capacity to support them or augmentation by excessive stocking.	

Annex C: Details of previous HRA screening exercises

Introduction

HRA Screening Table (February 2013)

Details of previous HRA screening exercises

Introduction

The draft policies within the Preferred Options Local Plan were screened for likely significant effects (LSEs) in December 2012 and presented in the Preferred Options HRA Report (ENVIRON, February 2013). This Annex presents the findings of the screening exercise within a table over the page.

The edits to the High Peak Local Plan between the Preferred Options and Revised Preferred Options versions were re-screened in January 2014. Where it was concluded that an edit to the Local Plan had a material impact on the conclusions of the HRA screening, the change was taken into account in the AA of the relevant issue.

Policies for which no likely significant effects (LSEs) were identified have been screened out of the HRA process.

HRA Screening Table (February 2013)

Table C.1 presents the potential LSEs identified for each European site as a result of the Preferred Options draft Local Plan policies. This table was presented in the HRA Report of the High Peak Local Plan - Preferred Options as Annex F: Screening of Local Plan preferred options policies (December 2012).

Key to Table C.1:	
Likely Significant Effects	✓
Uncertain effects	?
No Likely Significant Effects	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Policy S1 Sustainable development principles	-	-	-	-
Although this policy provides for some development within the larger settlements and villages, it also contains safeguards for protecting European designated sites: *"Minimising the risk of damage to areas of importance for nature conservation and/or landscape value, both directly and indirectly and ensuring that there is suitable mitigation to address any adverse effects"* and *"In order to enable required development to take place, in some cases mitigation measures will be needed to address the impacts of new development on existing infrastructure and on nearby sensitive areas."* The potential effects of the development proposed within the Plan Area will be considered in relation to the settlement hierarchy (Policy S2) and the area based policies.				
Local Plan Policy S2 Settlement Hierarchy	?	✓	✓	✓
Comments: The policy directs most new development to the market towns which supports the vitality of these towns and encouraging accessibility between homes, jobs and services. However, through increasing populations in the settlements within the Borough, the policy could result in increases in traffic on roads which pass within 200 m of the European sites. Increasing populations within the Borough could also have adverse effects on the European sites from increased recreation. Housing development in Buxton could result in an increase of phosphates discharged from the Buxton Sewerage Treatment Works into the River Wye. The Environment Agency confirmed in 2010 that the planned growth as detailed in the Draft Joint Core Strategy (2010) can be accommodated within the discharge consent that has been set at Buxton Sewage Treatment works. In order to improve the condition of the River Wye, which in 2010 was experiencing				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
higher phosphate levels than the target for the river and to ensure that impacts from new housing in Buxton does not cause harm to the SAC, this issue requires some further investigation to ascertain whether an adverse effect could occur and whether the amount of phosphates entering the River Wye from new development can be minimised. Housing development on the edges of settlements could result in pet predation of birds through the introduction of pets (such as domestic cats) into areas closer to the Peak District Moors (South Pennine Moors Phase 1) SPA. Potential LSEs: South Pennine Moors Phase 2 SPA: Uncertain air quality impacts from increased traffic. Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance and increased traffic. Possible in-combination air quality effects with Derbyshire Dales Local Plan (development in Matlock area). Pet predation is not an LSE because no preferred options for housing allocations are within 400 m of the SPA. Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Local Plan Policy S3 Strategic Housing Development	?	✓	✓	✓
Comments: policy not yet completed. Through increasing populations in the settlements within the Borough, the policy could result in increases in traffic on roads which pass within 200 m of the European sites. Increasing populations within the Borough could also have adverse effects on the European sites from increased recreation. Housing development in Buxton could result in an increase of phosphates discharged from the Buxton Sewerage Treatment Works into the River Wye. Housing development on the edges of settlements could result in pet predation of birds through the introduction of pets (such as domestic cats) into areas closer to the Peak District Moors (South Pennine Moors Phase 1) SPA.				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Potential LSEs: South Pennine Moors Phase 2 SPA: Possible increased traffic and air quality impacts. Possible in-combination effects with Derbyshire Dales Local Plan (development in Matlock area). Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance, urban encroachment, increased traffic and pet predation of birds. Peak District Dales SAC: Possible and water quality impacts, increased traffic and air quality impacts.				
Local Plan Policy S7 Buxton Sub Area	?	✓	✓	✓
Comments: Policy supports proposals to improve connectivity by public transport, walking and cycling to and from the Peak District National Park. The policy could result in adverse effects on European sites due to increasing the population of the town, such as increased traffic on roads which pass through or within 200 m of European sites and increasing recreation pressure and associated potential effects. Potential LSEs: South Pennine Moors Phase 2 SPA: Uncertain air quality impacts from increased traffic. Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance, urban encroachment and increased traffic. Possible in-combination air quality effects with Derbyshire Dales Local Plan (development in Matlock area). Pet predation is not an LSE because no preferred options for housing allocations are within 400 m of the SPA. Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Local Plan Policy S6 Central Sub Area	?	✓	✓	✓
Comments: Comments: The policy could result in adverse effects on European sites due to increasing the population of the Central Area, such as increased traffic on roads which pass through or within 200 m of European sites and increasing recreation pressure and associated potential effects. Potential LSEs: South Pennine Moors Phase 2 SPA: Uncertain air quality impacts from increased traffic. Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance and increased traffic. Possible in-combination air quality effects with Derbyshire Dales Local Plan (development in Matlock area). Pet predation is not an LSE because no preferred options for housing allocations are within 400 m of the SPA. Peak District Dales SAC: Possible increased traffic and air quality impacts.				
Local Plan Policy S5 Glossopdale Sub Area	?	✓	✓	✓
Comments: The policy could result in adverse effects on European sites due to increasing the population of Glossopdale, such as increased traffic on roads which pass through or within 200 m of European sites, increased air pollution from employment sites and increasing recreation pressure and associated potential effects. Potential LSEs: South Pennine Moors Phase 2 SPA: Uncertain air quality impacts from increased traffic. Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance, urban				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
encroachment, increased traffic and air pollution. Possible in-combination air quality effects with Derbyshire Dales Local Plan (development in Matlock area). Pet predation is not an LSE because no preferred options for housing allocations are within 400 m of the SPA. Peak District Dales SAC: Possible increased traffic and air quality impacts.				
Local Plan Policy EQ1 Climate Change	-	-	-	-
Comments: This policy promotes renewable energy developments which have previously been identified within the HRA as having potential for causing negative effects on the Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors Phase 2 SPA in relation to potential effects on birds from wind turbines. However, policies S1 and EQ4 now contain sufficient safeguards to protect these European designated sites from negative effects. Such impact assessment will need to be done at the project level (i.e. when planning applications are submitted).				
Local Plan Policy EQ2 Landscape Character	-	-	-	-
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy EQ3 Countryside Development	-	-	-	-
Comments: This policy relates to small scale housing, tourism and rural based enterprises which are not likely to generate significant numbers of people or traffic. Although the location of these developments is not known and could be in close proximity to European designated sites, other policies (including S1 and EQ3) contain strong safeguards for their protection and therefore no LSEs are identified for this policy.				
