

Consultation	Cinderford Northern Quarter Biodiversity Strategy Technical guidance (BSTg)
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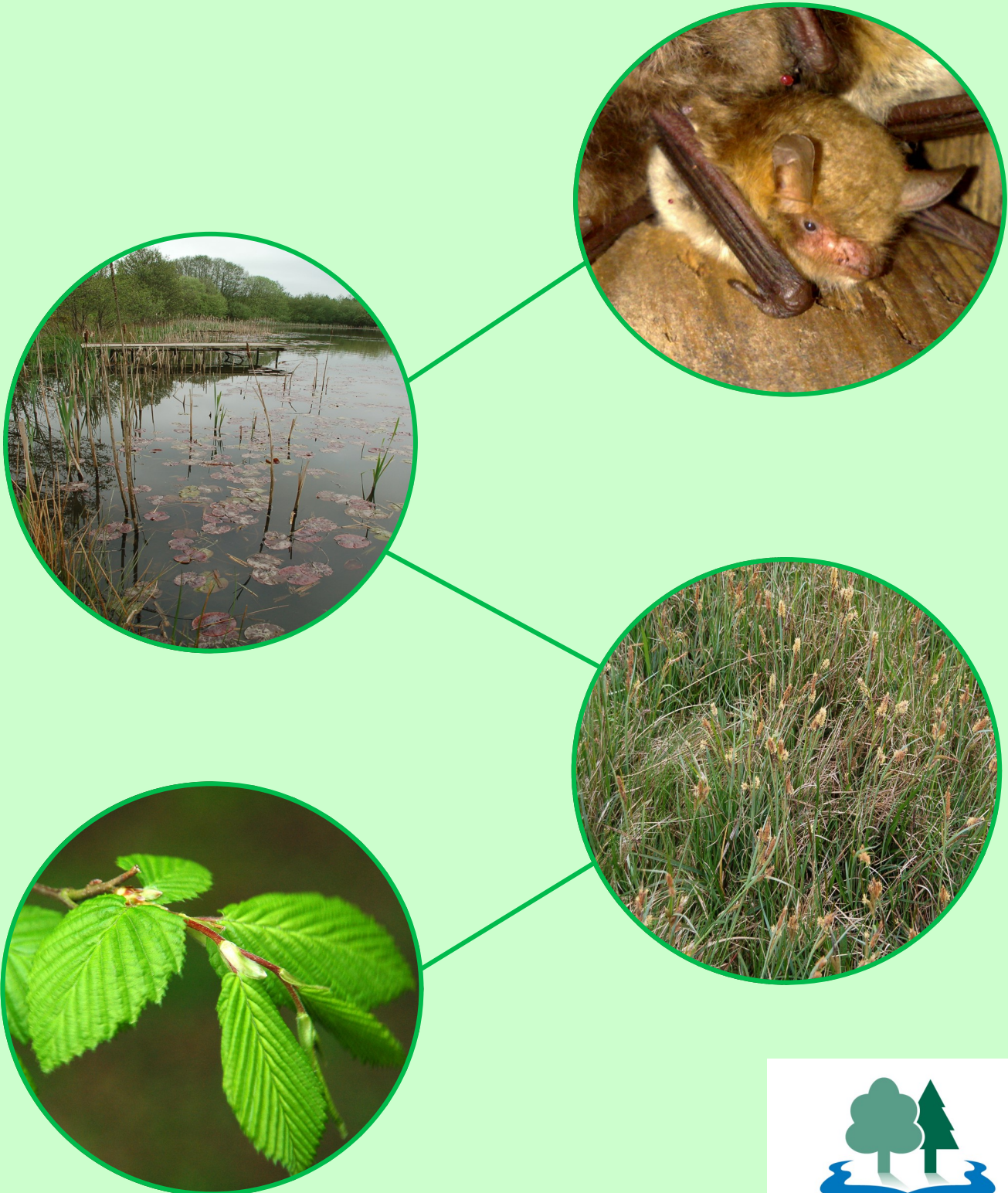
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Cinderford Northern Quarter Biodiversity Strategy Technical guidance (BSTg)



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Background

The Council in partnership with the Cinderford Regeneration Board set out a spatial programme for regeneration in the Core Strategy and the Cinderford Northern Quarter Area Action Plan (CNQAAP). In undertaking this programme the environmental complexity of the Northern Quarter was acknowledged, however the social and economic regeneration needs of Cinderford and the wider area are also considered very important. To address these issues the CNQAAP and its supporting documents set out high level requirements for biodiversity mitigation and enhancement.

In May 2013 the Council, with the involvement of partners, set about developing a more detailed Biodiversity Strategy to provide a strategic framework to guide individual proposals through the planning process.

As part of planning applications at the former Northern United colliery and at Newtown Road, the Homes and Communities Agency (HCA) prepared and submitted a Northern Quarter wide biodiversity strategy. The HCA's strategy forms the foundation for the FoDDC Cinderford Biodiversity Strategy Technical guidance (CBSTg).

The terms of reference for the CBSTg were to develop a strategy that provided:

- a positive outlook addressing issues and providing sustainable solutions, it must be reflective of the Cinderford Regeneration Board's strategic objectives and Council policy;
- technical guidance for development proposals in the AAP area;
- a strategic focus to ecological requirements, supporting adaptable approaches dependent of individual development proposals at the time;
- guidance for future development of the CNQAAP, avoiding duplication by being based on the HCA strategy;
- opportunities for those with local specialist ecological knowledge to engage with the development of the strategy;
- opportunities for wider community groups and stakeholders to engage with the development of the strategy;
- elected members with an opportunity to engage with the development of the strategy through FoDDC's Planning Policy Support Group, Planning Committee, Cabinet & Full Council;
- a consultation draft of the strategy by August 2013.

Consultation stages

Stage		
Terms of reference for CBSTg	April 2013	
Local ecological specialists technical workshop *	May 2013	
Local ecological specialists technical feedback workshop	June 2013	<i>(See Appendix 1)</i>
Planning policy Portfolio Holder's support group	June 2013	
Cabinet report to authorise public consultation on draft strategy	July 2013	<i>Current Stage</i>
Public Consultation period	Aug/Sep 2013	
Revised draft	Oct/Nov 2013	
Planning Committee report on Consultation	Oct/Nov 2013	
Cabinet	Nov/Dec 2013	

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

Using this document

1.1 The CBSTg will help to guide development over the lifetime of the CNQAAP through to 2026 and beyond. It has been developed by the Forest of Dean District Council, with the involvement of other individuals and organisations. The starting point has been to map and evaluate the biodiversity resource of the area. The CBSTg then identifies likely impacts of proposals before outlining mitigation requirements which enable integration with wider forest plans.

1.2 In planning policy terms this document is technical guidance to help ensure that the requirements of Forest of Dean District Core Strategy (CS), the CNQAAP and the Masterplan and Design Code Supplementary Planning Document (MDC) are met. It does not form part of the development plan or local plan. In the context of the CNQAAP, however, it provides important information as to how the tests, requirements and standards set out in the CS, CNQAAP and MDC will be expected to be met by development proposals (see Figure 1.1). Whilst not part of the development plan the CBSTg is a 'material consideration' and gains 'weight' through its public consultation process and through the process of adoption as council policy. The planning policies in the CS and CNQAAP are written to safeguard the matters considered by the CBSTg and therefore proposals that do not accord with it are very unlikely to meet the requirements of the policies.

1.3 There are strict national and in some cases international legislative requirements in relation to certain species and habitats in the CNQAAP. Biodiversity considerations are in any event fundamental to achieving sustainable development as required by the CNQAAP and MDC. The Council will use this CBSTg as one of the key documents in evaluating development proposals in and around the CNQAAP area.

1.4 Changing timescales, markets and demands are likely to mean that the form and pace of development will vary over the plan period to 2026. With this in mind the CBSTg sets out principles that should be followed and identifies the standards of protection, mitigation and enhancement expected of development. Whilst specific biodiversity measures set out in the CBSTg represent effective approaches, changes in information, timescales and proposals may lead to changes to these approaches. In these circumstances development proposals will be expected to set out why the changes have occurred and demonstrate how the requirements of the key principles are met in revised approaches.

1.5 The CNQAAP sets out a detailed policy framework for the development of the area; this includes a number of policy areas in relation to biodiversity (see Section 2). This document sets out how these policy requirements can be met in respect of biodiversity, but does not itself, contain policies. With such a policy framework already in existence, together with the need to accommodate adaptability to biodiversity approaches, it is considered therefore that adoption of the CBSTg as a Supplementary Planning Document (SPD) is not necessary as it would add little in a planning policy context; it could be also seen to constrain biodiversity approaches

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

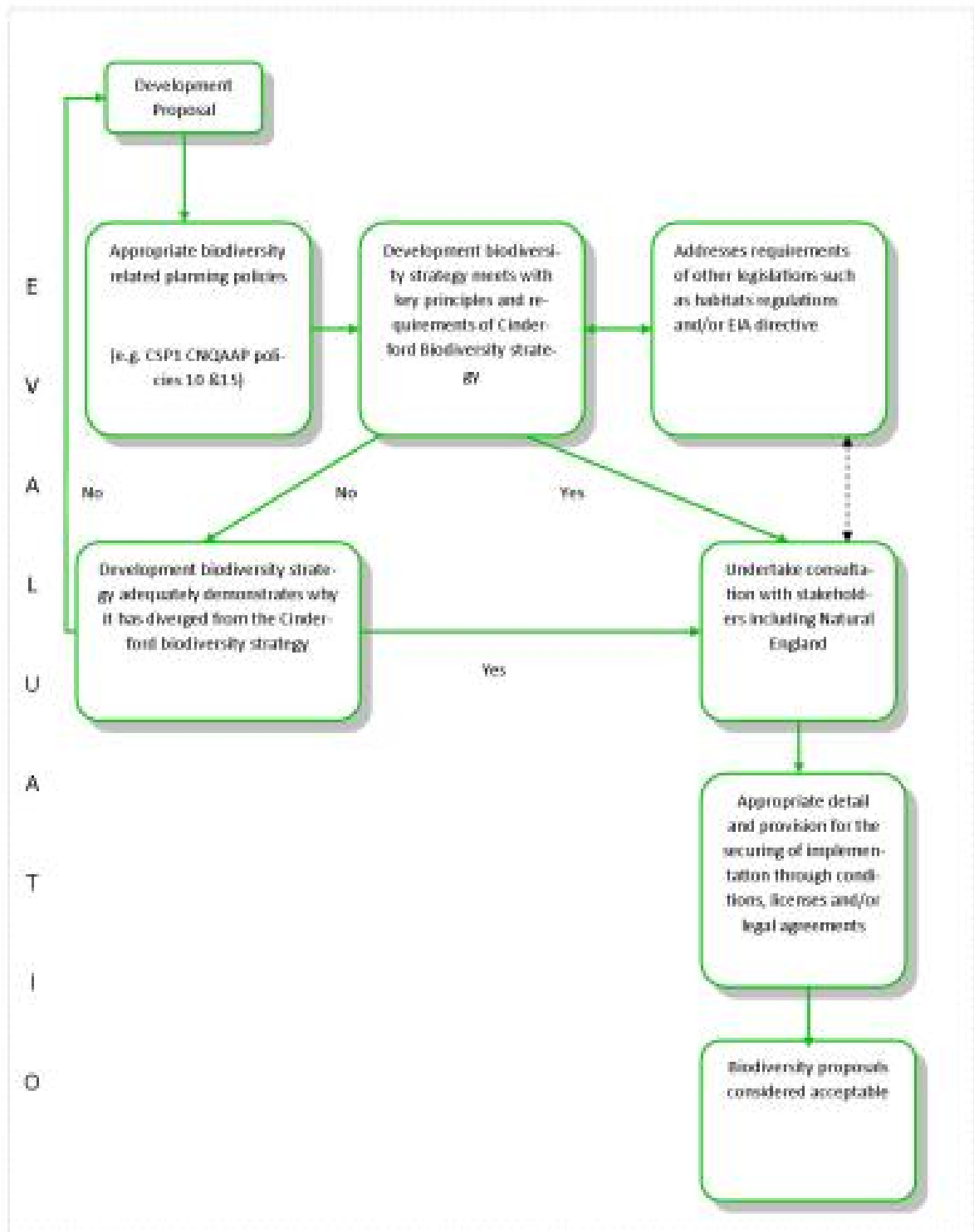


Figure 1.1

Planning Policy Context

1.6 The Core Strategy includes three policies of particular relevance to the CBSTg:

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

1.7 Policy CSP.1 Design & Environmental Protection

The design and construction of new development must take into account important characteristics of the environment and conserve, preserve or otherwise respect them in a manner that maintains or enhances their contribution to the environment, including their wider context. New development should demonstrate an efficient use of resources. It should respect wider natural corridors and other natural areas, providing green infrastructure where necessary.

In achieving the above, the following will be considered:

- *The effect of the proposal on the landscape including AONBs and any mitigation/ enhancement that is necessary or desirable.*
- *The impact on any protected sites (natural and historic sites and heritage assets and potential for avoiding and/ or mitigating any impacts, or providing enhancement, should the development be acceptable).*
- *The requirements of the management plans of the AONBs.*
- *Whether the existing infrastructure is adequate- additional provision will be required where it is not.*
- *Whether the development is at risk from flooding, whether it can be permitted taking into account any risks, and the sequential approach and any mitigation that may be necessary to ensure the development is safe and flood risk is not increased elsewhere.*
- *The impact of the development on any land contamination or risk to the development from ground instability including the mining legacy- Proposals must undertake appropriate remediation measures and verification works where contamination and /or stability issues are identified.*
- *The potential for the development to cause pollution and any mitigation measures to avoid pollution or make environmental improvements where existing problems occur.*
- *The provision of water supply and the development's impact on groundwater, watercourses and any protected abstractions.*
- *Any potential impact on the sterilisation of mineral resources and consideration of the potential for the prior extraction of those mineral resources ahead of development.*
- *Proposals for waste minimisation and management.*

Development that is not able to be satisfactorily accommodated in respect of the above will not be permitted.

1.8 Policy CSP. 11

The Cinderford Northern Quarter will be allocated as an area for mixed development to lead the regeneration of the town. Land will be set aside for approximately 175 dwellings, about 6ha of employment generation uses and about 3.5ha for mixed uses. These will include cultural, educational and recreational provision together with ancillary service space. All will be set within the forest environment and will lead on innovation, design and energy efficiency.

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

1.9 Policy CSP. 2 Climate Change Adaptation (Strategic objective: thriving sustainable communities) looks to the future and ensures that new development takes account of the impacts of changes in climatic conditions over its lifetime. It addresses key issues including water management, shading, exposure, biodiversity, landscaping and heat regulation. In relation to biodiversity the policy has two main elements;

Developments must support green infrastructure corridors that link to existing habitat features and networks. They must show that the integrity of any affected nature conservation sites is not compromised by the development proposed. Proposals that prevent or restrict network connections will not be supported.

And

Developments will be required to make long lasting biodiversity enhancements which could include the creation of new habitats where these would be appropriate. They should support existing features (trees, ponds, hedgerows etc), provide and manage public open space and should also provide additional features for a wide variety of species and habitats in appropriate locations throughout the development. Additional features provided should be consistent with the characteristics of the surrounding area.

1.10 CSP. 11 sets out the purpose, scale and nature of development in the CNQAAP. CSP. 1 provides a series of criteria development proposals are required to meet in order them to be permitted.

1.11 CSP. 1 and 2 relate to all development proposals within the district and their application needs to be appropriate to the type and locations of the development proposal. The overarching principles in these policies are that:

New development must take into account important characteristics of the environment and conserve, preserve or otherwise respect them in a manner that maintains or enhances their contribution to the environment, including their wider context.

And to

Support green infrastructure corridors that link to existing habitat features and networks.... show that the integrity of any affected nature conservation sites is not compromised, does not prevent or restrict network connections will not be supported and make long lasting biodiversity enhancements.

1.12 In the context of CNQAAP and biodiversity, development proposals are therefore required to demonstrate how they have adhered to these overarching principles. The CBSTg sets out the biodiversity measures by which compliance with these requirements will be evaluated.

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

Cinderford Northern Quarter Area Action Plan

1.13 To some degree every policy within the document is relevant to biodiversity due to the inter-relationship between land use and biodiversity, however the following policies are considered to be of particular relevance:

- Policy 2 Cross-cutting approach to sustainability
- Policy 10 Landscape and biodiversity strategy
- Policy 15 Road hierarchy and link road
- Policy 26 European nature conservation designations

1.14 These policies are provided in Appendix 2 for reference. However due to the inter-relationship between policies and the supporting information within the CNQAAP it is considered that a good understanding of the whole CNQAAP is required to adequately address biodiversity issues.

1.15 Policy 2 sets out that sustainability is at the heart of development proposals. Addressing environmental issues (including biodiversity) will therefore be required to demonstrate development proposals are 'sustainable'. The sustainability theme is further expanded in the key design principles (Policy 8) and the MDC.

1.16 Policy 10 provides the key framework for the CBSTg. It sets out that development proposals must be "accompanied by detailed landscape and biodiversity implementation strategies" which detail mitigation, enhancement and management measures. The explanatory text of the policy (5.40 – 5.42) provides for a layered approach providing biodiversity mitigation, enhancement and monitoring. The CNQAAP & MDC provide a high level strategy setting out key objectives and requirements. The CBSTg is intended to provide a framework from which developers can draw to prepare their biodiversity strategies relevant to their development proposals.

1.17 Policy 15 and the CNQAAP's habitats regulations assessment identify that certain road alignments; together with their construction and use, pose particular issues for bats. The location, layout, design and mitigation need particular attention and must take account of how the various species of bats use the area. Policy 15 sets out some specific ecological requirements in relation to roads. It should be remembered that these are not the only ecological/biodiversity requirements in relation to roads and that more general considerations arising from policy 10 and CSP1 also need to be addressed.

1.18 Policy 26 highlights the requirements of the 2010 Habitats Regulations. It sets out that development proposals will be required to consider if they are likely to have any significant effects on European designated sites. Where likely significant effects cannot be ruled out an

1 . Introduction to the Cinderford Biodiversity Strategy guidance (CBSTg) and its use

appropriate assessment should be undertaken to demonstrate, with mitigation, there will no adverse effects on the integrity on a European designate site. Applicants are advised to undertake early consultation with Natural England.

1.19 Essentially the same requirements are set out in the NPPF as in the CS and CNQAAP, although at a more strategic level. The CS and CNQAAP provide the criteria based policies sought in paragraph 113 of the NPPF and clearly demonstrate the distinctions in the hierarchy of designated sites. Further guidance is provided in circular 06/2005.

Development Biodiversity Implementation Strategies

Figure 1.2 illustrates the relationship between the CNQAAP and the CBSTg. The council will expect Development Biodiversity Implementation Strategies (DBIS) to be consistent with the key principles and approaches set out in the CBSTg. Where development biodiversity proposals diverge from the approaches of CBSTg, the developer will be expected to demonstrate why the changes are required and show how the key principles are adequately respected. This document provides advice and guidance to ensure development biodiversity implementation strategies reflect and address biodiversity issues.

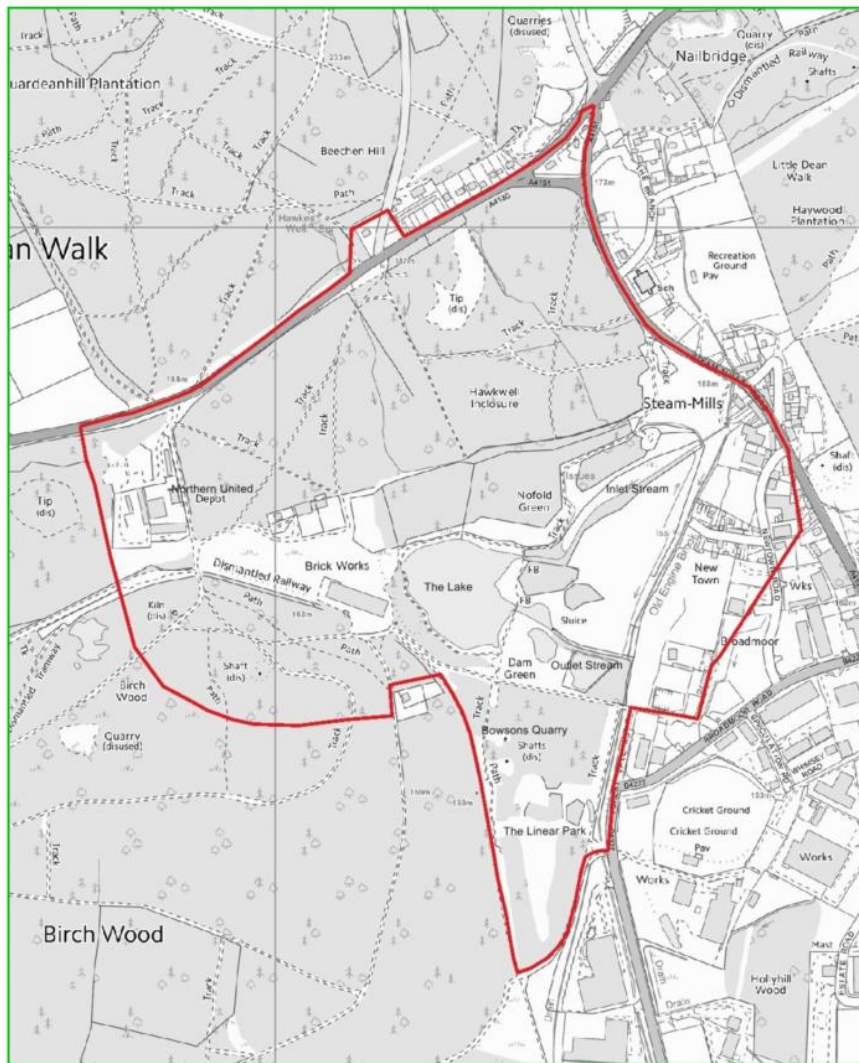


Figure 1.2

2. Describing the CNQ Biodiversity Resource and its Value

Extent, location and context

2.1 The Northern Quarter covers an area of 84ha and lies to the north west of Cinderford in the west of Gloucestershire. The area is flanked by forest to the south and west, the A4136 to the north and by the principal settlement of Cinderford to the east. Figure 2.1 illustrates the boundary of the Cinderford Northern Quarter AAP area and locations within it.



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Legend

Figure: 2.1

Title: CNQAAP boundary and locations

— CNQAAP boundary



2 . Describing the CNQ Biodiversity Resource and its Value

Geology

2.2 The Northern Quarter is underlain by a synclinal basin of Supra-Pennant rock of the Upper Carboniferous Coal Measures, comprising beds of mudstone, siltstones, sandstones and coal seams which outcrop at the surface. Much of the natural drift deposits of silt, clay, sand and gravel expected to occur within the area have been removed or significantly disturbed as a result of the previous industrial uses (see below) and replaced with made ground consisting of silty clays containing fragments of coal, shale and sandstone.

Land use history

2.3 The area forms part of the statutory Forest of Dean, utilised previously by both Norman and Anglo-Saxon Kings as royal hunting grounds. Its status as part of a Royal hunting reserve helped protect it from exploitation and illegal settlement over the subsequent medieval and post-medieval period. However, mineral extraction and periodic woodland clearance still took place. It is uncertain when mining for coal first began in this area but the presence of weathered outcrops of coal would have made its initial winning, for domestic heating purposes, relatively easy. The number, size and depth of mines increased throughout the 17th, 18th and 19th centuries in response to the demand for coal to smelt and forge iron, assisted by technological advances in mining techniques and the advent of tram and railways. During the 19th and 20th centuries the Northern Quarter contained up to 14 coal mines and the area was crossed by two railway lines. However, by the middle of the 20th century many of these mines were closed. The now disused Northern United Colliery was one of the last to close in 1965.

2.4 Following the demise of the collieries part of the Northern Quarter was subject to open cast mining in the 1970s and also to clay extraction in more recent decades. Many of the mines have since been capped or filled in and mining spoil heaps, open cast mining areas and the clay extraction pits, re-profiled and landscaped. Whilst the Northern Quarter still contains a garage, brickworks and several disused mine buildings the site is now predominantly used for informal recreational purposes including angling. Woodland within and surrounding the Northern Quarter is predominantly managed for commercial timber production by the Forestry Commission.

Landscape

2.5 The Northern Quarter lies within the Cinderford and Ruspidge Landscape Character Area which in turn forms a component of the wider Wooded Syncline and Settled Forest Margin Landscape Character Type of the District. The key characteristics of this landscape include:

- A distinctive syncline or basin structure occupied by extensive areas of coniferous and deciduous woodland plantation and dense vegetation of varying types, age and management;
- Linear ponds and lakes along streams bordered by verdant lawns and riparian habitats;
- A long history of mining, industrial activity and forest management and;
- Almost continuous encirclement by a belt of sprawling, linear development.

2 . Describing the CNQ Biodiversity Resource and its Value

2.6 Woodland densely blankets the Wooded Syncline and Settled Forest Margin Landscape Character Type and has tended to recolonize other historic mining and industrial sites elsewhere in the Forest, obscuring them from view. As such the Northern Quarter is fairly atypical of its Landscape Character Type. Its more or less permanently semi - open character is attributable, at least in part, to rabbit and deer grazing and the soils of site which appear to have inhibited rapid woodland re-colonisation and instead favoured grasslands and areas of scrub development. Other areas with a more permanent open character within the core Forest are limited and tend to be associated with Lodges (for example Worcester and Herbert Lodges) and other recently disused industrial sites such as Crab Tree Hill and Howlers Hill which have distinctively different characters to that of the Northern Quarter.

2.7 The Cinderford Linear Park which runs along the western edge of Cinderford into the southern tip of the Northern Quarter is an important landscape feature and acts as a buffer between the town, with its industrial fringe, and the core forest.

Key Ecological Components

2.8 The combination of water courses, the surrounding forest and past industrial use of the Northern Quarter have exerted their influence on the biodiversity of the site. As a consequence the Northern Quarter supports a blend of habitats and species, characteristic of both woodland and post-industrial land.

2.9 The following section focuses on Key Ecological Components within and beyond the Northern Quarter that are defined as:

- European Sites including Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites;
- Lesser horseshoe bats that are necessary to the integrity of the Wye Valley and Forest of Dean Bat SAC;
- National designated sites including Sites of Special Scientific Interest (SSSIs);
- Locally designated sites including Key Wildlife Sites (KWS);
- Species protected by law including those listed under Schedule II of the Conservation of Habitats and Species Regulations 2010 and Schedule 1 or 5 of the Wildlife & Countryside Act 1981 (as amended);
- Habitats and species listed as Habitats and Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006;
- Ecological networks which support the above species.

