

APPENDICES -

APPENDIX I - ECOLOGICAL IMPACT ASSESSMENT

Ecological Impact Assessment

Methodology

The aim of the study is to identify features of ecological importance present in the Ulverston Canal Head and Canal Corridor. The study has been limited to a desk study, together with a walk-over survey.

A desk study of the site was carried out involving the collation of data on all statutory and non-statutory ecological and nature conservation designations within and adjacent to the site and an investigation and evaluation of biological records and ecological information held by the Cumbria Wildlife Trust, English Nature, R.S.P.B., Environment Agency, GlaxoSmithKline Biodiversity Team, Tullie House Museum Biological Records Centre, Westmorland and Furness Bat Group and the South Lakes Badger Group.

Much of the information contained in this report is based on the records of the GlaxoSmithKline Biodiversity Team and data contained in the 1999 Glaxo Wellcome Biodiversity Management Plan and its 2002 review.

A walk-over habitat survey was carried out in April 2005 to update the 1998 ecological habitats and communities survey carried out by Cumbria Wildlife Trust for the Biodiversity Management Plan. The Ecological Habitats plan is based on this 1998 survey, updated by information gathered in 2005.

Assessment of impacts

Scales of impact are based on the nature conservation evaluation of the habitats or species and the ecological impact of the proposal on them. The nature conservation evaluation of individual sites or interest features is based on the scale given in the Department of Transport's Transport Analysis Guidance (TAG Unit 3.3.10, 2004, Table 1). The JNCC Birds of Conservation Concern 2002-2007 was used to assess the conservation status of bird species on a national scale.

Table 1 Nature conservation value of features/attributes

Value	Criteria	Examples
Very high	High importance and rarity, international scale and limited potential for substitution	Internationally designated sites
High	High importance and rarity, national scale, or regional scale with limited potential for substitution	Nationally designated sites Regionally important sites with limited potential for substitution
Medium	High or medium importance and rarity, local or regional scale, and limited potential	Regionally important sites with potential for substitution Locally designated sites

	for substitution	
Lower	Low or medium importance and rarity, local scale	Undesignated sites of some local biodiversity and earth heritage interest
Negligible	Very low importance and rarity, local scale	Other sites with little or no local biodiversity and earth heritage interest

The severity of impacts is categorised according to the duration of the impact (long term, medium term or short term), the nature conservation evaluation of the species or habitat and the severity of the impact (major negative, intermediate negative, minor negative, neutral or positive). Severity of adverse impacts are based on the extent to which the impact affects the integrity and coherence of the interest feature (Table 2). The impact assessment takes into account the potential impact of an operation and the moderating affect of any agreed mitigation measures. Table No. 3 shows how the severity of impacts is determined.

Table 2 Criteria for determining the magnitude of the impact

Magnitude Criteria

Major negative

The proposal (either on its own or with other proposals) may adversely affect the integrity of the site, in terms of 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 population levels of species of interest.

Intermediate negative

The sites integrity will not be adversely affected, but the effect on the site is likely to be significant in terms of its ecological objectives. If, in the light of full information, it cannot be clearly demonstrated that the proposal will not have an adverse effect on integrity, then the impact should be assessed as major negative.

Minor negative

Neither of the above apply, but some minor negative impact is evident. (In the case of Natura 2000 sites a further appropriate assessment may be necessary if detailed plans are not yet available).

Neutral

No observable impact in either direction.

Positive

Impacts which provide a net gain for wildlife overall.

There is a record for a large (100+ bats) common pipistrelle nursery roost in industrial buildings along North Lonsdale Road in the area of Schooner Wharf and a small common pipistrelle roost in buildings at Rame Farm. There is also a record of a pipistrelle nursery roost in the GSK Administrative building. Five out of the eight species, which occur in Cumbria have been recorded on GSK land, these being common pipistrelle, soprano pipistrelle, Daubenton's, noctule and an unidentified Myotis bat. These frequent feeding areas along the canal, the scrub along the old railway line through Rame Farm and other trees and large hedges throughout the site. Whilst there are no records of bat roosts within structures along the canal it is possible that they are present and survey would be required prior to any work affecting bridges, locks and possibly the sides of the canal. Similarly surveys for bat roosts would be needed of any buildings within the masterplan area, which were to be altered or demolished.

