

Keynote - Biodiversity and Nature Conservation Cinderford
Northern Quarter

Preface

This keynote update is prepared in advance of the Examination of Local Development Documents, Forest of Dean District Core Strategy and Cinderford Northern Quarter Area Action Plan.

This update is prepared with reference to Keynote – Biodiversity and Nature Conservation Cinderford Northern Quarter July 2011 (Core Document 5).

Non-Technical Summary

Additional bat surveys, including radio tracking, have been undertaken during the summer (2011). This identifies that the primary foraging areas are not within the AAP area. There are four important bat flight corridors from the three roosts located in and around the Northern United site.

The Habitat Regulations Screening Assessment (March 2011) identified six potential impacts on European designated nature conservation sites. Further analysis has identified that there are only potential significant effects in relation to the Wye Valley and Forest of Dean Bat SAC's.

An Appropriate Assessment in accordance with the Habitats Directive, in relation to the Wye Valley and Forest of Dean Bat SAC's, has been undertaken. The Appropriate Assessments recommends five changes to the AAP to ensure that there are no significant negative effects on the bat populations.

Great Crested Newts have not been recorded within the areas identified for development in the AAP; they are found nearby. An area for habitat enhancement for Great Crested Newts has been identified and a change to the AAP has been made to ensure the enhancement is linked to the AAP.

Working with the Forestry Commission a Butterfly Distribution Corridor has been proposed as an enhancement for butterfly habitat. The corridor will be phased in its delivery and is linked to both the AAP and Forestry Design Plans.

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1 Introduction

1.1 In July 2011 the Council published its Keynote – Biodiversity and Nature Conservation – Northern Quarter (Core Document (CD) 5) as part of the submission documents in relation to the examination of the Forest of Dean District Core Strategy.

1.2 In CD 5 the Council identified the following:

1. That the Council had commissioned additional bat surveys that would be reporting at the end of September 2011 (2.0.3). In light of the additional surveys the Council would review the submitted Habitat Regulations Screening Assessment (HRSA) (March 2011) and if appropriate undertake an Appropriate Assessment (2.0.4).
2. The Council would also prepare a number of design specifications to enhance bat corridors through the AAP area in response to updated information (2.1.1)
3. The Council would prepare a number of design specifications for Great Crested Newt (GCN) habitats for use across the AAP (3.1.1.1)
4. The Council would prepare a strategy framework to enhance habitats for Butterflies within a distribution corridor (3.2.3.1)

1.3 This keynote update sets out how the Council has addressed all the above issues.

2 Bat Surveys

2.1 Extensive additional bat surveys of bats utilising three roost sites, including the use of radio tracking, have been undertaken between June and September 2011. Due to the complexity of this additional survey work and weather conditions the full report will not be published by the Council until early October. A summary of the findings is provided in Appendix B of this report.

2.2 This summary identifies:

- Areas proposed for development in the AAP are not the main foraging areas for Lesser Horseshoe Bats (LHB) found roosting in buildings at Northern United or the purpose built (PB) roost to the south of the A4136. Main foraging activity takes place in established woodland away from the roost sites.
- Of the eight important areas identified there are four primary exit corridors from the PB roost. North across the A4136; South following a line between the lake and the brick works; West crossing the current entrance to the Northern United area and South West covering an area to the south of Northern United.
- There is significant East – West corridor activity across the forestry road to the east of the Northern United area.
- There is noticeable activity in the deciduous woodland (predominantly Oak) to the north of Bungalow and garages at Hawkwell Green.
- LHB's do not appear to be loyal to just one of the three roost sites, the PB and two at Northern United. Fluctuating numbers suggests they roost during the day in any of the three sites.
- The two Northern United roosts are only used during the summer months. The PB is mainly used during the summer months but is known to also support wintering roosting (hibernation).

3 Habitat Regulations Screening Assessment (HRSA)

3.1 The HRSA (CD121) has been undertaken at the appropriate level for the Planning Policy Document (AAP). As AAP Policy 26 identifies, this does not remove the requirement for future HRSA / Appropriate Assessment for plans or projects at lower stages, i.e. planning applications. HRSA / Appropriate Assessment may / will need to be undertaken at the relevant detailed level relevant to that plan or project depending on factors such as scale, location and activity.

