
Biodiversity and Geological Conservation



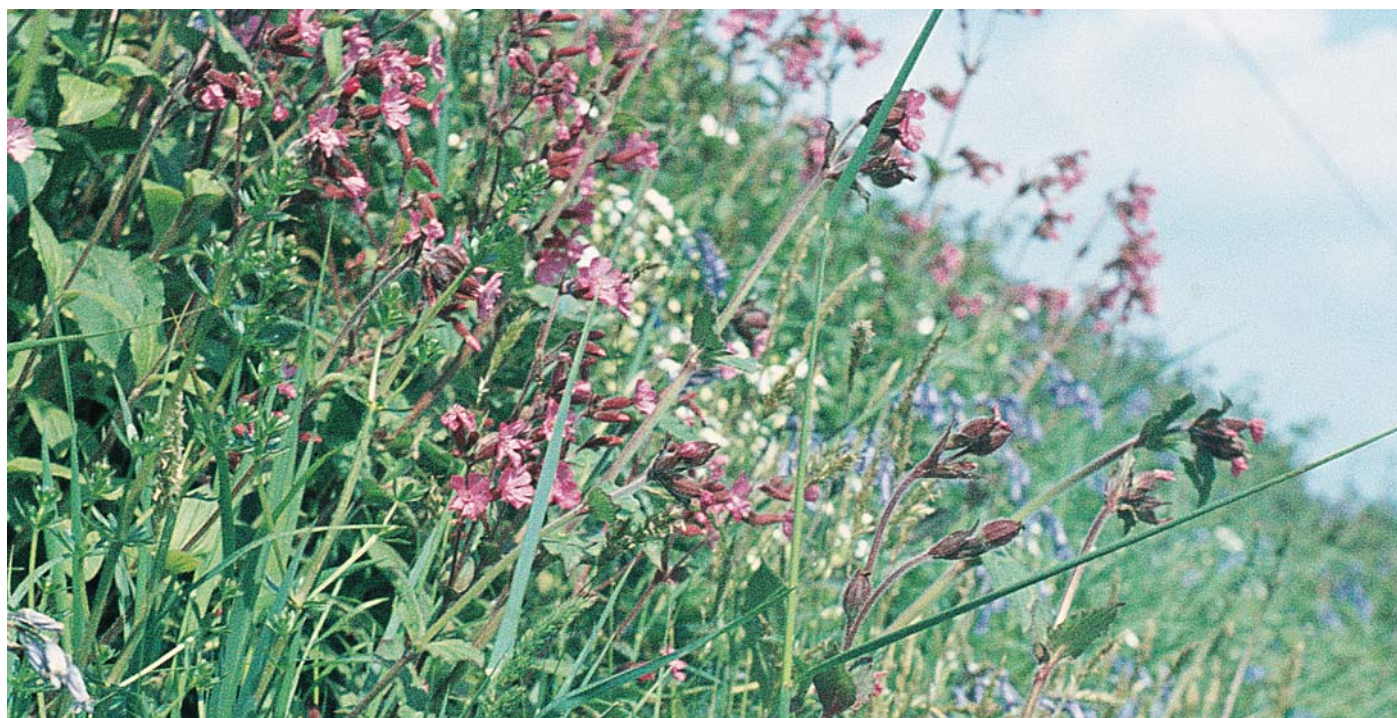
Planning Good Practice Guidance for Cornwall



November 2007

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1 Introduction

1.1 Cornwall's Wildlife and Wild Places

From the spectacular coastal cliffs and beaches to the intimate farmed landscape of fields, woods and hedges, to the rolling moors; the natural environment is the key to Cornwall's character. From the iconic species like the chough, re-establishing a toehold in the county that adopted it as an emblem, to the more obscure but no less important species like the Cornish path-moss found on mine tips on Bodmin Moor and nowhere else in the world; Cornwall's wildlife has a special place in the hearts of residents and visitors alike.

Wild places are fundamental to the culture and economy of Cornwall: as well as providing natural 'services' such as coastal defence and water storage, they are inextricably linked with farming, the arts and tourism. Planners and developers have a particular responsibility in ensuring that such wild places continue to benefit communities in Cornwall.

This natural history is intimately linked with the variety of rocks and minerals that make up Cornwall. Access to this geodiversity must also be maintained if we are to manage natural systems and understand much of Cornwall's economic and social history.

Benefits of conserving Biodiversity

"Development control decisions which embrace biodiversity and geological conservation can be of broad benefit to communities by creating employment through new projects, creating cost effective naturally functioning utilities such as for flood relief and drainage, and enhancing the local economy through tourism and improving local surroundings which enhance quality of life"

Planning for Biodiversity and Geological Conservation: A Good Practice Guide, ODPM 2006

1.2 Impacts of Development

With the majority of land in Cornwall influenced by farming rather than industries hungrier for buildings, it is tempting to assume Cornwall is not under particular threat from development. However, the pattern of settlement combined with the fact that wildlife is still widespread amongst the fields and hedges, woods and verges, heaths and mine tips, means that nature conservation considerations should be central to developments on all scales. Indeed, with some

forethought, and some creative thinking by developers and planners, development has the potential to enhance Cornwall's environment.

The Environment as an Economic Driver in Cornwall

"Significant parts of the economy rely on the quality and extent of our environmental assets (such as tourism) or resources (such as food and timber production, fishing and minerals industries). In Cornwall and the Isles of Scilly tourism accounts for 25% of GDP. It is estimated that 78% of holiday trips to the SW are motivated by landscape and cultural values; fine coastlines, good pubs and rural villages, accessible open spaces and protected landscapes"

From Using the Environment as an Economic Driver- Overview of the experience to date in the Cornwall and Isles of Scilly Objective One Programme, 2005.

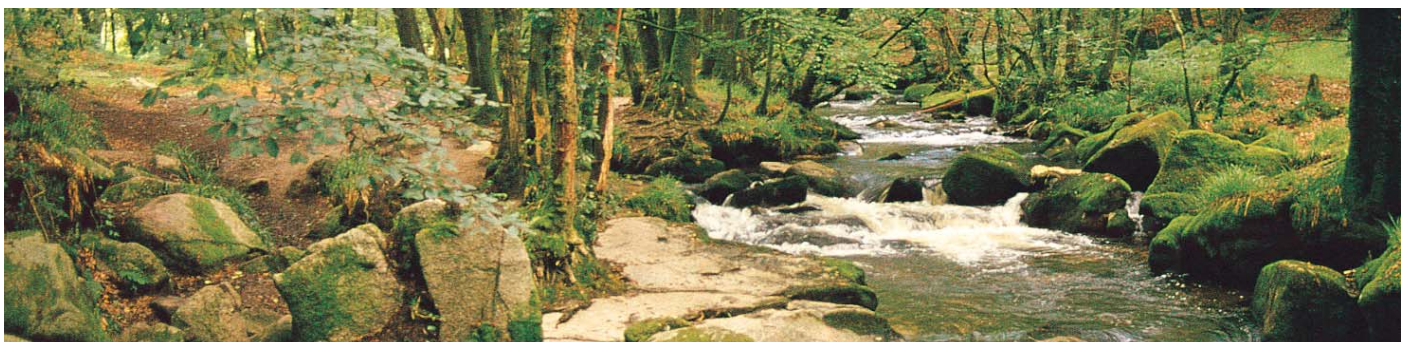
1.3 The Threat of Climate Change

Coping with the effects of climate change may be the biggest planning challenge for Cornwall. As sea level rises, sand dune systems, mudflats and marshes are likely to become ever more constrained, or even disappear. If existing built development is displaced there will be increased pressure for development inland. In addition, rising temperatures and changing weather patterns may mean that conditions become unsuitable for some plant and animal species and they will need to move to new areas in order to survive.

The development planning system will need to create space for wildlife and habitats to expand their ranges if they are to adapt to and survive, the challenge of climate change.

1.4 The Marine Environment

This guide deals only with development planning down to mean low water mark or enclosed estuaries. For developments and activities in or affecting the marine environment it is likely that other consents will be needed. There is some local guidance on this already in existence¹. The Government is currently working on a Marine Bill which could bring in new laws to protect marine habitats and wildlife. This may include the introduction of a marine spatial planning system to enable strategic and integrated management of the seas.



The natural environment is key to Cornwall's character

1. Marine Consents Guide 1st Edition, Solent Forum 2005 www.solentforum.hants.org.uk/pdf/marineconsents.pdf Biodiversity issues and the Fal and Helford Special Area of Conservation - Best Practice Guidelines for smaller developments, Spalding Associates (Environmental) Ltd 2006 and Plymouth Sound and Estuaries Coastal Planning Study- Key Guidance, Tamar Estuaries Consultative Forum 2006 www.tamar-estuaries.org.uk

1.5 The Purpose and Status of this Good Practice Guidance

This Good Practice Guidance is designed to assist people who are submitting and determining planning applications in Cornwall to understand how to ensure that biodiversity and where relevant geodiversity, are protected, conserved and enhanced as a consequence of development.

Whilst there are national publications and guidance documents² about biodiversity and geodiversity, it was felt that there was a need for a document relevant to the wildlife and wild places of Cornwall, and to the scale of development occurring in the county. This document aims to address this need.

It is recommended that all the participating authorities formally adopt this document, initially as Good Practice Guidance. As Local Development Framework preparation progresses it is recommended that this document becomes a Supplementary Planning Document (SPD).

1.6 Preparation of the Good Practice Guidance

This document has been prepared by a working group including Planning Officers from local authorities, the Cornwall Wildlife Trust, Natural England and The Environment Agency.

A wide consultation exercise has been completed. Details on the consultation can be found in the consultation report³.

1.7 What is Biodiversity?

"Biodiversity" is the term applied to the variety of life on earth. Internationally, the importance of conserving biodiversity has been recognised, with the UK being a signatory to the Convention on Biological Diversity. Following from this the UK government produced the UK Biodiversity Action Plan and the England Biodiversity Strategy⁴ which created a framework for action to

maintain and increase indigenous species populations and habitat areas. This work was continued at a regional level with the South West Biodiversity Action Plan⁵ and Implementation Plan⁶ and for Cornwall through Cornwall's Biodiversity Volumes 1-3⁷.

1.8 What is Geodiversity?

Geodiversity is the variety of rocks, minerals and fossils together with the variety of soils, natural processes and landforms found within a particular region. Geodiversity is important because it underpins biodiversity with soils being the link between them. A Geodiversity Action Plan (GAP) for Cornwall and the Isles of Scilly⁸ has recently been produced.