Local Plan Policy EQ4 Biodiversity	-	-	-	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy EQ5 Design and Place Making	-	-	-	-
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy EQ6 Built and Historic Environment	-	-	-	-
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy EQ7 Green Infrastructure	-	✓	-	✓
Comments: The policy promotes the development of sub-regional linkages to improve access to the National Park for tourism and recreation and therefore could result in adverse effects on European sites associated with increased recreation. The National Park Authority Core Strategy aims to promote Buxton as a 'gateway town' for tourists, encouraging them to stay in the town and use facilities such as restaurants there. This policy retains open spaces in urban areas where they benefit local communities. This should help support the provision of recreation areas for local residents which may help to avoid increasing pressure on the European sites. This policy may need to be altered to provide mitigation for potential adverse effects identified in relation to increased recreational pressure, resulting from the Sub Area Strategies and Local Plan Policy S2. Potential LSEs:				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance effects.				
Local Plan Policy EQ8 Trees, woodlands and hedgerows	-	-	-	-
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy EQ9 Pollution and Flood Risk	-	-	-	-
Comments: This policy mitigates for the effects of development and will not result in LSEs on European sites.				
Local Plan Policy S4 Maintaining and Enhancing an Economic Base	?	✓	✓	✓
Comments: All European sites indicated could be affected by potential air quality impacts as this policy could influence travel patterns within and beyond the plan area. The policy will also result in new employment development which could potentially emit emissions to air, such as manufacturing units. However, Policy EQ3 mitigates for potential construction effects from new employment developments and effects that might be associated with air pollution from new employment units. Potential LSEs: Peak District Moors (South Pennine Moors Phase 1) SPA, South Pennine Moors SAC and Peak District Dales SAC: possible air quality effects from increased traffic.				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
South Pennine Moors Phase 2 SPA: uncertain potential for air quality effects from increased traffic.				
Local Plan Policy E1 New Employment Development	-	-	-	-
Comments: This policy sets out how the Council will deal with planning applications in relation to existing employment uses and new employment developments. Policy EQ3 mitigates for potential construction effects from any new employment developments and effects that might be associated with air pollution from new employment units.				
Local Plan Policy E2 Employment Allocations	-	?	?	?
Comments: Policy EQ4 mitigates for potential construction effects from new employment developments and effects that might be associated with air pollution from new employment units. However, when employment allocation options were assessed in October/November 2012, the Tongue Lane Extension site at Buxton was identified as having a potential effect on the Peak District Dales SAC (River Wye SSSI component site) due to it's proximity to the component SSSI and this could require some further consideration at this level of HRA, if possible.				
Local Plan Policy E3 Primary Employment Zones	-	-	-	-
Comments: This policy aims to maintain Primary Employment Zones for employment uses and no LSEs are identified as a result of this policy.				
Policy CE5 Regeneration of an Industrial Legacy	-	-	-	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Comments: The residential element of mixed use schemes could result in LSEs in relation to disturbance, trampling and pet predation, depending on the location of the former employment sites. In particular, the Charlestown Works site in Glossop has been assessed as a potential housing allocation site and adverse effects in relation to recreation have been identified. See screening of Local Plan Policy S5. For any other former employment sites which are proposed for housing redevelopment in the future (which are not allocated within the Local Plan), Policy EQ4 Biodiversity will protect the European sites and ensure that appropriate assessments are undertaken if necessary and any required mitigation is put in place.				
Local Plan Policy E6 Promoting Peak District Tourism	-	✓	✓	✓
Comments: The policy could result in an increase in tourism-related traffic and recreation pressure. The policy does include the following text, but this may not protect European sites from all potential increases in recreation pressure: *"Supporting measures within the Plan Area which would relieve tourist pressures on the most sensitive areas of the Peak District National Park and which would protect and enhance vulnerable habitats and landscapes."* Potential LSEs: South Pennine Moors Phase 2 SPA: Possible increased traffic and air quality impacts. Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance etc and increased traffic and air quality impacts. Peak District Dales SAC: Possible increased traffic and air quality impacts. Possible in combination AQ effects with Peak District Park Authority Plans and Derbyshire Dales Local Plan development in Matlock area.				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Local Plan Policy E7 Chalet Accommodation, Caravan and Camp Site Developments	-	-	-	-
Comments: This policy relates to relatively small scale accommodation developments in the Borough. Other policies (including S1 and EQ3) contain strong safeguards for the protection of European sites and therefore no LSEs are identified for this policy.				
Local Plan Policy H2 Phasing Housing Development	-	-	-	-
Comments: this policy allows for a continuous release of land for housing development. No LSEs identified.				
Local Plan Policy H1 Location of Housing Development	-	-	-	-
Comments: this policy allows for housing developments on allocated sites (identified in Local Plan Policy H4) and unallocated housing development. Unallocated housing developments within the Borough could have the potential for adverse effects on the European sites, but Policy EQ 4 Biodiversity provides the policy safeguard to ensure that European sites are protected from new developments. The potential effects of allocated housing sites are considered in the screening of Local Plan Policy H4.				
Local Plan Policy H3 Housing Allocations	?	✓	✓	✓
Comments: None of the preferred housing allocation sites are within 400 m of an SPA and therefore pet predation is not identified as a potential adverse effect. Some of the preferred housing allocations could, however, result in increased recreational pressure on the Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC near to Hayfield, Glossop and Buxton from localised recreation e.g. regular dog walking. Housing				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
development in Buxton could result in an increase of phosphates discharged from the Buxton Sewerage Treatment Works into the River Wye (see screening of Policy S2 for further details). Through increasing populations in the settlements within the Borough, the policy could result in increases in traffic on roads which pass within 200 m of the European sites. Potential LSEs: South Pennine Moors Phase 2 SPA: Possible increased traffic and air quality impacts. Possible in-combination effects with Derbyshire Dales Local Plan (development in Matlock area). Peak District Moors (South Pennine Moors Phase 1) SPA and South Pennine Moors SAC: possible increased recreation – trampling / disturbance and increased traffic and air quality impacts. Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Local Plan Policy H4 New Housing Development	-	-	-	-
Comments: this policy deals with the provision of a mix of housing that meets the needs of the local population. No LSEs identified.				
Local Plan Policy H5 (formerly CS14) Affordable Housing	-	-	-	-
Comments: Policy relates to maximising affordable housing not amount or location of housing development. No LSEs identified.				
Local Plan Policy H6 (formerly CS15) Rural Exception Sites	-	-	-	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Comments: This policy relates to relatively small scale housing developments that would be expected in the countryside. Other policies (including S1 and EQ3) contain strong safeguards for the protection of European sites and therefore no LSEs are identified for this policy.				
Local Plan Policy H7 (formerly CS16) Gypsies, Travellers and Travelling Show People	-	-	-	-
Comments: The policy includes a safeguard for the protection of nature conservation sites and therefore no LSE is identified: *"The provision of sites for Gypsy, Traveller and Travelling Show people sites, will be supported provided that:* • *The development does not have an adverse impact upon the character or appearance of the landscape or sites/areas of nature conservation value."*				
Local Plan Policy CF1 Retail and Town Centres	-	-	-	-
Comments: Policy relates only to retail proposals within town centres and no LSEs are identified.				
Local Plan Policy CF2 Primary and Secondary Frontages	-	-	-	-
Comments: Policy relates only to retail frontages and no LSEs are identified.				
Local Plan Policy CF3 Local Infrastructure Provision	-	?	?	?