Table 3 Overall appraisal category

Magnitude of potential impact	Nature conservation value of sites damaged or improved				
	Very high	High	Medium	Lower	Negligible
Major negative	Very large adverse	Very large adverse	Moderate adverse	Slight adverse	Neutral
Intermediate negative	Large adverse	Large adverse	Moderate adverse	Slight adverse	Neutral
Minor negative	Slight adverse	Slight adverse	Minor adverse	Slight adverse	Neutral
Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Positive	Large beneficial	Large beneficial	Moderate beneficial	Slight beneficial	Neutral

Baseline Conditions

Designated sites

Table 4 and the Nature Conservation Designations plan show that the outer lock and adjacent pier lie within the Morecambe Bay Site of Special Scientific Interest, which is also designated as a Ramsar Wetland of International Importance, Special Protection Area (SPA) and Special Area of Conservation (SAC), giving it the highest level of protection under both UK and European legislation. Morecambe Bay is of international importance for its wintering and passage bird populations, saltmarsh and intertidal habitats.

No other designated sites lie within the masterplan area, but Next Ness County Wildlife Site and Cumbria Trust Nature Reserve lies immediately adjacent to the masterplan boundary and Great Hagg Spring and Plumpton Quarries County Wildlife Sites, Iron Spring Pit SSSI and the Great Hagg and Twice-a-day Meadow Spring woodland areas of ancient woodland lie just to the north-east of the masterplan area.

Bats

Badger

No records of badger are present within the masterplan area, but they are known to be present to the north and east of the site and may well forage across the fields of Rame Farm.

Other features of biodiversity interest

A number of bird species of conservation concern have been recorded from the masterplan area (see Table 4). These are largely associated with hedgerows and field margins and areas of scrub, with the exception of lapwing which breed in the fields east of Rame Farm. The canal itself supports a breeding population of water birds including coot, moorhen, mallard, mute swan, reed bunting and kingfisher.

Table 4 Summary of designated sites and species

TYPE OF DESIGNATION	NAME AND LOCATION OF SITE, (OR SPECIES NAME)	NOTES
International Designations		
Ramsar Wetland of International Importance	Morecambe Bay	A very small area at Canal Foot lies within the masterplan area
European Designations		
Special Protection Area (SPA)	Morecambe Bay	A very small area at Canal Foot lies within the masterplan area

Table 4 Summary of designated sites and species

TYPE OF DESIGNATION	NAME AND LOCATION OF SITE, (OR SPECIES NAME)	NOTES
candidate Special Area of Conservation (cSAC)	Morecambe Bay	A very small area at Canal Foot lies within the masterplan area
Species Protected By European Law		
Habitats Directive Annex IV	Bats (all species)	Also protected by Wildlife and Countryside Act. Cumbria BAP species. The pipistrelle is a UK BAP species
National Designations		
Site of Special Scientific Interest	Morecambe Bay	A very small area at Canal Foot lies within the masterplan area
	Iron Pit Spring Quarry	designated for geological interest only
Species Protected By National Law		
Wildlife & Countryside Act	Bats (all species)	common pipistrelle (Pipistrellus pipistrellus) soprano pipistrelle (P. pygmaeus) Daubenton's (Myotis daubentonii) noctule (Nyctalus noctula) unidentified Myotis bat (Myotis sp.)
Protection of Badgers Act	Badger	Records from land outside masterplan site
Regional Designations		
	none	
Local Designations		

Table 4 Summary of designated sites and species

TYPE OF DESIGNATION	NAME AND LOCATION OF SITE, (OR SPECIES NAME)	NOTES
	none	
Non-Statutory Designations		
County Wildlife Sites	Next Ness	also a Cumbria Wildlife Trust Nature Reserve. Adjacent to site
	Great Hagg Spring and Plumpton Quarries	Adjacent to site
Ancient Woodland Inventory	Great Hagg and Twice-a-day Meadow Spring woodland	Adjacent to site
Birds Of Conservation Concern		
Red	song thrush	breeding
	reed bunting	breeding
	bullfinch	breeding
	grey partridge	old breeding record
	linnet	breeding
	starling	breeding
Amber	house sparrow	breeding
	dunnock	breeding
	mistle thrush	breeding
	kingfisher	breeding
	swallow	breeding
	lapwing	breeding
	barn owl	hunting over fields
	green woodpecker	winter