1.9 Planning Policy Context

All planning authorities are required by both policy and statute to take nature conservation into account when making decisions on individual applications.

Countryside and Rights of Way Act 2000

Section 74 states that 'It is the duty of [Government] in carrying out...its functions, to have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biological diversity in accordance with the Convention' (on Biological Diversity following the Rio Earth Summit in 1992). Section 74 also contains a list published by the Secretary of State for Environment, Food and Rural Affairs of habitats and species that are of principal importance to biodiversity conservation in England.

Planning and Compulsory Purchase Act 2004

Section 38 indicates that determination of planning applications should be in accordance with the policies in the development plan. In Cornwall this is currently the County Structure Plan, the individual District Local Plans and the County Council Waste and Minerals Local Plan. These contain policies for the protection of wildlife and geology and all new development should accord with these policies.

The County Structure Plan will be superseded in future by the Regional Spatial Strategy, and Local Plans by Local Development Frameworks. These will also contain policies for the protection of wildlife and geology and as they replace the current plans new development should accord with these policies.

Local Plans and Local Development Frameworks are available from the local planning authorities or their websites⁹.



Praa Sands peat and head deposits - Geological diversity is reflected in landforms and soils, and is closely linked with biodiversity

2. Planning for Biodiversity and Geological Conservation: A Guide to Good Practice ODPM March 2006, Planning Policy Statement 9: Biodiversity and Geological Conservation ODPM August 2005, Environmental Quality and Spatial Planning- Guidance to help in the preparation of Regional Spatial Strategies and Local Development Frameworks- Countryside Agency and others June 2005. Publicly Available Specification PAS 2010- Planning to halt the loss of biodiversity - Biodiversity conservation standards for planning in the United Kingdom- Code of practice, BSI 2006 www.bsi-global.com

3. Biodiversity and Geological Conservation- Good Practice Guidance for Cornwall - Consultation Report, Cornwall Biodiversity Initiative 2007

4. Working with the grain of nature: A biodiversity strategy for England Department for Environment, Food and Rural Affairs, 2002 www.defra.gov.uk

5. Action for Biodiversity in the South West: A series of habitat and species plans to guide delivery, South West Regional Biodiversity Partnership 1997 www.swbiodiversity.org.uk

6. South west Biodiversity implementation Plan- Biodiversity: A Natural Advantage for the South West, South West Regional Biodiversity Partnership 2004 www.swbiodiversity.org.uk

7. Cornwall's Biodiversity Volume 3: Action Plans 2004, Cornwall Biodiversity Initiative 2004 www.cornwallwow.org.uk

8. Geodiversity Action Plan - Cornwall and the Isles of Scilly 1st Edition, Cornwall Wildlife Trust 2005 www.cornwallgeology.org.uk

9. Caradon District Council www.caradon.gov.uk , Carrick District Council www.carrick.gov.uk , Kerrier District Council www.kerrier.gov.uk , North Cornwall District Council www.ncdc.gov.uk , Restormel Borough Council www.restormel.gov.uk , Penwith District Council www.penwith.gov.uk , Cornwall County Council (minerals and waste) www.cornwall.gov.uk

Cornwall is currently moving from having six District Councils and a County Council to having a single Unitary Authority. The Unitary Authority will be in place from 2009 and will be the only Local Planning Authority in Cornwall.

Planning Policy Statement 9- Biodiversity and Geological Conservation

PPS 9 sets out the government's national planning policies on protection of biodiversity and geological conservation through the planning system. The key principles of PPS 9 are summarised below:

1. Plan policies and planning decisions should be based on up-to-date environmental information.
2. Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests.
3. Plan policies should take a strategic approach to the conservation, enhancement and restoration of biodiversity and geological features.
4. Plan policies should promote opportunities to incorporate biodiversity and geological features within the design of development.
5. Development proposals where the principal objective is to conserve or enhance biodiversity and geological conservation interests should be permitted.
6. The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. If significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.

PPS 9 also includes information on how international, national and local sites should be handled through the planning system and highlights the importance of ancient woodland, other important natural habitats, networks of habitats and previously developed land.

Natural Environment and Rural Communities Act 2006

Section 40 of the NERC Act states that:

'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Where conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat'. Detailed information about the implications of the NERC Act for local authorities has been produced nationally¹⁰.

1.10 Protected sites and species

In addition to the protection provided through the planning system, species, habitats and geological features are protected through legislation. This legislation and the protection provided by planning controls operate in parallel to protect species and habitats. Both aspects must be considered by the Local Planning Authority and developers.

The main Acts and Regulations are:

- Wildlife and Countryside Act 1981 (as amended)
- Protection of Badgers Act 1992
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).
- Hedgerow Regulations 1997
- Environmental Impact Assessment Regulations 1999
- Countryside and Rights of Way Act 2000
- Natural Environment and Rural Communities Act 2006

The Joint Nature Conservation Committee (JNCC) website¹¹ has more information on this legislation.

These Acts and Regulations together provide differing levels of protection to a variety of sites, plants and animals (including the places inhabited by particular species of plants and animals), and geological features.

Site designations in Cornwall

Designations that cover sites of nature conservation and geological value in Cornwall include:

Statutory international-

Special Protection Areas (SPA)
Special Area of Conservation (SAC)

Statutory national-

Site of Special Scientific Interest (SSSI)
National Nature Reserve (NNR)

Local-

County Wildlife Site (CWS)- formerly CTNC sites
County Geological Site (CGS)- formerly RIGS sites
Local Nature Reserve (LNR)

Biodiversity Action Plan habitats-

These include many coastal habitats, some grasslands, woodlands and wetlands.

For more information on protected sites please refer to the Joint Nature Conservation Committee website¹¹. For more information on BAP habitats refer to Cornwall BAP Volume 3¹² or contact The Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) 01872 273939 ext. 240.

Information on designated sites is also available in the Local Planning Authority Local Plan/Local Development Framework. Alternatively, Natural England's 'Nature on the Map' website contains information¹³



10. Guidance for local authorities on implementing the Biodiversity Duty, Defra May 2007 www.defra.gov.uk

11. Joint Nature Conservation Committee website www.jncc.gov.uk

12. Cornwall's Biodiversity Volume 3: Action Plans 2004, Cornwall Biodiversity Initiative 2004 www.cornwallwow.org.uk

13. Natural England's 'Nature on the map' website www.natureonthemap.org.uk

Local Planning Authorities are required to consult statutory agencies on planning applications which affect statutorily designated sites. Developers are encouraged to engage in pre-application discussions with planning authorities and statutory agencies, this can help minimise delays later in processing the application. Other organisations may be able to advise on local sites. A list of organisations and their role in the planning process is given in appendix 1.

Protected species in Cornwall

The presence of a protected species is a material consideration in the planning decision. The onus is on the Local Planning Authority, through its development control role, to ensure that harmful effects on the species or its habitat are avoided. Even when planning permission is granted, the developer must comply with protected species legislation whilst carrying out the development.

Whilst some species may occur within statutorily protected sites, they are often found outside of these, and consequently are vulnerable to a range of threats including built development and land use changes.

Summary of the many different animals and plants in Cornwall protected by legislation and/or included in the UK and Cornwall Biodiversity Action Plan.

Several mammal species are covered including; bats (all species), dormice, badgers, brown hare and otter.

All bird species are protected during the nesting season. Many species have further protection.

Many invertebrates are protected including various species of beetles, flies, bees, ants, butterflies, moths, damselflies and molluscs.

Some fish species are protected

Many species of flowering plant, fungi, lichens, liverworts, mosses and stoneworts are also protected.

More detailed information on BAP species can be found in the Cornwall BAP Volume 3¹⁴ and information on statutory species protection can be found on the JNCC website. The UK BAP list has recently be reviewed and extended to include many more species and habitats. The Cornwall BAP is due to be reviewed to account for the recent changes. The UK BAP list has recently be



*All river catchments in Cornwall support otter populations - they can be affected by many forms of development.
Photo: Hatty Arthur*

reviewed and extended to include many more species and habitats. The Cornwall BAP is due to be reviewed to account for the recent changes. For information on the locations of protected species in Cornwall contact The Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) 01872 273939 ext 240.

Adequate information about important species, habitats and geological features, and appropriate design solutions, should be provided by applicants when submitting planning applications. This enables local planning authorities to determine what effects, if any, the development will have on protected species and biodiversity. If planning applications are submitted with insufficient supporting evidence local planning authorities have powers to require further information or, in some cases to refuse planning permission on the grounds of insufficient information¹⁵.

Some protected species can only be disturbed following the granting of a licence by Natural England.

Local authorities should also conserve other important species and natural habitat types that have been identified in section 74 of the Countryside and Rights of Way Act 2000¹⁶. The list included in the Act is the UK Biodiversity Action Plan (BAP) list of habitats and species. All habitats and species on the UK BAP list that are present in Cornwall are detailed in the Cornwall BAP¹⁷. The Cornwall BAP should therefore be referred to when considering planning applications. Local authorities have a duty to have regard to the conservation of biodiversity in exercising their functions. This duty was introduced by the Natural Environment and Rural Communities Act in 2006.

1.11 Permitted Development

Some forms of development do not require planning permission. Many forms of permitted development, particularly those relating to recreation, temporary uses of land and some of the activities of statutory undertakers such as utility companies, can seriously affect biodiversity and geological features. In many cases harm could be avoided by seasonal restrictions, exclusion of sensitive areas or limiting the scale of the development. Mechanisms for controlling permitted development are provided under Article 4 of the Town and Country Planning (General Permitted Development) Order 1995.

Development which would normally be permitted by the Development Order, but which is considered to be a Schedule 1 Project or Schedule 2 Development for which a positive screening opinion has been given by the Local Planning Authority under the Environmental Impact Regulations, cannot proceed without a full planning application. The Conservation (Natural Habitats) Regulations 1994 (as amended) also impose restrictions on permitted development likely to have a significant effect on a European Site such as a Special Protection Area for birds or a Special Area of Conservation.