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Comments: the policy ensures the provision of infrastructure needed to support growth within the Plan Area and will ensure that infrastructure needed for development is in place before development is operational. The infrastructure includes transport and energy supply network infrastructure as well as education, and health and social care facilities. Transport infrastructure and energy supply network infrastructure could be associated with impacts on European designated sites. The only transport infrastructure project which is to be delivered in association with the Local Plan is the Fairfield Link Road in Buxton. This road will need contributions from development at Fairfield and Hogshaw. It will alleviate congestion from traffic on the A6 entering Buxton. One section of the road already has planning approval. The route of the remaining road has not yet been determined but it could potentially pass within 200 m of a component site of the Peak District Dales SAC. Any infrastructure projects would be subject to EIA and project level AA should they have potential for effects on European sites. Policy EQ3 provides a strong policy safeguard for the protection of the SSSI component site (Wye Valley SSSI), however, it is not possible to screen out Local Plan Policy CF3 or the effects of the proposed road, due to the potential proximity of the road to the SSSI and the potential for the SSSI to be subject to potential effects in relation to phoshates from the Buxton Sewage Treatment Works and potential air quality and construction effects from a potential employment allocation at Tongue Lane.				
Local Plan Policy CF4Provision of Open Space and Recreation Facilities	-	-	-	-
Comments: The policy relates to the provision of leisure facilities. The policy relates to the provision of open space which could mitigate for potential recreation impacts on European sites.				
Local Plan Policy CF5 Provision and Retention of Local Community Services and Facilities	-	-	-	-
Comments: The policy includes some safeguard for the protection of conservation interests. The policy deals only with the provision and retention of				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
community services and facilities. No LSEs is identified.				
Local Plan Policy CF6 (formerly CS19) Accessibility and Transport	-	-	-	-
Comments: The policy support sustainable travel choices, the balanced distribution of housing and employment, and the development and provision of services so as to minimise the need to travel.				
Local Plan Policy CF7 (formerly CS27) Planning Obligations and Community Infrastructure Levy	-	-	-	-
Comments: Policy relates only to financial contributions from developers and not the location of development. This policy could be used to deliver mitigation for potential effects on European sites.				
Please note for the policies screened below, no LSEs are identified in relation to air quality effects or recreation effects from the quantum of development proposed in the Local Plan in Policies S3, S5, S6 and S7 (the sub area policies). Such affects are discussed in relation to these policies above. The screening below identifies LSE which could directly result from the development of these individual sites such as localised recreation effects.				
Local Plan Policy CS1 Wood Mills, Glossop	-	-	-	-
Comments: This policy establishes the Woods Mill area within the centre of Glossop as a regeneration area. No LSES are identified in relation to this policy.				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Local Plan Policy CS2 Former Railway Museum, Dinting Road, Glossop	-	-	-	-
Comments: No LSEs				
Local Plan Policy CS3 Charlestown Works, Charlestown Road, Glossop	-	✓	-	✓
Comments: LSE in relation to localised recreation effects. See assessment of development site options (Annex D) for further details.				
Policy CS 5 Former Ferro Alloys site, Glossop	-	-	-	-
Comments: No LSEs				
Policy CS 6 Land off High Hill Road, New Mills	-	-	-	-
Comments: No LSEs				
Policy CS 7 Land at Ollersett Lane/Pingot Road New Mills	-	-	-	-
Comments: No LSEs				

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Policy CS 8 Britannia Mill, Buxworth	-	-	-	-
Comments: No LSEs				
Policy CS 9 Bingswood, Whaley Bridge	-	-	-	-
Comments: No LSEs				
Policy CS 10 Furness Vale Industrial Estate, Calico Lane, Furness Vale	-	-	-	-
Comments: No LSEs				
Policy CS 11 Torr Vale Mill, New Mills	-	-	-	-
Comments: No LSEs				
Policy CS 12 Land at Hogshaw, Buxton	-	-	✓	-
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Policy CS 13 Land west of Tongue Lane, Fairfield,	-	-	✓	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Buxton				
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts. The site is close to the Wye Valley SSSI component site of the Peak District Dales SAC but any construction-related adverse impacts should be avoided through the safeguards afforded by policy EQ4 Biodiversity.				
Policy CS 14 Land off Dukes Drive, Buxton	-	-	✓	-
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Policy CS 15 Land off Ashbourne Road and Foxlow Farm, Buxton	-	-	✓	-
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Policy CS 16 Tongue Lane (land south of Tongue Lane Industrial Estate), Buxton	-	-	✓	-
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				
Policy CS 17 Station Road and Spring Gardens Regeneration Area, Buxton	-	-	✓	-

Table C1: Results of rescreening exercise of the High Peak Local Plan Preferred Options Policies December 2012				
Draft policies	**LSE identified due to the High Peak Local Plan Draft Preferred Options Policies December 2012?**			
	South Pennine Moors Phase 2 SPA	Peak District Moors (South Pennine Moors Phase 1) SPA	Peak District Dales SAC	South Pennine Moors SAC
Comments: Peak District Dales SAC: Possible water quality impacts, increased traffic and air quality impacts.				

Annex D: Air quality assessment methodology and background

Introduction

Methodology

Supporting information

Air quality assessment methodology and background

Introduction

This section details the methodology, including references and assumptions made, in the assessment of effects of traffic on air quality, then includes some supporting information regarding air quality.

Methodology

1. *Identify roads within 200 m of European sites*

It is widely accepted that pollutants from roads can have localised impacts on vegetation up to 200 m from the road side[4]. Therefore, the first step in the air quality assessment was to identify A roads that pass within 200 m of one of the European sites considered in this HRA. In most cases only traffic on major roads (i.e. A roads or larger) is considered sufficient to affect the air quality at a level significant to habitats.

2. *Assess whether identified roads are on a route used by residents of High Peak*

Each of the identified roads was assessed as to whether it is likely to be a route used by residents of the Plan Area, primarily in terms of commuting or leisure. Data on transportation characteristics, including commuting patterns, from a Transport Topic Paper[5] have been used to inform this assessment, as well as studying potential routes on maps, using GIS or Google Maps.

3. *Obtain traffic flow data for relevant roads*

Those roads that could be on a route used by residents of High Peak were considered further, and traffic flow data was obtained for these roads, in the form of AADT (Annual Average Daily Traffic, which is the total volume of vehicle traffic of a road for a year divided by 365 days). Data for major roads (A roads) were obtained from the Traffic Counts website[6].