2.10 In order to provide context UK Broader Biodiversity Action Plan habitats are also described, where present, and the local distribution and extent of habitats and species beyond the Northern Quarter where this information is available.

2 . Describing the CNQ Biodiversity Resource and its Value

Sites

Box 2.1

Key Ecological Component - Sites

- Wye Valley and Forest of Dean Bat SAC
- Wye Valley Woodlands SAC
- Hawkwell Inclosure Key Wildlife Site
- Cinderford Linear Park Key Wildlife Site

2.11 The Northern Quarter contains no European or national statutory designated wildlife sites such as Special Areas of Conservation (SAC) or Sites of Special Interest (SSSI).

2.12 Five European sites lie within a 15 km radius of the Northern Quarter. These include: the River Wye SAC (3.7km distant) designated primarily for its riverine species and habitats; the Wye Valley Woodlands SAC (5.8km distant at their closest point) designated for its woodland habitat and Lesser horseshoe bats and; Walmore Common Special Protection Area (SPA) and Ramsar (9km distant) and the Severn Estuary SAC, SPA and Ramsar (9.2km distant) designated for their marine and estuarine habitats, fish and bird species.

2.13 The Wye Valley and Forest of Dean Bat SAC consists of a complex of 13 SSSIs in Monmouthshire and the Forest of Dean. Westbury Brook Ironstone Mine SSSI is the nearest component site lying 2.4km away from the Northern Quarter. The SAC is designated for its exceptional breeding population of lesser horseshoe bats (totalling 26% of the national population) and for its greater horseshoe population (totalling 6% of the national population) in the northern part of its range. Whilst the Northern Quarter contains no SSSIs or SACs itself, a purpose built artificial roost and nearby disused mining buildings at the Northern United Colliery site support a large breeding colony of lesser horseshoe bats. Individuals from this colony are considered to be necessary to the integrity of the Wye Valley and Forest of Dean Bat SAC as they are likely to hibernate at cave sites such as Westbury Brook Ironstone Mine SSSI. They are also considered to be necessary to the integrity of the Wye Valley Woodlands SAC, where lesser horseshoe bats are a qualifying but not primary reason for the sites selection, as the species is known to forage in these areas.

2.14 The nearest other SSSI (without a European Site designation) is Edge Hills Quarry (1.9km distant) designated for its geological interest.

2.15 The Northern Quarter contains two non-statutory designated wildlife sites. The Hawkwell Inclosure Key Wildlife Site (KWS), covering part of the Hawkwell Inclosure, was designated for its woodland and associated shrub layer and ground flora. The central section is dominated by conifer but is fringed by broadleaved woodland consisting primarily of sessile oak and beech

2 . Describing the CNQ Biodiversity Resource and its Value

and containing some dead standing and lying wood. The understorey is sparse and includes goat willow scattered sycamore, oak and silver birch saplings and hawthorn. The ground flora includes a range of woodland species including the rare Broad-leaved helliborine.

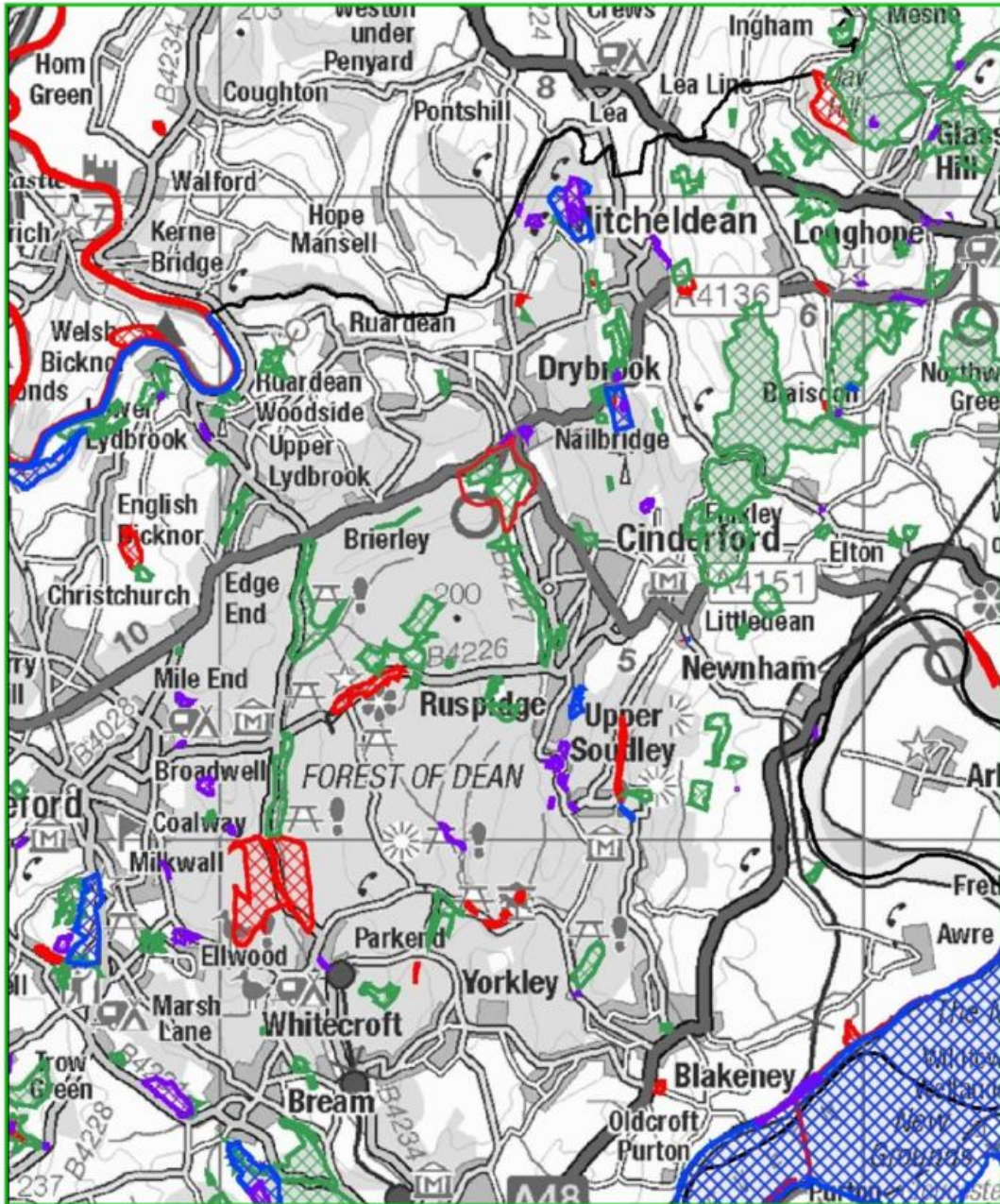
2.16 Cinderford Linear Park was originally designated as a KWS in 1997 for its diverse mosaic of habitats including woodland, scrub and acid, neutral and base rich ground flora (enhanced further by large and small areas of open water) and its invertebrate (butterfly) and vertebrate (reptile) fauna. The site was extended in 2000 to include acid and wet grassland and again in 2012 to include areas of bat interest and additional areas of semi-natural grassland.

2.17 Laymoor Quay KWS, a Gloucestershire Wildlife Trust nature reserve, and Serridge Green KWS which lie to the south and west of the Northern Quarter respectively were designated for their marsh, bog, swamp, mire and tall herb fen habitats. Laymoor Quay KWS was also designated for its lowland heath and plant interest.

2.18 The area contains no designated Regionally Important Geological and Geomorphological Sites (RIGS). Two RIGS, Nailbridge Quarry and Nailbridge Scars, are located immediately north and west respectively of the Northern Quarter. Both were designated for the educational value of their Upper Carboniferous Pennant Sandstone & shale containing fragments of coal.

2.19 Figure 2.2 illustrates designated sites of importance for biodiversity located inside and surrounding Cinderford Northern Quarter AAP.

2. Describing the CNQ Biodiversity Resource and its Value



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Legend

Title: Designated sites

- CNQAAP boundary
- European Sites

Figure: 2.2

- SSSIs
- KWS
- RIGS



2 . Describing the CNQ Biodiversity Resource and its Value

Habitats

2.20 The Northern Quarter sits within the Ruardean Woods Strategic Nature Area (SNA) where woodland mosaic (including Heathland and Dry Acid Grassland Habitats of Principal Importance) are considered a priority. In particular, the SNA identifies opportunities to:

- Manage and restore Lowland Mixed Deciduous Woodland;
- Manage, restore and create Lowland Dry Acid Grassland;
- Manage and restore Marsh;
- Manage restore and create Ponds and manage and create Wet Woodland.

2.21 The Northern Quarter supports four Habitats of Principal Importance in England listed under Section 41 of the NERC Act 2006. Two of these, Lowland Mixed Deciduous Woodland and Wet Woodland, are identified as main priority habitats within the Natural Character Area (NCA) Profile for Forest of Dean and Lower Wye.

2.22 In addition, the Northern Quarter supports a range of UK Biodiversity Action Plan (UK BAP) Broad Habitats including Neutral/Acid/Calcareous Grassland, Rivers and Streams, Broadleaved, Mixed and Yew Woodland and Conifer Woodland. Whilst these are not Habitats of Principal Importance they help set the context for such habitats and in some instances are important because they support Species of Principal Importance (see Table 2.2). The definitions of each of these habitats can be found in Appendix 4.

Table 2.1 Northern Quarter Habitats of Principal Importance in England and UK BAP Broad Habitats in the Northern Quarter

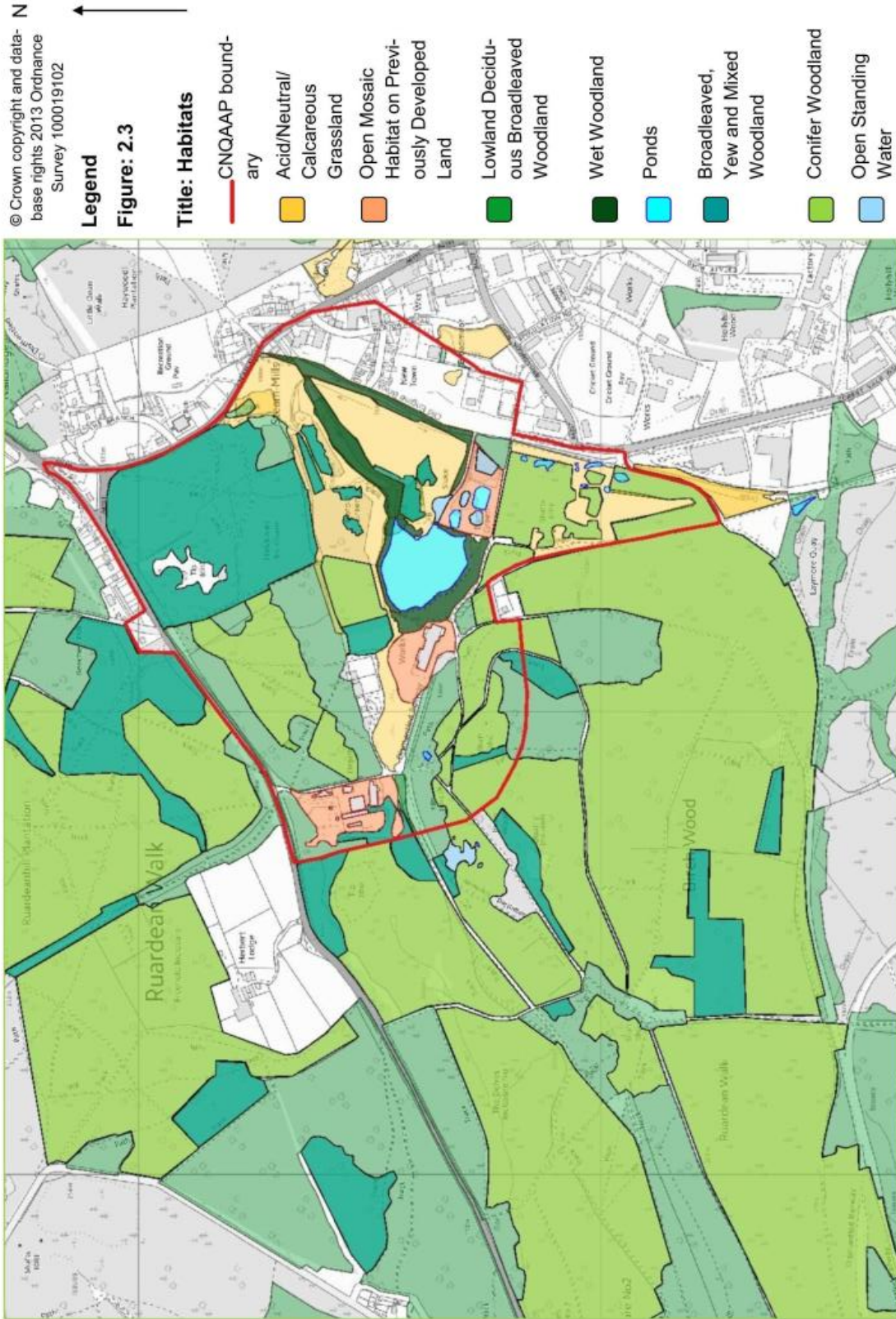
Habitat	Area (ha)	Habitat of Principal Importance in England
Broadleaved, and Mixed Woodland	17.4	UK Broader BAP Habitat
Conifer Woodland	16.9	UK Broader BAP Habitat
Lowland Mixed Deciduous Woodland	13.3	Habitat of Principal Importance In England
Neutral/Acid/Calcareous Grassland	13.6	
Wet Woodlands	3.9	Habitat of Principal Importance In England
Open Mosaic Habitats on Previously Developed Land	4.2	Habitat of Principal Importance In England
Ponds	2.9	Habitat of Principal Importance In England

2 . Describing the CNQ Biodiversity Resource and its Value

Habitat	Area (ha)	Habitat of Principal Importance in England
Other (Improved Grassland, Open Standing Water, tracks, roads, buildings etc.)	11.8	UK Broader BAP Habitat
Total	84	

2.23 Figure 2.3 illustrates the location and extent of Habitats of Principal Importance in England and UK BAP Broad Habitat types within and surrounding the Cinderford Northern Quarter AAP.

2. Describing the CNQ Biodiversity Resource and its Value



2 . Describing the CNQ Biodiversity Resource and its Value

Habitats of Principal Importance

Box 2.2

Key Ecological Component - Habitats

- Ponds
- Open Mosaic Habitats on Previously Developed Land
- Wet Woodlands
- Lowland Mixed Deciduous Woodland
- Neutral/Acid/Calcareous Grassland

2.24 Ponds, in the form of the large central lake (covering 1.5ha) and a series of small ponds running south into the Cinderford Linear Park, provide foraging habitat for bats and breeding habitat for great crested newts. Ponds are likely to be under-recorded within the Ruardean Woods SNA but may be widespread across it.

2.25 The distribution and extent of Open Mosaic Habitats on Previously Developed Land within the Northern Quarter is restricted to areas of grassland that also incorporate areas of bare substrate, such as at Northern United, and the Brickworks or newly created pools such as at Dam Green. Open Mosaic Habitats on Previously Developed Land is likely to be under-recorded within the Ruardean Woods SNA but may occur at other historic industrial sites where succession to woodland has been delayed or prevented.

2.26 Thin ribbons of Wet Woodland can be found along the watercourses and around water bodies within the Northern Quarter. They are secondary rather than ancient in origin due to past industrial use of the site and subsequent comprehensive re-landscaping of the area. Wet Woodland is likely to be under-recorded and is likely to be restricted to poorly drained land and areas running along watercourses within the Ruardean Woods SNA.

2.27 Within the Northern Quarter Lowland Mixed Deciduous Woodland is restricted to areas of broadleaf woodland within the Hawkwell Inclosure and edge of Birch Wood. Ancient Semi-Natural Woodland (ASNW) is limited to the south-western corner of the Hawkwell Inclosure. Significant blocks and thinner ribbons of Lowland Mixed Deciduous Woodland can be found within the Ruardean Woods SNA to the west and south of the Northern Quarter. This and other woodland within the SNA is predominantly categorised as Ancient Replanted Woodland.

2 . Describing the CNQ Biodiversity Resource and its Value

Other habitats

2.28 Neutral/Acid/Calcareous Grassland can be found in the form of species-rich and species-poor grassland within the Northern Quarter. The grassland is considered a single community type dominated by grasses and sedges but variations in soil pH result in the presence of a range of other plant species characteristic of neutral, calcareous and acid grassland communities. Lower lying poorly drained areas to the west support marshier grassland with more bryophytes and reeds. Where grazing pressure is lower, as in the north-west, the grassland becomes more rank, tussocky and floristically species-poor. The habitat also includes areas of occasional scattered scrub. The relatively recent and post-industrial origins of this grassland provide a poor fit with any National Vegetation Classification (NVC) community type meaning the habitat does not qualify as Lowland Hay Meadow. Equally a lack of bare ground component means that significant areas of this habitat do not qualify as Open Mosaic Habitats on Previously Developed Land. However, these grasslands support a range of Species of Principal Importance in England and can be found in three distinct areas: as a band of variable width running approximately east-west along the edge of Hawkwell Inclosure from Northern United to Steam Mills; as a block to the east of the Lake and; within rides and large glades within the Linear Park. This type of grassland is likely to be under-recorded within the Ruardean Woods SNA. Small areas of acid grassland with similar characteristics to certain areas of grassland within the Northern Quarter can be found on the eastern edge of Steam Mills, east and west of Valley Road and west of Woorgreens.

2.29 Rivers and Streams can be found in the form of the highly modified Old Engine Brook, which runs along the eastern edge of the Northern Quarter, and its tributaries which act as inlet and outlet streams for the Lake. They can also be found as a series of other small watercourses running approximately north-south through the Hawkwell Inclosure.

2.30 Broadleaved and Mixed Woodland occurs in the eastern half of the Hawkwell Inclosure. It also occurs as small blocks and ribbons of native and non-native broadleaved woodland to the north and east of the Lake. The extent of this type of habitat within the wider SNA is relatively limited as most broadleaf woodland is categorised as Lowland Mixed Deciduous Woodland.

2.31 Coniferous Woodland in the Northern Quarter can be found as blocks of evergreen conifers, pine and larch plantation within the Linear Park and north of the Lake. Large similar blocks of conifer plantation can be found to the west and south of the Northern Quarter. Coniferous Woodland is widespread and extensive within the wider Ruardean Woods SNA.

2.32 The Northern Quarter also contains ponds, classified as Standing Open Water and Canals, which have been recently created or else are currently used as heavily stocked fishing lakes and have the potential to become valuable as great crested newts habitat or bat forage areas for example in the future.

2.33 The Northern Quarter also contains improved grassland in the fields around Newtown.

2 . Describing the CNQ Biodiversity Resource and its Value

Species

2.34 The Northern Quarter supports an internationally important lesser horseshoe maternity colony, an important assemblage of other European Protected Species, including other bat species, great crested newt and dormouse, a range of declining breeding birds and threatened invertebrates. Table 2.2 summarises these species and the habitats which support them.

Table 2.2 Relationship between Habitats and Species of Principal Importance in England associated with the Cinderford Northern Quarter.

Key Ecological Component – species	Habitat of Principal Importance				UK BAP Broad Habitat			
	Lowland Mixed Deciduous Woodland	Wet Woodlands	Ponds	Open Mosaic Habitats on Previously Developed Land	Neutral/Acid/Calcareous Grassland	Rivers and streams	Broadleaved, & Mixed Woodland	Coniferous Woodland
Common toad	•	•	•	•	•		•	
Great crested newt	•	•	•	•	•		○	○
Tree pipit	•				•		•	•
Nightjar	•						•	•
Lesser redpoll	•	•					•	
Linnet					•			
Hawfinch	•						•	○
Cuckoo	•				•		•	
Lesser spotted woodpecker	•	•					•	
Reed bunting	•			•	•		•	•
Willow tit	•	•		•			•	
Marsh tit	•	•					•	
House sparrow*				•				

2 . Describing the CNQ Biodiversity Resource and its Value

Key Ecological Component – species	Habitat of Principal Importance				UK BAP Broad Habitat			
	Lowland Mixed Deciduous Woodland	Wet Woodlands	Ponds	Open Mosaic Habitats on Previously Developed Land	Neutral/Acid/Calcareous Grassland	Rivers and streams	Broadleaved, & Mixed Woodland	Coniferous Woodland
Wood warbler	•						•	
Dunnock	•			•			•	
Bullfinch	•			•			•	
Starling*	•			•	•		•	
Song thrush				•	•		•	
Woodcock	•						•	•
Crossbill								•
Barbastelle, noctule	•	•	•	•	•	•	•	
Common & soprano pipistrelle, Leisler's	•	•	•	•	•	•	•	•
Brown long-eared*	•	•		•			•	•
Greater horseshoe*	•	•		•	•	•	•	
Lesser horseshoe*	•	•	•	○	○	•	•	•
Whiskered, Brandt's*	•	•	•			•	•	?
Serotine	•				•		•	•
Natterer's	•	•	•	•	•	•	•	•
Daubenton's	•	•	•			•	•	
Otter		•	•			•	•	
Dormouse	•						•	○
Common lizard	•			•	•		•	

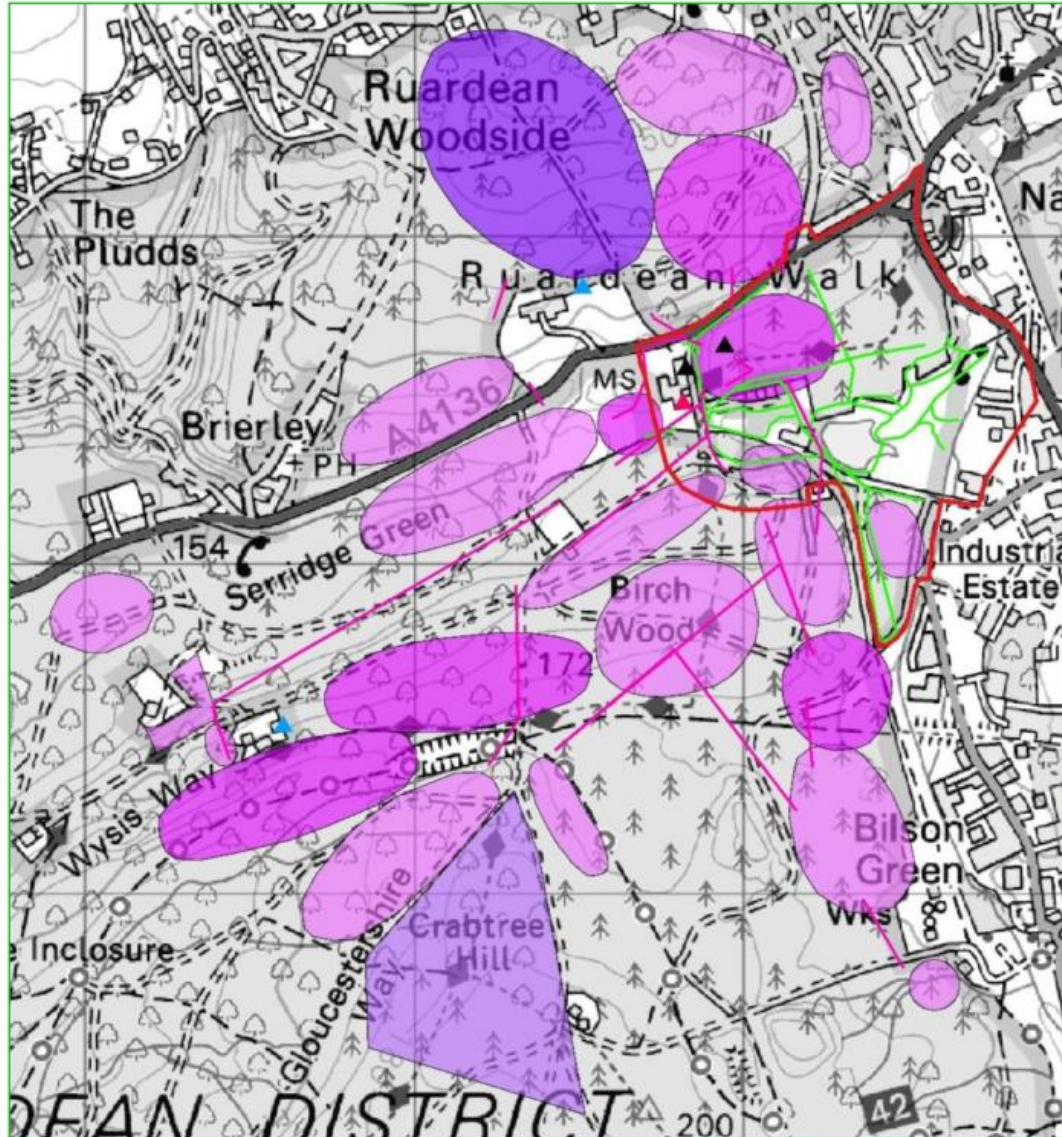
2. Describing the CNQ Biodiversity Resource and its Value

Key Ecological Component – species	Habitat of Principal Importance				UK BAP Broad Habitat			
	Lowland Mixed Deciduous Woodland	Wet Woodlands	Ponds	Open Mosaic Habitats on Previously Developed Land	Neutral/Acid/Calcareous Grassland	Rivers and streams	Broadleaved, & Mixed Woodland	Coniferous Woodland
Slow-worm	•			•	•		•	
Adder	•			•	•		•	
Grass snake	•	•	•	•	•	•	•	
Wood white, dingy skipper, grizzled skipper, grayling	•r			•	•		•r	
Forester moth	•r			•	•		•r	

Key: • - optimal habitat; n- sub-optimal habitat; r – rides and clearings; * – also buildings; ?- possible use

2.35 Figures 2.4a and 2.4b illustrate the location of key species within and surrounding the Cinderford Northern Quarter AAP area.