¹⁴ Cornwall's Biodiversity Volume 3: Action Plans 2004, Cornwall Biodiversity Initiative 2004 www.cornwallwow.org.uk

¹⁵ Planning for Biodiversity and Geological Conservation: A Guide to Good Practice, ODPM March 2006

¹⁶ List of habitats and species of principal importance for the conservation of biological diversity in England published by the Secretary of State for the Environment, Food and Rural Affairs, in response to section 74(2) of the Countryside and Rights of Way Act 2000 www.defra.gov.uk/wildlife-countryside/cl/habitats/habitats-list.pdf

¹⁷ Cornwall's Biodiversity Volume 3: Action Plans 2004, Cornwall Biodiversity Initiative 2004 www.cornwallwow.org.uk

2 The Development Process

2.1 Guiding principles for developers

By following the principles outlined here, developments can be both profitable and enhance the natural environment for the benefit of wildlife and local communities.

Summary of guiding principles for protecting and enhancing biodiversity and geological conservation through development control

- **View biodiversity and geodiversity as an opportunity not a constraint**

Where wildlife is successfully incorporated into the design of a development it can be an asset to the local community. Houses close to greenspace often command higher market value than houses further away¹⁹. Local communities are less likely to object to development proposals that account for the needs of wildlife.

- **Access ecological and geological expertise**

Assessing the likely ecological impacts of a development is often complex so employing an ecological or environmental consultant is likely to be cost effective. Pre-application discussion with relevant agencies and organisations (see appendix 1) will ensure all issues are considered before an application is submitted and help prevent delays.

- **Surveys and Information Gathering**

Adequate survey information must be gathered before submitting a planning application. The information should then be used to inform the design of the development from the earliest stage. Insufficient information can significantly delay decision making¹⁸.

- **Avoidance, Mitigation and Compensation**

Ecological or environmental consultants can advise on avoiding negative impacts on biodiversity and geodiversity through careful site design. Where negative impacts are unavoidable it may be possible to minimise the impacts through mitigation measures. Where mitigation alone is insufficient, it may be possible to use compensatory measures to off-set harm. Compensation is the least favoured option.

- **Enhancement**

It is likely that there will be opportunities to provide new benefits on all development sites. For example, retained habitats can be extended and enhanced, bird and bat boxes and access can be designed into new buildings, or habitats once found on the site can be re-created.



*Bats are frequently affected by development, particularly building conversion.
Photo: Steve Marshall*

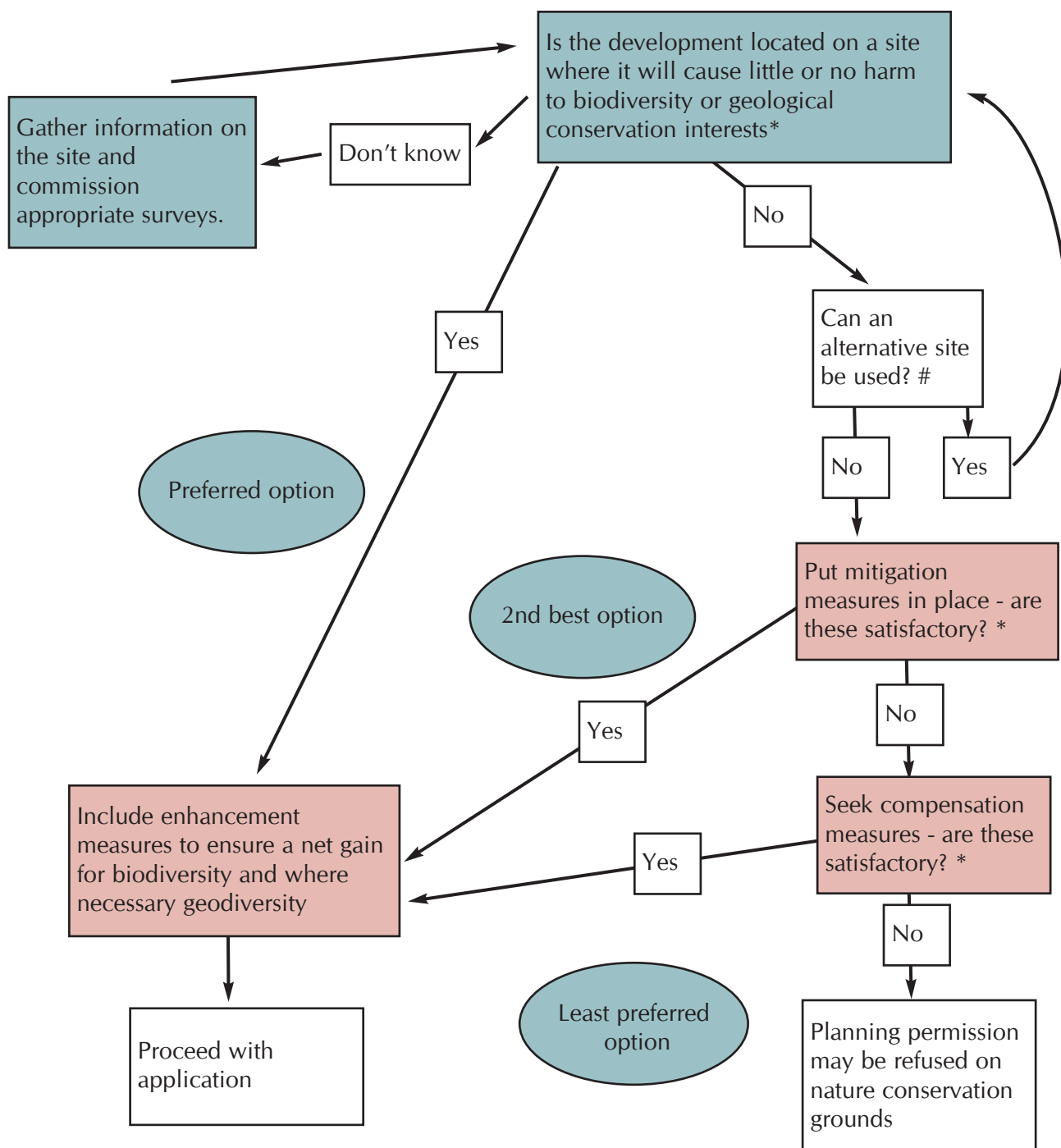
18. Planning for Biodiversity and Geological Conservation: A Guide to Good Practice, ODPM March 2006

19. Does money grow on trees?, Cabe Space March 2005 www.cabe.org.uk

2.2 The development control process

The aim of planning decisions should be to prevent harm to, and enhance biodiversity and geological conservation interests.

Figure 1- How biodiversity and geological conservation should be considered in planning decisions in line with PPS 9



*Up-to-date information and ecological expertise will be required to assess this

#Planning Officers will often be able to provide information on the availability of alternative sites

2.3 Stages in the process

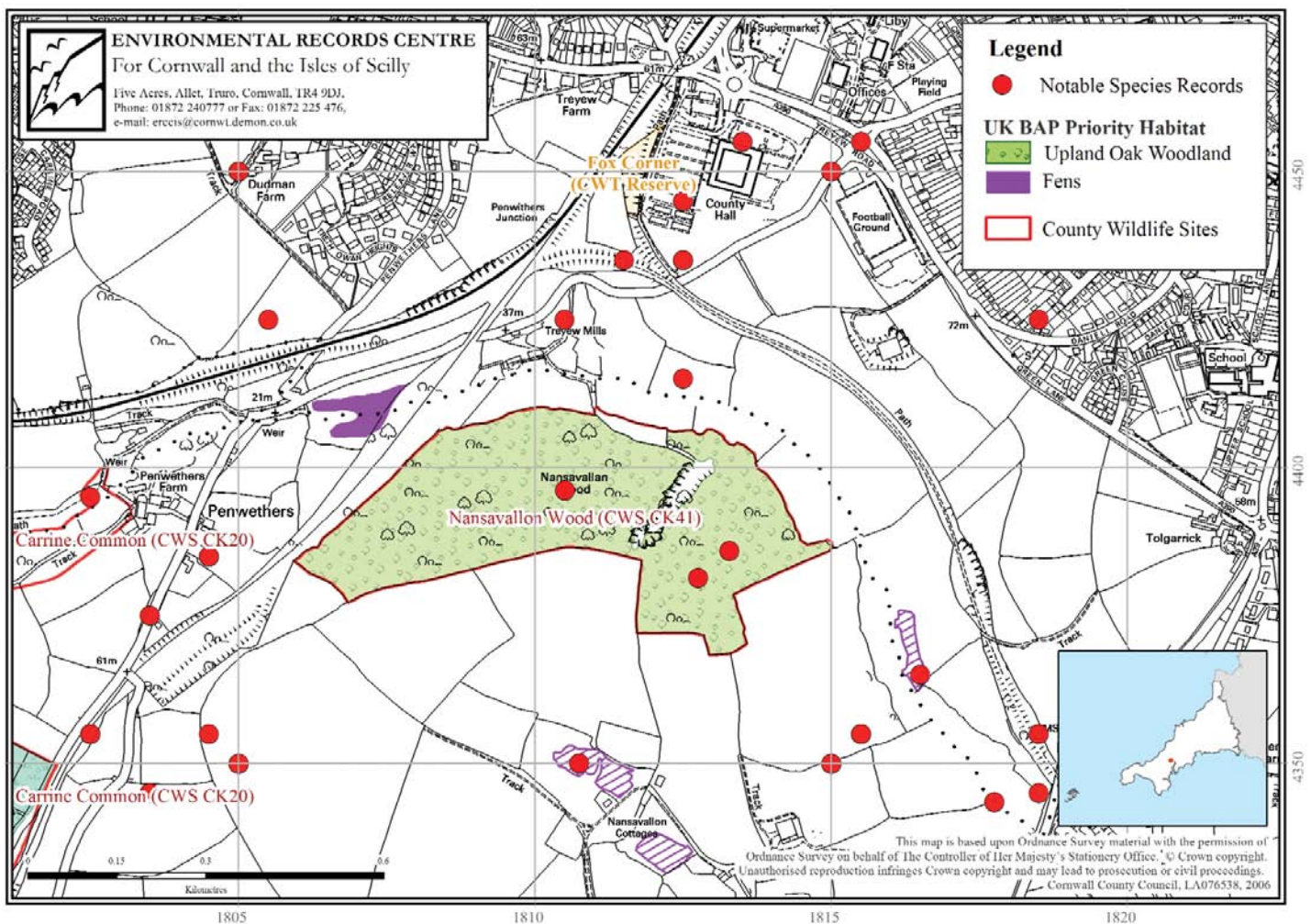
Stage 1: Surveys and information gathering - Before acquiring land with development potential, commissioning designs or submitting a planning application

Habitat and species surveys

Where a site contains areas of habitat, wildlife potential or geological features, it will be necessary for the developer to gather information to assess the biodiversity value of the site and the immediate surrounding area. Surveys need to be carried out at the earliest possible stage to inform the design of developments and incorporate biodiversity and geodiversity features in line with PPS 9, this may prevent costly delays later.