3.2 The HRSA (CD121) identified six potential impacts (6.2):

- **Potential disturbance directly from construction and operation activities**, indirectly through interruption of flight lines and fragmentation of the population, and through increased visitor pressure to Wye Valley and Forest of Dean Bat Sites and the Wye Valley Woodlands via effects to the Northern United roosts, which may be necessary to the integrity of the SACs and including consideration of in-combination effects;
- **Potential effects from habitat loss** to Wye Valley and Forest of Dean Bat Sites and the Wye Valley Woodland, from loss of woodland edge habitats for the Northern United bat roosts, which may be necessary to the integrity of the SACs and including consideration of in-combination effects;
- **Potential nutrient enrichment and air pollution** effects on all identified European sites from the proposed energy centre (assuming it is bio-fuelled), and from traffic and including consideration of in-combination effects;
- **Potential smothering effects from dust and debris** during construction to the Wye Valley and Forest of Dean Bat Sites and the Wye Valley Woodlands via effects to the Northern United roosts, which may be necessary to the integrity of the SACs and including consideration of in-combination effects;
- **Potential toxic contamination and pollution via water** links to the Wye Valley and Forest of Dean Bat Sites and the Wye Valley Woodlands via effects to the Northern United roosts, which may be necessary to the integrity of the SACs and the Severn Estuary and including consideration of in-combination effects; and
- **Potential siltation of watercourses** via water links to the Severn Estuary and including consideration of in-combination effects.

4 HRSA Update

Turning to each potential impact in turn.

4.1 Potential Disturbance directly from Construction and Operation Activities

4.1.1 The Council has undertaken an Appropriate Assessment in accordance with the Habitats directive, in consultation with Natural England, to address this issue (Appendix A).

4.1.2 The Appropriate Assessment identifies the need for five policy changes in the AAP:

4.1.3 Text Change: Addition

Policy 7 after 5.31. “5.32 In areas of importance for protected species and habitats, the design code will need to take account of the particular requirements of the relevant species and be in accordance with Policy 10.”

4.1.4 Policy Change: Amendment

Policy 15 after Spine Road second bullet point. “The design of the street section must demonstrate to a high standard how the four primary bat corridor routes, from the roost sites, will be maintained and protected during and after the construction of the spine road. Key factors will include:

- i. Proposals to retain and protection of existing tree and vegetation structure wherever possible.
- ii. Minimal lighting levels, for example by using shrouded, bollard lighting and motion activated lighting”.
- iii. Minimum surface path and road widths, appropriate to the function of the road, within primary bat corridor areas
- iv. Comprehensive landscaping proposals to establish early tree structure for bats
- v. Where appropriate create new structures such as culverts and gantries to maintain primary bat corridors.
- vi. Establish a programme of monitoring for no less than three summers following construction in each of the primary bat corridor areas.

4.1.5 Policy Change: Addition

Policy 15 after 'Junction onto A4136'. "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 A4136 from the roost sites, will be maintained and protected as dark crossing points during and after the construction of the junction".

4.1.6 Policy Change: Addition

Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former Office building. If it is demonstrated that this cannot be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.

4.1.7 Policy Change: Amendment

Figure 11. Change to show spine road located away from forestry road to the east of Northern United and the deciduous woodland to the north of Hawkwell Green.

4.2 Potential Effects from Habitat Loss

4.2.1 The additional survey data has confirmed there will be no significant loss of habitat which will affect the integrity for the Forest of Dean Bat SAC's. LHB's undertake foraging activity away from the proposed development areas. Connectivity between summer roost sites and foraging areas are addressed in the Appropriate Assessment (above).

4.2.2 No change to the HRSA or AAP

4.3 Potential Nutrient Enrichment and Air Pollution

4.3.1 The AAP no longer proposes a specific energy centre. Therefore the potential likely significant effect identified has been eliminated.

4.4 Potential Smothering Effects from Dust and Debris

4.4.1 Existing environmental legislation controls these types of emissions. AAP policies provide additional, higher standards leading to the conclusion that there are unlikely to be significant effects.

4.4.2 No change to the HRSA or AAP.

4.5 Potential Toxic Contamination and Pollution via Water

4.5.1 Existing environmental legislation controls these types of emissions. AAP policies provide additional, higher standards leading to the conclusion that there are unlikely to be significant effects.

4.5.2 No change to the HRSA or AAP.

4.6 Pollution Siltation of Watercourses

4.6.1 Existing environmental legislation controls these types of emissions. AAP policies provide additional, higher standards leading to the conclusion that there are unlikely to be significant effects.

4.6.2 No change to the HRSA or AAP.

4.7 Changes to the AAP

4.7.1 In addition to the six identified potential effects in the HRSA, proposed changes to the AAP have been reviewed to identify if any of the changes could give rise to new areas for potential significant effects.