2. Describing the CNQ Biodiversity Resource and its Value



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N

Legend

Title: Bats

— CNQAAP boundary

Lesser horseshoe foraging areas:

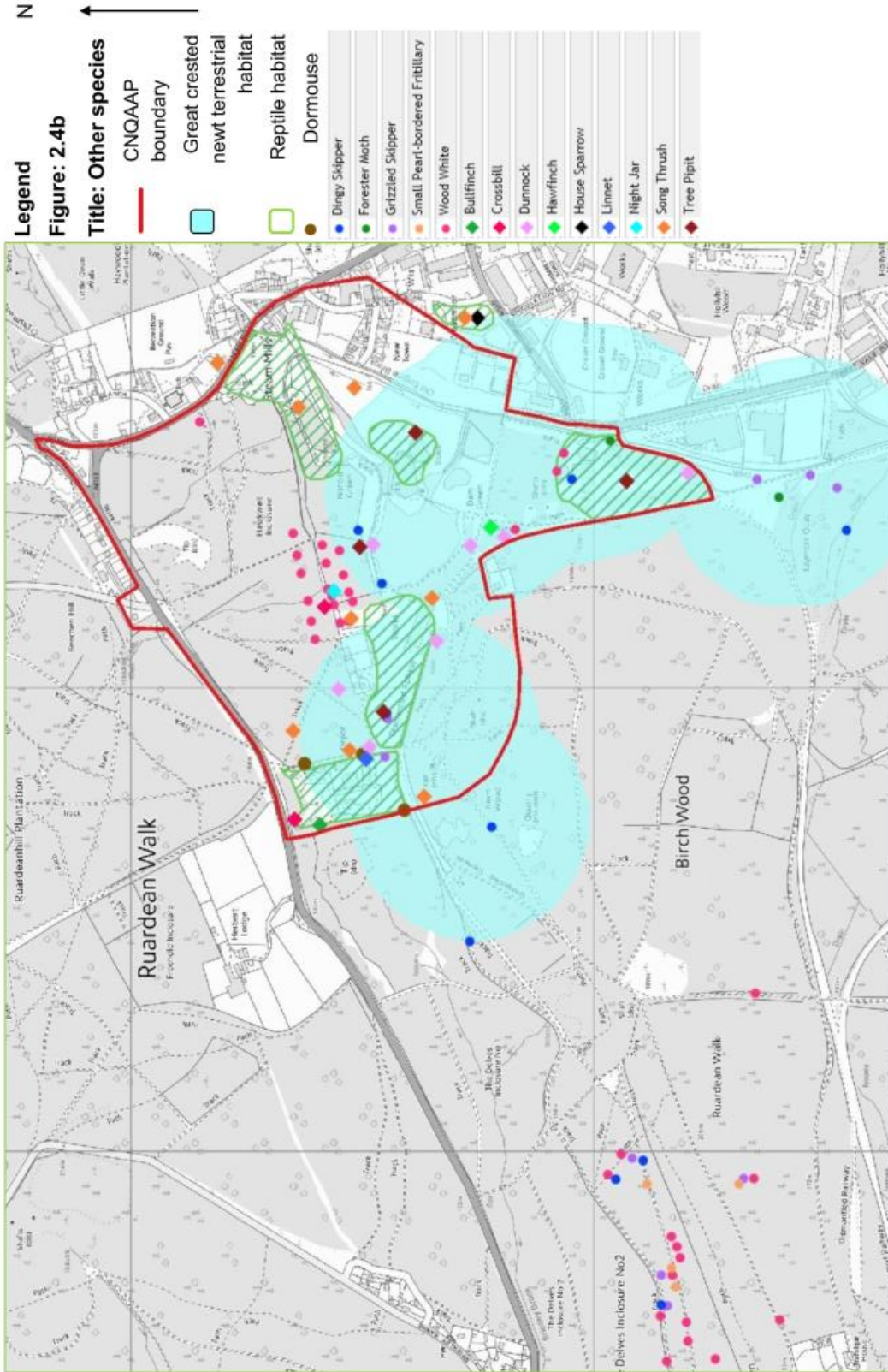
- High use
- High to medium use
- Medium to low use

Figure: 2.4a

- Low use
- Lesser horseshoe key flyways
- Other bat species key flyways
- ▲ Less horseshoe maternity roost
- ▲ Lesser horseshoe satellite roost
- ▲ Lesser horseshoe night roost



2. Describing the CNQ Biodiversity Resource and its Value



2 . Describing the CNQ Biodiversity Resource and its Value

Amphibians and reptiles

Box 2.3

Key Ecological Component - Amphibians and reptiles

- Great crested newt
- Common toad
- Common lizard
- Slow-worm
- Adder
- Grass snake

2.36 The Linear Park contains a series of small ponds which support a medium to large population of great crested newts. Significant areas of the Northern Quarter provide terrestrial habitat for this population and for another small population outside the Northern Quarter to the south-west of Northern United. Great crested newts are a European Protected Species listed under Schedule II of the Habitats Directive and are a Species of Principal Importance in England listed under Section 41 of the NERC Act 2006. Ponds in the area also support common toad, another Species of Principal Importance in England.

2.37 The Northern Quarter is also known to support populations of common lizard, slow-worm, grass snake and adder, all listed as a Species of Principal Importance in England. Each of these species is likely to be widespread across the area where suitable habitat is present. The Northern United site is known to support an exceptional population of slow-worms and good populations exist at Bowson Colliery and the Brick Works. Good populations of common lizard can be found in grassland to the east of the Lake, at Steam Mills, Dam Green, the Brick Works and at Northern United.

2 . Describing the CNQ Biodiversity Resource and its Value

Birds

Box 2.4

Key Ecological Component - Birds

- House sparrow
- Starling
- Linnet
- Lesser redpoll
- Tree pit
- Song thrush
- Lesser spotted woodpecker
- Nightjar
- Hawfinch
- Bullfinch
- Dunnock
- Reed bunting
- Wood warbler
- Crossbill
- Willow tit
- Marsh tit
- Woodcock
- Cuckoo

2.38 The Northern Quarter supports a wide range of bird species including 16 breeding bird species listed as Species of Principal Importance in England under Section 41 of the NERC Act 2006 and the RSPB's red list of Species of Conservation Concern. A number of these species including cuckoo, nightjar, lesser spotted woodpecker and willow tit are associated with woodland within and surrounding the Northern Quarter.

2.39 Hornbeam and cherry woodland within the Northern Quarter supports a breeding and wintering colony of hawfinch. Hawfinch occurs at several sites within the Dean. The Northern Quarter site is thought to act as one of the most important sites for the species both within the Forest of Dean and Wye Valley and the UK.

2.40 Woodland around the Northern United Colliery supports breeding common crossbill and wood warbler; both species are listed in Schedule 1 of Wildlife and Countryside Act 1981 (as amended). Nightjar, another species of Principal Importance in England, has also been recorded as foraging, but not breeding, in the north of the area. In addition eighteen RSPB Amber listed species have also been recorded within the Northern Quarter.

2 . Describing the CNQ Biodiversity Resource and its Value

Mammals

Box 2.5

Key Ecological Component - Mammals

- Lesser horseshoe*
- Greater horseshoe*
- Barbastelle*
- Whiskered/brandt's
- Noctule *
- Serotine
- Leisler's
- Badger
- Brown long-eared*
- Natterer's
- Daubenton's
- Common pipistrelle*
- Soprano pipistrelle*
- Dormouse*
- Otter*

*Species of Principal Importance in England

2.41 The disused Main Office and Bath House at Northern United and a purpose built nearby Artificial Roost, support a breeding colony in excess of 300 lesser horseshoe bats. Approximately 40 individuals are also known to hibernate within the Artificial Roost during the winter months. This species is listed in Schedule II and IV of the Conservation of Habitats and Species Regulations 2010. It is likely that the maternity, but not hibernation, colony within the Artificial Roost would meet the criteria for selection as a Site of Special Scientific Interest. The species' flyways extend across the Northern Quarter to foraging areas at the Lake and woodland up to 2.5km beyond the AAP boundary. Night roosts at Herbert Lodge (to the north) and Trafalgar House (to the south-west) are also used by the species.

2.42 Buildings at Northern United also act as minor roosts for greater horseshoe, natterer's, brown long-eared, common pipistrelle and myotid bat species. Timing of recordings suggests that a pipistrelle bat maternity roost may lie close to the Northern Quarter, possibly within the industrial or residential buildings of Steam Mills. The Northern Quarter also acts as an important commuting and foraging area for 12 bats species. These include a small number of the very rare greater horseshoe bat, rare barbastelle and whiskered/Brandt's bats, uncommon noctule and serotine and scarce Leisler's bat. All bat species are listed under Schedule II of the Conservation of Habitats and Species Regulations 2010 and Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

2 . Describing the CNQ Biodiversity Resource and its Value

2.43 Hazel dormouse is known to occur within the area but its recent appearance here and the absence of any significant areas of optimal habitat within and around the Northern Quarter indicate that the population is likely to be small. The hazel dormouse is a European Protected Species listed under Schedule II of the Habitats Directive and is also a Species of Principal Importance in England. There is an absence of records for this species in the Forest to the immediate south of the Northern Quarter but it can be found at low densities in woodland to the east of Cinderford and at Worrall Hill to the west.

2.44 Whilst there are historic records for water vole along the Cinderford Brook the species is now considered absent from the area. Otters are wide ranging and nomadic and whilst they have been recorded within the Northern Quarter no holts are known to be present. Badger setts are present within woodland surrounding the Northern Quarter and forage areas are likely to extend into it.

Invertebrates

Box 4.6

Key Ecological Component - Invertebrates

- Wood white
- Grayling
- Dingy skipper
- Forester moth
- Grizzled skipper

2.45 The Northern Quarter supports colonies of wood white, dingy skipper, grizzled skipper and grayling butterfly and the forester moth, all of which are Species of Principal Importance in England listed under Section 41 of the NERC Act 2006. These colonies are thought to function as part of a metapopulation, connected by occasional dispersal along woodland rides and glades to other populations west and south of the area. The Northern Quarter appears to form the north-eastern limit of distribution for many of these species in the Forest of Dean. Small pearl-bordered fritillary and pearl-bordered fritillary occur in woodland to the south and west of the Northern Quarter.

2.46 Ten species of damselfly and 15 species of dragonfly occur within the Northern Quarter including the Red Data Listed (Near Threatened) variable damselfly, scarce blue-tailed damselfly and common club-tailed dragonfly along with five other scarce and/or local species.

2.47 A Red Data Book parasitic fly is associated with tussocky grassland to the north of the area. Nine species of Nationally Scarce invertebrate are found within the Northern Quarter. These include four species of water beetle (*Hydroglyphus pusillus*, *Rhantus suturalis*, *Enochrus*

2 . Describing the CNQ Biodiversity Resource and its Value

ochropterus and *E. melanocephalus*); 3 species of moth (six-belted clearwing, totrix moth and orange footman moth); a harvestman (*Dicranopalpus ramosus*) and a pollen bee (*Meligethes atramentarius*).

2.48 White-clawed crayfish has been recorded in Soudley Ponds, into which the Old Engine Brook drains. As such the species may occur within the area.

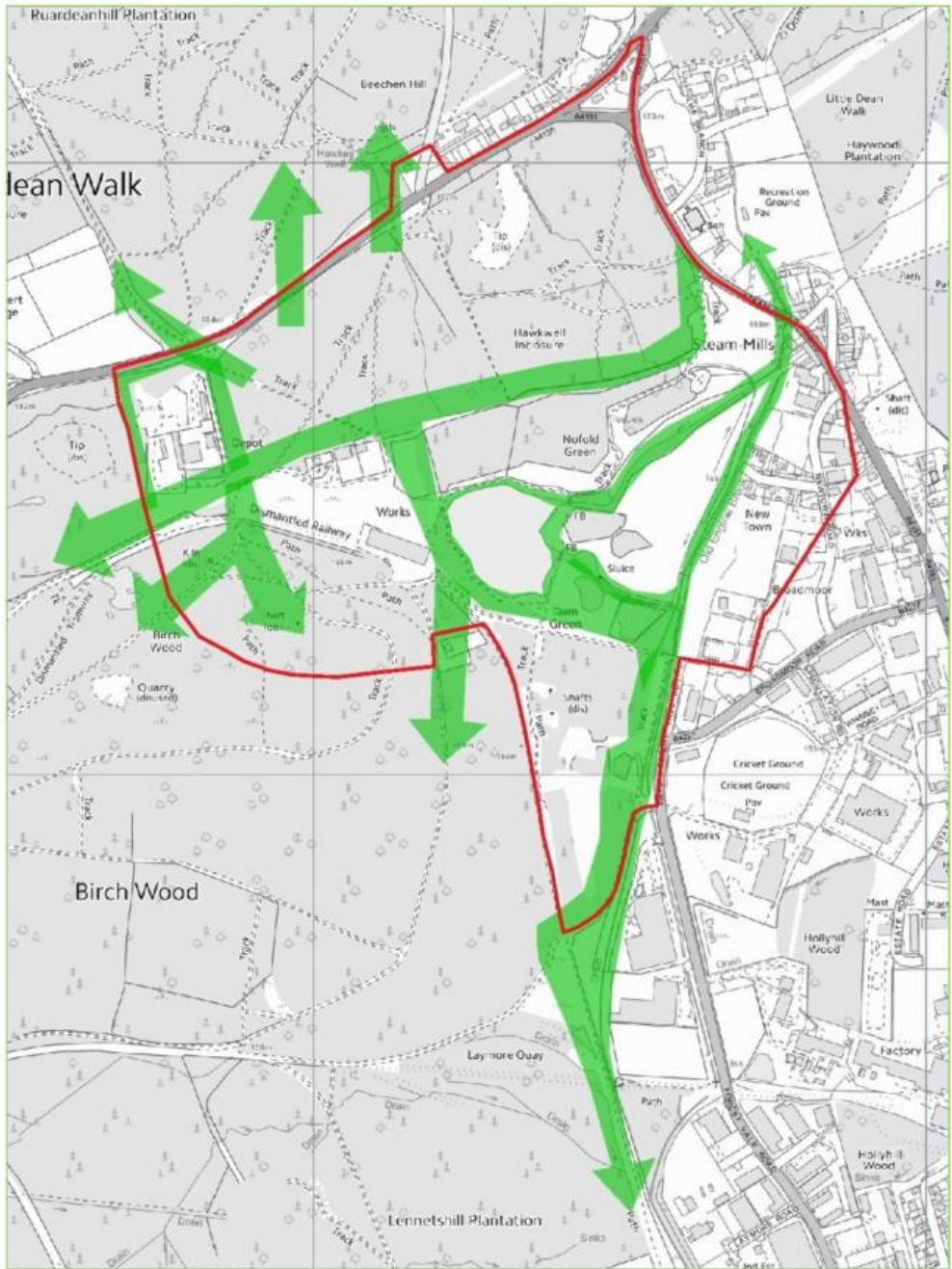
Major Ecological Networks

2.49 Ecological networks, usually in the form of semi-natural linear habitat features, allow the movement of species across the landscape. This movement prevents fragmentation and isolation effects including reductions in genetic exchange and interruption of routes that connect resting, breeding, hibernating and foraging areas together. Most semi-natural linear features within the Northern Quarter are likely to function as wildlife corridors for a variety of species. Table 2.3 describes the most Major Ecological Networks used by Key Ecological Components to move within and beyond the Northern Quarter. Figure 2.5 illustrates the location of these Major Ecological Networks.

Table 2.3 Major Ecological Networks

Key Ecological Component		
Species	Function	Description
Lesser horseshoe bat	Key flyways that act as commuting routes from the Northern Quarter roosts to foraging areas in the surrounding Forest.	Several flyways leading from the roost buildings north to Astonbridge Inclosure and south into the Serridge Inclosure via scrub and woodland.
Other bats species	Key flyways that act as commuting and foraging areas.	Several flyways along watercourses, woodland edges and around the Lake
Wood white, dingy and grizzled skipper, common reptiles	Dispersal and interchange of individuals within and beyond the Northern Quarter.	Woodland edges rides and glades running west and south from the Northern Quarter and the Brickworks
Great crested newt	Dispersal and interchange of individuals associated with the great crested newt breeding population.	Ponds running south through the Linear Park

2. Describing the CNQ Biodiversity Resource and its Value



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N

Legend

Figure: 2.5

Title: Major Ecological Networks

- CNQAAP boundary
- Major Ecological Networks



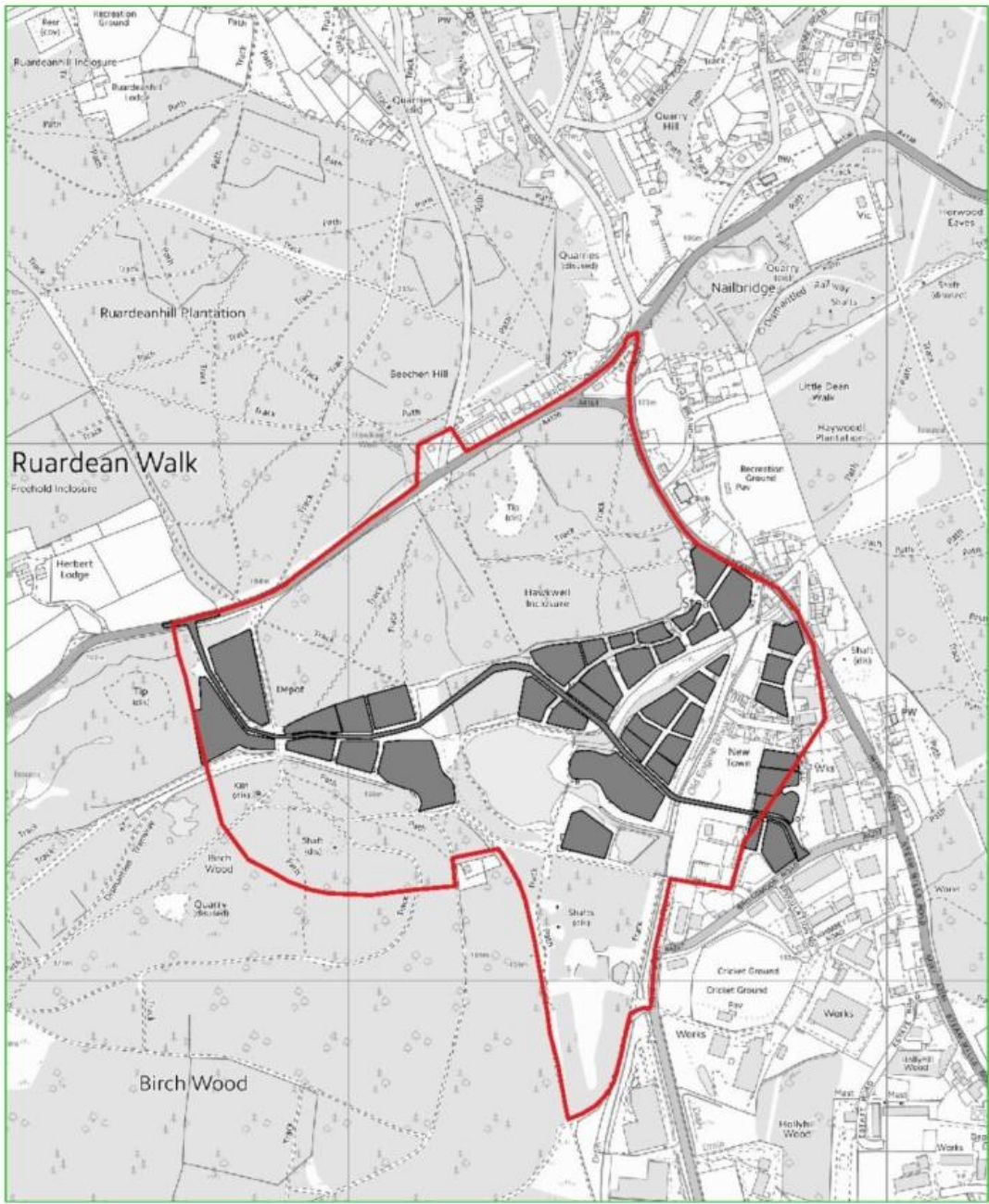
3 . Key Issues

Northern Quarter development

3.1 The CNQAPP, adopted in February 2012, promotes the development of the Northern Quarter as a strategic amenity hub serving Steam Mills and Cinderford and as a destination for surrounding villages. Approximately 16.5 ha of the Northern Quarter will be developed, including areas to be redeveloped and areas that are already developed and will remain so. Existing land uses include a brick works, garage and parts of Forest Vale Industrial Estate. It is expected that development will primarily take the form of an educational facility, office, industrial and residential development served by a new spine road connecting the A4136 to the Forest Vale Industrial Site.

3.2 Development of the Northern Quarter should be complete by 2026. Phasing is indicative but the majority of development, perhaps with the exception of office and mixed employment use at Northern United and Broadmoor is only likely to progress following construction of the spine road. Given the indicative nature of phasing, a number of Zones (see Figure 3.1) within the Northern Quarter have been delineated to help identify and described potential ecological impacts, including cumulative impacts, on Key Ecological Components.

3 . Key Issues



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N

Legend

Figure: 3.1

Title: Development plots

- CNQAAP boundary
- Development plots



3 . Key Issues

Potential biodiversity impacts

Box 3.1

Key issues

- Adverse effects on the integrity of the Severn Estuary SAC, SPA & Ramsar and Walmore Common SPA and Ramsar and the Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC;
- Maintaining the favourable conservation status of European Protected Species (Including great crested newts, dormice, bats, white –clawed crayfish);
- Avoiding net loss of habitats that support other protect species (breeding birds, reptiles) maintain habitat links and secure suitable capture and translocation effort (where relevant) and long-term management for benefit of these species;
- Avoiding net loss of Habitats or Species of Principal Importance in England;
- Retaining and strengthening Major Ecological Networks.

3.3 Biodiversity is vulnerable to a variety of impacts associated with development. These can occur where the footprint of development coincides with that of designated sites or Habitats of Principal Importance in England resulting in direct loss of valued habitats that cannot be easily or quickly re-created. It can also occur when development affects ecological networks or emits pollution for example.

3.4 The Northern Quarter has the potential to impact in a variety of ways on a range of Key Ecological Components both within and beyond the area. The key issues which relate to this are summarised below and are discussed in further detail in the remainder of this section.

Potential designated site loss and damage

3.5 European Sites within 15km of the Northern Quarter are sensitive to a range of impacts. The Cinderford Northern Quarter Habitat Regulations Screening Assessment Pre-submission Draft identified a range of effects which may impact on these European Sites. The Assessment split key potential impacts into two categories. The first included potential impacts on European sites which are summarised in Table 3.1. The second included potential impacts on the lesser horseshoe population of the Northern Quarter, considered necessary to the integrity of the Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC. These potential impacts are summarised in Table 3.2. Each of these potential impacts are considered key issues.

Table 3.1 Potential impacts on designated European Sites

3 . Key Issues

Potential development impacts	Wye Valley and Forest of Dean Bat SAC	Wye Valley Woodlands SAC	Severn Estuary SAC, SPA & Ramsar	River Wye SAC	Walmore Common SPA and Ramsar
Disturbance (from increased traffic along the A48)					●
Air pollution (from increased traffic along the A48)			●		○
Silt or toxic pollution via surface or ground waters			●		
Key: ● - qualify habitat/feature; ○ - supporting habitat/feature					

Table 3.2 Potential Impacts on Northern Quarter lesser horseshoe colony and it’s supporting habitats which are necessary to the integrity of Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC

Potential development impacts	Roosts	Commuting routes	Forage habitat
Light, noise and dust pollution	●	●	●
Vibration	●		
Acute or chronic pollution of ground or surface waters		●	●
Risk of mortality/injury (during roost demolition, renovation works etc.)	●		
Recreational pressure	●	●	●
Loss of linear landscape features that act as key flyways		●	
Risk of mortality/injury (from road collision)		●	
Conversion of woodland to open habitats associated with compensation for wider impacts		●	●

3 . Key Issues

3.6 Edge Hills Quarry, which is the nearest SSSI without an additional European Site designation, is unlikely to be affected by development of the Northern Quarter due to its distance from the Northern Quarter and because it is designated for its geological, rather than ecological, interest.

3.7 The Cinderford Linear Park KWS covers much of the Northern Quarter and so significant loss of biodiversity features for which this site was designated is considered likely. These potential losses are described in more detail later in this section under relevant habitats and species.

3.8 No direct loss of any SSSI, KWS (other than the Cinderford Linear Park) or RIGS is likely to arise as a result of development of the Northern Quarter. However, there is potential for the southern tip of the Cinderford Linear Park KWS and Laymoor Quay KWS to be negatively impacted by pollution from development of the Northern Quarter entering these sites via the Engine Brook and its tributaries. These risks relate to all Development Zones.

Potential habitat loss impacts

3.9 One of the key impacts that has the potential to arise from the development of the Northern Quarter is the direct loss of Habitats of Principal Importance in England. Table 3.3 summarises these potential losses by Development Zone.

Table 3.3 Potential Habitat Losses by Development Zone

Habitats of Principal Importance	Development Zone potential habitat losses (ha)								
	1	2	3	4	5	6	7	8	Total
Lowland Broadleaf Deciduous Woodland (ha)	0.08	0.05	-	0.03	0.12	-	-	-	0.28
Wet Woodland (ha)	-	0.20	-	-	-	0.01	0.01	-	0.22
Ponds (ha)	-	-	0.17	-	-	-	-	-	0.17
Open Mosaic Habitat on Previously Developed Land (ha)	1.43	0.13	0.28	-	-	-	0.12	-	1.96
Acid/Neutral/Calcareous Grassland	0	0.48	0.71	0.12	2.11	2.15	0.70	0	6.34
Totals	1.51	0.86	1.16	0.15	2.23	2.16	0.83	0	8.97

3 . Key Issues

Potential species impacts

3.10 Both Habitats of Principal Importance in England and other habitats found within the Northern Quarter provide resting, breeding, hibernating and foraging areas for a range of species that are Key Ecological Components. Loss or a reduction in the quality of these habitats is therefore likely to affect the ability of these species to maintain their abundance and/or extent.

Table 3.4 Potential Species Impacts

Species	Development Zone potential habitat losses (ha)								
	1	2	3	4	5	6	7	8	Total
Great crested newt	1.61	0.73	1.72	0.12	0.79	0.98	1.72	-	7.67
Dormouse	0.57	0.52	0.46	0.03	0.61	0.04	0.01	-	2.23
Reptiles	1.73	0.53	0.61	0.43	2.08	0.82	0.93	-	7.13

3.11 Development of Zone 1 has the potential to result in the loss of the lesser horseshoe maternity roost within the Main Office and satellite roost within the Bath House at Northern United. The risk of physical injury or mortality to these bats should demolition take place whilst their roosts are in use, or without replacement roosts in place and in significant use, is a key issue. Such impacts may have an adverse effect on the integrity of the Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC. Demolition of other buildings within this Zone also has the potential to result in the loss of three minor roosts for other bat species.