Advanced survey information on the presence of protected species and habitats, linked to any required mitigation or compensatory measures, will help avoid infringements of national and international law, help satisfy the legal requirements of both the EIA and Conservation (Natural Habitats) Regulations (as amended) and form the basis of a subsequent licence application, if required (PPS 9 Guide to Good Practice- ODPM).

The checklist opposite summarises the most likely circumstances where surveys and assessments would be needed and gives details of where to get further information.



The Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) holds a huge volume of data on Cornwall's habitats and species.

CHECKLIST

Any of the developments listed below could have a negative impact on habitats and species and/or geodiversity interests. Surveys and assessments may be required prior to submission of a planning application.

Any proposed development which would involve:

- ☐ Removal of all or part of a Cornish hedge or hedgerow
- ☐ Tree works (felling or lopping) of large trees, old or veteran trees and trees with holes, cracks or splits
- ☐ Removal of scrub
- ☐ Conversion of barns, farmhouses and other old buildings
- ☐ Loft conversion or other modification to existing roof spaces or re-roofing
- ☐ Building demolition
- ☐ Infilling of or modification to mine shafts, adits, caves, culverts, cellars, ice houses or similar underground structures
- ☐ Works in or adjacent to watercourses, ponds or other wetland features

OR any proposed development which would be within or likely to affect:

- ☐ A Special Area of Conservation (SAC)²⁰
- ☐ A Special Protection Area (SPA)²⁰
- ☐ A National Nature Reserve (NNR)²⁰
- ☐ A Site of Special Scientific Interest (SSSI)²⁰
- ☐ A County Wildlife Site (formerly CTNC site) (contact ERCCIS)
- ☐ A County Geological Site (formerly RIGS site) (contact ERCCIS)
- ☐ A Local Nature Reserve (LNR)²⁰
- ☐ The Cornish Mining World heritage site
- ☐ Any other site supporting a BAP priority habitat (contact ERCCIS):
 - Cornish hedge or hedgerow
 - Coastal habitats
 - Acid grassland & lowland meadows
 - Heathland
 - Ponds/wetland
 - Woodland
- ☐ Traditional orchards
- ☐ Any site with a protected species record or likely to support a protected species (an ecological consultant can advise)
- ☐ Any site reported by local people or wildlife groups to support a protected species
- ☐ Any site within 30 m of a badger record (contact ERCCIS)
- ☐ Any site supporting or likely to support a BAP priority species- some BAP species are also protected species (contact ERCCIS)
- ☐ Quarry sites and old mine sites

ERCCIS contact details:

Five Acres, Allet, Truro, Cornwall, TR4 9DJ

Phone: 01872 273939 ext. 240.

Fax: 01872 225476

e-mail: erccis@cornwt.demon.co.uk

Website: www.erccis.co.uk



20. Natural England's 'Nature on the map' website www.natureonthemap.org.uk

Validation of planning applications

If an application for a development affected by the above list is submitted without sufficient survey information or assessment then the local planning authority is entitled to ask for more information and may refuse planning permission due to a lack of information²¹.

Ecological expertise

Employing an ecological or environmental consultant is likely to prove cost effective in the long term. Consultants can be contacted through the yellow pages (under Environmental consultants) and through internet directories²². Costs will vary depending on the scale and location of the work proposed, but an initial simple inspection for protected species can cost relatively little. The Environmental Record Centre for Cornwall and the Isles of Scilly (ERCCIS) (see appendix 1), has contact details for wildlife recording groups who may be able to help.

Timing of ecological surveys

An extended Phase 1 habitat survey by a competent ecologist will identify important ecological and geological features on the site and its immediate surrounding area, and determine the need for further detailed species surveys. The level of survey data needed and the time taken to collect it will vary according to the size of the development and the habitats and species concerned. There are certain times of year when surveys are best conducted for different species and this needs to be taken into account, see table below.

Tree surveys and development

Larger developments often require a tree survey which follows BS5837:2005. Tree surveys concentrate on the health and amenity value of trees rather than their biodiversity importance. Old trees and those with cracks, splits, lifted bark and rot holes can be very valuable to wildlife including protected species such as bats and barn owls. It is recommended that the tree survey and ecological survey are considered together to ensure that trees of importance to wildlife and trees of high visual amenity and landscape value are retained as part of a development.



Reptiles on the A30 development site were carefully trapped and moved to ensure they were not injured during construction work. Photo: Cornwall Environmental Consultants

21. Planning for Biodiversity and Geological Conservation: A Guide to Good Practice ODPM March 2006

22. Internet directory of Environmental Consultants www.endsdirectory.com and www.ieem.org.uk/Home.htm

Guidance on the best times of year for specialist ecological surveys

Please note:

This table is for general guidance only, it illustrates the need to plan surveys at an early stage to prevent delays

In some circumstances surveys may be acceptable at other times of year, this will need to be assessed on a case by case basis by a competent ecologist

If surveys are carried out outside the time periods recommended they may be deemed inadequate and result in an application being refused on the grounds of lack of information

Survey techniques for several groups require survey activity over a period of time, in some cases several months, a survey not carried out for a sufficient length of time may be deemed inadequate

All survey timing is dependant on weather conditions.

Timings of surveys will vary between different species within the groups listed

More detail on survey timing and techniques can be found in the references listed

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Habitats	Phase 1 surveys only			Detailed habitat assessment surveys						Phase 1 surveys only		
Plants- higher plants and ferns												
Plants- mosses, lichens and liverworts							High summer less good					
Bats- hibernating												
Bats- active												
Dormice- nut searches												
- nest searches												
- tube survey s												
Otters												
Badgers												
Reptiles												
Fish												
Birds- wintering												
Birds- breeding												

Best time of year to survey
Not the best time of year to survey

It is the responsibility of the developer and the ecological consultant to ensure that a reasonable amount of survey effort has been expended in proportion to the scale of development. There are many sources of information on survey techniques and timings, these are detailed below.

Further information sources for biodiversity and geodiversity survey work

- General**
- Development control, local authorities and protected species surveys - Research Report No 479, 2003 English Nature
 - Working with Wildlife. A resource and training pack for the construction industry (C587TP) CIRIA Authors: Newton, J., Williams, C., Nicholson, B., Venables, R. and others 2004 ISBN 0 86017 587 1
 - Guidelines for Environmental Impact Assessment in the united Kingdom, IEEM 2006 www.ieem.net/ecia
- Geodiversity**
- Geological conservation-a guide to good practice English Nature 2006 ISBN 1 85716 906 9
- Amphibians and reptiles**
- Reptiles: Guidelines for developers, English Nature 2004 ISBN 1 85716 807 0 <http://naturalengland.twoten.com/naturalenglandshop/docs/IN15.1.pdf>
 - Facts about Reptiles, English Nature 1993
 - Herpetofauna Workers' Manual, Gent, T. and Gibson, S. Eds. 2003 JNCC ISBN 1 86107 4506
- Badgers**
- Badgers and Development, English Nature 2002 ISBN 1 85716 614 0 <http://naturalengland.twoten.com/naturalenglandshop/docs/IN7.5.pdf>
- Barn owls Owl**
- Barn Owls on Site; A Guide for Developers and Planners, English Nature on behalf of The Barn Owl Trust 2002. http://www.barnowltrust.org.uk/content_images/pdf/BarnOwlsOnSite.pdf
 - Barn Owls and Major Roads - Barn Owl Trust. http://www.barnowltrust.org.uk/content_images/pdf/Barn_Owls_and_Major_Roads.pdf
- Bats**
- Bats and Trees, Bat Conservation Trust 1997 www.bats.org.uk/downloads/Helpline/01.10.12_bats_trees.pdf
 - Bats and Buildings, Bat Conservation Trust 2004 www.bats.org.uk/downloads/Helpline/Bats_and_Buildings_June04.pdf
 - Focus on bats: discovering their lifestyles and habitats, Natural England 2007 http://naturalengland.twoten.com/naturalenglandshop/docs/NE23focus_on_bats.pdf
 - Bat Mitigation Guidelines, <http://naturalengland.twoten.com/NaturalEnglandShop/product.aspx?ProductID=77002188-97f9-45a5-86a6-326a7ea3cd69> English Nature 2004 ISBN 1 85716 781 3
 - 3rd Edition Bat Workers' Manual, Mitchell-Jones, A.J., & McLeish, A.P. Eds., 2004. ISBN 1 86107 558 8 www.jncc.gov.uk/page-2861
 - Bat Surveys - Good Practice Guidelines, Bat Conservation Trust 2007 ISBN 978 1 872745 99 2 www.bats.org.uk/biodiversity/BatSurveyGuidelines.asp
- Dormouse**
- The Dormouse Conservation Handbook, Bright, P., Morris, P. and Mitchell-Jones, T. 2006 (2nd edition). English Nature, Peterborough.
 - Surveying dormice using nest tubes- results and experiences from the South West Dormouse Project, Chanin, P. and Woods, M. English Nature Research Report 527 2003.
- Otters**
- Otters and River Habitat Management, The Environment Agency 1993. Out of print
- Invertebrates**
- Organising surveys to determine site quality for invertebrates- A framework guide for ecologists, English Nature. 2005. ISBN 1 85716899 2



When essential works needed to be carried out close to a badger sett at RAF Portreath an alternative sett was provided under licence. Photo: Cornwall Environmental Consultants

Environmental Impact Assessment and Appropriate Assessment

Some developments require an Environmental Impact Assessment (EIA) under the Town and Country Planning Regulations 1999. Even permitted development that could have a significant impact on conservation interests may require an EIA. If in doubt applicants should initially contact the local planning authority so that the application may be 'screened' to determine if an EIA is necessary.

Appropriate assessment is required by law for sites designated as SPA and SAC. Appropriate assessment is also required, as a matter of Government policy, for potential SPAs, candidate SACs and listed Ramsar Sites for the purpose of considering development proposals affecting them.

Stage 2: Design

Protecting the biodiversity/geodiversity present on the site

In designing any development, the first step to building in biodiversity and geodiversity is to protect existing key habitats, species and geological features. The approach should be to use survey information to design biodiversity and geodiversity into new developments as far as possible. Site layout and design should seek to retain existing habitats, ecological features and geological interest, giving priority to Biodiversity Action Plan habitats and species where they are present. If this cannot be achieved at a particular site, is that site the most suitable for the type of development proposed? In some cases seeking an alternative site could be a better option. This section is based on the key principles of PPS 9²³.