4.7.2 The proposed changes have been only minor in effect and any potential effects are covered by those identified in the six areas above.

4.7.3 No change to the HRSA or AAP

5 Design Specifications to enhance Bat Corridors through the AAP Area

5.1 Designs have been prepared (Appendix A) and key elements have been reflected in the policy changes outlined as a result of the Appropriate Assessment.

6 Design Specifications for Great Crested Newts

6.1 Areas identified as 'Wetland Corridors and Habitat Enhancement' in Figure 15 (CD20) and the 'Phase One Habitat Corridor Area', will be designed to incorporate aquatic and terrestrial habitats for GCN's.

6.2 In the 'Phase One Habitat Corridor Area' (Appendix C) works will involve the felling and thinning of the pine woodland, mimicking that of the known good GCN habitat to the south of the area. Overall this will lead to an enhancement of GCN habitat.

6.3 Within the 'Phase One Habitat Corridor Area' two new ponds will be created and designed to be suitable for GCN breeding habitat. Each pond will be:

- Between 150 and 250sqm
- Profiled to provide varying depths p to 1.5m.
- Constructed with Shallow slopes
- Generally unplanted to allow for natural colonisation
- No more than 30% shaded by trees or shrubs

6.4 Refugia should be created by using excavated soil to cover log piles located close by; but in areas not prone to flooding.

6.5 Further advice on GCN habitat creation is provided by Froglife (www.froglife.org) and the Joint Nature Conservation Committee.

6.6 In order to maximise the opportunities for habitat enhancement to favour GCN the Council has proposed adding to Policy 20.

6.7 Additional bullet point:

“Biodiversity enhancements; as set out in the Biodiversity Keynote (September 2011(CD5)), on land to the south of the campus car park are brought forward in an integrated way and in parallel with the campus development.”

6.8 In considering the biodiversity enhancement measures set out above the Council evaluated the guidance on GCN habitat creation and concluded that extensive guidance exists (cited above). Therefore the Council has not set design specifications as referred to in the Biodiversity Keynote (July 2011(CD5a)). The Council considers that it is better to identify the objective and purpose of the enhancement in the AAP

6 Design Specifications for Great Crested Newts

and allow flexibility in the design. This will enable the enhancement to maximise opportunities without being constrained by detailed design which may not reflect ground conditions at the time of implementation.

7 Strategy Framework to enhance Habitats for Butterflies

7.1 In partnership with the Forestry Commission the Council has developed a phased plan to enhance a butterfly distribution corridor in connection with the development of the AAP area. See Appendix C for a plan of the area.

7.2 Works will involve the felling of coniferous woodland areas promoting woodland ride and glade habitats of benefit to a number of species, including butterflies.

7.3 In CD 5 (3.2.2.1) the Council has demonstrated that butterfly species in the AAP area will not be adversely affected. Furthermore AAP Policy 10 ensures the maintenance and enhancement of suitable habitat for these species.

7.4 The distribution corridor is therefore considered a biodiversity enhancement; as it provides an additional 5ha of improved habitat for butterflies, amongst other species.

7.5 The delivery of the Phase One area has been linked to the delivery of the college campus, see previous section.

7.6 The Council proposes to link the Phase Two area to the development at Northern United by changing Policy 6 to:

Policy Change: Amendment:

Policy 6 last sentence of Northern United Enterprise section:


“It is important that the development is sensitive to the forest context, mining heritage, miners’ memorial, and the need to maintain public access to and through the site. Proposals for development will be expected to demonstrate how area B1 of the butterfly distribution corridor (Biodiversity Keynote September 2011) will be brought forward.”

7.7 The remainder of Phase 2 and Phase 3 will be delivered as a result of changes to the Forestry Commission design plans.