Table 4 Summary of designated sites and species

TYPE OF DESIGNATION	NAME AND LOCATION OF SITE, (OR SPECIES NAME)	NOTES
	redwing	winter
	fieldfare	winter
	goldeneye	winter
<i>Biodiversity Action Plans</i>		
Countryside and Rights of Way Act 2000 Section 74 and UK Biodiversity Action Plan	Grey partridge	
	Song thrush	
	Pipistrelle bat	
Cumbria BAP	Song thrush	
	Barn owl	
	Bats	

Assessment of ecological importance of ecological features

Technically the pier jutting out into Morecambe Bay lies within the Morecambe Bay SSSI/SPA/SAC/Ramsar site and consequently should be considered to be of international importance. No other designated site lies within of relatively recent origin. Areas of improved grassland and arable farmland are of negligible ecological importance. Industrial, farm and domestic buildings are also of negligible ecological importance, except where they support bat roosts, in which case they are of local ecological importance. It should be noted that it is possible that bats roost in other buildings within the masterplan area as there has not been a detailed survey of every building in the area.

Assessment of the ecological impact of masterplan proposals

Phase 1

The majority of the Phase 1 proposals involve the development of agricultural land of negligible ecological interest. This will have a neutral ecological impact. However the proposed alternative access around the eastern side of Site A runs through an area of fen vegetation of local ecological interest. The loss of this habitat would have a slight adverse ecological impact as it would reduce the ecological diversity of the local area and remove or greatly reduce in size one of the few areas of semi-natural habitat present.

The construction of a walkway out over the canal is likely to result in the loss of a small number of semi-mature and young trees of negligible ecological interest. None of these trees has potential to host bat roosts as they lack the structural complexity required.

The proposal for boat trips along the canal is

the masterplan boundary. Next Ness County Wildlife Site and CWT Nature Reserve, which lies adjacent to the masterplan boundary is of county ecological importance as an example of wet woodland.

The breeding, passage and wintering bird populations of the site are all of local ecological importance, as are the bat roosts and bat likely to have a minor to intermediate impact on birds nesting along the canal edge due to the potential for the wake from boats washing out nests. Whilst there may be a short term impact on birds due to reduced breeding success it is likely that provide that boats are travelling slowly the birds will adapt to the new conditions. It should be noted that birds successfully breed along the banks of navigable canals elsewhere in the UK. This impact will be no more than slight adverse.

This Phase also extends the development on the north side of Canal Head onto agricultural land of negligible ecological importance. This will have a neutral ecological impact. The southern end of this development area extends into an area of woodland and scrub of local ecological importance adjacent to the railway line. The loss of this woodland would have an adverse ecological impact due to habitat loss. Prior to any development on Site E potential hydrological impacts on Next Ness Nature Reserve should be investigated.

Bats foraging along the canal will be unaffected provided that the current tree cover along the banks of the canal and along the towpath are maintained.

The overall ecological impact of Phase 1 would be slight adverse due to potential loss of fen habitat, small areas of scrub and woodland and disturbance to breeding water birds. This could be mitigated, however, by increased woodland planting to act as a visual buffer between residential areas and the proposed technology park. Landscaping could also include water

foraging areas. The canal and associated wooded fringe is by far the most important feeding area for bats within the masterplan area.

Areas of woodland, unimproved grassland and fen are all of local ecological importance, being not particularly diverse or well developed botanically and mainly features and balancing ponds which would provide for a greater diversity of habitats.

Phase 2

In addition to the impacts of Phase 1, Phase 2 extends the development around the western end of Canal Head. There are no features of ecological interest here, however it should be note that this development will require the redevelopment or demolition and rebuilding of a number of buildings and full bat surveys will be required of all affected buildings to establish whether bats are present. All species of bats and their roost sites are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats &c.) Regulations 1994.