Consideration also needs to be given to natural features just outside the application site which may be affected by the scheme. This is especially necessary where adjacent sites may be designated for their biodiversity or geodiversity value, and where a linear habitat such as a water course, Cornish hedge or hedgerow which may act as a wildlife corridor, will be affected by the development.

Cornish hedges and development

The typical Cornish hedge is a stone-faced earth hedgebank often with bushes and trees growing on it. Cornish hedges can also be of turf construction with little stone facing. Well managed Cornish hedges represent a linked, stable habitat supporting a wide range of animals and plants. Hedges are also of great landscape, historical and geological importance.

Stage 1 - Surveys and information gathering

The definition of a hedge used in the Hedgerow Regulations does not accord with all Cornish hedges, since many do not have rows of trees or bushes on them. Many Cornish hedges are very rich in plants and animals and are of high landscape and historical importance yet are not classed as 'important' under the regulations. The Hedge (and Wall) Importance Test (HIT), devised by the Guild of Cornish Hedgers is an alternative which can be applied to all hedges, dry stone walls and hedgerows, including Cornish hedges. For more information on the HIT test see www.cornishhedges.com

The design stage here should lead clearly and logically from the survey information gathered during Stage 1. Where a site or its surroundings have clear biodiversity value and no steps, or insufficient steps, are taken to reasonably protect this value, then planning permission may be refused.

Stage 2 - Designing in biodiversity/geodiversity

Protection - Cornish hedges should be retained and incorporated into the design of developments wherever possible. Where some hedges cannot be retained the HIT test can be used to help assess which hedges should be prioritised for retention. Connectivity of hedges is a very important consideration.

Mitigation - Where hedge banks and hedgerows are retained as part of a development, provision of adjoining strips of buffer habitat such as rough grassland or scrub at least 2m wide on each side of the hedge can have a positive impact on biodiversity.

Compensation - Where it is not possible for all hedges to be retained; equal length(s) of new hedge should be built within the development site in compensation. These new hedges (or areas of trees and shrubs if it is not possible to build new hedges) should connect into the retained hedge network and other areas of retained semi-natural habitat. All stone and soil from any removed hedges should be re-used for building the new sections as detailed in the Guild of Cornish Hedgers' Code of Good Practice for Cornish Hedges available at www.cornishhedges.com. Where new material is required it should match the stone type of the original hedges.

Enhancement - Enhancements to existing hedges can include repair of damaged sections, building new sections to link to other hedges on site and on neighbouring sites and bringing neglected hedges back into active management. Any damaged retained hedge sections should be repaired using stone reclaimed from the site wherever possible to match the existing hedge pattern.

Stage 3 - Construction stage

Hedges that are being retained as part of a development, or new hedges that are created should be protected using fencing during construction works. Where Cornish hedges are to be repaired as part of a development, or new hedges created, techniques should follow the Guild of Cornish Hedgers' Code of Good Practice for Cornish Hedges.

Stage 4 - Monitoring and management

Management options for retained and new Cornish hedges should form part of an overall management plan agreed with the developer.

Further information

Additional information on Cornish hedges and development is available on the Guild of Cornish Hedgers website detailed above.

Mitigating harm caused by the development

Every effort should be made to avoid harm to existing habitats, species and geological features through design measures. Where this is not possible, reasonable alternative sites should be considered. If there are no alternative sites it may still be possible to minimise potentially damaging impacts through mitigation measures. In such cases adequate mitigation steps should be **proposed by the developer** and will then normally be the subject of planning conditions or obligations on design, methods or timing of development.

Mitigation measures are used to minimise damaging impacts, they can include, amongst others:

- Timing the development of sites to avoid the breeding seasons of species present
- Creating buffer zones between sensitive areas and development areas to reduce disturbance to habitats
- Ensuring that new infrastructure such as bridges are built to enable movement of wildlife to continue
- Translocation of species from destroyed habitat, to be used only as a last resort and should follow IUCN guidelines.
- A financial contribution to management of nearby existing wildlife sites, through a commuted sum, can be required where the development could lead to increased pressure on those sites (e.g. noise, light pollution and disturbance through increased amenity use)

For further examples please see the case studies in section 3.

It must, however, be remembered that mitigation still entails harm of some form. Where a site or its surroundings have clear biodiversity and/or geological value and the proposed mitigation steps are insufficient to reasonably protect this value, then planning permission may be refused on these grounds.

Some operations that affect protected species may require a Natural England licence before work can commence. Wildlife licences may be needed even after planning permissions have been granted. Natural England's Wildlife management and Licensing Service in Bristol will provide advice on licence application procedures, but a qualified Ecological Consultant will usually be needed to submit an application. For further information on licensing issues see www.naturalengland.org.uk/conservation/wildlife-management-licensing.

Compensating for habitat loss

Where damage is unavoidable, alternative sites are not available and damage will still occur in spite of mitigation, loss to biodiversity can in some cases be compensated for by creating new habitat in replacement either on or off-site. Some examples of how this can be done are given in Table 2 below.

Where this is appropriate then the steps required will be proposed by the developer and will then normally be the subject of planning conditions or planning obligations (see Stage 4: Monitoring, Management and Enforcement, below), for example to ensure re-creation of habitat in a certain place by a certain time. An arrangement can be made for the developer to provide money for habitat creation and maintenance, either on or off-site.



Small scale enhancement like this barn owl box on a South West Water building at Portscatho can be easily and inexpensively incorporated into the design of a development. Photo: Tim Warne

Established habitat usually acquires biodiversity value over a very long period of time as its ecology diversifies and changes. Artificially recreated habitat will therefore usually be greatly inferior to established habitat for example, newly planted woodland is of lesser value than existing ancient woodland. For this reason compensation is the least favoured option. There are only very limited circumstances where this loss is justified. If significant harm cannot be prevented, adequately mitigated against, or compensated for, planning permission could be refused on nature conservation grounds.

Enhancing the biodiversity/geodiversity of the site

Developments should aim to enhance biodiversity and geological conservation interests, regardless of the current status of the site, in line with PPS 9. This will ensure that it contributes to the wider aims of enhancing urban and rural areas overall, and delivery of the BAP and GAP. Enhancement should be appropriate to the scale of the development. Options include design

measures for individual buildings through to larger development sites. Major developments can have the greatest impact, but also offer the greatest opportunities for biodiversity and geological conservation.

Developers should look to design in opportunities to improve habitats for biodiversity conservation, and to increase the overall quality of the development by enhancing existing habitats and geological features or creating new areas appropriate to the wider landscape context. This should be **in addition to any necessary mitigation or compensation**. The draft south-west Regional Spatial Strategy²⁴ includes targets for re-creation of BAP habitats and Naturemap²⁵, a tool for targeting large-scale habitat creation schemes. The Cornwall and Isles of Scilly Landscape Character study 2005-7 available at www.cornwall-landscape.gov.uk gives information on which habitats are important in particular areas. Together the BAP targets, Cornwall Landscape Character study and Naturemap can inform proposals to create wildlife habitats.



When this bridge was strengthened an otter ledge was incorporated to allow passage during high river flows and stop otters attempting to cross the road. Photo: Kate Stokes

24. The SW Regional Spatial Strategy www.southwest-ra.gov.uk go to SWRA then Regional Spatial Strategy planning-RSS

25. The SW Nature Map www.swenvo.org.uk/nature_map/nature_map.asp

Table 2 - Creating, restoring and enhancing habitats

The table below gives examples of the kinds of enhancement that can be carried out. Existing habitats can be used to inform the choice.

What habitats are present?	What can be created, restored or enhanced?- Some examples	Relevant Case study (see chapter 3)
Coastal location	●Restore intertidal habitats ●Use soft engineering for coast protection ●Create coastal grassland	3
Waterways, water bodies	●Enhance water body- e.g. by reprofiling banks or buffering ●Create a new water body ●Create habitat suitable for otters/amphibians ●Enhance waterway- e.g. by opening up culverts, fencing sections of heavily grazed bank or treating polluted water	4, 5
Wetland	●Create a sustainable drainage scheme that is also a wetland habitat next to wetland areas (not on top)	1, 4
Building or other structure	●Incorporate barn owl or bat 'lofts' ●Erect bird boxes ●Erect bat boxes and use 'bat bricks'	2
Grassland	●Create an area of wildflower meadow, acid grassland, wetland scrapes- depending on the quality of the existing wetland ●Create new areas adjacent to the site	1, 4, 5
Cornish hedge	●Enhance by repairing damaged sections and implementing appropriate management regime ●Link existing hedges by creating new ones ●Link other habitats by creating new hedges	1, 2, 4, 5
Mine sites/ quarries	●Retain and manage areas supporting important species ●Create suitable conditions for colonisation by lower plants and invertebrates, e.g. green/rubble roofs	4, 5
Woodland / Scrub	●Manage existing woodland for biodiversity, particularly old woodland ●Buffer woodland areas and link to other habitats ●Plant new trees, erect bat/bird/dormice boxes	1, 4, 5
Trees	●Retain existing ancient/mature trees and trees with cracks, splits, deadwood and lifted bark ●Buffer from developments ●Plant native species ●Facilitate natural regeneration (allow trees to grow naturally from seed buried in the soil)	1, 4, 5
Heathland	●Bring existing heathland areas into best practice management ●Extend existing areas using established re-creation techniques	5
Other habitats	●Use landscape character assessment, the SW Nature Map and the Cornwall BAP to inform decision on what should be created	All

Table 2- Creating, restoring and enhancing habitats (continued)