Appendices

Appendices

Appendix A: Appropriate Assessment

<p align="center">APPROPRIATE ASSESSMENT UNDER REGULATION 61 OF THE CONSERVATION OF HABITATS & SPECIES REGULATIONS 2010 AND ARTICLE 6 OF THE HABITATS DIRECTIVE (Council Directive 92/43/EEC)</p>	 <p align="center">Forest of Dean — DISTRICT COUNCIL —</p>
<p>Title of Plan: Cinderford Area Action Plan (AAP).</p> <p>Application Reference / Stage: Pre examination</p>	
<p>Description of Plan: Proposals for mixed used development allocating land for 175 dwellings, 3.5ha of mixed use development, 6ha of employment development and a new access spine road.</p>	
<p>Plan area: Land to the North of Cinderford between Steam Mills and Northern United..</p>	
<p>International Nature Conservation Site: Wye Valley & Forest of Dean Bat SAC.</p>	
<p>Is the proposal directly connected with or necessary to the management of the site? NO</p>	
<p>Natural England consultations:</p> <p>Natural England have been consulted throughout the development of the AAP.</p> <p>The latest NE position is dated 15th June 2011 and can be found in the Keynote on Biodiversity and Nature Conservation July 2011.</p>	
<p>Information Sources used:</p> <p>HRSA Cinderford Northern Quarter (March 2011)</p> <p>Interim bat survey update 6th September 2011</p> <p>Cinderford Ecological Appraisal Report (May 2009)</p>	
<p>Publication:</p> <p>The AAP has been advertised in local press on a number of occasions most recently on 27th April 2011 when the AAP was submitted for Examination.</p>	

Consideration of Alternatives:

The strategic vision for regeneration in Cinderford is set out in the Core Strategy. Established forest and the topography of the area restrict development led regeneration areas to those of the AAP.

Route options for accesses roads, have through a masterplan process (See section three Masterplan & Design Code), have considered the potential impacts on bats within the objectives for the AAP and other constraints. Of the 4 route options considered (3.4 of the Masterplan). The selected option removes residential development close to the bats roosts and avoids road structures on all sides of the woodland containing the purpose built roost.

Further changes to the road alignment are recommended below providing an additional alternative option to reduce likely significant effects.

Identification of Potential In Combination Effects:

The Core Strategy HRSA did not identify any likely in combination significant effects of the overall strategic proposals in the Core Strategy.

The Cinderford AAP HRSA has not identified any projects that are likely to have an effect on the bat populations. The AAP HRSA identifies only localised in combination effects which are addressed through this Appropriate Assessment

Assessment:

The site's conservation objectives have been taken into account, including consideration of the citation for the site and information supplied by Natural England. The likely effects of the proposal on the international nature conservation interests for which the site was designated are summarised in **Table 1** The assessment has concluded that:

The plan **as proposed** could adversely affect the integrity of the Wye Valley & Forest of Dean Bat SAC.

The following policy changes outline below (taken from table 1 overleaf) would **avoid adverse effects** on the integrity of the site:

Text Change: Addition

Policy 7 after 5.31. "5.32 In areas of importance for protected species and habitats, the design code will need to take account of the particular requirements of the relevant species and be in accordance with Policy 10."

Policy Change: Amendment

Policy 15 after 'Spine Road' second bullet point. "The design of the street section must demonstrate to a high standard how the four primary bat corridor routes, from the roost sites, will be maintained and protected during and after the construction of the spine road. Key factors will include

- i. Proposals to retain and protection of existing tree and vegetation structure wherever possible.
- ii. Minimal lighting levels, for example by using shrouded, bollard lighting and motion activated lighting".
- iii. Minimum surface path and road widths, appropriate to the function of the road, within primary bat corridor areas
- iv. Comprehensive landscaping proposals to establish early tree structure for bats
- v. Where appropriate create new structures such as culverts and gantries to maintain primary bat corridors.
- vi. Establish a programme of monitoring for no less than three summers following construction in each of the primary bat corridor areas.

Policy Change: Addition

Policy 15 after 'Junction onto A4136'. "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 A4136 from the roost sites, will be maintained and protected as dark crossing points during and after the construction of the junction".

Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former office building. If it is demonstrated that this cannot be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.

Policy Change: Amendment

Figure 11. Change to show spine road located away from forestry road to the east of Northern United and the deciduous woodland to the north of Hawkwell Green.

Consultation Response from Natural England is awaited.