3.12 Many of the Northern Quarter Development Zones coincide with potential dormouse habitat (all be this sub-optimal in nature), great crested newt terrestrial habitat and reptile and breeding bird habitat with a risk that these, and up to three great crested newt breeding ponds, may also be lost. The development of several Zones also has the potential to cause loss of key butterfly habitat.

3.13 Physical injury or mortality to protected species, including great crested newts and reptiles, is a key issue. Impacts can significantly increase where habitat loss occurs at sensitive times of the year or where species are not translocated to suitable receptor sites prior to commencement of construction works.

Habitat loss for key species	Development zones with potential for impact							
	1	2	3	4	5	6	7	8
Bat roosts	●							
Dormouse habitat	●	●	●	●	●	●	●	●

3 .Key Issues

Habitat loss for key species	Development zones with potential for impact							
	1	2	3	4	5	6	7	8
Great crested newt terrestrial habitat	•	•	•	•	•	•	•	•
Great crested newt breeding ponds			•					
Reptile and bird habitat	•	•	•	•	•	•	•	•
Butterfly habitat		•			•		•	

Ecological networks

3.14 Ecological networks allow species to migrate and disperse within and beyond the Northern Quarter. They connect resting, breeding, hibernating and foraging habitat for a range of key species. Interruption of these networks can result for example in reduced genetic exchange and fragmentation and isolation of habitats, making species less resilient to a wide range of other pressures including climate change. Their role is therefore considered critical and their interruption a key issue.

3.15 Habitat loss and lighting associated with development of various Zones including Zones 1, 2 and 7 has the potential to result in interruption of key lesser horseshoe flyways connecting roosts in the Northern United area to forage areas in woodlands to the south and west. Such impacts may have an adverse effect on the integrity of the Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC. Development of these Zones and Zones 3, 5 and 6 has the potential to interrupt key flyways used as commuting routes by other bat species. In addition, there is a risk that development of Zone 2 (the spine road) could result in increased mortality of bat species as a result of road collisions.

3.16 Development of various zones has the potential to interrupt ecological networks likely to be used by other species including reptiles and butterflies (Development Zones 2 and 7) and dormouse (Development Zones 2, 4, and 7). Whilst interruption of corridors connecting great crested newt breeding ponds is not expected, interruption of corridors connecting breeding ponds to terrestrial forage habitat is a risk. In addition, Development of Zones 3, 5 and 6 has the potential to result in culverting of watercourses preventing movement of species such as otter along riparian corridors.

Ecological network impacts	Development zone where impacts are expected							
	1	2	3	4	5	6	7	8
Lesser horseshoe key flyways	•	•					•	

3 . Key Issues

Ecological network impacts	Development zone where impacts are expected							
	1	2	3	4	5	6	7	8
Other bat species key flyways	●	●	●		●	●	●	
Bat road collisions		●						
Dormouse corridors		●		●			●	
Great crested newt corridors								
Reptiles and butterflies		●					●	
Riparian corridor culverting			●		●			●

Emissions

3.17 Emissions may take many forms and utilise different pathways. They may be associated with both the construction and the operational phases of development. Emissions can include noise and vibration, light, dust, silt and toxic chemicals. Pathways can include air, water and soil. Most wildlife is sensitive to emissions and some are particularly vulnerable. The significance of impact is likely to vary depending on the species concerned and the type, distance, timing, frequency and duration of the emission. These impacts are described in further detail below.

Noise and vibration

3.18 Noise and vibration from construction and operation of development can result in disturbance to some Key Ecological Components, especially bats and badgers.

3.19 Development of Zone 1 has the potential to result in noise and vibration disturbance to the lesser horseshoe maternity roost in the Main Office and satellite roost within the Bath House at the Northern United Colliery. There is very little literature about the effects of disturbance on bats and safe working distances. However, expert observation and opinion suggests that horseshoe bats are particularly sensitive to disturbance. Impacts on bats are likely to be most severe where noise and vibration (above background levels to which the colony is accustomed) occurs frequently (daily or weekly) and where significant colonies (including all maternity colonies and hibernation colonies with more than 5 to 10 individuals) of rarer species (including horseshoe bats) are affected.

Species vulnerable to impacts	Potential impacts from noise and vibration
Bats	Interrupted torpor resulting in impacts on energy balances and associated increased mortality/reduced breeding success.

3 .Key Issues

Species vulnerable to impacts	Potential impacts from noise and vibration							
	Roost abandonment (especially if noise/vibration is repeated).							
Badgers	Activity near setts can cause later emergence and/or behavioural changes that may affect foraging, energy balances and so result in increased mortality/reduced breeding success.							
Zone	1	2	3	4	5	6	7	8
Lesser horseshoe bats	•	•						

Light

3.20 Artificial lighting can alter the behaviour of some Key Ecological Components including bats, other nocturnal animals and invertebrates.

3.21 Development of Zone 1 has the potential to result in lighting of the lesser horseshoe bats roosts at the Northern United Colliery. Lighting associated with the majority of Development Zones also has the potential to result in the interruption of major flyways used by lesser horseshoe and other bat species as major flyways. Lighting along Zone 2 may reduce bat flight heights and so increase the risk of collision with vehicles. Lighting associated with all development zones may draw insects away from darker areas such as woodland surrounding the Northern Quarter reducing the foraging quality of these areas for light sensitive bats, such as long-eared bats, myotis species (including whiskered/Brandt’s, Daubenton’s and Natterer’s) barbastelle and greater and lesser horseshoe bats. Lighting associated with all Zones has the potential to result in increased invertebrate mortality or affect invertebrate behaviour in detrimental ways. Lighting has potential to impact on lesser horseshoe and other bats in a variety of ways and so is considered a key issue.

Species vulnerable to impacts	Potential impacts from lighting
Bats	Lighting of roost entrances can delay emergence affecting energy balances and increase mortality/reduce breeding success. Lighting above certain levels can cause abandonment of flyways resulting in increased mortality/reduced breeding success.

3 . Key Issues

Species vulnerable to impacts	Potential impacts from lighting							
	<p>Lighting at roosts and along flyways can increase predation and so increase mortality rates.</p> <p>Lighting can reduce flight heights and so increase collision rates where roads cross flyways.</p> <p>Lighting can attract insects, depleting darker areas where certain species of bat would otherwise forage for this food source.</p>							
Other nocturnal animals	<p>Lighting may affect the behaviour of nocturnal birds (e.g. woodcock and nightjar) restricting foraging time and forage area extent.</p> <p>Lighting of riparian corridors may prevent otter movement.</p>							
Invertebrates	<p>Emitted light may attract large numbers of invertebrates including moths, damselflies, dragonflies, and butterflies resulting in their increased mortality (via collision with hot lamps or increased predation). Emitted light may also disturb flight, navigation, vision, migration, dispersal, egg-laying, mating, feeding and camouflage of invertebrates.</p> <p>Polarised light (i.e. light reflected off surfaces) can attract aquatic invertebrates resulting in eggs being laid on man-made surfaces where they will not develop.</p> <p>Moths in particular can be attracted by light sources up to 500m away. Collisions with hot lamps and increased predation(by for example, light tolerant bat species) can result in higher mortality rates or even local extinction of very small moth populations.</p>							
Zone	1	2	3	4	5	6	7	8
Impact	●	●	●	●	●	●	●	●

Dust and pollutants from construction

3.22 Dust deposition may smother vegetation affecting its photosynthesis, respiration and transpiration and allow the penetration of phytotoxic gaseous pollutants. This in turn can result in visible physical injury to vegetation or alter the structure or productivity of grassland, trees and woodlands. Dust pollution may be emitted during construction or during operation of roads and certain types of light industrial development for example.

3 . Key Issues

3.23 Soils within brownfield sites that have had a previous industrial history are likely to be contaminated with a range of pollutants such as asbestos, hydrocarbons (such as oils and fuels) and hazardous heavy metals and solvents. These can enter ground and surface waters when construction activity takes place damaging aquatic and terrestrial habitats and affecting the species they support.

3.24 Where development occurs adjacent to surface waters there is a risk that these can become polluted by development construction. Such pollution can include oil from machinery, cement, concrete and grout from building and silt from excavations, run-off and stored materials. Pollutants can damage or kill aquatic life by smothering or suffocating it or by changing the pH of water for example.

Species vulnerable to impacts	Potential impacts of air and water borne pollution							
Bats	Dust may adversely affect vegetation which functions as commuting routes or forage habitat.							
Bats, mammals, reptile, amphibians and birds	Pollution of aquatic and terrestrial habitats may result in loss/reduction of invertebrate and other food sources on which these species feed.							
Rare invertebrates	Surface water pollution may result in loss of white-clawed crayfish (if present)							
Zone	1	2	3	4	5	6	7	8
Dust pollution	•	•	•				•	
Construction pollution		•	•	•	•	•		•
Contaminated land pollution	•	•	•	•	•	•	•	•

Other impacts

3.25 Recreational pressure associated with residential or tourism development has potential to cause disturbance to Key Ecological Components including bats and certain bird and reptile species.

3.26 Residential and eco-tourism development associated with Zones 3, 5, 6 and 8 in particular has the potential to result in elevated levels of human presence within woodland surrounding the Northern Quarter and so could impact on ground-nesting and other sensitive bird species. Behavioural disturbance (e.g. alarm calling) may be triggered in species like nightjar and common

3 . Key Issues

crossbill at distances of up to 150m. These species may take flight when disturbance takes places at distances of 10 to 100 metres. Distances at which other species are disturbed are not currently well understood but impacts at these or greater distances would not be unreasonable to assume.

Species vulnerable to impacts	Potential impacts from human presence/recreational pressure							
Bats	Increased human presence may increase the risk of vandalism or other disturbance to buildings supporting bat roosts.							
Ground-nesting and other sensitive bird species	<p>Recreational activity such as walking (especially with dogs) can cause ground-nesting and other sensitive birds to alter behaviour or take ‘flight’ impacting on these species energy balances, feeding behaviour and the vulnerability of young, eggs or fledglings resulting in avoidance or reduced abundance in such areas (e.g. hawfinch and nightjar).</p> <p>Recreational activity during the winter months can disturb ground-feeding birds (e.g. hawfinch which is extremely wary of people).</p> <p>Recreational activity can result in accidental trampling of nests of ground-nesting species (e.g. wood warbler).</p> <p>Certain species are sensitive to disturbance when building (e.g. bullfinch) laying (e.g. house sparrow) or incubating eggs.</p>							
Reptiles and badgers	Species are not tolerated resulting in deliberate killing and injury resulting in increased mortality especially near residential areas.							
Zone	1	2	3	4	5	6	7	8
Impact			•		•	•		•

3.27 An increased presence of domestic cats associated with residential development has the potential to result in increased predation especially of mammals, birds, amphibians and reptiles within retained and surrounding habitats.

3 . Key Issues

Species vulnerable to impacts	Potential Impacts							
Mammals, birds, amphibians and reptiles	Domestic cats from residential areas may hunt within nearby semi-natural habitat resulting in increased mortality of a variety of species.							
Zone	1	2	3	4	5	6	7	8
Impact				•	•	•		•

3 . Key Issues

Impacts by Development Zone

Zone 1 The Northern Quarter

Development Zone 1 description

Use: Mixed employment

AAP Phase: 1, 2011-2015

Plot number/s: 1a and 1b

Footprint size: 2.1ha

Key Ecological Components

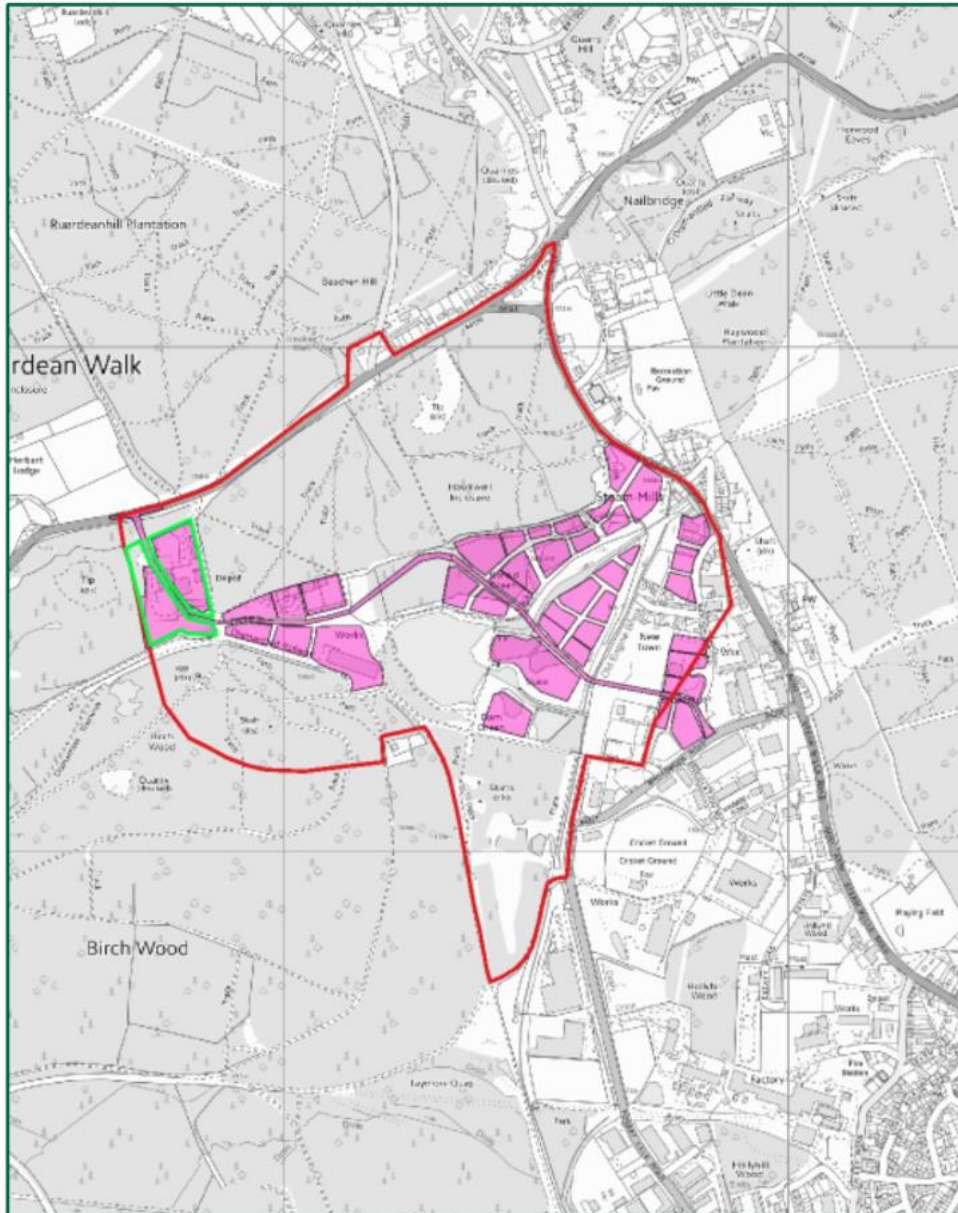
- Bat roosts (lesser horseshoe maternity and satellite roosts and minor roosts for other species)
- European Protected Species: dormouse; great crested newt
- Habitats of Principal Importance: Open Mosaic on Previously Developed Land
- Other Species of Principal Importance: common reptiles; birds (crossbill and linnet); invertebrates (including grizzled skipper)
- Major Ecological Networks: lesser horseshoe and other bats; butterflies

Other UK BAP Broad Habitats: Lowland Mixed Deciduous Woodland

Summary of main potential impacts

- Bat roost loss/damage/disturbance
- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them
- Interruption of key bat flyways and butterfly corridors from habitat loss, pollution, disturbance etc.

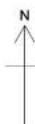
3 . Key Issues



Development Zone 1

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3 . Key Issues

Zone 2 The Spine Road

Development Zone 2 description

Use: Spine Road

AAP Phase: 1, 2011-2015

Plot number/s: 2

Footprint size: 1.3ha

Key Ecological Components

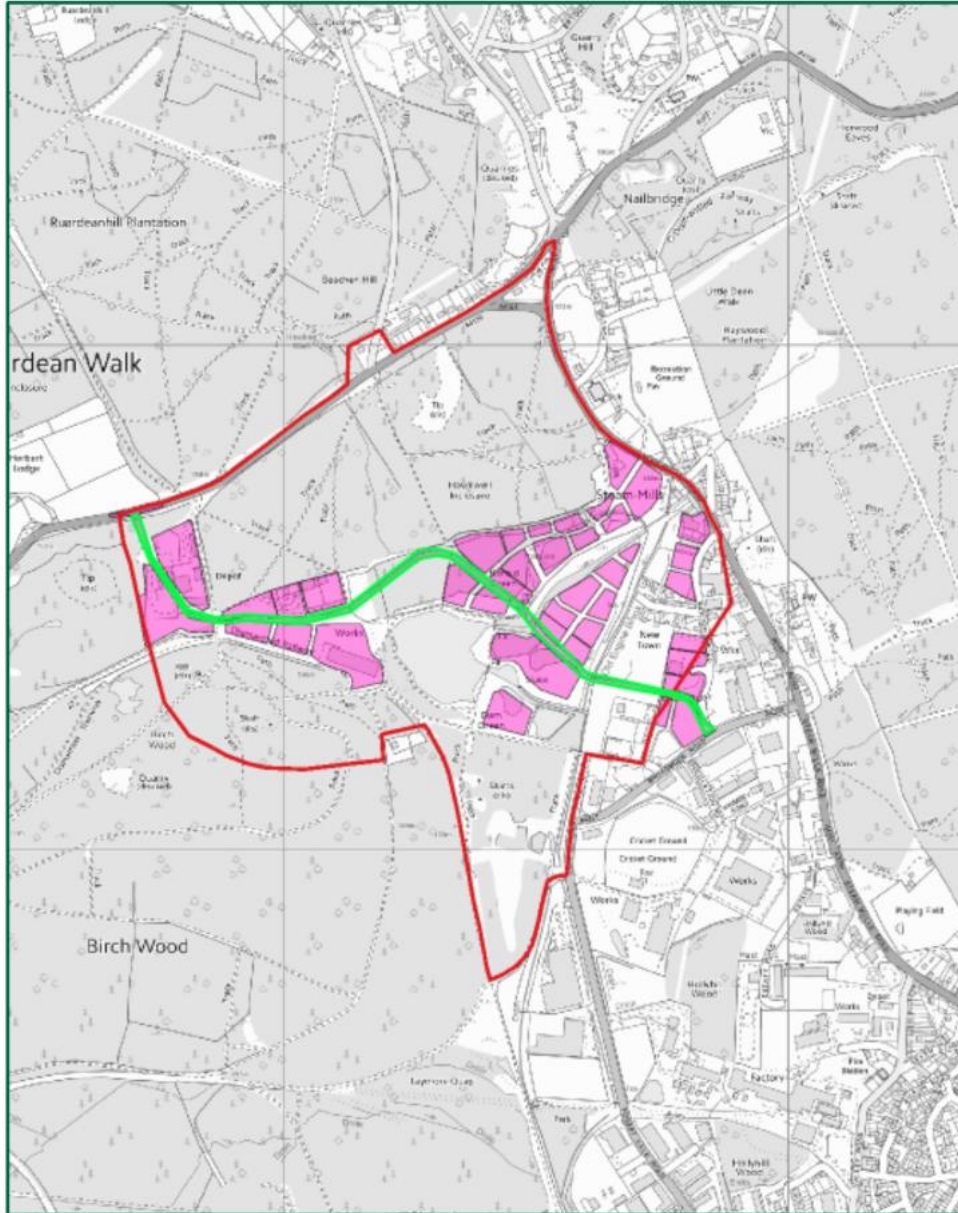
- Severn Estuary and Walmore Common (connected by water courses and roads)
- Bat roosts (lesser horseshoe maternity and satellite roosts and minor roosts for other species)
- European Protected Species: dormouse; great crested newt; white-clawed crayfish; otter
- Habitats of Principal Importance: Open Mosaic on Previously Developed Land; Wet Woodlands
- Other Species of Principal Importance: common reptiles; birds (crossbill, tree pipit, linnet, bullfinch, song thrush); invertebrates (including wood white, grizzled skipper)
- Major Ecological Networks: lesser horseshoe and other bats; butterflies

Other UKBAP Broad Habitats: Acid/Neutral/Calcareous Grassland; Rivers and Streams; Lowland Mixed Deciduous Woodland

Summary of main potential impacts

- European Site pollution/disturbance
- Bat roost loss/damage/disturbance
- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them
- Interruption of key bat flyways and butterfly corridors from habitat loss, pollution, disturbance etc.

3 .Key Issues



Development Zone 2

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3 . Key Issues

Zone 3 The Educational Facility

Development Zone 3 description

Use: Education facility and parking

AAP Phase: 1, 2011-2015

Footprint size: 1.7 ha

Key Ecological Components

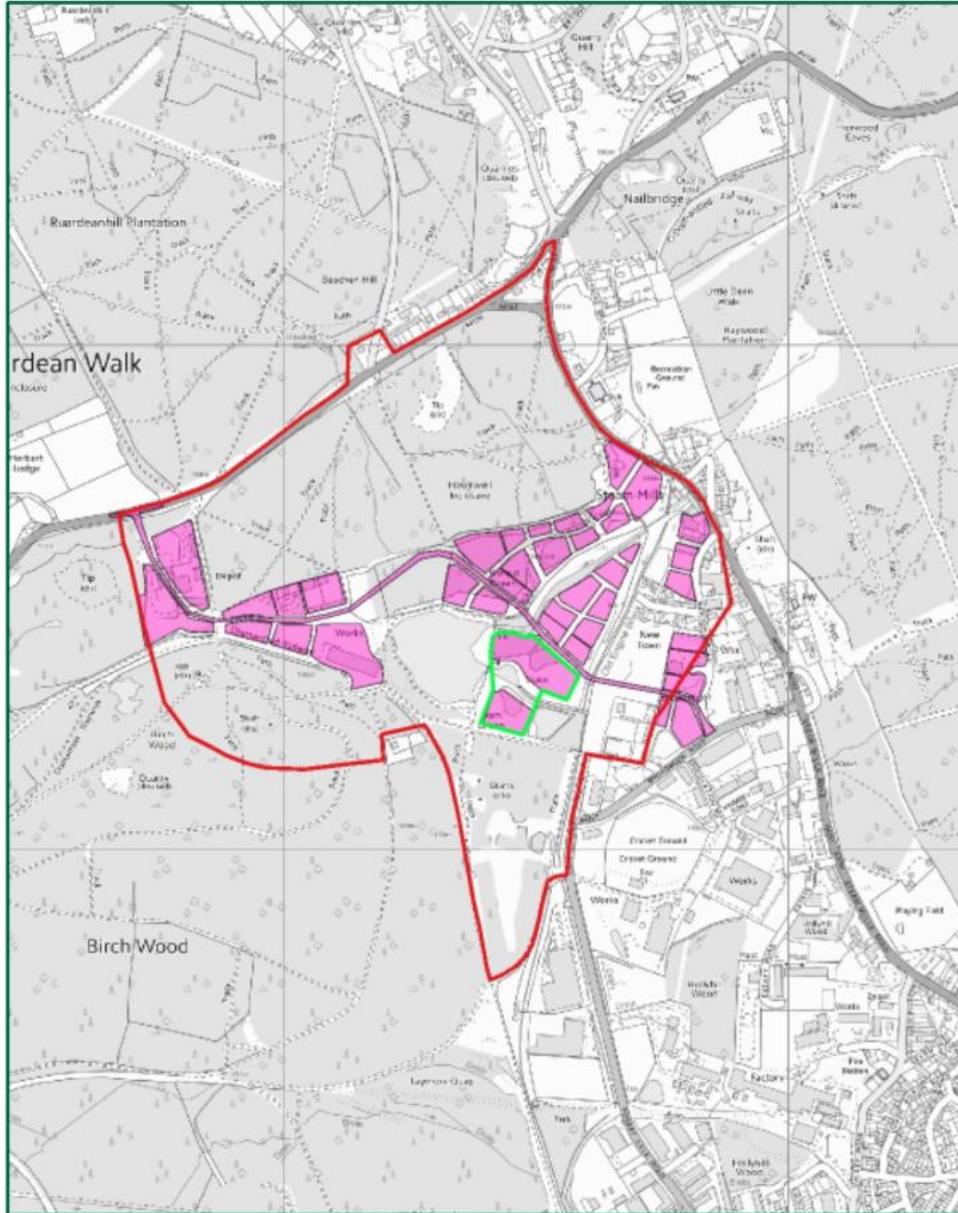
- Severn Estuary and Walmore Common (connected by water courses and roads)
- European Protected Species: dormouse; great crested newt
- Habitats of Principal Importance: Ponds; Wet Woodland; Open Mosaic on Previously Developed Land
- Other Species of Principal Importance: common reptiles; birds (including tree pipit, linnet, bullfinch, song thrush, hawfinch); invertebrates (including dingy skipper, grayling)
- Major Ecological Networks: bats

Other UK BAP Broad Habitats: Acid/Neutral/Calcareous Grassland; Grasslands; Rivers and Streams; Lowland Mixed Deciduous Woodland; Standing Open Water

Summary of main potential impacts

- European Site pollution/disturbance
- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them (including great crested newt breeding ponds)
- Interruption of key bat flyways from habitat loss, pollution, disturbance etc.