What species are present?	How can the site be protected and enhanced for the species?	Relevant case study (see chapter 3)
Bats	● Incorporate bat 'lofts' within conversions ● Erect bat boxes ● Retain existing ancient/mature trees and trees with cracks, splits, deadwood and lifted bark ● Suitable planting & habitat links ● Creation of feeding habitat- ponds, grassland, hedges, scrub	1, 2, 4, 5
Badgers	● Retain and create mosaic of woodland, scrub, orchards and pasture ● Install underpasses below new roads	
Otters	● Retain or create undisturbed habitat by rivers ● Retain large bank side trees ● Establish wet woodland, bank side trees and scrub ● Remove barriers to passage such as culverts , add otter ledges to bridges and create ponds	4
Dormice	● Retain and create linked areas of woodland, scrub and hedges ● Appropriate hedge management ● Erect dormice boxes	1
Other small mammals	● Retain and create undisturbed habitats - rough grassland ● Establish native planting & habitat links	1,2,4
Newts and other amphibians	● Retain and create accessible ponds with some shading ● Retain and create mosaic of scrub, hedges, woodland and grassland around ponds	5
Reptiles	● Retain and create undisturbed areas of habitat and basking areas of bare ground/short grass on south facing slopes ● Create small south facing slopes for basking ● Construct log piles and hibernacula ● Create wetland areas for grass snakes	4
Barn owls	● Create barn owl loft and/or erect barn owl boxes on sites over 1km from main roads ● Retain and create grassland habitats and woodland edges, preferably away from roads	2
Other birds	● Provide swift, swallow and house martin boxes attached to buildings ● Provide other bird boxes on trees etc ● Establish native planting particularly berry and seed producing trees and shrubs ● Create green/rubble roofs on new buildings	4, 5
Wildflowers	● Establish native species following best practice guidance for establishment and management ● Create green/rubble roofs on new buildings	4
Mosses, liverworts and lichens	● Create green/rubble roofs on new buildings ● Create bare areas of suitable substrate	5
Invertebrates	● Create mosaic of scrub, hedges, grassland ● Create ponds with shallow sides ● Create bare ground ● Retain and create deadwood habitats	1,4,5

Further information sources on building biodiversity and geological conservation into developments

- A Natural Estate, Neighbourhoods Green 2007
<http://www.neighbourhoodsgreen.org.uk/ng/resources/publications/A%20natural%20estate.pdf>
- Biodiversity by design - A guide for sustainable communities, Town and Country Planning Association 2004
http://www.tcpa.org.uk/biodiversitybydesign/pdfs/TCPA_biodiversity_guide_lowres.pdf
- Building greener - Guidance on the use of green roofs, green walls and complementary features on buildings (C644) Early, P., Gedge, D., Newton, J., Wilson, S. 2007 ISBN 0 86017 644 4 www.ciria.org/buildinggreener
- Geological Conservation - A guide to good practice, English Nature 2006
<http://naturalengland.twoten.com/NaturalEnglandShop/product.aspx?ProductID=712db525-75de-4079-862e-5b654546ea56>

Stage 3: Construction – All activities relating to site clearance and building phases

Regardless of how effectively the biodiversity and geodiversity values of the site have been identified and considered through the project planning and design stages, there remains a risk that environmental impacts will occur during the construction phase unless specific measures are taken to prevent or minimise this. Also, it is not acceptable to promise an enhanced local environment once the development has been completed if this involves avoidable impacts during construction.

Pollution legislation

Many of the activities that take place on a demolition or construction site have the potential to cause pollution of air or water and re-mobilisation of soil contaminants, including invasive species such as Japanese knotweed (see table below). Such activities are subject to their own legislation, regardless of the benefit of planning permission. These include the following:

Water Resources Act 1991

Environmental Protection Act 1990

Wildlife and Countryside Act 1981(as amended)

The Environment Agency has a range of information leaflets concerning pollution prevention, many of which are relevant to construction activities - e.g. Pollution Prevention Guidance Note 5: Works in, near or liable to affect watercourses. Further information can be found via: www.environment-agency.gov.uk

Construction Method Statement

Depending upon the scale and complexity of the proposed development, it may be appropriate to produce a Construction Method Statement, detailing methods of working to prevent or minimise impacts arising from site

clearance, demolition and construction. This must contain adequate information to provide reassurance that impacts can be controlled. It should include at least the following:

- Details of site location and all plant and machinery to be used on site
- Details of all materials to be used on site
- Likely or intended access routes into and around the site – these aren't necessarily required on planning applications, but can result in impacts if not considered
- Temporary works designs – e.g. for structural repair
- Details of site offices, compounds and other temporary structures
- Details of service provisions both temporary and permanent
- Materials storage provisions and re-fuelling arrangements
- Exclusion areas to protect trees and other habitat and landscape features
- Details of how invasive species such as Japanese knotweed, if present, will be controlled and managed
- Details of the procedure for dealing with the unexpected discovery of a protected species once work has commenced, e.g. stop work and seek advice

Environmental Clerk of Works (ECW)

For large developments the use of an ECW is often useful to ensure that attention to environmental matters becomes an ongoing process. As well as ensuring that any and all protective measures remain intact at all times, they could also provide training to other site staff in, for example, emergency spill procedures or flooding. In some cases supporting specialists may be required, such as an arboriculturalist.



Cornish hedges link other habitats together and support a wide range of plants and animals. Photo: Cheryl Marriott

Table 3- Frequent impacts related to construction and how these can be avoided

Hazard	Development activities	Potential Environmental Impacts	Actions to reduce risk
Siltation	- Exposing bare ground - Vehicle tracking - Poorly located soil stockpiles - Poorly stored/careless use of materials including cement	- Smothering fish spawning gravels in receiving watercourses - Nutrient enrichment of watercourses or wetlands - Smothering vegetation (on land and in watercourses/marine environment) - Changing pH of soils/sediments eg cement dust - Run-off to roads; blocking of gullies	- Seed or cover soil stockpiles - Provision of temporary drainage or settlement system or bunding - Regular cleaning of site roads and working areas - Careful storage and use of materials - Spraying surfaces to prevent dust creation with controls to prevent impacts on watercourses and wetlands
Toxic Contamination	- Poorly stored machinery, chemicals and materials, including concrete - Poor re-fuelling practices - Excavation of contaminated soils, including via dredging	- Pollution of watercourses, wetlands or groundwater, leading to death and damage to flora and fauna - Direct uptake through roots and foliage leading to death and damage to plants	- Adopting proper storage and re-fuelling locations and procedures - Establishing, and practising, emergency procedures - Agreeing in advance method for dealing with contaminated sediments
Disturbance	- Any noise, vibration or light-generating activities above ambient situation - Lorry movements to, from and within site - Increased human activity	- Disruption to sensitive species, possibly affecting feeding, breeding or roosting - Disruption to species outside actual development footprint (eg. on temporary access trackways and adjoining land)	- Identify particularly sensitive species at outset and plan works to avoid key times - Adopt low noise-emitting methods - Fully consider access routes etc at project design stage - Use of appropriate lighting and light management plan on sensitive sites
Invasive species – eg Japanese knotweed	- Ground excavation, earthmoving - Vegetation management - Vehicle movement	- Invasive species are able to spread to new locations - Contamination of waste leading to increased disposal costs	Identify species at outset, seek specialist advice, prepare a method statement for its management and ideally treat in-situ before excavation
Destruction of bio- or geodiversity key feature	- Site clearance – including vegetation clearance and building demolition prior to construction - Excavation - Material storage eg. Soil	- Death and destruction of flora and fauna, or their habitats - Damage or burial of geological exposure - Damage to root systems of important trees and shrubs by cutting or by soil compaction	- Identify all key features for retention in initial survey - Protect with fencing for duration of building phase - see BS 5837 for details of protective fencing for trees
Hydrological change	Excavation of foundations, service trenches etc	Alteration of surface or groundwater flows leading to changed habitats	Utilise drainage blankets etc in sensitive locations, avoid excessive excavation

Stage 4: Monitoring, management and enforcement - Once planning permission has been given

Developers should monitor and manage enhancement, mitigation and compensation measures. A competent ecological consultant will be able to devise a monitoring scheme appropriate to the scale of the development and implement it for an agreed time period. Monitoring the success of these measures gives information that can be used to assess whether the development needs modifying or if further mitigation or compensation is needed.

If information on the success of mitigation and compensation is made available to conservation organisations through the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) it allows everyone to learn from the developer's experience and inform future projects. Monitoring is likely to be essential as part of a European protected species licence.

Planning conditions and planning obligations

It is good practice to address biodiversity and geological conservation as completely as possible within the design of the development approved. However, it will often be necessary to secure further matters through the imposition of conditions and/or obligations.

Planning conditions mitigate identified harm that would otherwise result in the refusal of the application. Planning **conditions** achieve this in several ways on the development site including:

- A developer monitoring a site during and post construction to ascertain any effects on wildlife, especially protected species
- Ensuring that the development process continues to

comply with PPS 9 after planning permission has been granted, for example by requiring an ecological watching brief

- The monitoring of retained features and of new or enhanced habitats to gauge their success
- Restricting or regulating the development in some way, for example by requiring certain operations to be carried out at set times of the year
- Requiring works to be carried out, construction of a barn owl nesting box as part of a barn conversion or habitat enhancement for example.
- Requiring schemes or further details such as a detailed landscaping scheme to be submitted for approval to the Local Planning Authority.
- Requiring the incorporation of existing ecological/geological features such as trees, hedges and mine waste dumps and their protection during construction.
- Limiting the duration of all or part of the development
- Requiring appropriate management and maintenance after construction to benefit biodiversity and geodiversity.

Conditions can only be used where they are: necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise and reasonable²⁶.

Planning **obligations** are an agreement between the planning authority and the developer (those with a legal interest in the land). They are sometimes used to address biodiversity or geological conservation issues, particularly where enhancement or mitigation measures are to be carried out outside the application site.



*A survey showed that bats were using this barn, which was subsequently converted under a protected species licence
See overpage. Photo: Steve Marshall*

Planning obligations are usually used where financial payments or on-going management are required to address biodiversity or geological conservation concerns, they should be necessary to make an otherwise unacceptable development acceptable. Planning obligations should also be reasonable, serve a planning purpose and relate to the proposed development in scale and kind²⁷. Section 106 agreements are the usual way of formalising planning obligations.

Examples of the use of planning obligations:

- Provision of access and interpretation facilities for an area of biodiversity interest or a geological feature
- Provision of new habitats or geological exposures
- Off-site monitoring of the hydrological effects of development
- Financial provisions such as a commuted sum for management to cover long-term maintenance costs
- Ongoing management of new or improved habitats after the initial after-care or landscaping maintenance period, possibly through a 5-year (or longer) management plan with the developer
- Agreement with the local parish council, conservation group, the relevant housing association, the local authority or local residents group, where that group may be prepared to take on management responsibility.

In addition to planning conditions and obligations, informatives may be attached to planning application decision notices. Informatives guide the applicant to other consents that might be necessary, such as a European Protected Species licence issued by Natural England. Informatives are not a statutory part of the decision notice but should be carefully considered as they may assist in ensuring a development is properly carried out.