A Site's Conservation Objectives	B International Nature Conservation Interests (Receptor)	C Impact Pathway to Receptor	D Impact of Proposals on A & B (list effects)	E Mitigation for C
<p>Wye Valley & Forest of Dean Bat Sites</p> <p>To maintain in favourable condition, the:</p> <p>Lesser horseshoe bat (<i>Rhinolophus hipposideros</i>) and</p> <p>Greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>)</p> <p>This complex of sites on the border between England and Wales contains by far the greatest concentration of lesser horseshoe bat <i>Rhinolophus hipposideros</i> in the UK, totalling about 26% of the national population. It has been selected on the grounds of the exceptional breeding population, and the majority of sites within the complex are</p>	<p>On and adjacent to the plan area are three summer roosts for the species. None of the roost sites are formally designated as part of the SAC.</p>	<p>Direct impact through loss of roost sites</p>	<p>One roost site (Former Bath House) will be lost.</p>	<p>In 2004 a purpose built (PB) roost was constructed by the Regional Development Agency within 300m of the known roost sites at Northern United.</p> <p>The PB roost now supports a significant population of LHB's. Evidence indicates that individual bats are not specifically loyal to any one of the three roosts and move between them. Therefore the loss of one roost is unlikely to negatively affect the availability of favourable roost in the area.</p> <p>The establishment of a replacement PB roost in advance of development is demonstrated to have been successful. NE consider that the PB roost cannot be regarded as mitigation for this version of the plan. If a replacement roost were constructed for this scheme, it would not be positioned where the PB roost is.</p> <p>The roost in the former mine office building will be retained with a section enhanced as roost for bats.</p> <p>Due to the poor condition and health risks of the materials of the Bath house re-use / future maintenance is not possible and therefore the building is to be demolished. The PB roost is a direct replacement for loss of this roost. NE consider an additional roost to replace the Bath House roost will be required, for the reasons set out above. The PB roost is not regarded as suitable mitigation for loss of the Bath House.</p>

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<p>maternity roosts. The bats are believed to hibernate in the many disused mines in the area.</p> <p>Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>. This complex of sites on the border between England and Wales represents greater horseshoe bat <i>Rhinolophus ferrumequinum</i> in the northern part of its range, with about 6% of the UK population. The site contains the main maternity roost for bats in this area, which are believed to hibernate in the many disused mines in the Forest.</p>		<p>-----</p> <p>Interruption of flight corridors between roosts and foraging areas.</p>	<p>-----</p> <p>Construction of buildings and infrastructure (Roads)</p>	<p>Policy Change: Addition Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former office building. It is demonstrated that this cannot be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.</p> <p>-----</p> <p>Survey information has shown:</p> <ul style="list-style-type: none"> a. There are four primary corridors used by bats from the three roost sites; North across the A4136, South following a line between the lake and the brick works, West crossing the current entrance to the Northern United area and South West covering an area to the south of Northern United. b. There is also significant East – West corridor activity across the forestry road to the east of the Northern United area, and c. There is noticeable activity in the deciduous woodland (predominantly

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				<p>Oak) to the north of Bungalow and garages at Hawkwell Green.</p> <p>Outline bat crossing proposals (attached) have demonstrated that landscape and engineering solutions will be needed to maintain the three primary road crossing points (a) affected by the development.</p> <p>Policy Change: Addition Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former office building. If it is demonstrated that this cannot be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.</p> <p>Policy Change: Amendment Policy 15 after 'Spine Road' second bullet point. "The design of the street section must demonstrate to a high standard how the four primary bat corridor routes, from the roost sites, will be maintained and protected during and after the construction of the spine road. Key factors will include</p> <p>i. Proposals to retain and protection of existing tree and vegetation structure</p>

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				<p>wherever possible.</p> <ul style="list-style-type: none"> ii. Minimal lighting levels, for example by using shrouded, bollard lighting and motion activated lighting". iii. Minimum surface path and road widths, appropriate to the function of the road, within primary bat corridor areas iv. Comprehensive landscaping proposals to establish early tree structure for bats v. Where appropriate create new structures such as culverts and gantries to maintain primary bat corridors. vi. Establish a programme of monitoring for no less than three summers following construction in each of the primary bat corridor areas. <p>Policy Change: Addition Policy 15 after 'Junction onto A4136: "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 A4136 from the roost sites, will be maintained and protected as dark crossing points during and after the construction of the junction".</p> <p>Text Change: Addition Policy 7 after 5.31. "5.32 In areas of importance for protected species and habitats, the design code will need to take account of the particular requirements of the relevant</p>

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		<p>Direct loss of woodland habitat and foraging areas</p>	<p>Construction of buildings and infrastructure (Roads)</p>	<p>species and be in accordance with Policy 10."</p> <p>Minor amendments to the spine road alignment would reduce the likely impact on bats (b & c above).</p> <p>Policy Change: Amendment Figure 11. Change to show spine road located away from forestry road to the east of Northern United and the deciduous woodland to the north of Hawkwell Green.</p> <p>-----</p> <p>Survey information (radio tracking) has shown that primary foraging areas are located in established woodland away from the roosts and the plan area.</p> <p>There will be a small loss of habitat where the proposed spine road crosses important corridors. This impact can be reduced by minor amendments to the spine road alignment and safeguarding of important corridors through appropriate road design.</p> <p>Policy Change: Amendment Figure 11. Change to show spine road located away from forestry road to the east of Northern United and the deciduous woodland to the north of Hawkwell Green.</p> <p>Policy Change: Addition Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former office building, if it is demonstrated that this cannot</p>