3 .Key Issues



Development Zone 3

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3 . Key Issues

Zone 4 Broadmoor

Development Zone 4 description

Use: Office/light industrial and healthcare

AAP Phase: Independent

Footprint size: 1.3ha

Key Ecological Components

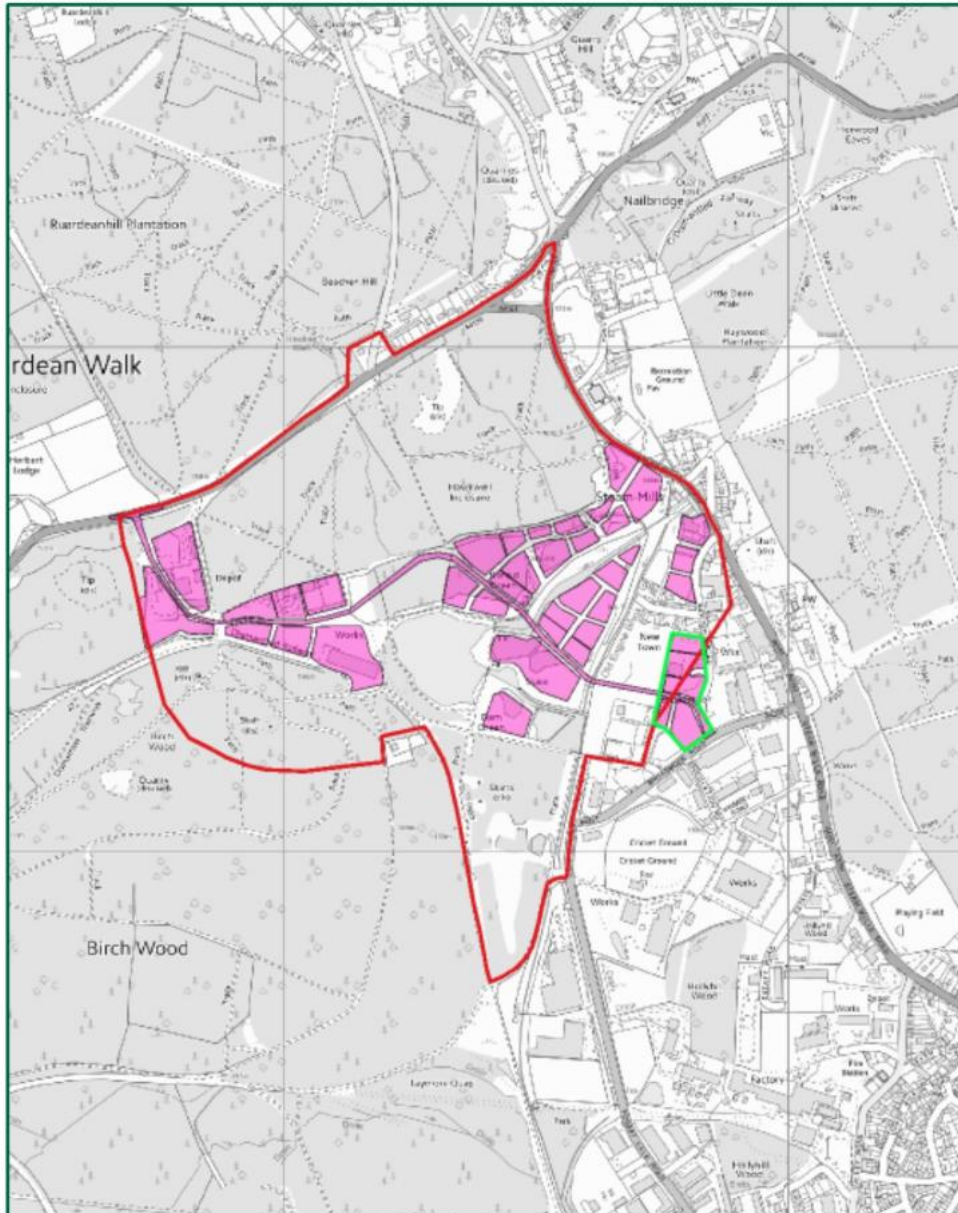
- European Protected Species: dormouse; great crested newt
- Habitats of Principal Importance: none
- Other Species of Principal Importance: common reptiles; birds (including tree pipit, linnet, bullfinch, song thrush, house sparrow)
- Major Ecological Networks: none

Other UK BAP Broad Habitats: Acid/Neutral/Calcareous Grassland; Rivers and Streams

Summary of main potential impacts

- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them

3 . Key Issues



Development Zone 4

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3 . Key Issues

Zone 5 Norfolk Green

Development Zone 5 description

Use: Residential and office

AAP Phase: 2 & 3 2016-2022

Footprint size: 3.0ha

Key Ecological Components

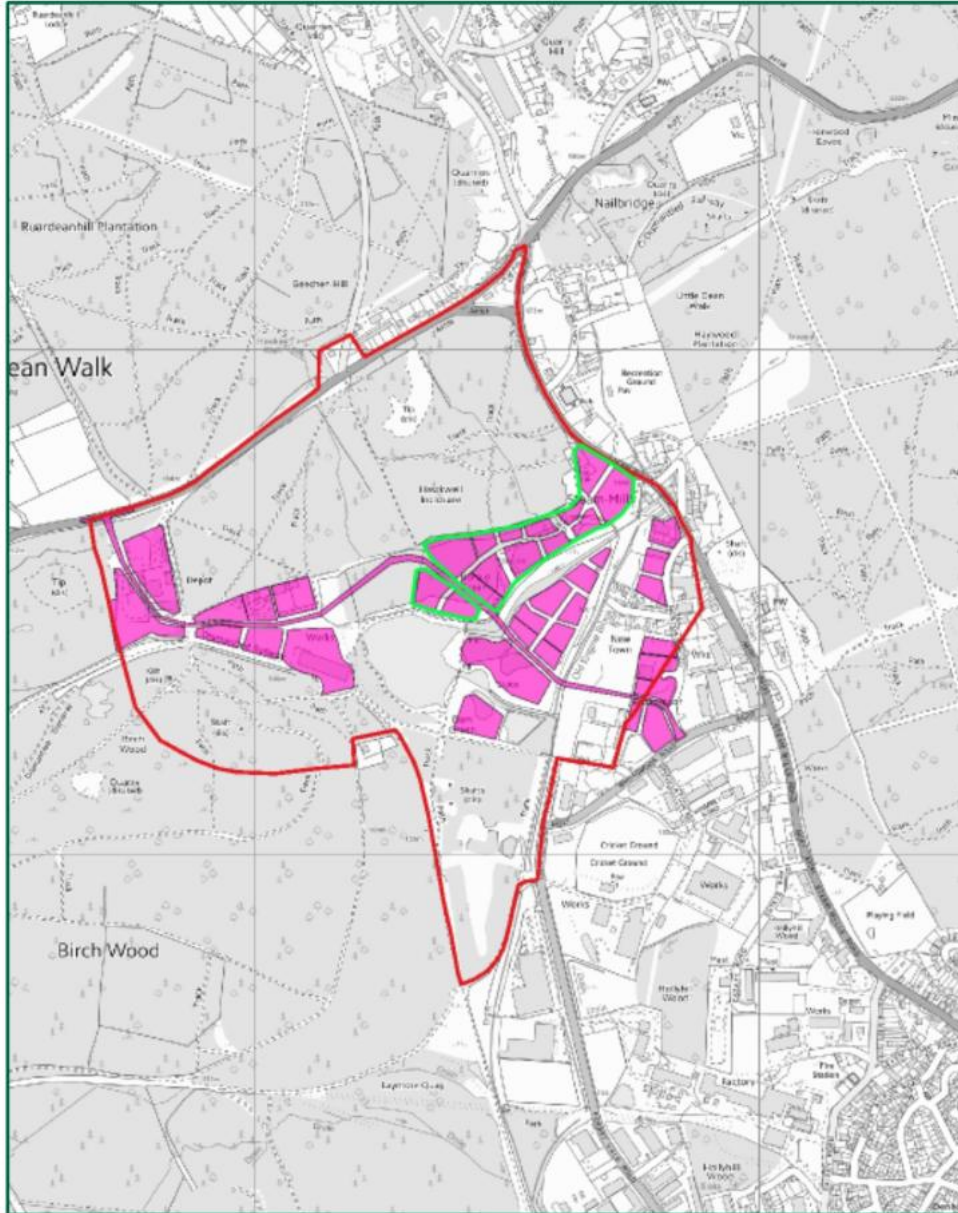
- Severn Estuary and Walmore Common (connected by water courses and roads)
- European Protected Species: dormouse; great crested newt; white-clawed crayfish; otter
- Habitats of Principal Importance: Wet Woodland
- Other Species of Principal Importance: common reptiles; birds (including nightjar, tree pipit, crossbill); invertebrates (including dingy and grizzled skipper)
- Major Ecological Networks: bats

Other UK BAP Broad Habitats: Acid/Neutral/Calcareous Grassland; Rivers and Streams; Lowland Mixed Deciduous Woodland; Standing Open Water

Summary of main potential impacts

- European Site pollution/disturbance
- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them
- Interruption of key bat flyways from habitat loss, pollution, disturbance etc.

3 . Key Issues



Development Zone 5

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3 . Key Issues

Zone 6 East of the Lake

Development Zone 6 description

Use: Residential and office

AAP Phases: 2 & 3 2016-2022

Footprint size: 2.4ha

Key Ecological Components

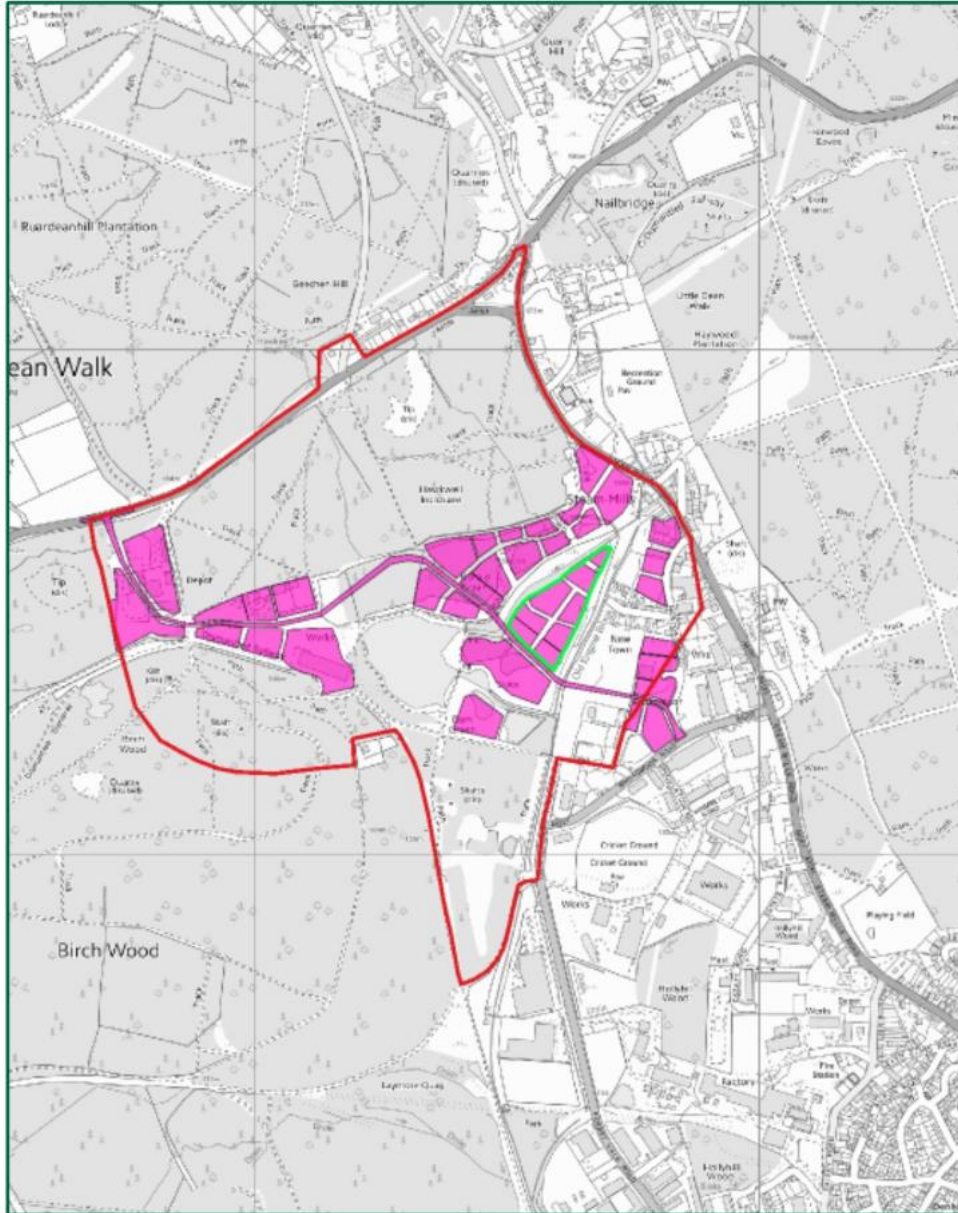
- Severn Estuary and Walmore Common (connected by water courses and roads)
- European Protected Species: dormouse; great crested newt; white-clawed crayfish; otter
- Habitats of Principal Importance: Wet Woodland
- Other Species of Principal Importance: common reptiles; birds (including tree pipit); invertebrates (including dingy and grizzled skipper)
- Major Ecological Networks: bats

Other UKBAP Broad Habitats: Acid/Neutral/Calcareous Grassland; Rivers and Streams

Summary of main potential impacts

- European Site pollution/disturbance
- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them
- Interruption of key bat flyways from habitat loss, pollution, disturbance etc.

3 .Key Issues



Development Zone 6

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3 . Key Issues

Zone 7 The Brickworks

Development Zone 7 description

Use: Industrial and office

AAP Phase: 1&2, 2011-2015

Footprint size: 1.8ha

Key Ecological Components

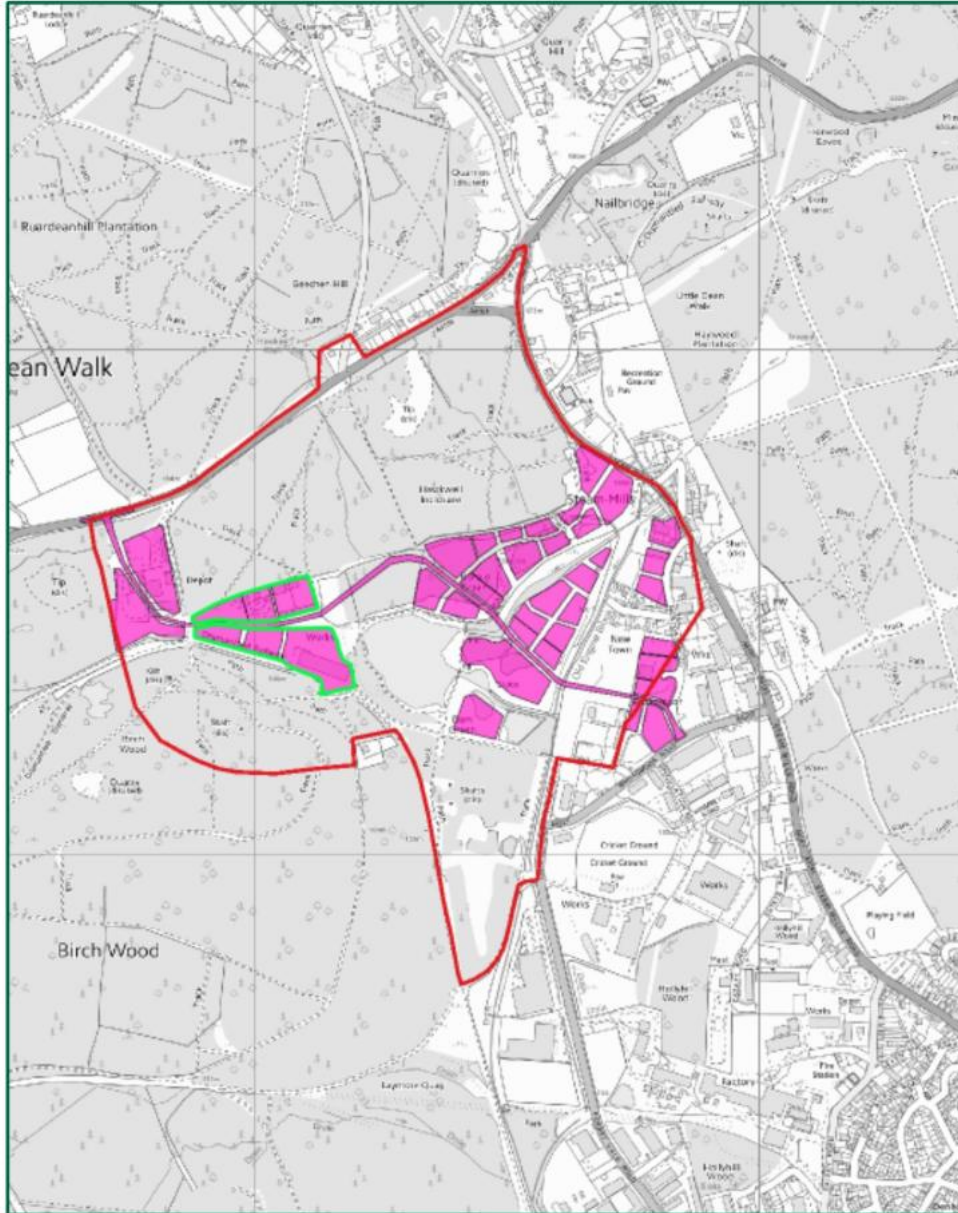
- European Protected Species: dormouse; great crested newt
- Habitats of Principal Importance: Lowland Broadleaf Deciduous Woodland; Open Mosaic on Previously Developed Land
- Other Species of Principal Importance: common reptiles; birds (including tree pipit); butterflies (including dingy skipper and grizzled skipper)
- Major Ecological Networks: lesser horseshoe and other bat species

Other UK BAP Broad Habitats: Acid/Neutral/Calcareous Grassland

Summary of main potential impacts

- Habitat of Principal Importance loss
- Disturbance of European Protected species, protected species and other Species of Principal Importance and/or loss of habitats supporting them
- Interruption of key bat flyways and butterfly corridors from habitat loss, pollution, disturbance etc.

3 .Key Issues



Development Zone 7

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3 . Key Issues

Zone 8 Newtown

Development Zone 8 description

Use: Residential

AAP Phase: Independent:

Footprint size: 0.7ha

Key Ecological Components

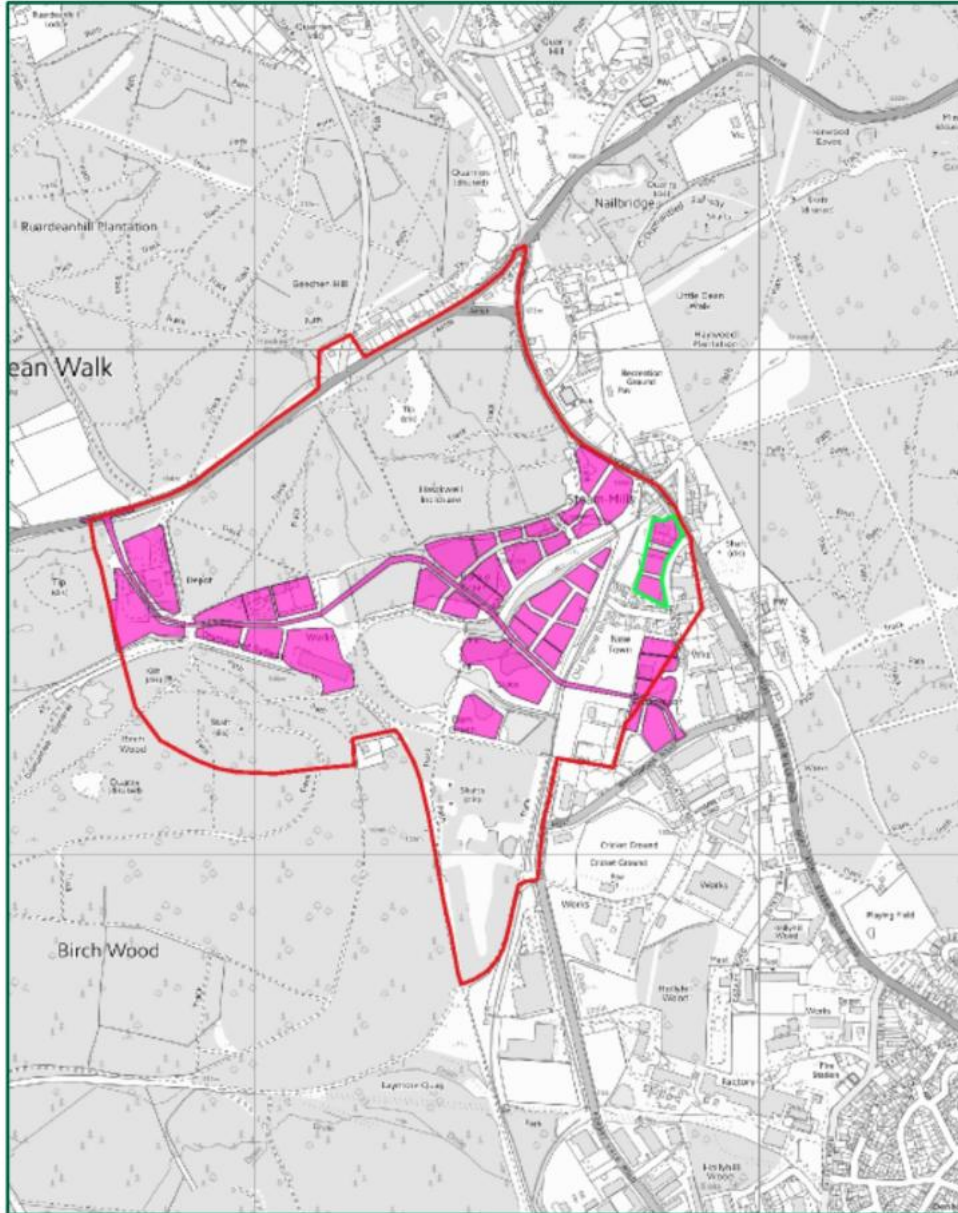
- European Protected Species: none
- Habitats of Principal Importance: Wet Woodland
- Other Species of Principal Importance: common reptiles; birds
- Major Ecological Networks: none

Other UK BAP Broad Habitats: Rivers and Streams

Summary of main potential impacts

- Habitat of Principal Importance loss
- Disturbance to Species of Principal Importance and/or loss of habitats supporting them

3 .Key Issues



Development Zone 8

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4 . Key Principles

Overview

4.1 The following section contains the Key Principles that development proposals within the Northern Quarter should demonstrate that they meet. These Key Principles are based on planning policy guidance and circulars, legislation, Core Strategy and Area Action Plan policies, Natural England and Environment Agency Standing Advice and biodiversity best practice, such as the Technical Guidance Series produced by the Chartered Institute of Ecology and Environmental Management. They have been developed to address Key Issues relevant to Key Ecological Components identified earlier in the document.

4.2 In particular, the Key Principles reflect the requirements of the National Planning Policy Framework (NPPF) which details how the planning system should contribute to conserving and enhancing biodiversity by minimising impacts on biodiversity and providing net biodiversity gains where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

4.3 Those preparing development should develop their biodiversity implementation strategies in sequential way as illustrated below:

Avoid & Reduce

Evaluate if the development objectives can be delivered in ways that avoid significant or markedly reduce impacts on biodiversity.

Mitigate

Examine how design, layout and methods of working can effectively mitigate for the identified biodiversity impacts

Acknowledge and Compensate/offset

Acknowledge any residual impacts of the development proposals and set out compensatory measures.

(Sequential approach to biodiversity implementation strategies)

Key Principle1 Ensuring Development Proposals are Informed by Appropriate Information

4.4 Table 4.1 summarises the level of information that is likely to be required by the Local Planning Authority (LPA) for planning development proposals associated with the Northern Quarter and when in the application process this will be required. Guidance about the format and content of this information is described in the subsequent section.

4 . Key Principles

Table 4.1 Development proposal information checklist

Development proposals with the potential to affect:	Information requirements			
	Survey	Impact assessment	Avoidance, mitigation and compensation	Other
European Sites and lesser horseshoe roosts, their Major Ecological Networks and forage areas	●	●	●	HRA information
EPS (including their Major Ecological Networks)	●	●	●	Derogation test information
Other Species of Principal Importance (including their Major Ecological Networks)	●	●	○	-
Habitats of Principal Importance	●	●	○	-

Key: ● - detailed information prior to determination; ○ - detailed information prior to determination encouraged or as a minimum outline information required to demonstrate that impacts can in principle be effectively avoided, mitigated, or as a last resort, compensated for.

Standards for ecological survey, impact assessment and mitigation

4.5 Developers are encouraged to seek advice from the LPA about the ecological survey, impact assessment and mitigation measures likely to be required for their proposals in the early stages of design.

4.6 Where there is reasonable likelihood of Key Ecological Components being present and affected by development it is essential that their presence and the extent to which they may be affected by the proposed development is established prior to approval. Development proposals should be accompanied by ecological survey and impact assessment undertaken to a recognised standard. In particular ecological surveys should:

- Follow Natural England Standing Advice and other best practice methodologies;
- Be undertaken at a suitable time of year, using appropriate survey effort by an experienced, and where appropriate, suitably licenced person;
- Identify any constraints to survey methodology which may affect the interpretation of survey results and other data;

4 . Key Principles

- Describe and justify any deviation from recognised survey methods;
- Be no more than two years old where there is potential for European Site or EPS to be affected, and no more than three years old where other Key Ecological Components have the potential to be effected;
- Be accompanied by a walk-over survey where development proposals are reliant on ecological survey data over 12 months old in order to demonstrate that there has been no significant change on the ground in the interim.

4.7 Impact assessments should correctly and comprehensively identify, describe and assess all stages of development including demolition, where relevant, construction and operation and should assess any impacts associated with off-site mitigation where this is proposed.

4.8 Where it has been identified that Key Ecological Components are likely to be impacted, it is essential that development proposals include effective measures to protect these Components. These measures should be based on Natural England Standing Advice and best practice guidance.

4.9 Development proposals subject to assessment under Regulation 61 and 62 or the Conservation of Habitats and Species Regulations 2010 (otherwise known as a Habitats Regulations Assessment or HRA) or which are likely to require an EPS licence will be required to submit detailed mitigation prior to planning permission being granted by the LPA. As a result it may be necessary for outline planning applications to submit information that would otherwise only be required at reserved matters stage. Development proposals likely to have impacts on other Key Ecological Components are encouraged to develop similarly detailed measures and as a minimum should demonstrate how these Key Ecological Components can be protected in principle prior to approval.

Site safeguard and long-term management

4.10 Where management, restoration, creation and enhancement for Key Ecological Components is necessary in accordance with Key Principle 2 of this document, development proposals will need to demonstrate how land proposed for this purpose will be safeguarded and sympathetically managed over the long-term. This is likely to be best achieved through:

- A review of relevant wider strategic plans in order to demonstrate that the land proposed for this purpose is unlikely to be subject to damaging proposals, for example new built development or afforestation, in the foreseeable future;
- Preparation and submission of Biodiversity Management Plans (BMPs) (Table 4.2 provides for further information about when in the planning process these will be required.)