Planning Gain Supplement

At the time of writing the Government has consulted on proposals to introduce a planning gain supplement. This would use some of the money associated with increased land values for land with full planning permission to provide site infrastructure. In future this may be the main mechanism for securing contributions from developers to achieve biodiversity objectives. Once the Government has made a decision on this we recommend that LPAs meet with relevant nature conservation bodies to agree the best approach.

Development plan monitoring

Local Planning Authorities are required to monitor the effectiveness of their plans and policies. It is useful for developers to provide relevant information such as the area of BAP habitats that will be lost, restored, maintained and created as part of a development. The Local Planning Authority can provide guidance on their monitoring requirements.

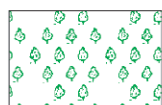


This barn was converted under a protected species licence. Monitoring post-conversion has shown that bats continue to use the building. Photo: Steve Marshall

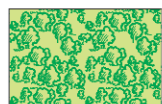
27. Planning Obligations Circular 05/2005, ODPM 2005 www.communities.gov.uk/publications/planningandbuilding/circular/planningobligations

3 Case Studies

KEY



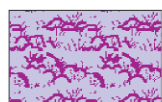
Orchard



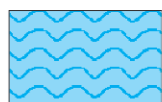
Woodland



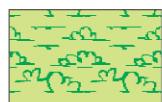
Grassland



Heathland



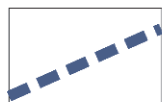
Stream/sea



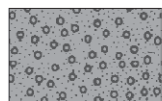
Scrub



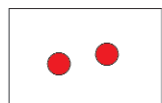
Buildings/roads



Paths



Builders' rubble



Chain mooring



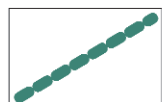
Litter/fly tipping



Japanese knotweed



Mature trees



Cornish hedge

Case Study 1: Residential development. BEFORE.

Site Assessment

Site survey by consultant included an initial walk over survey, phase 1 habitat assessment, hedge assessment and individual species surveys.

Scheme Proposal

Residential development to include some affordable housing.

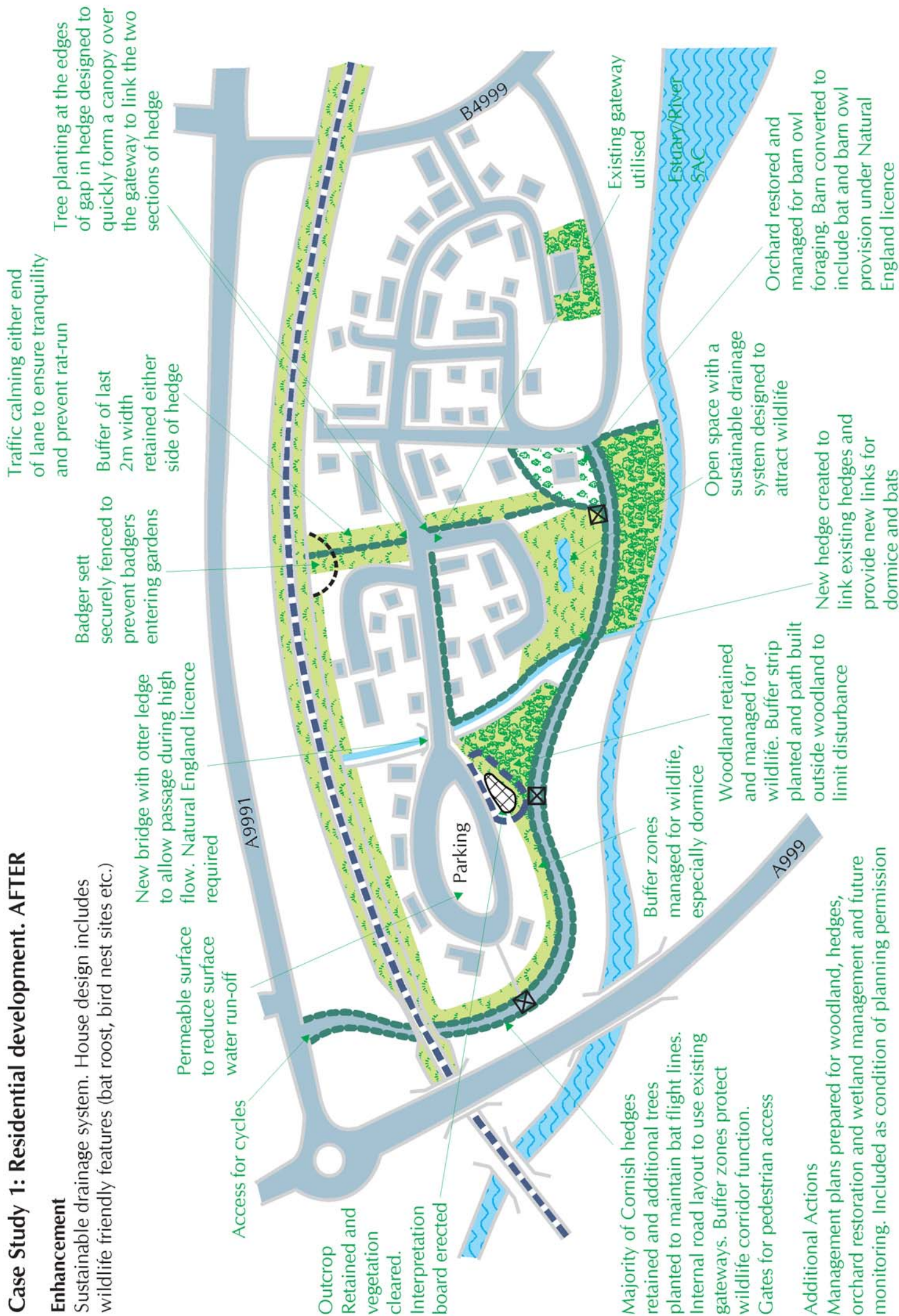
This site is a former dairy farm of small improved grassland fields and intensely managed hedges. It is on the outskirts of a settlement, bordered by a disused railway, a country lane and a River Special Area of Conservation.



Case Study 1: Residential development. AFTER

Enhancement

Sustainable drainage system. House design includes wildlife friendly features (bat roost, bird nest sites etc.)



Case Study 2 Building conversion and development. BEFORE

Site assessment

Habitat features

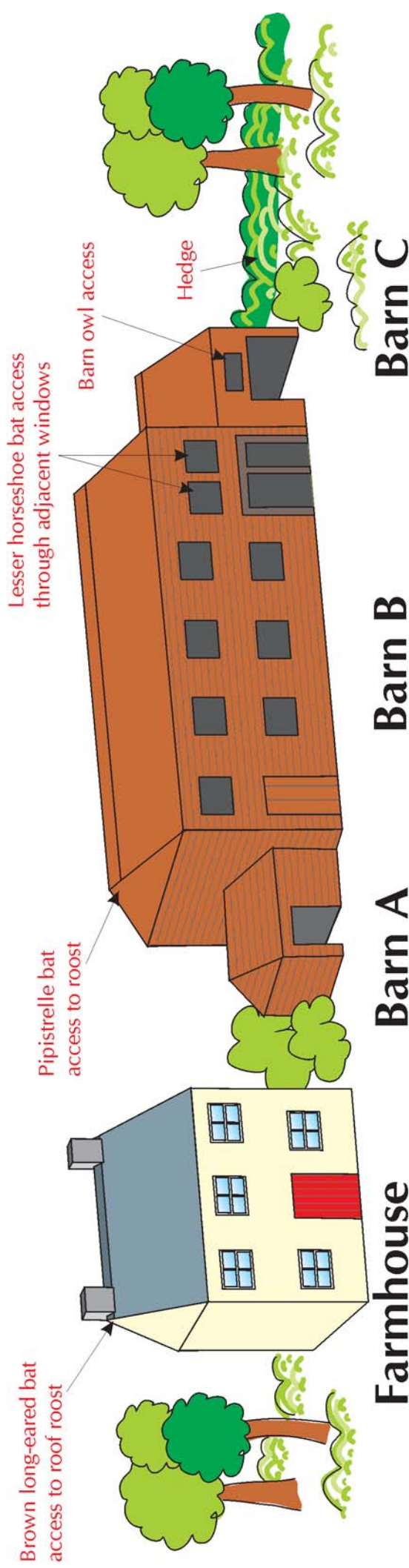
Hedge - species rich with mature trees linked to surrounding rural landscape and merges into vegetation around the buildings. Important feature to retain as provides shelter, nest sites and feeding opportunities for wide range of wildlife.

Scheme proposal

Barn conversions - residential accommodation

Farmhouse - 2 storey extension

New build - double garage



Farmhouse - maternity colony for brown long eared bats in the large roof void, used for pre-emergence warm up-flying. Access at the western gable end and under the ridge tiles. Bats emerge and follow the vegetation to forage in the surrounding woodland.

Barn A - used as a feeding perch for long eared bats and swallows nest on the beams and wall plates.

Barn B - maternity roost for the lesser horseshoe bat. The large dark open roof void and first floor areas are used for warm-up flying prior to emergence via the open unglazed windows. There is also a pipistrelle nursery roost in the western gable. This barn offers potential as hibernation site within the stone walls. House sparrows and swallows also nesting within the building.

Barn C - Barn owl nesting site, good access via unglazed windows. Good vegetation links to the surrounding landscape.

Case Study 2. Building conversion and development AFTER

Key Issues

Work to buildings A, B and C consultant applied for Natural England licence.

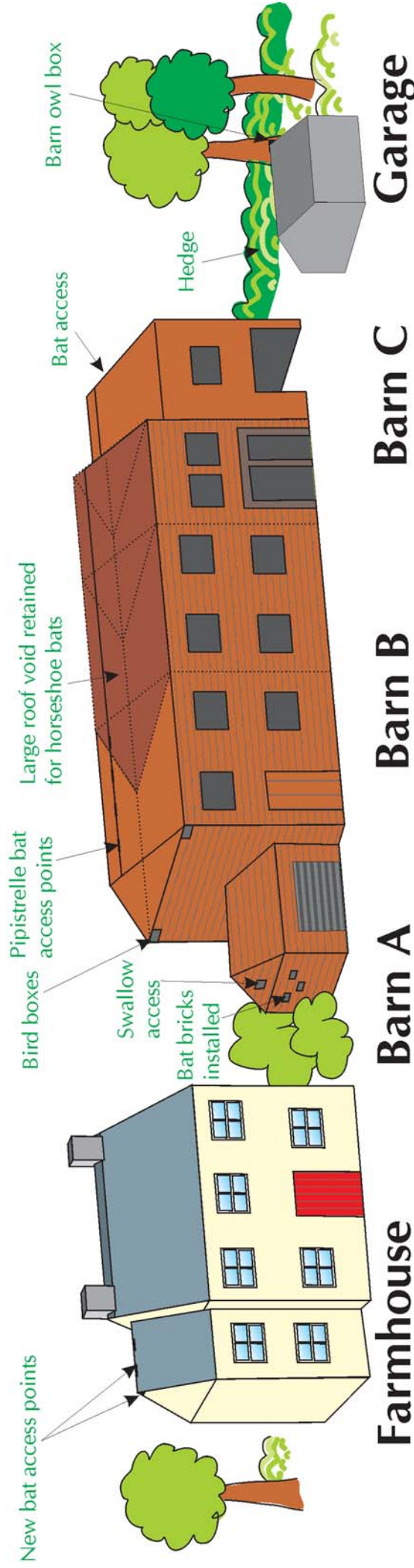
Work to farmhouse could have been undertaken with Natural England advice since it is a dwelling house, but due to complexity of site development consultant advised using licence system.