4. *Estimate possible increase to traffic flow as a result of High Peak Local Plan and in combination with other Local Plans*

There are no formal prediction data available on the possible changes in traffic flows as a direct result of the High Peak Local Plan. Furthermore, air quality is a regional, and often international issue and, therefore, it was considered appropriate to assess effects in combination with other relevant plans. For the purposes of this AA, the in-combination assessment has considered the effects of Local Plans of neighbouring Authorities. It has been assumed that the projected population increase of High Peak is approximately the same as neighbouring authorities. This population increase has been used to estimate the

[4] Letter from English Nature to Runnymede Borough Council, dated 16th May 2006, regarding Conservation (Natural Habitats &C.) Regulations 1994 Runnymede Borough Local Development Framework

[5] Topic Paper 7: Transport. Core Strategy Issues & Options: Key Stakeholder Consultation. Derbyshire Dales District Council, January 2008

[6] Traffic Counts, Department for Transport, http://www.dft.gov.uk/traffic-counts/ accessed 29 January 2014

combined increase in traffic. From data in the Housing Requirement Technical Note[7], the predicted population increase for High Peak over the Plan period 2011 – 2031 is 14,773, which was suggested in the Technical Note to result in a housing need of 9,020 dwellings over this period (at a ratio of 1.64 population per dwelling). High Peak Borough Council used this evidence when reviewing its assessed needs in December 2013, and agreed a housing target of 7,280 houses over the Plan Period. This housing target is predicted to accommodate a population increase of 11,939 (using the 1.64 population per dwelling ratio), which is an increase of 13.1% over the current population. We have assumed that the population increase from neighbouring Plan Areas would be a similar figure. We have also assumed that the increase in numbers of cars, and also the increase in traffic, might be approximately twice the increase in population, which would generate an increase in traffic of 26.2% between 2011-2031. This assumption is based on two sources of data. Firstly, comparisons of data from the 2001 and 2011 UK Censuses[8]: in 2011, 56.1 million people were resident in England and Wales, an increase of 3.7m people, or 7.06%, from 2001. Over the same period the number of cars and vans available to households in England and Wales increased by 3.4m, or 14.2% (i.e. approximately double the population increase), to 27.3 million. Secondly, results from the Department for Transport's National Transport Model[9] assumed a 20% increase in the English population between 2010 and 2040, and used this to predict a 43% growth in traffic (in terms of vehicle miles) in England over the same period – again, approximately double the % population increase. In practice, an increase in traffic would be expected even in the absence of Local Plans, but to be precautionary, it has been assumed that the increase is entirely due to the Local Plans.

5. *Assess whether estimated increases in traffic flow are significant (greater than 1000 AADT)*

According to the guidance on air quality assessments given in the Design Manual for Roads and Bridges[10] (DMRB), in terms of nitrogen deposition from traffic emissions, only increases in Annual Average Daily Traffic (AADT) of 1000 or more are considered significant and require further assessment.

6. *Assess whether estimated increases in traffic flow might cause significant increases in nitrogen deposition on European sites*

The nitrogen deposition as a result of traffic was calculated for both the baseline traffic flow and the predicted increased traffic flows by the end of the plan period. This assessment followed the methodology outlined in the DMRB for assessing effects on ecological receptors, and was only carried out for those roads for which the traffic flow was estimated to increase by more than 1000 AADT over the plan period. In all cases 2012 was used as the year in the models, both for baseline traffic flows and predicted increased traffic flows. This is because the DMRB model assumes that NO_x emissions from traffic will decrease in the

[7] Nathaniel Lichfield & Partners (2013). Housing Requirement Technical Note, published on High Peak Borough Council's website

[8] Office of National Statistics http://www.ons.gov.uk/ons/rel/census/2011-census/key-statistics-for-local-authorities-in-england-and-wales/stb-2011-census-key-statistics-for-england-and-wales.html accessed 7 Jan 2014

[9] Road Transport Forecasts 2013' DfT https://www.gov.uk/government/publications/road-transport-forecasts-2013 accessed 7 Jan 2014

[10] DMRB Volume 11 Section 3 Part 1 HA207/07 http://www.dft.gov.uk/ha/standards/DMRB/vol11/index.htm

future, in line with UK Government predictions[11]. However, there is some debate about the magnitude and timescale of these predicted decreases and therefore it is more conservative to use present (i.e. 2012) data, which will give greater NO_x emission figures in calculations. Briefly, the calculation of nitrogen deposition involved the following steps and information:

- The DMRB screening model, which can be run to predict pollutant concentrations at receptor locations near to roads, was used to calculate NO_x concentrations from traffic. The model and guidance on how to use it was downloaded from the Highways Agency website[12]. Within the model workbook, the worksheets for assessment of local air quality were used. The model was run for both baseline traffic flows (for 2012) and predicted increased flows over the plan period (the increased traffic flow was calculated as outlined above). The model requires the following information:
  - % heavy goods vehicles – data obtained from the Traffic Counts website[13];
  - AADT – both baseline and predicted increased;
  - Background NO_2 – this was obtained from Defra's website[14] ;
  - Speed of traffic – google streetview was used to obtain the speed limit for the relevant stretch of road nearest the European site;
  - Distance from road to receptor. The maps available via the JNCC website for each SAC[15] and/or those available via English Nature's website for SSSIs[16] were used to estimate the distance from the centre of the road to the nearest boundary of the European site.
- The NO_x emissions calculated from the DMRB screening model were then converted to NO_2 values using the 'NO_x to NO_2 Calculator' downloaded from Defra's website[17]. This model requires the following information:
  - Year – 2012 was used in all cases;
  - Local Authority;
  - Traffic mix – the option 'All non-urban UK traffic' was used;
  - Background NO_2;
  - The road contribution to NO_x value – this was obtained from the DMRB screening model as outlined above.
- The NO_2 values (in µg / m^3) were converted to N deposition values (in kg of nitrogen per ha per year, or kgN / ha^1 / yr^1) as outlined in the DMRB, that is multiplied by 0.1.

The difference in nitrogen deposition between the baseline traffic flow and the predicted increased traffic flow was calculated and this difference was taken to be significant if it was

---

[11] From 'Road Transport Forecasts 2013' DfT

[12] DMRB Air Quality Spreadsheet (2.2MB Zip File) Version 1.03c (July 2007) http://www.dft.gov.uk/ha/standards/guidance/air-quality.htm

[13] Traffic Counts, Department for Transport, http://www.dft.gov.uk/traffic-counts/ accessed 29 January 2014

[14] The '2010-based background maps for NO_x, NO_2, PM_{10} and $PM_{2.5}$' http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html accessed 11 March 2014

[15] http://jncc.defra.gov.uk/page-1458 accessed 11 March 2014

[16] http://www.sssi.naturalengland.org.uk/special/sssi/search.cfm accessed 11 March 2014

[17] http://laqm.defra.gov.uk/tools-monitoring-data/no-calculator.html accessed 11 March 2014

greater than 1% of the sites' Critical Load for nitrogen deposition. Environment Agency Guidance, to which Natural England also subscribe[18], advises that "*Where the concentration within the emission footprint* [i.e. the contribution of the scheme in question] *in any part of the European site(s) is less than 1% of the relevant long-term benchmark (EAL, Critical Level or Critical Load), the emission is not likely to have a significant effect alone or in combination, irrespective of the background level."* The Critical Load for each habitat type was obtained from the APIS website[19]. The relevant habitat type to use was established initially from the detailed SSSI information available via Natural England's website[20], then finding the closest habitat type for the SAC, and then using the APIS website to identify the relevant habitat classification to use for air quality assessment. In all cases, the Critical Load value used was the lower end of the range of values, as advised by APIS.