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				<p>be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.</p> <p>Policy Change: Amendment Policy 15 after 'Spine Road' second bullet point. "The design of the street section must demonstrate to a high standard how the four primary bat corridor routes, from the roost sites, will be maintained and protected during and after the construction of the spine road. Key factors will include</p> <ul style="list-style-type: none"> i. Proposals to retain and protection of existing tree and vegetation structure wherever possible. ii. Minimal lighting levels, for example by using shrouded, bollard lighting and motion activated lighting". iii. Minimum surface path and road widths, appropriate to the function of the road, within primary bat corridor areas

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				<p>iv. Comprehensive landscaping proposals to establish early tree structure for bats</p> <p>v. Where appropriate create new structures such as culverts and gantries to maintain primary bat corridors.</p> <p>vi. Establish a programme of monitoring for no less than three summers following construction in each of the primary bat corridor areas. Establish a programme of monitoring for no less than three summers following construction in each of the primary bat corridor areas.</p> <p>Policy Change: Addition Policy 15 after 'Junction onto A4136'. "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 A4136 from the roost sites, will be maintained and protected as dark crossing points during and after the construction of the junction".</p> <p>Text Change: Addition Policy 7 after 5.31. "5.32 In areas of importance for protected species and habitats,</p>

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		<p>Disturbance from increased human activity in the area.</p>	<p>Disturbance to roost sites as a result of increased human activity in the area.</p>	<p>the design code will need to take account of the particular requirements of the relevant species and be in accordance with Policy 10."</p> <hr/> <p>There will be increased human activity around the former office building roost. Provided the bats are not disturbed, roosts comfortably site within buildings with residential and employment uses. Important corridors to and from this roost will need to be safeguarded and lighting in the area will need to be sensitive to the needs of bats.</p> <p>Policy Change: Addition Policy 21 "Proposals for development at the Northern United site will be required to retain and enhance the bat roost in the former office building. If it is demonstrated that this cannot be achieved a replacement roost must be provided prior to its closure. In addition, prior to the closure of the Bath House roost a new summer and winter roost in a suitable location, to a standard which clearly demonstrates an enhancement for the bat roost it replaces, must be available for use by bats. Proposals must also demonstrate how the bat corridor crossing the current access from the A4136 will be maintained, protected and kept dark.</p> <p>Policy Change: Amendment Figure 11. Change to show spine road located away from forestry road to the east of Northern United and the deciduous woodland to the north of Hawkwell Green.</p>

Appendices

A Site's Conservation Objectives	B International Nature Conservation Interests (Receptor)	C Impact Pathway to Receptor	D Impact of Proposals on A & B (list effects)	E Mitigation for C
				<p>Significant increases in disturbance around the PB roost are not considered likely. Development proposal allocate land for roost. The connectivity and location of the lake will lead recreational activity away from the roost sites to the South and Southwest. The majority of recreational activity will take place during the day when the bats are in the roosts and not the foraging areas which are not lit.</p> <p>-----</p> <p>The focus for informal local recreational activity will be around the steam mills lake. Due to the scale of adjacent woodland, increases in recreational activity will disperse naturally and rapidly to a low background level.</p>
			<p>-----</p> <p>Disturbance to foraging areas as a result of increased human activity in the area.</p>	

Appendix A: Appropriate Assessment Bat Crossing Types

Please see separate document entitled 'Keynote - Biodiversity and Nature Conservation Cinderford Northern Quarter Appendix A Figures A3'