4.11 Further guidance about the structure and content of BMPs is provided under Key Principle 2.

4 . Key Principles

Table 4.2 Biodiversity Management Plan

Land ownership	BMPs required for European Sites and their interest features and European Protected Species	BMPs for other Key Ecological Components
Developer owned land	BMP required prior to approval, secured through implementation condition or Unilateral Undertaking (UU)	Scale plans identifying the size and location of the land. Information outlining the structure and contents of the BMP (development and implementation secured through condition or UU)
Third party owned land	BMP required prior to approval (secured through Section 106 agreement)	Plan identifying the size and location of the land. Information outlining the structure and contents of the Management Plan (development and implementation secured through S106 Heads of Terms)

European Sites

4.12 Development proposals should demonstrate how they will affect traffic levels through wider traffic modelling undertaken to a recognised standard. Where traffic modelling indicates traffic movements along the A48 will increase, development proposals should also demonstrate, through air pollution modelling, whether critical load thresholds or other environmental criteria (e.g. Environmental Quality Standards), for key pollutants will be exceeded for qualifying and supporting habitats of the Severn Estuary SAC, SPA & Ramsar and Walmore Common SPA and Ramsar sites. Air pollution modelling should be undertaken using recognised models (for example ADMS, AERMOD, SCAIL and FRAME). Modelling should consider ammonia, sulphur and nitrogen dioxide pollution in particular and heavy metals, volatile organic compounds (VOCs), persistent organic pollutants (POPs) and dust/particulates. Developers are encouraged to refer to the Air Pollution Information System (APIS) for further information about the impacts of these types of pollutants. Where traffic modelling indicates traffic movements along the A48 will increase, development proposals should also demonstrate, whether and to what extent existing noise levels will increase.

4.13 Development proposals with the potential to impact on the lesser horseshoe bat roosts, their commuting routes or forage areas will be subject to detailed HRA by the LPA. Development proposals should provide adequate and appropriate information to the Local Planning Authority in order for it to undertake the HRA. In particular they should describe the: size; scale, phasing (where relevant) and physical requirements of demolition (where relevant), construction and operation and previous use; the ecological baseline, for example roost characterisation, flyway and forage area locations and use; and comprehensive effective mitigation measures.

4 . Key Principles

4.14 Sufficient information should be provided to allow the LPA to attach a high level of confidence to all elements of the HRA. Developers are therefore strongly advised to adopt a precautionary approach where gaps in scientific research mean that impacts or the effectiveness of mitigation is uncertain. Advice on the type of information required for HRA purposes should be sought from the LPA and Natural England at the earliest possible stage of design.

4.15 Where measures are required to provide safe road crossing points for lesser horseshoe bats development proposals should demonstrate the effectiveness of these measures through survey work that confirms the location of flyways, the height at which bats fly along these and review of the latest published research and guidance relating to road crossing mitigation and the behavioural ecology of this species.

European Protected Species

4.16 Development proposals likely to require a European Protected Species (EPS) Licence will be subject to assessment under Regulation 9(5) of the Conservation of Habitats & Species Regulations 2010 by the LPA. In addition to appropriate ecological survey work and impact assessment requirements development proposals should demonstrate how they meet the three derogation tests set out under Regulation 53(2)e, 53(9)(a) and 53(9)(b) of the Conservation of Habitats & Species Regulations 2010. In particular, such development proposals should demonstrate that:

- There is a genuine need and a ‘purpose’ for the proposed activity;
- There are no satisfactory alternatives to delivering and meeting the need in the way proposed;
- The licensable action will allow the need to be met;
- The development proposal is proportionate and;
- There will be no adverse effect on the Favourable Conservation Status of the species concerned.

Environmental Impact Assessment

4.17 Where an Environmental Impact Assessment (EIA) is required by the LPA, development proposals should demonstrate how they comply with this requirement through submission of an Environmental Statement. In particular, EIA may be required for any development proposals with potential to affect lesser horseshoe roosts, commuting routes or forage areas.

4 . Key Principles

Key Principle 2 Ensuring Development Proposals do not Adversely Affect European Sites and Conserve Other Key Ecological Components

4.18 Development proposals must demonstrate how they will avoid, adequately mitigated, or, as a last resort, compensate for any significant harm to biodiversity. Distinction should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and appropriate weight is given to their importance and the contribution they make to wider ecological networks.

4.19 Table 4.3 summarises measures that are likely to be required by the LPA for planning development proposals associated with the Northern Quarter. Guidance about the format and content of these requirements is described in the subsequent section.

4 . Key Principles

Table 4.3 Development Proposal Measures Checklist

Development proposals with the potential to effect:	Development Design Scheme	Road Design Scheme	Construction Environmental Management Plan	Traffic Strategy	Lighting Strategy	Roost retention/ replacement Strategy	Biodiversity Management Plan	Biodiversity Spatial Masterplan	Species Translocation Schemes	SUDS
Severn Estuary SAC, SPA & Ramsar site			•	•						•
Wainore Common SPA & Ramsar site				•						
Lesser horseshoe bat roosts	•		•		•	•	•	•		•
Lesser horseshoe bat commuting routes	•	•	•		•		•	•		•
Lesser horseshoe bat foraging areas	•				•		•	•		•
All bats (commuting roosts/forage areas)	•	•	•		•		•	•		•
Great crested newt	•	•	•				•	•	•	•
Dormouse	•	•	•				•	•	•	•
White-clawed crayfish	•	•	•				•	•	•	•
Common reptiles		•	•				•	•	•	•
Breeding birds			•				•	•		
Habitats of Principal Importance			•				•	•		•
Other Species of Principal Importance			•				•	•		•
Major Ecological Networks	•		•				•	•		•

4 . Key Principles

Development Design Scheme (DDS)

4.20 The Cinderford Northern Quarter AAP recognises the Lake and the forest as key assets which are to be retained. Other Key Ecological Components requiring retention in this way include the Artificial Roost, key flyways associated with all retained lesser horseshoe roosts and wetland corridors (otherwise known as ‘green fingers’). Other Key Ecological Components should be retained through layout wherever possible. In order to achieve this, development proposals should minimise their footprints and set development back from habitats which act as important Major Ecological Networks.

Road Design Scheme (RDS)

4.21 Key flyways for bat species should not be interrupted by road development. Roads should be aligned to avoid these flyways wherever possible. Where this is not possible roads should be designed to minimise their widths and traffic speeds. Where roads unavoidably cross these key flyways safe passes designed specifically for the species concerned and aligned on the route of the existing flyway will be required.

4.22 For lesser horseshoe bats the use of under passes, such as tunnels and culverts to minimise gaps and road collisions, maintain low-light conditions and avoid disturbance associated with vehicle movement is strongly encouraged. The design of these under-passes is likely to be critical to their success and should:

- As a minimum be at least 2.5m and ideally 6m wide. Minimum under-pass height levels should be informed by appropriate ecological survey work to establish pre-development flight heights at proposed road crossing locations;
- Include native planting at under-pass entrances to help ‘funnel’ bats through;
- Achieve low light-levels (of less than 1 lux) within and approaching the underpass;
- Retain as much key flyway vegetation as possible during construction and replace any loss immediately with an appropriate native planting scheme. Appropriate artificial flyway structures should be installed and maintained well before commencement of construction and maintained during post-construction to prevent interruption of flyways and guide bats through under-passes whilst planting grows.

4.23 The use of suitably designed over-passes for lesser horseshoe bats, in the form of partially or completely vegetated bridges, may provide an acceptable alternative to underpasses if they can demonstrate that they are capable of retaining pre-development flight heights. Vegetated hop-overs (with walls or embankments) may also prove acceptable where they can demonstrate this and where flight heights can be maintained sufficiently height to avoid road collision or where road collision can be avoided due to very light traffic flows. Over-passes require similar low-light and vegetation requirements to that for underpasses. Only under and over-pass designs with published research to demonstrate their effectiveness are likely to be acceptable.

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4.24 Where roads cross key flyways of other bat species under/over-pass designs suitable to the species concerned will be required. In general, the higher and broader an underpass the more likely bats are to use it. Ideally underpasses should achieve a width/height ratio of one. Wire mesh structures, known as bat gantries or bat bridges, should be avoided as research evidence does not currently support their effectiveness. Over and under-pass design requirements should reflect guidance such as that contained within the Bat Conservation Trust's Landscape and Urban Design for Bats and Biodiversity (2012) publication.

4.25 Development proposals involving bat under or over-passes for key flyways should be accompanied by robust monitoring plans. Monitoring should be designed to assess the proportion of individuals that use these structures to cross roads safely (i.e. at a safe height) pre and post-construction, set acceptable levels in relation to this and detail rectification measures that will be employed should these levels not be met. Rectification measures may include for example use of walls to raise flight heights at hop-overs or low level bollard lighting along stretches of road between eco-passages to dissuade bats crossing at these unsafe points.

4.26 Roads should also be designed to retain connectivity for other Major Ecological Components. For dormouse RDS's should consider provision of suitable additional planting at bat over-pass and dormouse bridges. For amphibians RDS's should consider dropped or wildlife kerbs and avoid use of gully pots for road sections in proximity to Major Ecological Networks. They should also include amphibian tunnels design to comply with best practice such as those produced by Amphibian and Reptile Conservation.

4.27 Development proposals involving eco-passages for any Key Ecological Component should include proposals for their long-term maintenance.

Construction Environmental Management Plan (CEMP)

4.28 CEMPs are likely to be needed where temporary or permanent retention of Key Ecological Components is required within a development proposal site or where construction activities may otherwise impact on Key Ecological Components beyond the development site boundary.

4.29 CEMPs should include plans showing the location and extent of Key Ecological Components for which the CEMP needs to be prepared. CEMPs should:

- Provide information to justify that the construction methods, activities and footprint proposed represent the best practicable environmental option;
- Risk assess all proposed construction activities likely to impact on the Key Ecological Components for which the CEMP needs to be prepared. This should include scale plans for and an assessment of: site layout and setup (e.g. location of site offices/construction compounds, storage/maintenance areas for materials/plant); construction access routes; demolition; ground works (e.g. ground investigation, vegetation clearance, routing of underground services, full extent of development footprint, temporary earthworks/bunds);

4 . Key Principles

assembly areas for dry and wet trades and environmental incidents/accidents (e.g. fire sites, pollution, leakages);

- Identify potential areas of conflict between these construction activities and Key Ecological Components.

4.30 Using the above information CEMPs should identify ‘protection zones’ where construction activity (including access and underground service routing for example) will be avoided and how construction in other areas of the development site will be undertaken to avoid or minimise impacts to relevant Key Ecological Resources. CEMPs should consider a wide range of measures some of which are outlined in Table 4.4.

Table 4.4 CEMP Measures

CEMP measures	Further detail
Siting of all construction activities	Construction ‘protection zones’
Timing/phasing of all construction activities	To avoid critical/sensitive periods (e.g. bat breeding season)
Training and awareness of site personnel	For example tool talks and informative/warning signs
Ecological clerk of works supervision on site	
Protective fencing	Location and type should be specified
Dust, surface and ground water pollution prevention control (including accidents and emergencies)	In accordance with Environment Agency Standing Advice such as its Pollution Prevention Advice and Guidance (PPG) and Model Procedures for the Management of Contaminated Land
Artificial lighting	Lighting strategy
Contingency measures	For example discovery of a protected species during construction
Special measures	For example soft demolition techniques for bat roost demolition

4.31 Measures should be accompanied by a schedule detailing when, and for what period of time, each measure will implemented, details of responsible persons and lines of communication.

4.32 The extent of ‘protection zones’ should be informed by the sensitivity of each Key Ecological Component to construction impacts. In some circumstances it may be possible to draw these zones tight to the boundaries of Key Ecological Component they are intended to

4 . Key Principles

protect. In others 'protection zones' may need to be drawn much wider in response to the sensitivity of Key Ecological Components. Table 4.4 outlines likely requirements in relation to this.

Table 4.5 Key Ecological Components requiring wider 'protection zones'

Key Ecological Component	Further detail
Lesser horseshoe maternity and satellite roosts	Protection zones should be made as large as feasibly practicable.
Lesser horseshoe key bat flyways	Protection zones should extend a minimum of 15m either side of the centre of these flyways
Lesser horseshoe bat forage areas and key fly ways for other bat species	Protection zones should extend a minimum of 10m from the edges of forage areas like the Hawkwell Enclosure and Birch Wood
The Lake, Engine Brook and inlet and outlet tributaries	Protection zones should extend 8-15m from the edge of the Lake and either side of the watercourses
Other watercourses	Protection zones should extend at least 5m from either side of the watercourses

Traffic Strategy (TS)

4.33 Where critical load or other environmental criteria thresholds for pollutants will be exceeded for qualifying and supporting habitats of the Severn Estuary and Walmore Common, or where existing noise levels will be exceeded at Walmore Common, development proposals should demonstrate how these impacts can be effectively ameliorated.

Lighting Strategy (LS)

4.34 In order to minimise artificial light pollution and its impacts on Key Ecological Components within and beyond the Northern Quarter all development proposals should demonstrate how they will keep lighting to a functional minimum during both construction and operation. Lighting Strategies should:

- Be produced by professional lighting designers;
- Include an assessment of whether lighting is necessary and potential alternatives;
- Propose lighting only where and when it is needed;
- Keep the number and wattage of lights to a minimum;
- Avoid light spill (lamps should not emit at angles greater than 70 degrees);
- Avoid lights that emit a broad spectrum of light, those with a high UV content or white and blue wavelengths;

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- Create 'dark zones' within and around sensitive locations such as the Lake, ponds, watercourses, bat roosts their key flyways and woodland edges where light levels do not exceed 1 lux;
- Consider planting schemes to screen sensitive locations from light pollution and use of temporary close-board fencing as an interim measure whilst vegetation matures;
- Clad buildings and surface roads with materials that do not reflect polarised light in proximity to the Lake and other Standing or Running Water.

4.35 Developers are encouraged to refer to Bug Life's A Review of the Impact of Artificial Light on Invertebrates and the Bat Conservation Trust's Landscape and Urban Design for Bats and Biodiversity (2012) publication for further advice.

Roost Retention/Replacement Strategy (RR/RS)

4.36 Roost retention/replacement strategies should:

- Consider, for example, office rather than residential and/or low rather than high density development options to prevent an increase, and reduce where possible, recreational disturbance around retained roosts.
- Retain the Artificial Roost;
- Retain the Main Office and Bath House roosts at Northern United where possible. Where this is not possible provide like-for-like (or better) purpose built replacement roost opportunities (including hibernacular provision);
- Locate any replacement roost opportunities: within the existing home range of the Northern Quarter lesser horseshoe colony; adjacent to existing commuting routes, within existing forage areas; in low disturbance areas;
- Prevent demolition of the Main Office at Northern United until it can be demonstrated that its replacement roost is in significant use by lesser horseshoe bats;
- Prevent demolition of the Bath House at Northern United until it can be demonstrated that its replacement roost is in use by lesser horseshoe bats;
- Utilise appropriate demolition techniques identified through production of a CEMP;
- Take full account of current best practice and research to inform replacement roost building design and associated landscaping.

Biodiversity Management Plan (BMP)

4.37 In general, development proposals should demonstrate how they will retain, manage and improve Key Ecological Components wherever possible rather than offset losses through for example re-creation.

4.38 Species which are Key Ecological Components within the Northern Quarter are highly reliant on the provision and maintenance of associated habitats and ecological networks for their continued survival. The relationship between species that are Key Ecological Components

4 . Key Principles

and the habitats that support them is summarised in Table 2.2. Development proposals should demonstrate how they take account of this dependency through adoption of a habitat and ecological network led approach towards conserving and enhancing species.

4.39 Where loss of Key Ecological Components is unavoidable, development proposals should compensate by restoring or re-creating habitats and features. Development proposals should provide compensatory habitat and features of at least similar extent and quality to that lost.

4.40 It is likely that development proposals will need to develop BMPs where the following is required:

- In-situ management and improvement measures for Key Ecological Components that require retention;
- Ex-situ re-creation measures to offset/compensate where it can be demonstrated that loss of or damage to other Key Ecological Components is unavoidable.
- Enhancement measures necessary to deliver biodiversity net gains (see Key Principle 3 for further details).

4.41 All BMPs should include detailed management for the first 5 years and outline long-term management requirements. BMPs should detail their aims and objectives, a review of site potential and constraints, monitoring requirements, details of responsible persons, review arrangements, plans showing the location and extent of works, and a work schedule detailing when particular activities will take place. Where BMPs are required for in-situ conservation of Key Ecological Components they should also contain: a description and evaluation of the key features and appropriate management options relevant to the aims and objectives already identified.

4.42 In addition to requirements under the above section where BMPs are required to offset impacts to Key Ecological Components they should also demonstrate:

- That the type, extent and location of habitats and features proposed for re-creation/restoration are in accordance with the Biodiversity Spatial Masterplan (see relevant section later in this chapter);
- Appropriate strategies and method statements for creating/restoring target habitats and other features relevant to the aims and objectives already identified have been selected (See Appendix 3);
- How any proposed conversion of existing woodland habitat will comply with UK Forestry Standard guidelines on landscape, soil, historic environment, water, biodiversity and climate change.

Biodiversity Spatial Masterplan (BSM)

4.43 The BSM seeks to ensure that the most important Key Ecological Components are retained and protected and where offsetting is unavoidable, ensure that this makes the greatest possible contribution to improving and enhancing the biodiversity resource in and around the

4 . Key Principles

Northern Quarter. It consists of masterplans (Figures 4.1 and 4.2) illustrating the Key Ecological Components to be retained, an overview of locations for offsetting measures and targets that indicate the likely acceptable extent of these. Development proposals should demonstrate how they contribute to the BSM targets and masterplan.

4.44 The BSMs approach is underpinned by an understanding of the existing biodiversity resource and impacts on this resource likely to arise as a result of the development of the Northern Quarter as outlined earlier of this document.

4.45 Box 4.1 describes Key Ecological Components where there is a strong presumption in favour of their retention, protection and, where appropriate, improvement as part of the wider development of the Northern Quarter.

Box 4. 1

Key Ecological Components where there is a strong presumption in favour of their retention, protection and improvement

- The Artificial Roost
- Lesser horseshoe key flyways (associated with retained roosts)
- Ancient semi-natural woodland
- The Lake
- Rivers and streams and their wider riparian corridors (otherwise known as 'green fingers')

4.46 The BSM also provides an overview of the type, extent and location of offsetting measures likely to be required where unavoidable loss or damage to other Key Ecological Components may arise. The BSM adopts a primarily habitat led approach to offsetting. It restricts the approach to habitat types that are likely to be re-creatable and requires replacement of broadly the same type of habitat as that to be lost. Newly created or restored habitats are likely to be of a lower quality, initially, than those they replace. The BSM recognises this and adopts a net gain approach in response requiring larger areas of habitat to be created or restored than are to be lost. In addition and wherever possible the BSM adopts a minimum viable size approach to habitat patch creation to help ensure resilience.

4.47 Figure 4.2 and Table 4.6 outline the BSM masterplan and targets for the creation and restoration of five main habitats associated with overall development of the Northern Quarter. In addition, the BSM includes a broadleaved woodland restoration target. This target has been developed to address the potential loss of sub-optimal foraging habitat for lesser horseshoe bats likely to occur as the result of conversion of some conifer and mixed woodland to open habitats surrounding the Northern Quarter. The target will promote the restoration of areas of other mixed and conifer woodland to broadleaf woodland in order to compensate for this impact.

Table 4.6 Overall offsetting targets for habitats for the Northern Quarter

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Habitat type	Likely habitat loss (ha)	Minimum offset target (ha)	Long-term net gain (ha)
Lowland Broadleaf Deciduous Woodland	0.3	0.4	0.1
Wet Woodland	0.3	0.4	0.1
Ponds	0.2	0.2	-
Open Mosaic Habitat on Previously Developed Land	3.1	3.9	0.8
Acid/neutral/calcareous grassland	6.3	7.9	1.6
Woodland (restoration)	-	11.8	11.8
Total	10.2	24.6	14.2

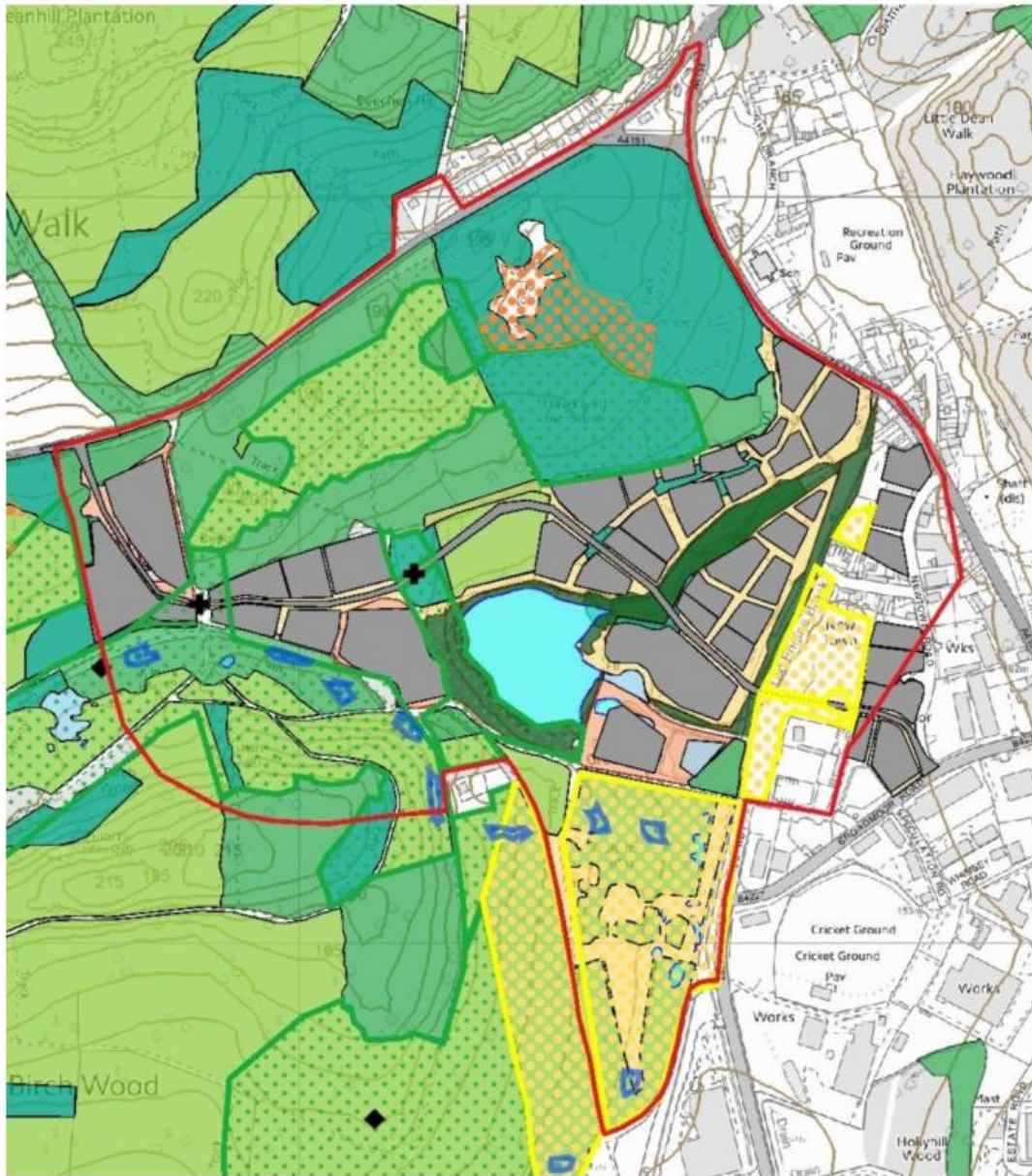
4.48 The BSM adopts a strategic approach to the location of offsetting using the following guiding principles:

- Re-creating/restoring habitats as close as possible to the original habitats they are to replace;
- Recreating/restoring habitats in locations that create or strengthen ecological networks;
- Contributing to habitat targets within the Ruardean Woods SNA;
- Complimenting Forest Plans (where offsetting is proposed on Forestry Commission owned land);
- Restricting open habitat creation/restoration to those areas where woodland habitat type and/or radio tracking indicates lesser horseshoe bats forage least;
- Restricting open habitat creation/restoration to areas that will not interrupt lesser horseshoe key flyways;
- Avoiding open habitat creation in areas that support Lowland Broadleaf Deciduous Woodland or important woodland species such as hawfinch;
- Promoting Open Mosaic Habitat on Previously Developed Land and Acid/Neutral/Calcareous Grassland re-creation/restoration to areas with low soil fertility and suitable pH conditions (i.e. coniferous woodland, especially that located on historic mining spoil sites);

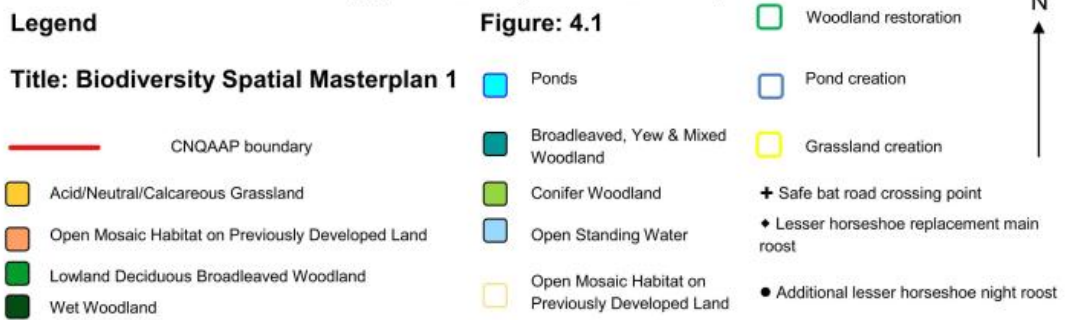
4 . Key Principles

- Restoring conifer and mixed woodland to native broadleaf woodland particularly within 600m of retained and replacement roosts.