Air quality supporting information

Impacts on European Sites caused by Air Pollution

There are several sites in the plan area which could be exposed to adverse effects from increased emissions of atmospheric pollutants associated with implementation of the Local Plan. It is difficult to predict the precise nature or level of changes in air emissions associated with development. Increases in emissions due to housing development and likely increases in levels of traffic/ transport by car are potentially offset by the following factors:

- Power stations for domestic supply are becoming more efficient.
- Vehicles are also becoming more efficient, so although traffic volumes are expected to increase, emissions per vehicle may decrease over time.
- Increased emissions do not necessarily translate into increased levels of deposition where designated plant communities are located and it is difficult to predict actual levels of deposition.

Nevertheless there are several sites supporting designated interest features (largely vegetation communities) which are known to be sensitive to air pollution and some of these sites are already over their critical loads for some pollutants, notably nitrogen and other pollutants which tend to cause acidification of soils. We have used the APIS database (www.apis.ac.uk) to identify such sites and to clarify likely risks of adverse effects on their integrity as a result of the Local Plan. Sites over their critical loads for nitrogen or acid deposition can be affected by any further increase in pollution. There are two main sources that need to be considered: diffuse sources and local sources. In the context of the Local Plan Strategy, car traffic is a key source of emissions. Specific assessments have been carried out to identify those European sites which have any part of their designated area within 200m of a major road on which levels of traffic could potentially increase as a result of the Local Plan as it is generally accepted that levels of deposition decline to negligible levels at distances of more than 200m from a major road. It is important to identify European sites

[18] Confirmed by Natural England, M Andrews, *pers. comm.* by email 17/01/14

[19] http://www.apis.ac.uk/srcl accessed 11 March 2014

[20] http://www.sssi.naturalengland.org.uk/special/sssi/search.cfm accessed 11 March 2014

for which further pollution might result in a critical load being reached or further exceeded so that appropriate mitigation measures can be identified.

APIS has been updated with the addition of Site Relevant Critical Loads and a Source Apportionment for the UK Natura 2000 network. The user is able to select a specific European site, and identify the critical load function for acidification for this site where applicable, together with a range of critical loads for nutrient nitrogen deposition.

Critical Loads are defined as “the threshold level for the deposition of a pollutant above which harmful indirect effects can be shown on a habitat or species, according to current knowledge”. It is important to distinguish between a critical load and a critical level. The critical load relates to the quantity of pollutant deposited from air to the ground, whereas the critical level is the gaseous concentration of a pollutant in the air. For terrestrial ecosystems APIS has used typical biological criteria based on no adverse effect on growth, soil stability, and groundwater quality to define critical loads and levels.

The table below summarises the extent to which sensitive sites (those within 200m of a road on which traffic levels might increase) are over their critical loads for Nitrogen deposition and acidification.

Table Annex D.1: Extent to which Sensitive Sites are over Critical Loads for Nitrogen and Acidification					
European site	**Interest Feature**	**Does site exceed the lower bounds of CL for acidity – 2003**	**Does site exceed minimum CL for Nutrient Nitrogen -2003**	**Does site exceed the lower bounds of CL for acidity – 2010**	**Does site exceed minimum CL for Nutrient Nitrogen - 2010**
Peak District Dales SAC	European dry heaths (H4030	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Calaminarian grasslands of the *Violetalia calaminariae* (H6130)	No	Yes – exceeds upper bound levels	No	Yes - but below upper bound levels
	Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) (H6210)	No	Yes – exceeds upper bound levels	No	Yes - but below upper bound levels
	Alkaline fens (H7230)	No	Yes	No	Yes
	Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) (H8120)	No	Yes – exceeds upper bound levels	No	Yes – exceeds upper bound levels
	Calcareous rocky slopes with chasmophytic vegetation (H8210)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Tilio-Acerion forests of slopes, screes and ravines (H9180)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Austropotamobius pallipes (S1092). White-clawed (or Atlantic stream) crayfish *Lampetra planeri* (S1096) (Brook lamprey)	There is insufficient knowledge to make a judgement about the impacts on this species. Decision should be made at a site specific level. Further research is required to assess sensitivity to acidification of this species. Nutrient nitrogen - Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.			

Table Annex D.1: Extent to which Sensitive Sites are over Critical Loads for Nitrogen and Acidification					
European site	**Interest Feature**	**Does site exceed the lower bounds of CL for acidity – 2003**	**Does site exceed minimum CL for Nutrient Nitrogen -2003**	**Does site exceed the lower bounds of CL for acidity – 2010**	**Does site exceed minimum CL for Nutrient Nitrogen - 2010**
	Cottus gobio (S1163)				
South Pennine Moors SAC	Northern Atlantic wet heaths with *Erica tetralix* (H4010)	Yes	Yes	Yes	Yes
	European dry heaths (H4030)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Blanket bogs (H7130)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Transition mires and quaking bogs (H7140)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Old sessile oak woods with Ilex and Blechnum in the British Isles (H91A0)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
Peak District Moors SPA (South Pennine Moors Phase 1 SPA)		A number of species are considered sensitive to Nutrient Nitrogen. Potential negative impact on species due to impacts on the species' broad habitat (Transition of breeding habitat (moorland, unmanaged heather moor, bogs and hill pasture) to grass). However, potential positive impact due to increased food supply caused by eutrophication.			

Likely effects on upland heathland vegetation due to additional nitrogen

As heathlands and sub-arctic scrubs are naturally poor in nutrients, they are particularly sensitive to additional atmospheric nitrogen inputs. Most at risk are higher altitude habits (such as montane heaths and scrubs), which are subject to high levels of wet deposition from long-range atmospheric transport of oxidised and reduced nitrogen, and lowland heaths where these occur in the vicinity of intensive agricultural activities.

The impact of atmospheric pollution by sulphur (S) and nitrogen (N) has historically been concerned with acidification of soils and freshwaters. However, inputs of atmospheric N are also a source of essential nutrients, which commonly limits growth in temperate ecosystems. This fertiliser effect results in increased plant growth and an increased demand for other plant nutrients. The gradual increase and enrichment of ecosystems by nutrients such as N and/or P is termed eutrophication. Increased availability of N from enhanced atmospheric inputs impacts species composition, favouring those plants with a high demand for nitrogen. Where there are large inputs of reduced nitrogen (ammonia), which are not immobilised, in the soil, this may result in the suppression of the uptake of other essential plant nutrients such as potassium (K +) or magnesium (Mg2+).

As most temperate natural and semi-natural ecosystems are N limited, additional N inputs in the first instance act to stimulate plant growth. However, there is a limit to how much additional N input can be utilised. Soils and ecosystems with N inputs in excess of plant nutritional requirements are often referred to as N saturated (Hornung et al., 1995). In order to assess the impact of increased N deposition on eutrophication and the impact this has on ecosystems, an empirical approach for setting critical loads based on changes in plant communities is the most widely used.