Appendix B: Key Findings of Summer 2011 Bat Surveys

CINDERFORD NORTHERN QUARTER - BAT SURVEY WORK UPDATE SUMMARY

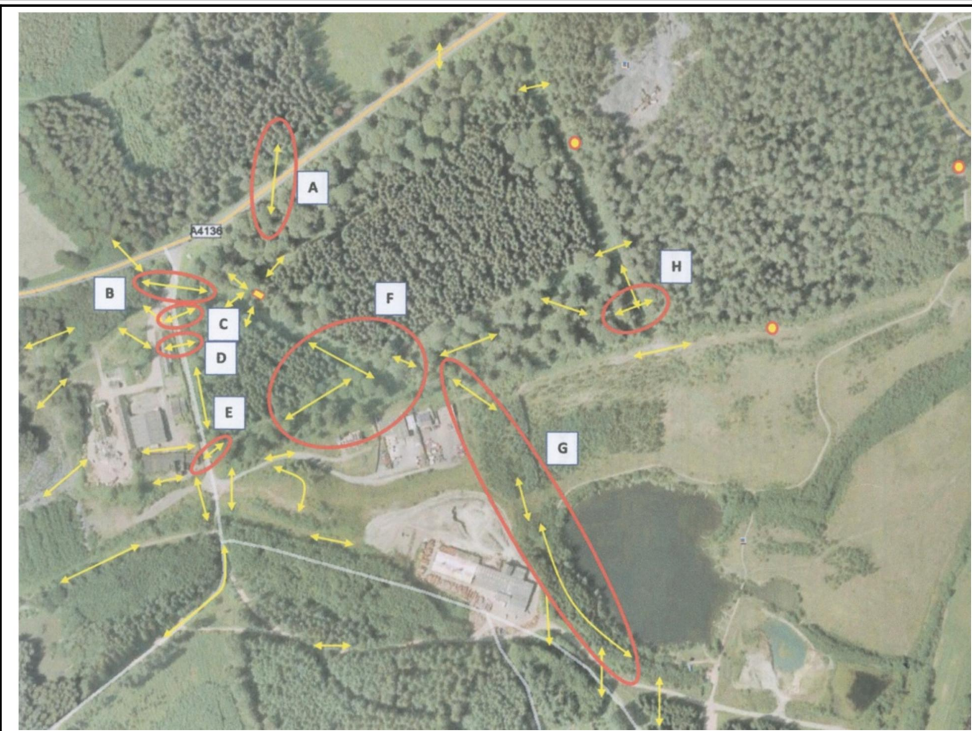
Table 1.1 Bat survey scope (agreed with Natural England) and summary of completed/ outstanding elements to date (06/09/2011)

Survey Method	Survey Approach	Duration	Survey Status	Outstanding elements
Objective 1 surveys				
Radio Tracking	<p><u>Original Scope</u> 12 individuals: 9 adults (3 pregnant, 3 lactating and 3 post lactating) and 3 juveniles.</p> <p><u>Agreed Scope</u> Following delays, amended scope agreed with Natural England - 12 individuals comprising 4x lactating females, 4x post-lactating females and 4x juveniles</p>	<p>May to October</p> <p><u>Revised timeframe</u> - June to September</p>	<p>Ongoing</p> <p>19 – 29/07/2011 4x lactating females caught and tracked.</p> <p>16 – 28/08/2011 4x post-lactating females caught and tracked (1.5 nights lost to bad weather).</p> <p>Surveys commenced in June, therefore pregnant females not available for tracking. No juvenile tracking completed to date as juveniles currently under weight approx. 4.5g (required minimum weight 6g).</p>	<p>To complete the radio tracking data set, 4x juveniles will be caught next week (W/C 12/09/2011) with a view of undertaking radio tracking (if juveniles are of correct weight).</p>
Objective 1 and 2 surveys				
Roost Assessment of Northern United structures	Ongoing inspections and species counts	April to September	<p>Ongoing</p> <p>Internal building survey and roost counts completed each month November 2010 to August 2011.</p>	Roost counts in September to be completed
Evening Surveys: focused on lesser horseshoes (all data will be collated)	1 visit a month with 6 surveyors	<p>May to September</p> <p><u>Revised timeframe</u> - June to September + 2 additional as requested by NE</p>	<p>Ongoing</p> <p>Surveys commenced in June 2011.</p> <p>Walked transects/ bat activity surveys completed on: 29/06/2011 14/07/2011 09/08/2011 11/08/2011 01/09/2011</p>	To complete data set, 1x walked transect/ bat activity survey to be completed W/C 06/09/2011 (weather dependant)
Automated Surveys	6 Anabat recorders to be placed out prior to 10 evening surveys	<p>May to September</p> <p><u>Revised timeframe</u> - June to September</p>	<p>Ongoing</p> <p>Surveys commenced in June 2011.</p> <p>To date, 6 Anabats deployed over 7 nights (3 nights in June, 2 nights in July and 2 nights in August) at a total of 23 different locations around the site.</p> <p>> 1500 calls analysed so far.</p>	To complete data set 6 Anabats will be deployed over 3 nights in September.