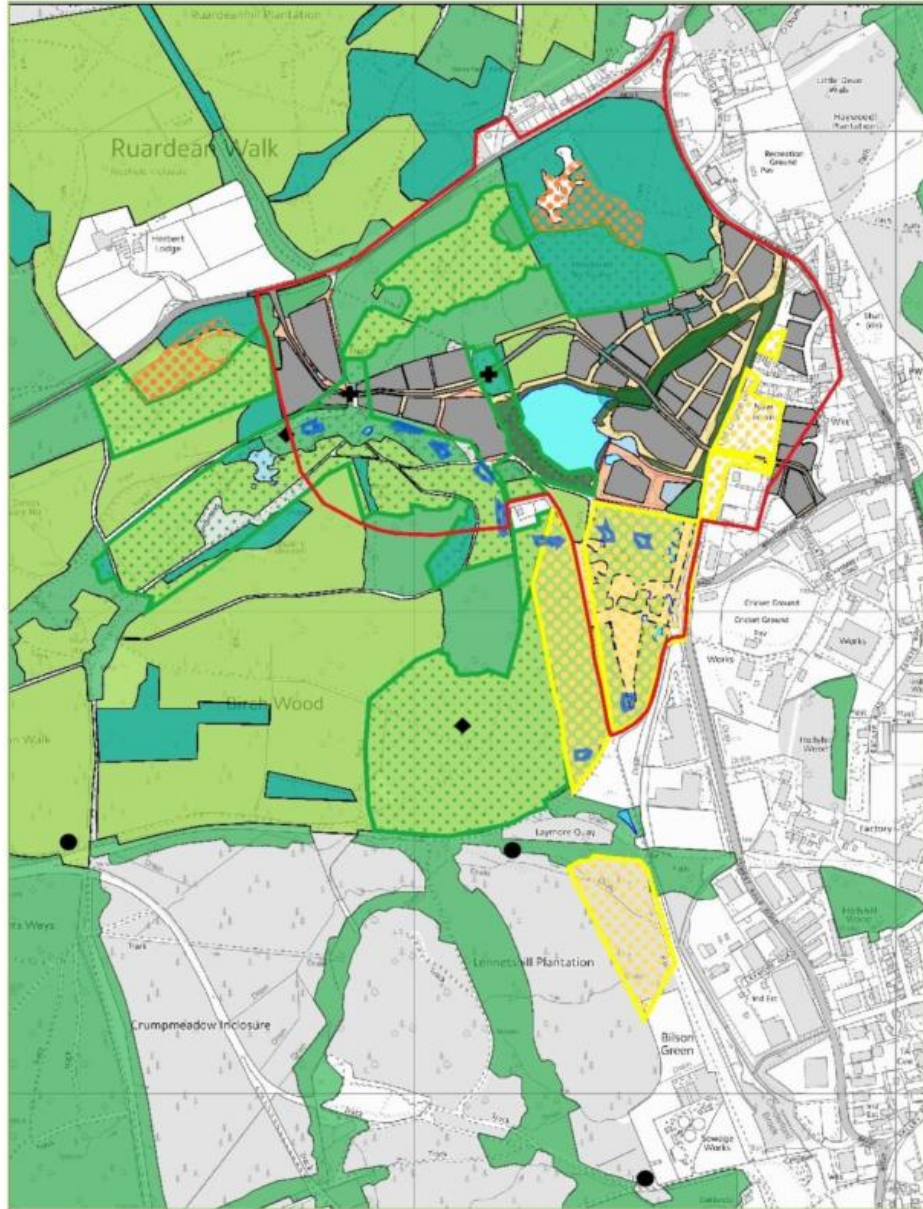
4 . Key Principles



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4 . Key Principles



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Legend

Title: Biodiversity Spatial Masterplan 2

- CNQAAP boundary
- Acid/Neutral/Calcareous Grassland
- Open Mosaic Habitat on Previously Developed Land
- Lowland Deciduous Broadleaved Woodland
- Wet Woodland

Figure: 4.2

- Ponds
- Broadleaved, Yew & Mixed Woodland
- Conifer Woodland
- Open Standing Water
- Open Mosaic Habitat on Previously Developed Land

- Woodland restoration
- Pond creation
- Grassland creation
- + Safe bat road crossing point
- ◆ Lesser horseshoe replacement main roost
- Additional lesser horseshoe night roost



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Species Translocation Scheme (STS)

4.49 The BSM reflects Natural England's Standing Advice and other best practice for species mitigation and in particular with the principles of avoid, mitigate, compensate as set out in the overview to this section.

4.50 Where translocation of nationally protected species such as reptiles is proposed development proposals will need to provide information to demonstrate that a suitable translocation site(s) is available prior to a positive determination. Conditions or planning obligations are likely to prevent development from taking place until suitable receptor sites are available and translocation has taken place.

4.51 Where habitat creation at receptor sites is required for species translocation purposes development proposals will need to demonstrate that the area proposed for this purpose already contains, or is capable of, containing suitable habitats and has sufficient carrying capacity. Translocation to areas of existing established habitat is not likely to be acceptable as there is a risk that such habitats already support the species and that the natural carrying capacity of this habitat would be exceeded if additional individuals were translocated to it. Translocation proposals should:

- Demonstrate no net loss of habitat, with receptor sites being of an adequate size to accommodate the numbers of animals to be moved. Receptor sites should be of good quality for the translocated species requirements. Surveying of receptor sites should be undertaken to evaluate the biodiversity value of the area and implications of the change in habitat for the translocated species;
- Not underestimate the time required to prepare receptor sites in advance and the time required to undertake sufficient capture and translocation effort;
- Provide networks or green corridors for species to re-colonise areas when development is completed to ensure users of the development have opportunities to engage with wildlife (this habitat should not be counted within no net loss);
- Locate receptor sites to maintain habitat links to other areas and/or extend existing established area for the species;
- Demonstrate how long term management for the receptor sites should be secured;
- Avoid loss of local conservation status by translocating species to suitable offset areas identified in the BSM. For species that may be subject to persecution or disturbance, for example adder, consideration should be given to translocation to suitable but more distant sites still within the Statutory Forest but with lower recreational pressure.

Sustainable Drainage Systems (SuDS)

4.52 A broad range of drainage solutions is encompassed within the term SuDS, from permeable surfacing to green roofs and attenuation ponds. Selecting the right SuDS solution should deliver multiple benefits and they present many opportunities for biodiversity mitigation and enhancement.

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4.53 Development proposal should look to use SuDS for multiple benefits and exclude options without multiple benefits unless there are good reasons to do so such as avoiding loss of a Habitat of Principal Importance in England for example. SuDS should be designed to reflect the following:

- Clean water: Source control ensures a controlled flow of clean water for biodiversity within development before water enters the SuDS features;
- Connectivity: Links between existing and proposed green infrastructure enhance natural colonisation, provide for habitat types set out in table 4.5 and improve habitat resilience;
- Structural diversity: Varied profiles both vertically and horizontally provide maximum habitat potential;
- Nutrient control: Low fertility measures generally promote habitat diversity and reduced maintenance costs;
- Native planting & colonisation: Reflect local habitats and species through planting or weed control.

Key Principle 3 Ensuring Development Proposals Contribute to Biodiversity Enhancement

4.54 All development proposals must demonstrate how they will contribute to enhancement of biodiversity associated with the Northern Quarter. Such measures are entirely separate and additional to those that may be required to avoid, minimise or compensate for loss or damage of Key Ecological Components. Measures proposed should:

- Be proportionate to development proposal concerned;
- Be designed to enhance habitats and species typical of the Northern Quarter area;
- Build in biodiversity enhancement to part of building design;
- Consider off site locations enhancement to compliment the BSM;
- Consider how landscaping and other design elements can increase permeability of movement for biodiversity across the CNQAAP;
- Include details of how these will be sustainable managed in the long-term, through production of a BMP).

4.55 Examples of the type of enhancement development proposals should consider are provided in Table 4.7

Table 4.7 Enhancement measures

Measure	Integrated into building	Plot landscaping or public open space	Off site
Bird boxes	•	•	•

4 . Key Principles

Measure	Integrated into building	Plot landscaping or public open space	Off site
Purpose built bat roosts :integrated bat boxes on south, south-west or south-east elevations near gable apexes or eaves, away from disturbance	●		
Night roosts: for lesser horseshoe bats	●		●
Green/brown roofs: for birds and invertebrates	●		
Permeable fencing designs: for a range of species including mammals, amphibians and reptiles		●	
Ponds: for great crested newts, bats and invertebrates		●	●
Native planting: for invertebrates and birds: range of plant species that provide nectar and berries throughout the year		●	●
Signature, avenue, street, belt and group native tree planting for bat roosting potential: oak, beech, ash, elm		●	●
Signature, avenue, street, belt and group native tree planting for bat foraging potential: oak, willow, beech, ash, elm and birch		●	●
Living or green walls: on shady elevations	●		
Habitat walls: for insects mostly on sunny elevations	●		
Cherry and hornbeam planting: for hawfinch (in low disturbance areas)		●	●
Wildlife friendly planting schemes that link gardens together and treated as interconnected habitat rather than individual units		●	

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Key Principle 4 Opportunities for Partnership Working and Community Engagement

Local environmental groups

Box 4.2

Local Groups with a keen ecological interest in the area

- Butterfly Conservation
- Forest of Dean Angling Club
- Forest of Dean Friends of the Earth
- Gloucestershire Amphibians and Reptile Group (Glos Arg)
- Gloucestershire Bat Group
- Gloucestershire Naturalists Society
- Gloucestershire Wildlife Trust
- RSPB

4.56 There is a wealth of local knowledge in the communities in and around Cinderford both in terms of biodiversity and past land use. Wherever possible those with this wealth of knowledge should be encouraged to participate in preparing proposals in order to meet the aims of the document. Those preparing development proposals should support community engagement and partnership working opportunities in the following ways:

- Ensure consultation at an early stage in the preparation of proposals with community groups and specialists with local ecological knowledge;
- Seek opportunities for partnership working to address wider environmental objectives of local environmental groups;
- Explore opportunities for local environmental groups to be directly involved in habitat management and monitoring

4.57 Proposals should demonstrate how early (pre planning application) discussions has been sought from stakeholders and this considered in relation to the proposal's development.

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Governmental organisations

4.58 In addition to local environmental groups, governmental organisations such as Natural England, the Environment Agency and the Forestry Commission are important stakeholders. It is vital that those preparing development proposals engage with these organisations at the earliest opportunity and throughout the process.

4.59 The Forestry Commission has a key role in the development of the Northern Quarter. As the major adjoining landowner it is likely to act as the most significant provider of land where offsetting could take place. This document sets out the likely offsetting measures that will be required on land managed by the Forestry Commission. Offsetting on land not owned by the developer will be expected to be controlled by a legal agreement between the landowner, developer and the Council. These legal agreements will require early discussion between all parties. The process of developing the legal agreement can be divided into three distinct areas:

Process	<ul style="list-style-type: none"> • Prior to application early discussion with appropriate partners e.g. the Forestry Commission and the Council (minimum 6 weeks) • Agreed legal agreement (s.106) review dates in planning process • Principal areas in 'Heads of terms', to be covered by agreement at the time of planning application submission
Costs	<ul style="list-style-type: none"> • All parties' legal fees will be expected to be met by applicant • Costs of mitigation establishment and management to be met by applicant • Contribution to long-term management and monitoring from the applicant will be expected
Implementation	<ul style="list-style-type: none"> • Detailed access agreements will be needed to access third party land (e.g. Council or Forestry Commission Land) • Contractors working on Forestry Commission land will be expected to work to Forestry Commission and Forest Stewardship Council standards.

5. Monitoring the Cinderford Northern Quarter Biodiversity Strategy

5.1 The objective of the CBSTg is to ensure that development of the Northern Quarter conserves its biodiversity and delivers biodiversity enhancements wherever possible. In particular the document seeks to:

- Avoid adverse effects on the integrity of the Severn Estuary SAC, SPA & Ramsar and Walmore Common SPA and Ramsar and the Wye Valley and Forest of Dean Bat SAC and Wye Valley Woodlands SAC
- Maintain the favourable conservation status of European Protected Species (Including great crested newts, dormice, bats, white –clawed crayfish);
- Avoid net loss of habitats that support other protect species (breeding birds, reptiles) maintain habitat links and secure suitable capture and translocation effort (where relevant) and long-term management for benefit of these species;
- Avoid net loss of Habitats or Species of Principal Importance;
- Retain and strengthened Major Ecological Networks;
- Maximise opportunities to enhance biodiversity.

5.2 Whilst individual development Biodiversity Implementation Strategies will monitor their own implementation there is a need to periodically review this document to keep a check on the ‘sum of the parts’.

5.3 Through the planning process development Biodiversity Implementation Strategies will be evaluated in relation to this document and other Biodiversity Implementation Strategies that have been agreed by the Council.

5.4 Initially in years three (2017) and five (2019) the council will undertake a strategic review of planning applications submitted, to evaluate the combined implementation of the developer lead strategies.

5.5 This strategic review will address the following areas:

Issue	Key Evaluation Questions
Community engagement & opportunities	i. The extent to which planning proposals have demonstrated pre-application engagement with stakeholders. ii. The extent to which partnership working has explored wider environmental objectives with local groups.
Wye valley and Forest of Dean Bat SAC	iii The extent to which the Northern Quarter lesser horseshoe population compares with the 2012 baseline and subsequent 5 year periods. iv. An evaluation of the implementation of the avoidance mitigation and compensation measures for lesser horseshoe bats.

5 . Monitoring the Cinderford Northern Quarter Biodiversity Strategy

Issue	Key Evaluation Questions
Habitats of Principal Importance	v. Net balance of habitats. vi. An evaluation of habitat quality and areas in active management for biodiversity as a result of biodiversity implementation strategies.
Ecological networks	vii. Evaluation of ecological networks in the context of those described in the strategy.
Biodiversity enhancement	viii. Design features for biodiversity enhancement within developments.

5.6 This guidance will be subject to review through the evaluation process previously described and in response to other information that may become available, from time to time, through for example individual planning proposals. It will be important that the guidance adapts to changing circumstances and the outcomes of its application, particularly during delivery of initial phases of the CNQAAP.

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

CINDERFORD NORTHERN QUARTER BIODIVERSITY STRATEGY

WORKSHOP – TUESDAY 7 MAY 2013

NOTES

ATTENDING:

<p>Peter Hibberd Strategic Director, Forest of Dean District Council</p>	<p>Jenny Bennett Johns Associates</p>
<p>Alisa Swanson Natural England</p>	<p>Robin Ward Gloucestershire Amphibian and Reptile Group</p>
<p>Councillor Martin Quaille Cabinet Member for the Environment, Forest of Dean District Council</p>	<p>Peter Kelsall Forestry Commission</p>
<p>Rebecca Wilson Forestry Commission</p>	<p>Andrew Bluett Gloucestershire Naturalist's Society</p>
<p>Alastair Chapman Sustainability Team Leader, Forest of Dean District Council</p>	<p>Wendy Jackson Regeneration Manager, Forest of Dean District Council</p>
<p>Louise Scammell Regeneration Officer, Forest of Dean District Council</p>	<p>Sarah Ayling Biodiversity and Countryside Officer, Forest of Dean District Council</p>

INTRODUCTION:

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

Peter Hibberd welcomed everyone to the meeting. Peter explained that the delivery of the Cinderford AAP was a key priority for the Forest of Dean District Council and stressed that the Council wished to deliver the project in a sustainable manner. The aim of the workshop was to engage with local ecological specialists to assist the Council in developing the Biodiversity Strategy.

WORKSHOP:

Alastair Chapman introduced the structure of the Biodiversity Strategy workshop. Alastair explained that the Forest of Dean District Council was preparing a Biodiversity Strategy (BS) based on the Johns Associates BS Version 1.2. The document would provide a strategic approach to addressing biodiversity issues in future planning applications, covering the delivery of the AAP until its completion in 2026. The BS would have to be flexible in its approach, yet provide details on phasing and delivery.

The workshop was structured to address 4 key questions for the development of the BS as follows:

Does the BS describe ecological baseline conditions adequately? Are there any important gaps in formation
Does the BS identify and describe all impacts adequately?

What should the vision and key principles for the BS be?

Is the mitigation suggested within the BS proportionate and appropriate?

**DOES THE STRATEGY DESCRIBE ECOLOGICAL BASELINE CONDITIONS ADEQUATELY?
ARE THERE ANY IMPORTANT GAPS IN INFORMATION?**

Habitats

- Mires – although not present within the NQ, the habitat could be created as an enhancement, consider links to Laymoor Quay.
- Consider building design for lesser black backed gull nesting.
- Suggested that a list of habitats/planting relating to food plants of key species on site be developed.

Mammals

- Lesser horseshoe bats now known to forage over the Lake.
- The BS needs to describe the link between the Lesser horseshoe bats at Northern United and the Wye Valley and Dean Plateau Special Area of Conservation and so further survey work to establish this may be required.
- Other bat species – consider potential for tree roosting.

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

- Dormice – what is the core minimum area for the NQ population, how does it relate to the wider Forest population (several records in the core Forest north of the A4136 including Worrall Hill and Plump Hill)?
- Water vole – consider enhancement if species was known to be present historically.

Reptiles and amphibians

- Great crested newt - identified in 2 locations within and near to the Northern Quarter. Present at Laymoor Quay, David Dewsberry currently doing survey (GWT may hold previous survey records).
- Adders – good numbers in scrub grassland mosaic (associated with gorse and bramble in particular) between lake tributaries to east of the Lake and similar habitat in the Steam Mills area.

Birds

- Hawfinch - locations marked on plan. Hornbeam, Cherry and good water source essential for species. See FC Annual reports (Jerry Lewis).
- Willow tit - requirement to understand this species' habitat requirements in order to provide appropriate mitigation. Associated with Larch and requires specific nest boxes (design currently being researched). Need to be cautious about provision of other tit boxes as these may push willow tits out of the area.
- Lake used by common sandpiper on passage.

Invertebrates

- Small-pearl butterfly, potential for presence – additional surveys required.
- Grayling butterfly, potential for presence – locations marked on the supplied plan.
- Dragonflies – records from Ingrid Twissell, 10 damselflies (incl. 2 near threatened red data list species) and 15 species of dragonfly (several scarce/local and one near threatened red data list species).
- Moths, moth trapping currently being undertaken – Roger Gaunt & Simon Glover mentioned as best contacts. Roger is the local recorder for moths.
- White-clawed crayfish - advised to check whether the Old Engine Brook is underlain by any calcareous geology - if it is not, then crayfish presence may be ruled out.
- Freshwater pearl mussel in Lake.

Other

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

- Additional survey suggestions – fish species in the Lake, fungi, lichens, butterflies (incl. Small pearl-bordered fritillary).
- Provide local naturalists with a hard copy map to record any additional records from within the AAP which have yet to be submitted to GCER.

DOES THE STRATEGY IDENTIFY AND DESCRIBE ALL IMPACTS ADEQUATELY?

Additions were suggested to the Potential Impacts Summary sheet:

- Consider winter feeding habitat requirements for birds and other species.

WHAT SHOULD THE VISION AND KEY PRINCIPLES FOR THE STRATEGY BE?

DKP3 – mitigation needs to include translocation and monitoring requirements. For reptiles there is a need to adopt a hierarchical approach to translocation. For adders off-site translocation to FC areas where reptile habitat enhancement and extension is already occurring should be considered. Hierarchical approach to translocation for common lizard and slow worm could be adopted.

DKP 4 - need to refine especially in relation to net gains specifying long-term nature of this aim and perhaps limiting this to priority species and habitats which need to be defined.

IS THE MITIGATION SUGGESTED WITHIN THE STRATEGY PROPORTINATE AND APPROPRIATE?

Potential for:

- Fencing designs that allow species to permeate the AAP area (e.g. hedgehogs).
- Bird and bat boxes incorporated into building design (informed by priority species).
- Top soil from the AAP area may need to be translocated to create some of the compensatory habitat.
- Green/brown roofs (especially on larger buildings).
- Mitigation to compliment the forthcoming Landscape and Heritage HLF bid.
- Eco-visitor centre for use by local wildlife groups to show case the AAP area as an exemplar for sustainability and to provide opportunities for recruitment of young naturalists.
- The wider AAP area to act as a wider exemplar for sustainable development.

CONCLUSION:

Peter thanked all for their attendance. It was agreed that a future meeting would be beneficial and the format of the meeting allowed for productive discussion.

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

CINDERFORD NORTHERN QUARTER BIODIVERSITY STRATEGY WORKSHOP

FEEDBACK SESSION – TUESDAY 4 JUNE 2013

NOTES

<p>Peter Hibberd Strategic Director, Forest of Dean District Council</p>	<p>Andrew Bluett Gloucestershire Naturalist's Society</p>
<p>Rebecca Wilson Forestry Commission</p>	<p>Colin Studhome Gloucestershire Wildlife Trust</p>
<p>Penny Simpson Forestry Commission</p>	<p>Wendy Jackson Regeneration Manager, Forest of Dean District Council</p>
<p>Gary Kennison Gloucestershire County Council</p>	<p>Sarah Ayling Biodiversity and Countryside Officer, Forest of Dean District Council</p>
<p>Alastair Chapman Sustainability Team Leader, Forest of Dean District Council</p>	

INTRODUCTION:

Peter Hibberd welcomed everyone to the meeting. He quickly referred to the legal challenge to the Core Strategy, emphasising that this was outside the remit of this session but that the Biodiversity Strategy would of course need to take account of the High Court ruling when made.

SUMMARY OF FEEDBACK FROM THE WORKSHOP:

Alastair Chapman explained the purpose of the Biodiversity Strategy again for the benefit of those who were not at the previous workshop. He also explained that there had been no action points from the workshop, as such as the purpose of the meeting had been to listen to issues and suggestions, consider them after the workshop and then feedback at this meeting.

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

A general discussion was then had about the previous workshop with participants commenting that:

- The full ecological baseline may not yet be fully understood and some local recorders could have concerns about passing on records
- An ecosystem or habitat led approach would take account of interactions between habitats and species should be considered when developing the Strategy
- The importance of monitoring should be reflected within the Strategy
- The detail of hierarchical approach to mitigation needed developing
- In terms of species and habitats there were likely to be ‘winners and losers’
- the delivery mechanisms for off-site mitigation in particular needed to be developed
- Construction management plans could be a useful tool to confine development within approved areas and prevent unintentionally damage of surrounding areas.

RESPONSE TO KEY ISSUES & SUGGESTIONS:

Sarah Ayling was able to report that many of the suggestions raised at the previous workshop would be incorporated into the Biodiversity Strategy and that work was being progressed to address other issues that had been raised. This was summarised as follows:

Survey

- There was agreement of the need to incorporate further analysis especially for butterflies (Small pearl-bordered and Grayling), White clawed crayfish and fungi and lichens. The Biodiversity Strategy will include this additional survey work where available before publication or else be required as part of individual planning applications.
- A survey for species of fish within the Lake was not viewed a priority as important fish species were unlikely to be present or affected by development.
- Radio tracking or other survey to demonstrate the link between the Northern Quarter lesser horseshoe colony and SAC sites was viewed as unnecessary given the strong policy assumption that such a link already exists.
- Blank maps had been sent out to naturalists via Gloucestershire Naturalists but as yet no returns had been received.
- A significant amount of additional survey work was being undertaken by the HCA during 2013 and where possible any new data from this work would be incorporated into the Strategy.

Evaluation of habitats and species

Appendix 1 . Notes from the Local Ecological Specialist Technical Workshop

- Further work would take place to evaluate habitats and species within a Forest context. However, under recording in the area, lack of local records and delays getting records to and onto the GCER system meant that the strategy would need to be responsive and work with what was known. However, it was considered that sufficient information was available upon which to base the Strategy.

Mitigation

- Key Principle 4 (which included net biodiversity gains) would be refined and refocused with an emphasis on 'no net biodiversity loss' for Habitats and Species of Principal Importance and other legally protected species and on selected enhancements for species typical of the area.
- In relation to Key Principle 3 (which included mitigation) serious consideration was being given to the possibility of mitigation in the wider core forest (for example translocation of adders to areas where land management is already occurring to increase reptile habitat) but that this would need to be discussed and agreed with the Forestry Commission.

It was also reported that there were opportunities for enhancement of woodland for hawfinch and the potential to strengthen wildlife links to the Brierley area, as well as south along the Linear Park, but that this also needed to be explored and agreed with the Forestry Commission. Equally the Strategy needed to consider recreational disturbance in surrounding woodland and how this could be best managed.

Enhancement

- The Strategy would where possible look to build in more permeability for species movement across the Northern Quarter together with planting schemes and roosting and nesting opportunities for species typical of the area.
- It would be difficult to secure mire creation given the absence of this type of habitat within the Northern Quarter or enhancements specifically for water vole given the absence of this species from the area currently or any programme to control mink.
- A much larger area of land surrounding the Northern Quarter was subject to previous industrial uses and so may well contain soils capable of supporting post-industrial grassland that would need to be re-created without the need to move large quantities of soil.
- The idea for an eco-facility within the Northern Quarter was something the Council was supportive of. Further consideration was needed about how best this could be progressed and delivered.

NEXT STEPS:

Alastair explained that drafting of the Strategy would now begin with a view to submitting this for Committee approval in July and then public consultation and asked all parties to remain engaged in the process. Peter thanked all for their attendance and input commenting that the session had once again been productive and helpful.

Appendix 2 . Cinderford Northern Quarter Area Action Plan Policies

Cinderford Northern Quarter Area Action Plan policies containing key biodiversity aspects. (It is recommended to review the entire AAP and the masterplan and design code SPD).

Box 1

Policy 2

Cross-cutting approach to sustainability

The Council will require all proposals to place sustainability at the heart of their rationale and design process. Applicants will be expected to make detailed reference to the Sustainability Statement which accompanies the Masterplan, the Sustainable Development Framework and the Sustainability Appraisal report in preparing proposals. Proposals should be proactive in responding to sustainability issues highlighted in the AAP and accompanying SA. It is anticipated that an Environmental Impact Assessment will be required and this will be supported by appropriate studies or strategies in relation to the assessment, reconciliation or mitigation of key environmental issues. Specific details are identified under the thematic policies that follow.

Appendix 2 . Cinderford Northern Quarter Area Action Plan Policies

Box 2

Policy 10

Landscape and Biodiversity Strategy

The Council will require development proposals to define a sensitive and carefully considered landscape, biodiversity and public realm strategy which respects the Northern Quarter's natural rural and woodland character, biodiversity value and key natural/landscape assets such as the forest, grasslands, Steam Mills lake and tributaries. Proposals would need to incorporate the following:

- Strong semi-natural green links and buffer zones including the retention of core or existing wildlife corridors to allow a connected biodiversity network (particularly those areas identified for specific bat species mitigation);
- Responsive approach to key views and promotion of footpaths and green corridors;
- Mitigation and enhancement of habitats and biodiversity including increasing the carrying capacity of retained habitat areas to mitigate potential impacts on protected species (such as reptiles); and
- Maintaining riparian buffer zones and minimising intervention (including outfalls and crossings) and incorporating enhancements to ecological value of these features.