In heathland communities, rapid changes in the species composition have occurred as a result of increased nutrient availability. In the Netherlands this has resulted in a dramatic decrease in species diversity, because many (rare) species, which were characteristic of the *Calluna* or *Erica* spp. dominated heathlands, have disappeared and been replaced by the grasses *Molinia caerulea* and *Deschampsia flexuosa*. More than 35% of former Dutch heathland is estimated to have changed into grassland (Bobbink et al., 1993). Both increased N deposition (largely in the form of NH3 from intensive stock units) and heather beetle damage (Brunsting, 1982) have been implicated. Calluna decline has also occurred in a number of Breckland heaths in East Anglia, (Marrs, 1986; Pitcairn et al., 1991) and has been attributed to catastrophic death of *Calluna* caused by frost, drought or heather beetle attack. Such changes in these plant communities have also been linked to the disappearance of some butterflies, amphibians and birds in these habitats (Bobbink et al., 1995; Fangmeier et al., 1994).

High rates of N deposition affecting species composition of low-nutrient status plant communities have been reported for lowland heaths in eastern Britain. Woodin and Farmer (1993) report that, for three National Nature Reserves in the same area, Calluna vulgaris is in decline, with a corresponding increase in grass cover. In the Breckland area of East Anglia, where N deposition ranges from 35 to 80 kg ha-1 N year -1, Calluna cover declined by as much as 70% in some heaths between 1970 and 1990 (Pitcairn et al. 1991). Catastrophic events such as frost, drought and heather-beetle attack have led to an even-aged population susceptible to colonisation by Deschampsia flexuosa. As similar changes have occurred in upland moorlands and lowland heaths of UK, following N addition, it is likely that the changes observed in the Breckland, where the incidence of frost and drought

are common, and where N deposition particularly from agricultural ammonia are high, are due to N deposition.

Numbers of bryophyte and lichen species declined in grazed and ungrazed plots at a number of sites at Moorhouse NNR between 1956 and 1989 (Pitcairn et al. 1991). Percentage changes in species number and cover in both grazed and ungrazed plots were largest in the base-rich grassland sites, compared with the intermediate grasslands and blanket bog sites. This indicates that the species rich base-rich grasslands are more susceptible to change. Atmospheric inputs of N and acidity are large at Moor House and may be implicated in the decline. Similar changes have been observed in the High Peak following N addition.

References

Bobbink R., Boxman D., Fremstad E., Heil G., Houdijk A. and Roelofs J. (1993): Nitrogen eutrophication and critical load for nitrogen based upon changes in flora and fauna in (semi)-natural terrestrial ecosystems. In: Critical loads for nitrogen. Proceedings of a UN-ECE workshop at Lökeberg, Sweden. 6-10 April 1992. Pp. 111-159. Nordic Council of Ministers, Copenhagen, Denmark

Bobbink R. and Roelofs J.G.M. (1995a): Empirical nitrogen critical loads: update since Lokeberg (1992). In: Hornung, M., Sutton, M.A. and Wilson, R.B. (Eds) Mapping and modelling of critical loads for nitrogen - a workshop report. Institute of Terrestrial Ecology, Bush, 9-19.

Bobbink R. and Roelofs J.G.M. (1995b): Nitrogen critical loads for natural and semi-natural ecosystems: the empirical approach. Water, Air and Soil Pollution 85, 2413-2418.

Bragg O.M. and Tallis J.H. (2001): The sensitivity of peat-covered upland landscapes. Catena, 42, 345-360.

Fangmeir A., Hadwiger-Fangmeir A., Van der Eerden L.J.M. and Jager H.J. (1994): Effects of atmospheric ammonia on vegetation - a review. Environmental Pollution 86, 43-82.

Hornung M., Sutton M.A. and Wilson R.B. [Eds.] (1995): Mapping and modelling of critical loads for nitrogen - a workshop report. Grange-over-Sands, Cumbria, UK. UN-ECE Convention on Long Range Transboundary Air Pollution, Working Group for Effects, 24-26 October 1994. Published by: Institute of Terrestrial Ecology, Edinburgh, UK.

INDITE (1994): Impacts of nitrogen deposition in terrestrial ecosystems in the United Kingdom. Report of the UK Review Group on Impacts of atmospheric nitrogen. Prepared for the Department of the Environment. HMSO, London.

Kopácek J., Procházková L., Stuchlík E., Blacka P. (1995): The nitrogen-phosphorus relationship in mountain lakes: Influence of atmospheric input, watershed, and pH. Limnology and Oceanography 40, 930-937.

Lindsay R. and Immirzi P. (1996): An inventory of lowland raised bogs in Great Britain. Scottish Natural Heritage Research, Survey and Monitoring Report No. 78. Scottish Natural Heritage, Battleby.

Marrs R.H. (1986): The role of catastrophic death of *Calluna* in heathland dynamics. Vegetatio 66, 109-115.

Nilsson J. and Grennfelt P. (Eds) (1988): Critical Loads for Sulphur and Nitrogen. Miljorapport 1988:15. Nordic Council of Ministers, Copenhagen.

Pitcairn C.E.R. and Fowler D. (1991): Changes in species composition of semi-natural vegetation associated with the increase in atmospheric inputs of nitrogen. Institute of Terrestrial Ecology, Bush

Annex E: Excerpt from the Greater Nottingham Aligned Core Strategies HRA

Introduction

The text below is a verbatim copy of a section of the 'Greater Nottingham Aligned Core Strategies Option for Consultation, February 2010, Habitats Regulations Appraisal Screening Record', prepared by David Tyldesley and Associates. The section below is from Chapter 4, the subsection on Recreation Pressure, and specifically that subsection on the South Pennine Moors SAC and SPA (i.e. Peak District Moors (South Pennine Moors (Phase 1) SPA) and the Peak District Dales SAC.

This has been published most recently as the first document in a combined report called 'Greater Nottingham: Broxtowe Borough Council, Erewash Borough Council, Gedling Borough Council, Nottingham City Council, Rushcliffe Borough Council; Habitats Regulations Assessment, June 2012'. This report can be accessed through the Greater Nottingham Growth Point website at http://goss.nottinghamcity.gov.uk/index.aspx?articleid=24657 , in the ACS - Examination Library Core Documents section.

It is believed that Natural England has accepted the conclusions of the HRA screening (Tyldesley and Associates, February 2010).

Note that the 'Greater Nottingham Aligned Core Strategies' has been abbreviated as 'ACS' in the text below, and 'the National Park' refers to the Peak District National Park.

Recreation Pressure

Potential effects on the South Pennine Moors SAC and SPA and the Peak District Dales SAC

4.37 The basis of this assessment is that there would be likely to be a 7% increase in visitor pressure to the SAC and SPA to 2026. This was used as a basis for assessment for the following reason. The 7% increase in population in Greater Nottingham, provided for by the ACS, would not itself be likely to have a significant effect on the European sites. However, it would be a reasonable assumption that the core strategies of all the other local planning authorities all around the National Park would similarly be providing for an increase in population of approximately the same order, taken as an average around the Park. Consequently, the 7% assumed increase in visitor pressure is the „in-combination" increase of visitors arising from all areas in and around the National Park. The Regulations require the ACS to be assessed for its effects either alone or in combination with other plans and projects. This appraisal therefore adopts a 7% increase in visitor pressure to the European sites which lie wholly or partly within the National Park.