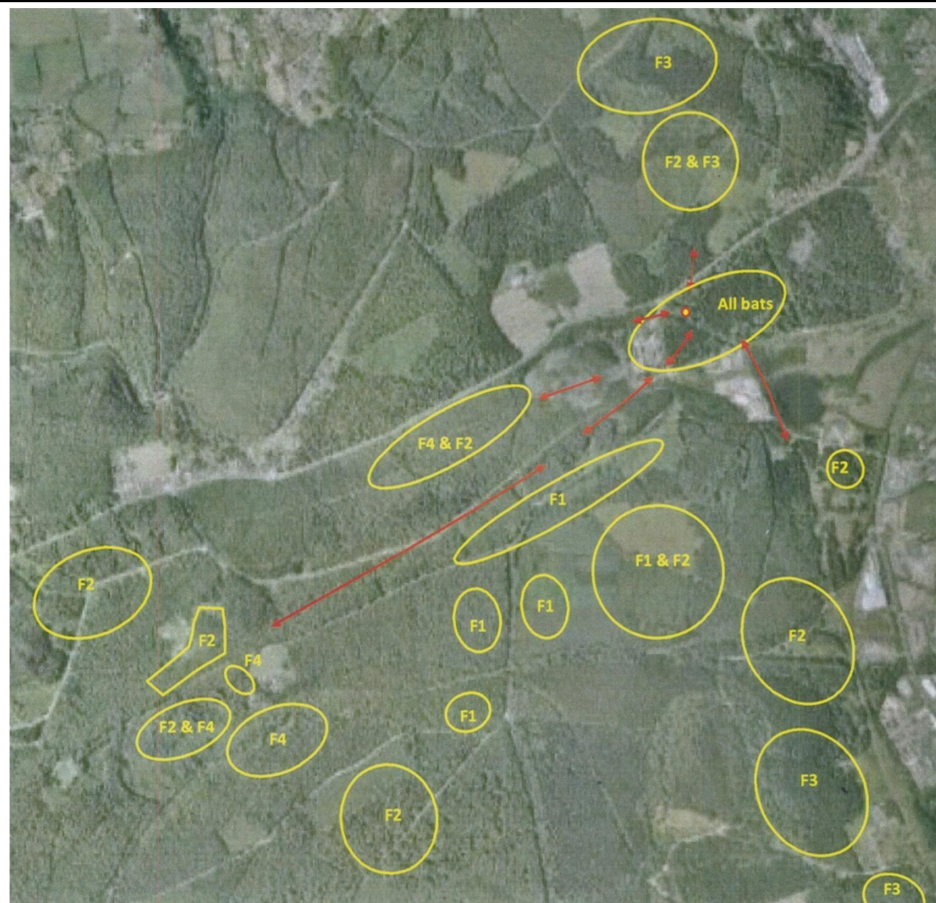
Survey Method	Survey Approach	Duration	Survey Status	Outstanding elements
Roost Emergence Surveys Northern United	Original scope 3 evening emergence and 1 dawn re-entry survey by 5 surveyors.	May to September	Completed Surveys commenced in June 2011. Evening emergence survey undertaken: 27/06/2011 12/08/2011 26/08/2011 (rain) 27/08/2011 (art. roost and office) 28/08/2011 (other accessible areas of site) Dawn swarming survey undertaken: 13/08/2011	N/A
Objective 2 Surveys				
Evening Surveys: All species of Bats, site wide (all data will be collated, including lesser horseshoe bats as identified)	1 visit a month with 4 surveyors, site wide transects	May to September	Completed Surveys commenced in June 2011. Walked transects/ bat activity surveys completed on: 25/06/2011 11/07/2011 10/08/2011 02/09/2011	N/A
Other building inspections and daytime tree assessment for bat roosts	Tree inspections completed in April 2011	N/A	Completed	

Survey Data Headlines

- 9+ bat species (Lesser Horseshoe (LHS), Great Horseshoe, Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared, *Myotis* sp., Barbastelle, Noctule and Serotine) recorded to date utilising the site during activity surveys.
- 313+ LHS encounters recorded during walked transects to date.
- 336 + LHS peak roost count in 2011 (Northern United (126 LHS) and Artificial Roost (210 LHS) – Aug 2011). Artificial roost utilised all year round, including winter months (peak count; 36 LHS in Dec 2009; 18 LHS Dec 2010). Northern United buildings utilised from March to November, peak usage recorded in summer months (solitary LHS recorded Dec '09).
- 8 Lesser Horseshoe (4 lactating + 4 post lactating females) successfully radio tracked and data collected during July and August 2011.
- 8 main travel routes/ flyways identified during survey work to date.
- Lesser Horseshoe bats roosting within Northern United and the artificial roost recorded to predominantly forage in established off-site woodland to the east, north and south of the site.



Recorded Bat flight ways (key ones circled in red)



Foraging areas of radio tracked bats

Appendix C: Butterfly Distribution Corridor Enhancement