The Council will require development proposals progressed in accordance with the AAP to be accompanied by detailed landscape and biodiversity implementation strategies and programmes which set out landscape proposals, detail mitigation, licensing requirements and enhancement measures to biodiversity, together with management tools such as additional biodiversity enhancement checklists, biodiversity/ landscape management/ long term and maintenance plans. The strategy must ensure that the following criteria are achieved:

- The site is not left untreated after remediation works for longer than one planting season;
- The site remains accessible for the public before and after remediation works and is treated to retain its amenity value;
- Key habitats, feeding areas and commuting corridors for protected species are maintained and where possible enhanced; and
- Biodiversity mitigation measures related to protected habitats and species, identified to date and as supplemented by appropriate future survey, must accord with requirements of current legislation and good practice guidance. In addition, the requirements of Policy 26 must be taken into account.

Appendix 2 . Cinderford Northern Quarter Area Action Plan Policies

Box 3

Policy 15

Road hierarchy and link road

Road hierarchy

Development proposals for the Northern Quarter will be expected to respect the broad hierarchy of primary and secondary routes outlined in the Masterplan movement framework. The following factors will be considered when assessing proposals:

1. Impact on areas of high ecological sensitivity, including bats;
2. Provision of appropriate mitigation measures to address environmental issues such as severance of commuting routes and disturbance of feeding grounds;
3. Specific issues relating to the quality of access and egress to specific sites based on their functional and operational requirements; and
4. Maintain a minimum 10m offset from watercourses.

All proposals should be developed in general conformity with the broad alignment outlined in the AAP unless otherwise agreed by the Council and their partners. However, there is flexibility for adjustment of the north western section of the spine road alignment, if required to mitigate impacts on protected species (e.g bats). Such changes would need to accord with the requirements of the Forestry Act.

The precise alignment of routes and junction arrangements will be determined through detailed design and technical assessment.

Spine Road

In order to unlock the full potential of the Northern Quarter, the Council will require the comprehensive development of the site to be carefully coordinated with the construction of a new spine road. The Council will pursue the following objectives when assessing detailed designs for the road and adjacent development alongside the route:

- The new route should have a street-based character not that of a traffic dominated by-pass; and
- The design of the street section should seek to avoid, minimise, or compensate (in that order) any impact on forest land and protected species.

The design of the street section must demonstrate to a high standard how the four primary bat corridor routes to/ from the roost sites will be maintained and protected during and after the construction of the spine road. Any further primary bat corridor routes that may be identified prior to development will be similarly maintained and protected. Key factors will include:

Appendix 2 . Cinderford Northern Quarter Area Action Plan Policies

1. A detailed scheme of vegetation protection and landscaping, including the phasing of works demonstrating that woody vegetation structure within and surrounding primary bat corridors will be in place prior to development being undertaken and maintained after development is completed.
2. Artificial lighting must be designed to maintain effective dark flight ways for Lesser Horseshoe bats within primary bat corridors
3. Minimum surface paths and road widths appropriate to the function of the road within primary bat corridor areas to minimise the degree of severance
4. When needed create new road crossing structures such as culverts and gantries to maintain primary bat corridors designed with suitable expert advice and according to best practice guidance
5. A detailed programme of monitoring for no less than three summers following the construction in each of the primary bat corridor areas. The programme should specify contingency procedures and responsibility for implementation should the monitoring reveal the crossings are not being used by numbers of lesser horseshoe bats comparable to those identified in the baseline surveys of 2010/ 11.
6. Suitable provision for the long term management and maintenance of all vegetation and road crossing structures that are required to maintain primary bat corridor routes.

Junction onto A4136

The junction of the spine road and the A4136 is to be located in the vicinity of the existing Northern United junction. Detailed analysis of traffic flows at this junction should be used to determine its design. This is likely to require a more detailed assessment of the assignment and distribution of strategic and site based traffic and modelling of traffic flows at the junction for future years.

The design of the junction must demonstrate to a high standard how the primary bat corridors at the entrance to the Northern United site and crossing the A 4136 from the roost sites, will be maintained and protected as dark crossing points during and after the construction of the junction.

Junctions at Broadmoor Road

Further detailed analysis of traffic flows at the junction of the Spine Road with Broadmoor Road and the junction of Broadmoor Road with the Gloucestershire College campus car park access should be carried out to determine the design of these junctions. This is likely to require a more detailed assessment of the assignment and distribution of education related traffic and modelling of traffic flows at the junctions for future years.

Passenger drop-off facilities

With passenger access to the Gloucestershire College campus from the Spine Road, it is likely that vehicles will stop to drop off or pick up students. The design of the access arrangements and car parking for the education facility should seek to address these issues.

Appendix 2 . Cinderford Northern Quarter Area Action Plan Policies

Off site highways

Further analysis of the traffic impacts of development of the Northern Quarter on the junction of the A4151 Cinderford Bridge junction should be carried out in consultation with Gloucestershire County Council.

Further analysis should also be carried out of potentially increased traffic flows in surrounding minor roads such as Speculation Road/Whimsey Road with a view to potentially closing these to through traffic.

Box 4

Policy 26

European Nature Conservation Designations

In accordance with the 2010 Regulations, development proposals will need to identify any significant effects of development on European sites in the AAP area and surrounding buffer zone of 15 km and potentially more for some effects such as water pollution and identify if these are likely to occur alone and in combination with other plans and projects. Mitigation measures may need to be considered as part of this assessment. Where significant effects are considered likely to occur, the need for an appropriate assessment will be triggered in accordance with the 2010 Regulations to ensure no adverse effect on the integrity of the European site. The assessment must be directly related to the conservation objectives for the site.

Appendix 3 . Biodiversity Management Plan Prescriptions

Guidance on the approaches and strategies likely to be required to manage, improve and retain habitats existing and new habitats.

Open Mosaic on Previously Developed Land

	Likely approach
Species to include management for	GCN, reptiles, birds
Management of retained habitat	Occasional scrub control on rotation basis Encourage grazing by sheep or rabbits Consider cutting and removing grass arising in the autumn
Improvement of retained habitat	Creation of ponds, wetland hollows or scrapes Construction of refugia for reptiles and amphibians
Spatial considerations	Locate within conifer plantations on historic mining spoil sites where fertility is low and topography is varied Ecological links 2 ha minimum patch size
Strategies for creating/restoring target habitats	Locate on nutrient poor soils Vary aspect and slope to provide for micro-climates Clearance of areas with significant tree structure Removal of any organic litter and disturb nutrient poor soils Provide for natural colonisation on nutrient poor bear soils Consider seed sourcing or 'turf' translocation from neighbouring areas to initialise habitat

Neutral/Acid/Calcareous Grassland

Appendix 3 . Biodiversity Management Plan Prescriptions

	Likely approach
Species to include management for	GCN, reptiles, birds
Management of retained habitat	Occasional scrub control on rotation basis Encourage grazing by sheep or rabbits Consider cutting and removing grass arising in the autumn
Improvement of retained habitat	Creation of ponds, wetland hollows or scrapes Construction of refugia for reptiles and amphibians
Spatial considerations	Locate within conifer plantations on historic mining spoil sites where fertility is low and topography is varied Ecological links 2 ha minimum patch size
Strategies for creating/restoring target habitats	Locate on nutrient poor soils Vary aspect and slope to provide for micro-climates Clearance of areas with significant tree structure Removal of any organic litter and disturb nutrient poor soils Provide for natural colonisation on nutrient poor bare soils Consider seed sourcing or 'turf' translocation from neighbouring areas to initialise habitat

Broadleaved and mixed woodland

	Likely approach
Species to include management for	Amphibians, Birds, Bats, Dormice, invertebrates
Management of retained habitat	Maintain standing dead wood

Appendix 3 . Biodiversity Management Plan Prescriptions

	Likely approach
Species to include management for	Amphibians, Birds, Bats, Dormice, invertebrates
	<p>Maintain of rides and woodland edges by occasional cutting and coppicing of shrub layer on rotation.</p> <p>Plan for thinning or coppicing to vary age structure. Seek guidance from the forestry commission.</p>
Improvement of retained habitat	<p>Extend woodland rides, where appropriate</p> <p>Install bird, bat and dormice boxes</p> <p>Create wood piles</p> <p>Create wet scrapes in rides</p>
Spatial considerations	Ecological links
Strategies for creating/restoring target habitats	<p>Thin or remove non broadleaf species seek advice from the Forestry Commission</p> <p>Planting with broadleaf species appropriate to the area. Seek advice from Forestry Commission</p> <p>Improve woodland habitat for bat foraging (Lesser Horseshoe), especially creation of a woodland understorey (at least 50% cover)</p> <p>Create wood piles</p>

Wet Woodlands

	Likely approach
Species to include management for	Amphibians, Birds, Bats, Dormice, invertebrates
Management of retained habitat	<p>Maintain standing dead wood</p> <p>Maintain of rides and woodland edges by occasional cutting and coppicing of shrub layer on rotation</p>

Appendix 3 . Biodiversity Management Plan Prescriptions

	Likely approach
Species to include management for	Amphibians, Birds, Bats, Dormice, invertebrates
	Plan for thinning or coppicing to vary age structure. Seek guidance from the forestry commission
Improvement of retained habitat	Extend woodland rides, where appropriate. Install bird, bat and dormice boxes Create wood piles Create wet scrapes or unshaded ponds in rides
Spatial considerations	Ecological links
Strategies for creating/restoring target habitats	Thin or remove non broadleaf species seek advice from the forestry commission Planting with broadleaf species appropriate to the area. Seek advice from Forestry Commission Create wet scrapes or unshaded ponds Create wood piles

Ponds

	Likely approach
Species to include management for	Amphibian, reptiles, bats, birds, invertebrates
Management of retained habitat	Avoid overshadowing by coppicing water's edge trees Phase de-silting
Improvement of retained habitat	Create varied edge profiles and extend wetland margins Provide refugia

Appendix 3 . Biodiversity Management Plan Prescriptions

	Likely approach
Species to include management for	Amphibian, reptiles, bats, birds, invertebrates
Spatial considerations	<p>Link eastern and western great crested newt colonies using ponds spaced approx. 100m apart. Include ponds adjacent to bat flyways where possible.</p> <p>Ecological links</p> <p>Patch size – each pond 500-800m square</p>
Strategies for creating/restoring target habitats	<p>Ponds could most beneficially be created within 250m of other retained Ponds known to support great-crested newts and which link populations.</p> <p>Seek to create permanent ponds, with varied cross-sectional profiles including shallow areas and areas greater than 1m deep, with surface areas of 500-800m²</p>

Ecological networks (bat flyways)

	Likely approach
Species to include management for	invertebrates
Management of retained habitat	<p>Ensure flyways are dark</p> <p>Control lighting to no more than 1 lux for lesser horseshoe bats</p> <p>Cut flyway vegetation using a sensitive rotational scheme</p> <p>Retention of standing and fallen dead wood</p>
Improvement of retained habitat	<p>Improve edge structure of existing rides</p> <p>Gap up any 'weak' sections of vegetation with additional planting</p> <p>Increase the width of flyway vegetation</p> <p>Create ponds adjacent to flyways</p>

Appendix 3 . Biodiversity Management Plan Prescriptions

	Likely approach
Species to include management for	invertebrates
	Use 'heavy standard' trees on key routes to provide vegetation structure
Spatial considerations	Ecological links
Strategies for increasing bat movements across the AAP	<p>New hedgerows and tree belts/groups are part of public and private landscaping schemes</p> <p>Avenue, street and courtyard tree planting</p> <p>Pond creation</p> <p>Built in bat boxes and boxes in trees</p> <p>Minimising artificial lighting levels</p> <p>Establishing un-mown and flower-rich areas</p> <p>Planting to provide an all-year round food supply of insects.</p>

Appendix 4 . Glossary

Term used	Definition/explanation
Ancient Semi-Natural Woodland (ASNW)	An ancient woodland site, believed to have had continuous woodland cover since 1600 AD, composed principally of native tree species that have not obviously been planted.
Avoid	Ensuring that negative impacts do not occur as a result of planning decisions by, for example, locating development away from areas of ecological interest.
Biodiversity	The common term for “biological diversity”, the variety of life and the natural processes of which living things are a part. The term includes living organisms, the genetic differences between them and the communities in which they occur.
Biodiversity Management Plans	Plans for the maintenance, restoration, creation and monitoring of areas for pre defined habitats and species.
Broadleaved, Mixed and Yew Woodland	A UK Broad Habitat type characterised by vegetation dominated by trees that are more than 5 m high when mature, which form a distinct, although sometimes open canopy with a canopy cover of greater than 20%. It includes stands of both native and non-native broadleaved tree species and yew <i>Taxus baccata</i> , where the percentage cover of these trees in the stand exceeds 20% of the total cover of the trees present.
Cinderford Area Action Plan (CNQAAP)	<p>The Cinderford Area Action Plan is a Development Plan document which sits within the Forest of Dean District Council’s (FoDDC) Local Development Framework and has been developed in line with the FoDDC Core Strategy. It contains a list of policies specific to the Northern Quarter area.</p> <p>Area Action Plans are designed to address areas of significant change, including sites where regeneration opportunities need to be sensitively balanced with conservation concerns. They ensure that development is of an appropriate scale, mix and quality for its location.</p>
Cinderford Linear Park	Cinderford Linear Park is a natural park between the western boundary of Cinderford town and adjacent wooded areas. The park is characterised by a mix of grass lands, woods, ponds and heritage features. The Linear Park is a place for recreation and contains a variety of habitats.
Cinderford Regeneration Board	The Cinderford Regeneration Board was established in November 2005 and is the decision-making body empowered to provide a wider strategic direction on Cinderford regeneration matters. The Board is made up of

Appendix 4 . Glossary

Term used	Definition/explanation
	15 members who come from both the public and private sectors. Regeneration activity determined by the Board is undertaken by the Forest of Dean Council's regeneration team and other partners.
Climate Change Adaptation	Climate Change Adaption involves changing the way in which tasks are undertaken to prepare for the potential impacts of climate change.
Compensate	Measures which are taken to make up for the loss or of, or permanent damage to, biodiversity. Where some harm to biodiversity is reduced through mitigation, compensation will represent the residual harm which cannot or may not be entirely mitigated. Compensation measures may be on or outside the development site.
Coniferous Woodland	A UK Broad Habitat type characterised by vegetation dominated by trees that are more than 5 m high when mature, which form a distinct, although sometimes open canopy which has a cover of greater than 20%. It includes stands of both native and non-native coniferous trees species (with the exception of yew <i>Taxus baccata</i>) where the percentage cover of these trees in the stand exceeds 80% of the total cover of the trees present.
Conservation of Habitats and Species Regulations 2010	The Regulations consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. It aims to promote the maintenance of biodiversity, by requiring EU Member States to take measures to maintain or restore natural habitats and wild species considered to be of European interest.
Construction Environmental Management Plans	Set out the management measures required during construction to safeguard the local environment. Covering emissions and risks to areas such as air, water soil, and biodiversity. CEMP's outline how environmental issues that arise will be handled to ensure compliance with relevant legislation.
Core Strategy	The Core Strategy is the principal document in the Local Development Framework for the Forest of Dean. It sets out an overall vision setting out how the district and places within it should evolve; strategic objectives for the area focusing on key issues; a strategy for the delivery of these objectives, setting out where when and by what means development will be delivered and an explanation of how the delivery process will be monitored.

Appendix 4 . Glossary

Term used	Definition/explanation
Development Biodiversity Implementation Strategy	A biodiversity strategy which is developed in relation to a specific development proposal in the Cinderford Northern Quarter.
Ecological Networks	A collection of features in the landscape that enable and encourage the migration, dispersal and genetic exchange of wild fauna and flora.
Enhancement	To increase in value, importance or attractiveness (Bradshaw 1997). Here the implication is not so much making something bad better, but of making something that is already in a relatively good condition even better.
Environmental Impact Assessment	Defined under the Town and Country Planning (Environmental Impact Assessment (EIA)) regulations 2011, where development will have likely significant environmental effects the proposals can be considered 'EIA' development and therefore required to submit an Environmental statement in accordance with the regulations with a planning application.
European Protected Species	European Protected Species (EPS) are species of plants and animals protected by law under European legislation.
Favourable Conservation Status	<p>Species - where: population dynamics indicate that the species is maintaining itself on long-term basis as a viable component of its habitats; and the natural range of the species is not being reduced, nor is likely to be reduced for the foreseeable future; and there is (and will probably continue to be) a sufficiently large habitat to maintain its populations on a long-term basis.</p> <p>Habitats – where: the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.</p>
Forest Plans (FP)	Forest Plans are the way in which the Forestry Commission plans its medium to long-term management of the public estate. The plans explain both how the forest is to be managed and why and proposals for felling and restocking for the future.
Grassland - Acid	A UK Broad Habitat type characterised by vegetation dominated by grasses and herbs on a range of lime-deficient soils which have been derived from acid rocks such as sandstones, acid igneous rocks and on superficial deposits such as sands and gravels. Although the habitat is typically species-poor, a wide range of communities occur in the UK.

Appendix 4 . Glossary

Term used	Definition/explanation
	In the lowlands, acid grasslands are now rare and, particularly in areas such as East Anglia, they provide an important reservoir of rare species. This habitat type includes a range of types from open communities of very dry sandy soils, which may contain many annual species, through closed pastures on red brown earths, to damp acidic grasslands typically found on gleys and shallow peats. Lowland is defined as below the level of agricultural enclosure. The altitude at which this occurs varies across the UK, typically becoming higher as one travels South.
Grassland - Calcareous	A UK Broad Habitat type characterised by grasslands developed on shallow lime-rich soils generally overlying limestone rocks, including chalk. These grasslands are now largely found on distinct topographic features such as escarpments or dry valley slopes and sometimes on ancient earthworks in landscapes strongly influenced by the underlying limestone geology.
Grasslands -Neutral	A UK Broad Habitat type characterised by vegetation dominated by grasses and herbs on a range of neutral soils usually with a pH of between 4.5 and 6.5. It includes enclosed dry hay meadows and pastures, together with a range of grasslands which are periodically inundated with water or permanently moist.
Habitats of Principal Importance in England	The England Biodiversity List is a list of flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. Fifty-six habitats are included on the S41 list. The publication of the England Biodiversity List satisfies the requirements of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 for the conservation of biodiversity. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 "to have regard" to the conservation of biodiversity in England, when carrying out their normal functions.
Harm	Any impact, direct or indirect, that may have an adverse effect on a biodiversity interest.
Homes and Communities Agency (HCA)	The Homes and Communities Agency is the national housing and regeneration agency for England. The HCA contributes to economic growth by helping communities to realise their aspirations for prosperity and to deliver high-quality housing that people can afford.

Appendix 4 . Glossary

Term used	Definition/explanation
Integrity	In relation to Special Areas of Conservation (SAC) is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified
Interpretation	Interpretation is an educational activity which aims to reveal meanings and relationships through the use of original objects, by first hand experience and by illustrative media, rather than simply to communicate factual information. It is the art of explaining the place of man in his environment, to increase visitor or public awareness of this relationship and to awaken a desire to contribute to environmental conservation.
Key Ecological Components	Features, habitats and species that are considered to be of primary importance for biodiversity in the Cinderford Northern Quarter Area Action Plan Area.
Key Principles	A set of principles developed to guide the development of biodiversity strategies and approaches in the Cinderford Northern Quarter area.
Key Wildlife Sites	These sites have no legal protection, yet they still deserve recognition as important places for wildlife outside of legally protected land such as Sites of Special Scientific Interest (SSSI).
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from one another, rather than better or worse.
Landscape Character Assessment	The Landscape Character Assessment explains what the landscape of each place is like and what makes one place different to another. It assumes that every place is special and distinctive and sets out to show just how and where these special qualities and distinctive features occur.
Lowland Mixed Deciduous Woodland	A Habitat of Principal Importance. Lowland mixed deciduous woodland grows on all kinds of soils, and includes most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland. Many are ancient woods which have been continuously wooded since the 17th century.
Masterplan and Design Code Supplementary Planning Document (MDC)	The Masterplan and design codes are part of a family of documents that support and provided further guidance to the adopted Cinderford Northern Quarter Area Action plan. The Masterplan provides the broad spatial, urban design, movement and land use principles for the area. The Design Code is a set of written and illustrated rules to instruct the physical development of a site. The purpose of the Code is to set down design guidance for the delivery of the Northern Quarter AAP.

Appendix 4 . Glossary

Term used	Definition/explanation
Mitigate	Measures to mitigate are ones taken which reduce negative impacts. Examples of mitigation measures include changes to project design, construction methods or the timing of work, or enhancing or restoring other interests or areas on a site so its overall ecological value is retained.
National Character Areas (NCA)	National Character Areas (NCAs) divide England into 159 distinct natural areas. Each is defined by a unique combination of landscape, biodiversity, geodiversity and cultural and economic activity. Their boundaries follow natural lines in the landscape rather than administrative boundaries, making them a good decision making framework for the natural environment.
National Planning Policy Framework (NPPF)	The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. The National Planning Policy Framework must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions.
National Vegetation Classification (NVC)	The British National Vegetation Classification or NVC is a system of classifying natural habitat types in Great Britain according to the vegetation they contain. A large scientific meeting of ecologists, botanists, and other related professionals in the United Kingdom resulted in the publication of a collection of five books by which detail the incidence of plant species in twelve major habitat types in the British natural environment.
Natural Environment and Rural Communities (NERC) Act (2006)	The Natural Environment and Rural Communities (NERC) Act came into force on 1st Oct 2006. Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'Biodiversity duty'.
Open Mosaic Habitats on Previously Developed Land	A Habitat of Principal Importance, defined as areas of 0.25ha or more containing one or more of the following early successional Communities: annuals; mosses/liverworts; lichens; ruderals; inundation species; open grassland and; flower-rich grassland. To qualify vegetation must contain loose bare substrate or pools. Grassland habitat within the Northern Quarter is relatively rank lacking the small areas of bare substrate that would otherwise allow its wholesale inclusion within this habitat type.

Appendix 4 . Glossary

Term used	Definition/explanation
Ponds	A Habitat of Principal Importance, defined as permanent and seasonal standing water bodies of up to 2 ha in extent which also provide habitat for European or nationally protected species (for example great crested newts and bats) within the Northern Quarter.
Ramsar Site	Ramsar sites are wetlands of international importance, designated under the Ramsar Convention. The Ramsar Convention is an international agreement signed in Ramsar, Iran, in 1971, which provides for the conservation and good use of wetlands. The UK Government ratified the Convention and designated the first Ramsar sites in 1976.
Regionally Important Geological and Geomorphological Sites (RIGS)	Regionally Important Geological and Geomorphological Sites (RIGS) are locally designated sites of local, national and regional importance for geodiversity in the United Kingdom. RIGS may be designated for their value to Earth Science and to Earth heritage, and may include cultural, educational, historical and aesthetic resources. They are conserved and protected from development as a material consideration through the planning system by the Town and Country Planning Act 1990.
Restoration	Restoration is applied to cover techniques that aim to raise the conservation status of a habitat or species from a relatively poor level to a more favourable state.
RSPB Amber Listed Species	Criteria used in assessments to split the UK's bird's into three categories of conservation importance – red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green.
Legal Agreements (Section 106's)	Section 106 of the Town and Country Planning Act 1990 (as amended), commonly known as s106 agreements, are a mechanism which make a development proposal acceptable in planning terms, that would not otherwise be acceptable. They are focused on site specific mitigation of the impact of development. S106 agreements are often referred to as 'developer contributions' along with highway contributions and the Community Infrastructure Levy.
Rivers and Streams	A UK Broad Habitat type covering rivers and streams from bank top to bank top, or where there are no distinctive banks or banks are never overtopped, it includes the extent of the mean annual flood. This includes the open channel (which may contain submerged, free-floating or floating-leaved vegetation) water fringe vegetation and exposed sediments and shingle banks. Adjacent semi-natural wetland habitats

Appendix 4 . Glossary

Term used	Definition/explanation
	such as unimproved floodplain grasslands, marshy grassland, wet heath, fens, bogs, flushes, swamps and wet woodland, although intimately linked with the river, are covered in other broad habitat types.
Sites of Special Scientific Interest (SSSIs)	Area identified by Countryside Council for Wales and English Nature under the National Parks and Access to the Countryside Act 1949 for protection by reason of the rarity of its nature conservation, wildlife features or geological interest.
Special Areas of Conservation (SAC)	Special Areas of Conservation (SACs) are strictly protected sites designated under the Conservation of Habitats and Species Regulations 2010.
Special Protection Areas (SPA)	Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Birds Directive which came into force in April 1979.
Species of Principal Importance in England	The England Biodiversity List is a list of flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. 941 species of principal importance are included on the S41 list. The publication of the England Biodiversity List satisfies the requirements of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 for the conservation of biodiversity. The S41 list will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 "to have regard" to the conservation of biodiversity in England, when carrying out their normal functions.
Standing Advice	Natural England has adopted national standing advice for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species.
Strategic Nature Area	The Strategic Nature Areas (SNAs) of the Gloucestershire Nature Map identify landscape-scale areas where there is opportunity for both the maintenance and, crucially, the restoration/expansion of Priority Habitat. As such, they collectively represent an extremely useful aid to targeting nature conservation action.
Supplementary Planning Document (SPD)	Supplementary planning documents provide guidance on local planning matters. Planning authorities may prepare Supplementary Planning Documents (SPDs) to provide greater details on the policies of its development plan documents. There is no requirement for them to be listed in a local planning authority's local development scheme, so they

Appendix 4 . Glossary

Term used	Definition/explanation
	can be brought forward as circumstances change. Whilst they are not examined by an Inspector, a supplementary planning document is still subject to a process of consultation and engagement with relevant parties.
Sustainable Drainage Systems (SuDS)	SUDS are a sequence of water management practices and features designed to drain surface water in a manner that will provide a more sustainable approach than what has been the conventional practice of routing run-off through a pipe to a watercourse
UK Broader Biodiversity Action Plan	The UK Biodiversity Action Plan (UK BAP) was published back in 1994, and was the UK Government's response to the Convention on Biological Diversity (CBD), which the UK signed up to in 1992 in Rio de Janeiro. The UK was the first country to produce a national biodiversity action plan, and the UK BAP described the biological resources of the UK and provided detailed plans for conservation of these resources. Action plans for the most threatened species and habitats were set out to aid recovery, and national reports, produced every three- to five-years, showed how the UK BAP was contributing to the UK's progress towards the significant reduction of biodiversity loss called for by the CBD.
UK Forestry Standards (UKFS)	The UK Forestry Standard (UKFS) is a standard for sustainable forest management in the UK. The UKFS, supported by its series of guidelines, outlines the context for forestry in the UK, sets out the approach of the UK governments to sustainable forest management, defines standards and requirements, and provides a basis for regulation and monitoring.
Wet Woodlands	A Habitat of Principal Importance. Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash, oak, pine and beech on the drier riparian areas. It is found on floodplains, as successional habitat on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows.