4.38 The issue of increased recreational impact has not been addressed consistently in the Habitats Regulations Appraisal of core strategies around the Park and indeed, most have not attempted to assess it all. The Peak District National Park Authority (PDNPA) recreation strategy appears not to have been subject to HRA.

4.39 Nevertheless, as will be seen from the following discussion, measures to protect the European sites are in place and all public bodies have a duty to give greater weight to the conservation of the flora and fauna of the National Park where there is a potential conflict with promoting access, understanding and enjoyment.

4.40 Furthermore, a distinction should be drawn between visitors who are accessing the European sites because they are the most convenient, „local", amenity, green spaces from settlements which are located within or on the edge of the European sites, and those visitors accessing the European sites because of their intrinsic value as a national or regional scale recreation destination. Greater Nottingham clearly is not contributing to the former type of recreation, but is contributing to the latter, with the Peak District National Park being a recreation destination of acknowledged importance to the people of Greater Nottingham. The assessment of the effects of the ACS, therefore, concentrates on those visitors who travel some distance to the National Park, specifically to access and enjoy its special qualities, rather than visitors who merely use the European sites in the Park as a local amenity.

4.41 In order to assess the likelihood of a significant effect on these European sites, as a result of a potential increase in recreational pressure, the consultants discussed the issue with Andy Farmer, Area Manager (North) Peak District National Park Authority (PDNPA), Rhodri Thomas, Head Ecologist PDNPA, Felicity Dodd, Natural England, responsible for the Eastern Moors element of South Pennine SAC / SPA, and Rachel Hoskin, planning advisor Natural England East Midlands Region.

4.42 Two issues were discussed, which may be summarised as:

a) whether an anticipated increase of visitors to the National Park, of about 7% to 2026, would be likely to have a significant effect on these European sites; and

b) what measures, powers, strategies or mechanism are, or could be put in place which could manage that increase such that adverse effects would be avoided?

4.43 The responses from the four officers were entirely consistent lending confidence to the findings of the assessment. Some officers felt that the assumption of a proportional 7% increase in visitors arising from a 7% increase in population was unlikely, but on a precautionary basis represented a sound basis for a „worst case scenario" assessment. None of the officers raised immediate concerns about such a potential increase in visitor numbers to the three European sites.

4.44 Three aspects of recreational impacts need to be considered:

a) Erosion of surface vegetation

b) Disturbance of birds

c) Increased fire risk

4.45 The Peak District Dales SAC was not perceived to be subject to recreational pressure of a kind that would be likely to have a significant effect on its interest features. None of the above three considerations were considered by any officer to be potentially significant. None of the 71 units of the component SSSI are recorded as being in unfavourable condition either wholly or partly because of recreational / visitor pressure. Erosion or other habitat damage is limited, local and reparable; disturbance is not relevant and fire risk is of no concern. The assessment therefore concentrated on the moorland sites.

4.46 Effects of erosion would be likely to be negligible, most visitors do stay on paths, the spatial impact therefore would be very localised. The worst affected areas are and would be subject to repair, maintenance and improvement works, limiting the extent of damage.

4.47 Disturbance could be potentially significant. Increased disturbance cannot immediately be ruled out on the basis of objective information. The policy and other mechanisms in place for management and protection of the European sites are not based on a projected increase in population or visitors. The net effect of the current National Park Management Plan and Recreation Strategy (2010) is to openly encourage increased access to the National Park and in doing so to facilitate the uptake of more active recreation uses which may increase visitor pressure to wilder parts – which may include the European site moorlands. The strategies do however stress the importance of sustainable access and refer back to the need for conservation purposes to prevail where there may be conflict with understanding and enjoyment objectives, and where management measures cannot be sure to mitigate potential for harm.

4.48 It was considered difficult to clearly link downward trends in moorland bird numbers, for example, with increases in visitor numbers to the moors. In areas of the Park with upland moor characteristics, where access has been strictly limited and visitor pressure is low, decline in breeding bird populations have reflected those in areas where access is possible. Likewise, once footpath repair/stone sett laying on the worst eroded footpaths on moors is completed, bird numbers tend to recover quickly within a 50 m corridor along the path line, so the evidence points to a limited impact through disturbance of walkers per se. Other monitoring programmes (e.g. Moors for the Future partnership) have noted increases in some moorland species since CROW Act open access came into force. Defining the effects of disturbance as a result of increased visitors is not straightforward and appears not to be proportional to a defined increase in visitor numbers (apart from core „honey pot" sites).

4.49 Rather, the observed effects of disturbance are more acute when small numbers of people act in such a way as to cause potential harm; this is particularly the case with the recent upsurge in „wild camping" following television coverage of this activity, and activities such as unorganised and sometimes unlawful off-road driving and motorcycling.

4.50 Undoubtedly an increase in recreation pressure related to an increase in fire risk has the potential to be a significant effect on the moorland European sites, especially in combination with the effects of climate change. Impacts of fire on the SAC habitats and the SPA supporting habitats can be significant, long term or even permanent.

4.51 In terms of mitigation measures, the officers saw these as a combination of several inter-related factors and measures all capable of reducing the likelihood of significant effects, rather than a single measure. These include but are not limited to:

a) Moorland management plans

b) “Soft" visitor management (e.g. controlling parking, positioning access styles, education, ranger patrols and voluntary agreements)

c) Higher Level Stewardship agri-environment agreements

d) Natural England powers and measures

e) Local Access Forum agreements on use by key stakeholders.

4.52 Powers vested in the NPA as Rights of Way and Access Authority by the CROW Act are significant. Landowners or bodies can request that access be restricted in a number of circumstances including:

a) S.24 – a landowner may request closure for up to 28 days per year – a power commonly utilised on the moors during May (nesting season);

b) S.25 – the NPA can close the moors, at any time, for any period, when fire risk is deemed high; again a frequently and effectively used measure;

c) S.26 – Natural England can request closure or other restrictions in the interests of conservation of flora and fauna. However, indicative of the lack of a perceived threat to the integrity of the moorland European sites, Natural England has never made such a request nor did it seek to constrain access at the introduction of the CROW Act provisions. This may in part reflect the effectiveness of voluntary agreements which had been in place for many years before the new legislation.

4.53 Natural England can also control some larger or specialist events under the powers of the Wildlife and Countryside Act, as operations likely to damage the underpinning SSSIs. Natural England is also a member of Local Access Forum which ensures the European sites are considered in moorland issues, discussions and decision making. However, with the moorland management tools and initiatives in place, there is no need to assert the primacy of maintaining the integrity of the European sites, and the managed and voluntary integration of recreation and other users is the preferred and so far most effective way of moorland management.

4.54 Even in light of a potential 7% increase in visitors to the moors, the officers all felt that the existing raft of management initiatives and powers of the CROW Act will continue to be sufficient to avoid a significant effect on the European sites, even if experience in the future indicated that these measures, such as closure due to high fire risk, may need to be used more often or for longer. Well tried and tested habitat and access management measures are available to respond to any perceived adverse effect on the European sites before they became significant in conservation terms.

4.55 In light of this analysis, all the objective information available points to the conclusion that there is no likelihood of a significant effect on the South Pennine Moors SPA or SAC or the Peak District Dales SAC as a result of an increase in visitor pressure to the sites, arising from an increase in population provided for by the ACS, either alone or in combination with other plans or projects.