The overall ecological impact of Phase 2 would be **slight adverse** due to potential loss of fen habitat and disturbance to breeding water birds.

Additional proposals

Three proposals in addition to those detailed above have been made:

- The opening up of the Canal Foot lock to allow boat access to Morecambe Bay
- Extensive woodland planting on Rame Farm
- The construction of a protective barrier along the length of the GlaxoSmithKline works canal frontage to keep boats away from the factory for safety reasons

The re-opening of the Canal Foot lock could have a potential significant impact on the Morecambe Bay European Marine Site. As part of the planning process English Nature would require an Appropriate Assessment to be made of the potential impacts of the proposal on the designated features of the site. In particular English Nature would require a detailed study and assessment of the proposal's effect on coastal processes in Morecambe Bay and how this would impact on the designated features.

There have been proposals for extensive planting of native woodland on farmland on Rame Farm to create a country park. Provided that the trees planted were of local provenance, species native to Cumbria and appropriate to the local conditions this would have a net ecological benefit in the medium to long term as it could greatly extend the area of woodland present in the local area, providing habitat for a range of wildlife. To ensure that a woodland groundflora develops in areas of tree planting woodland blocks should be a minimum of 40m x 40m to create the levels of shade required by woodland plants.

One potential barrier to boats along the GSK boundary is a line of gabions below the water level planted with willows. This would provide visual screening and would create a quiet area for wildlife, particularly water birds, along a considerable length of the canal. This would be of considerable wildlife benefit and would at least partially counter balance the adverse impact of the introduction of boats on the canal.

Management Requirements

There are no specific management requirements for the maintenance of the current ecological and biodiversity interest of the canal, provided that the current extent of canal side tree and

scrub cover is maintained.

Summary

- The masterplan area contains a single feature designated for nature conservation reasons: the pier extending into Morecambe Bay at Canal Foot, which lies within the Morecambe Bay SSSI/SPA/SAC/Ramsar site. The Morecambe Bay European Marine Site is of international ecological importance for its wintering and passage bird populations, saltmarsh and intertidal habitats.
- The canal is of local ecological importance for its breeding water birds and as a bat foraging area.
- Two bat roosts of local importance are known to be present within the masterplan area. Other buildings within the area may also support bat roosts.
- Any buildings, which are to be demolished or redeveloped as part of the proposals will require a full bat survey prior to the commencement of work.
- Areas of woodland, unimproved grassland and fen are of local ecological importance.
- Phase 1 will have a **slight adverse** ecological impact due to potential loss of fen and scrub woodland habitat and disturbance to breeding water birds. Extensive mitigation works can be included in the development of Site E.
- Phase 2 will have a **slight adverse**

ecological impact due to potential loss of fen habitat and disturbance to breeding water birds.

- Additional proposals for woodland planting on Rame Farm and for a willow barrier along the GSK canal frontage would have **slight beneficial** ecological impacts.
- The potential impact of opening the Canal Foot lock would require a detailed Appropriate Assessment of its impact on the coastal processes of the Morecambe Bay European Marine Site.

References

Cumbria Wildlife Trust 1999. **Glaxo Wellcome Biodiversity Management Plan**. Unpublished report to Glaxo Wellcome.

Cumbria Wildlife Trust 2002. **2002 Review of the GlaxoSmithKline Biodiversity Management Plan**. Unpublished report to GlaxoSmithKline.

Derek Jewel. 1998. **Biodiversity Project 1998. Birds**. Unpublished report for Glaxo Wellcome.

Westmorland and Furness Bat Group. 2000. **Bat Survey Report**. Unpublished report for Glaxo Wellcome.

GSK Biodiversity Team and Westmorland and Furness Bat Group. 2004. **GSK Bat Survey 2004**. Unpublished report for GlaxoSmithKline.

Transport Analysis Guidance. February 2004. The Biodiversity Sub-Objective. TAG Unit 3.3.10. http://www.webtag.org.uk/webdocuments/3_Expert/3_Environment_Objective/3.3.6.htm.