Annex F: Abstract of Finney et al., 2005, regarding recreational disturbance of birds

Abstract of Finney, S.K; Pearce-Higgins, J.W and Yalden, D.W (2005)[21]. 'The effect of recreational disturbance on an upland breeding bird, the golden plover *Pluvialis apricaria*.' *Biological Conservation*, Volume 121 (1) pp 53-63

The use of the countryside for recreation has increased dramatically in recent years. This has led to concern amongst conservationists about the effects increased human disturbance may have on important wild animal populations. In the UK, recent legislation has widened the level of access to upland habitats, which support internationally important breeding bird populations. Determining the extent to which recreational disturbance affects upland breeding birds is therefore a conservation priority. We used data collected over 13 years to investigate the impact of recreational disturbance on the distribution and reproductive performance of golden plovers breeding in close proximity to the Pennine Way, an intensively used long-distance footpath. Importantly, the Pennine Way was resurfaced in 1994 to prevent further erosion of the surrounding vegetation. We were therefore able to examine if the response of golden plovers to recreational disturbance was influenced by changes in the intensity and extent of human activity resulting from the resurfacing work. Before the Pennine Way was resurfaced, golden plovers avoided areas within 200 m of the footpath during the chick-rearing period. At this time over 30% of people strayed from the footpath and the movement of people across the moorland was therefore widespread and unpredictable. Following resurfacing, over 96% of walkers remained on the Pennine Way, which significantly reduced the impact of recreational disturbance on golden plover distribution; golden plovers only avoided areas within 50 m of the footpath at this time. Despite the clear behavioural responses of golden plovers to the presence of visitors, there was no detectable impact of disturbance on reproductive performance. In many countries, a conflict arises between the use of the countryside for recreational purposes and the protection of habitats or species of high conservation value. However, this study suggests that the implementation of simple measures to influence visitor behaviour can dramatically reduce the impact of recreational disturbance on wild animal populations.

[21] Accessed through www.deepdyve.com and www.sciencedirect.com

Annex G: Supporting information relating to the potential effects of wind turbines

Supporting information on potential effects of wind turbine developments on birds

As summarised in Percival (2000)[22], Langston & Pullan (2003)[23] and Drewitt & Langston (2006)[24], bird collision mortality at British wind farms has occurred at relatively low levels compared to some sites around the world. In Britain, the highest incidence of collision recorded in a long-term study is understood to be at Blyth Harbour, Northumberland, a nine turbine wind farm reported to have a corrected average bird mortality rate of 6 birds per turbine per year, and in continental Europe 4-23 birds per turbine at three sites in Flanders, Belgium (Drewitt & Langston, 2006). However, the quoted mortality rates are from coastal sites and it is virtually impossible to make direct inferences of potential mortality between wind farms because of the number of variables. Therefore as evidence in the UK is as yet inconclusive and due to the high number of deaths recorded at inappropriately sited sites overseas, the precautionary approach has been adopted.

Studies have shown that there are three key potential effects on birds as a result of wind turbines. The following text assesses these potential impacts on the designated features of the Peak District Moors (South Pennine Moors Phase 1) SPA (golden plover, short-eared owl and merlin). These species are all sensitive to wind turbines (Landscape Design Associates, 2000)[25].

Langston & Pullan (2003) researched which species were considered to be most at risk from wind turbine impacts, based on species' conservation status and more than ten years collective research data. Species groups affected by wind turbine included owls, raptors and waders. The three potential effects are summarised in the table below for species for which the Peak District moors (South Pennine Moors Phase 1 SPA).

[22] Percival, S. M. (2000) Birds and wind turbines in Britain. *British Wildlife* 12(1): 8-15.

[23] Langston, R. H. W. and J. D. Pullan (2003). *Wind farms and Birds: an analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues*. Report by BirdLife International on behalf of the Bern Convention. Council of Europe T-PVS/Inf (2003) 12.

[24] Drewitt, A. L. & Langston, R. H. W. (2006). Assessing the impacts of wind farms on birds. *Ibis* 148: 29-42.

[25] Landscape Design Associates (2000). Vol 3: Report on Results of Consultation on Cumulative Effects of Wind Turbines on Birds (ETSU) W/14/00538/Rep/3.

Table G.1 Wind Farm Impacts on Specific Bird Species Groups			
Species group (e.g. species)	**Disturbance displacement**	**Barrier to movement**	**Collision**
Accipitridae raptors: including merlin	✓		✓
Charadriiformes waders: including golden plover *Pluvialis apricaria,*	✓	✓	
Strigiformes owls: including short-eared owl			✓

Collision risk

Langston & Pullan (2003) have shown that both *Accipitridae,* which includes merlin, and *Strigiformes,* which includes short-eared owl, are both potentially at risk from collision.

Relatively high collision mortality rates have been recorded at several large, poorly sited wind farms in areas where large concentrations of birds are present (including Important Bird Areas (IBAs)), especially migrating birds, large raptors or other large soaring species, eg Altamont Pass in California, USA, Tarifa and Navarra in Spain. In these cases, actual deaths resulting from collision were large high flying raptors. Deaths have been recorded at wind farms as a result of flying into the turbines when in pursuit of prey and during migrations. Raptor mortality at wind sites appears to be more likely in large raptors; however, if the turbines are sited inappropriately then an adverse effect could occur on short-eared owl and merlin.

Displacement of birds due to disturbance

The impact of introducing large structures, such as wind turbines, into a landscape would appear to have potential to disturb and therefore affect distribution and energy budgets of birds. Studies of bird displacement by wind turbines have yielded inconsistent results, including different results for the same species in similar settings. Most studies have concentrated on larger species, such as wildfowl, waders and diurnal raptors, which are considered at most risk.

The seriousness of the effect appears to be determined by a complexity of factors including season, availability of alternative foraging or roosting areas, and perhaps most importantly, the level of tolerance/familiarity or habituation developed by birds over time

Langston & Pullan (2003) consider that of the three designated species, merlin and golden plover are more likely to be susceptible to disturbance. Golden plover has been shown to react to turbines in different ways and studies in continental Europe demonstrated that golden plover tolerate turbines in certain situations but not in others.

Observations made by Pedersen & Poulsen (1991)[26] showed that golden plover avoided an area within 800 m of operating turbines and therefore any wind turbines sited either within the SPA or within an 800 m radius of the SPA boundary could have an adverse effect on this species.

Barrier Effects

Langston & Pullan (2003) indicate that golden plover can be affected by barrier effects and can result in flying birds making changes to their preferred/normal flight-path to fly around lines or groups of wind turbines. Observations of this impact have been infrequently recorded on terrestrial wind farms and are mainly limited to offshore sites where greater numbers of turbines are often sited in long lines.

[26] Pedersen, M. B. and E. Poulsen (1991). Impact of a 90m/2MW wind turbine on birds: Avian responses to the implementation of the Tjaereborg wind turbine at the Danish Wadden Sea. *Danske Vildtundersogelser Haefte* 47, Danmarks Miljoundersogelser Afdeling for Flora-og Faunaokologi