Mitigation should be appropriate for the species involved and depends upon impact and conservation significance.

Timing of works crucial - start outside of breeding season for bats and birds.

Monitoring crucial

Planning conditions and and/or obligations may be appropriate eg. lighting management.



Farmhouse - provide new bat access at gable of new extension. Bat access points incorporated along ridge of new roof.

Barn A - refurbished as a garage, retain open roof void to allow swallows access to beams for nesting and bats for feeding perches. New bat access holes/bricks installed. New swallow access installed

Barn B - converted into three dwellings. Two thirds of the roof void retained for use by lesser horseshoe bats, new gable/louvered access via Barn C. The western end of this roof void was converted, so new pipistrelle bat access incorporated along the ridge of the roof via adapted roof tiles. Bird nesting boxes attached to exterior.

Barn C - refurbished as a two -storey building. New dormer/louvered access provision made in the eastern gable for lesser horseshoe bats to gain their roost in Barn B. The ground floor was retained as an open storage area to allow swallows to nest.

Garage New Build - double garage provision made for barn owl box and access on the eastern end. New Cornish hedge built with recovered stone to accommodate reptiles and amphibians.

Habitats

Hedges - retained with some supplementary planting, to provide flight lines and protection to foraging areas, some clearance around building.

Lighting - Management agreement for low level, low voltage lighting on-site to limit disturbance to bats.

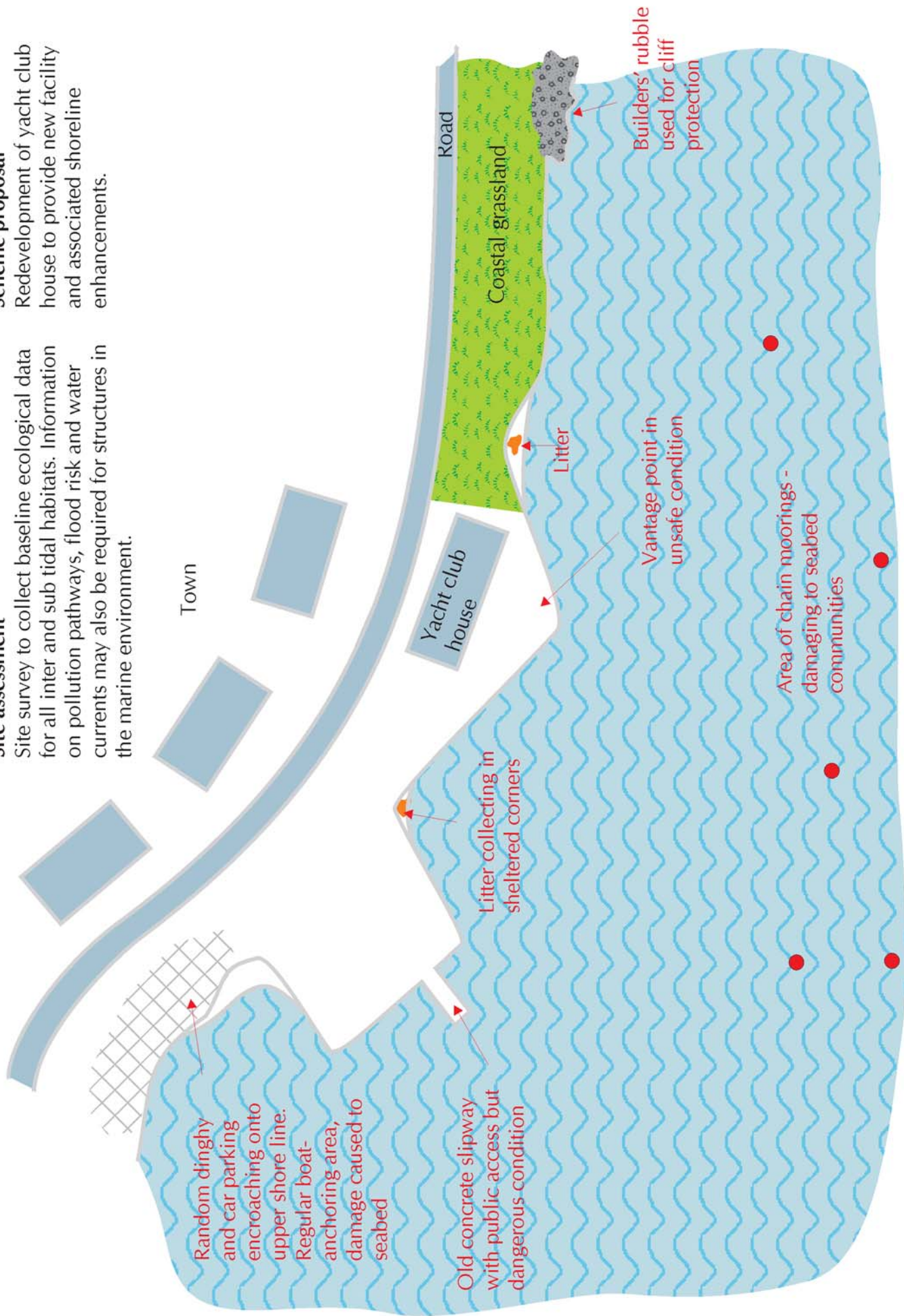
Case Study 3: Coastal development. BEFORE

Site assessment

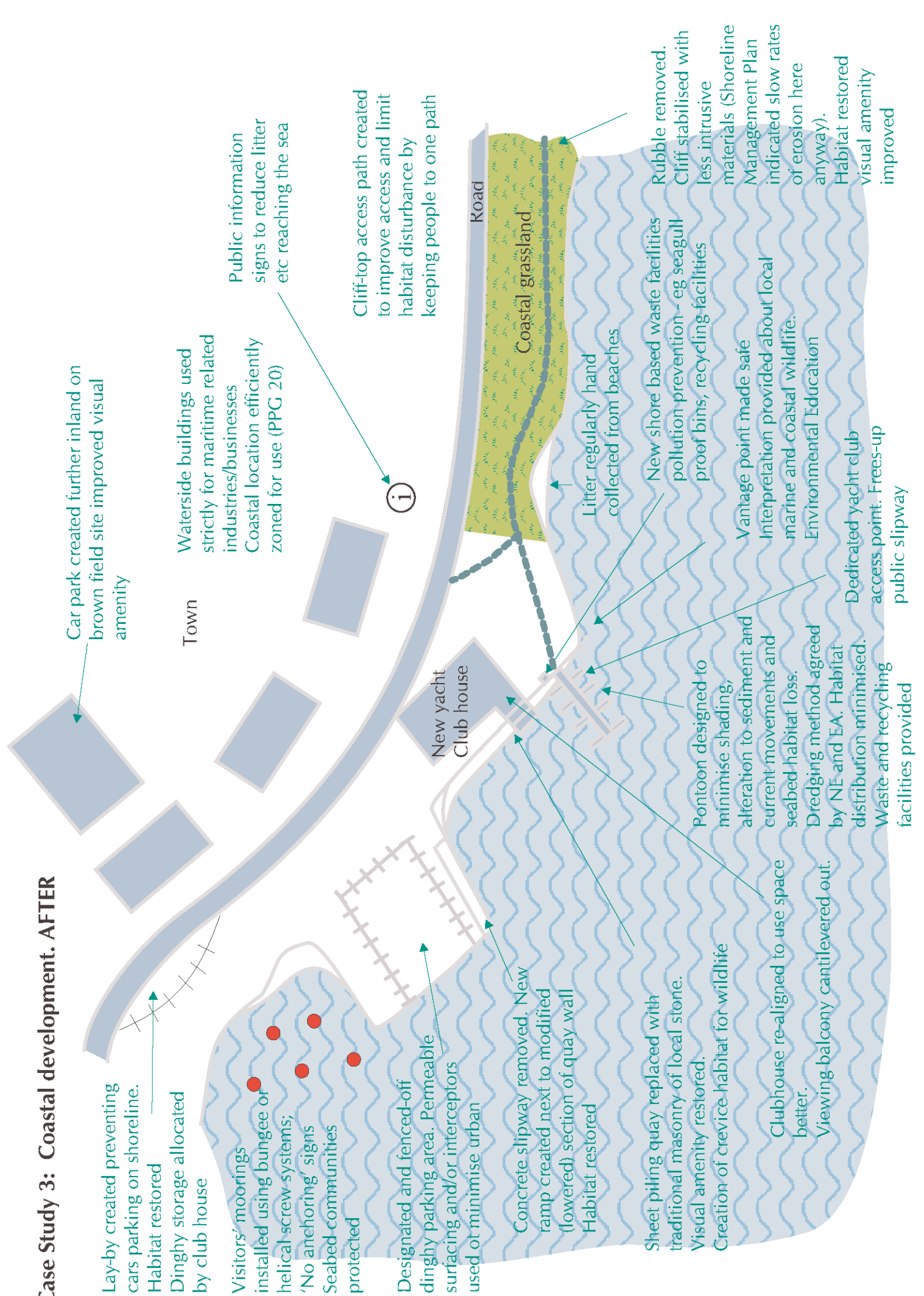
Site survey to collect baseline ecological data for all inter and sub tidal habitats. Information on pollution pathways, flood risk and water currents may also be required for structures in the marine environment.

Scheme proposal

Redevelopment of yacht club house to provide new facility and associated shoreline and enhancements.



Case Study 3: Coastal development. AFTER



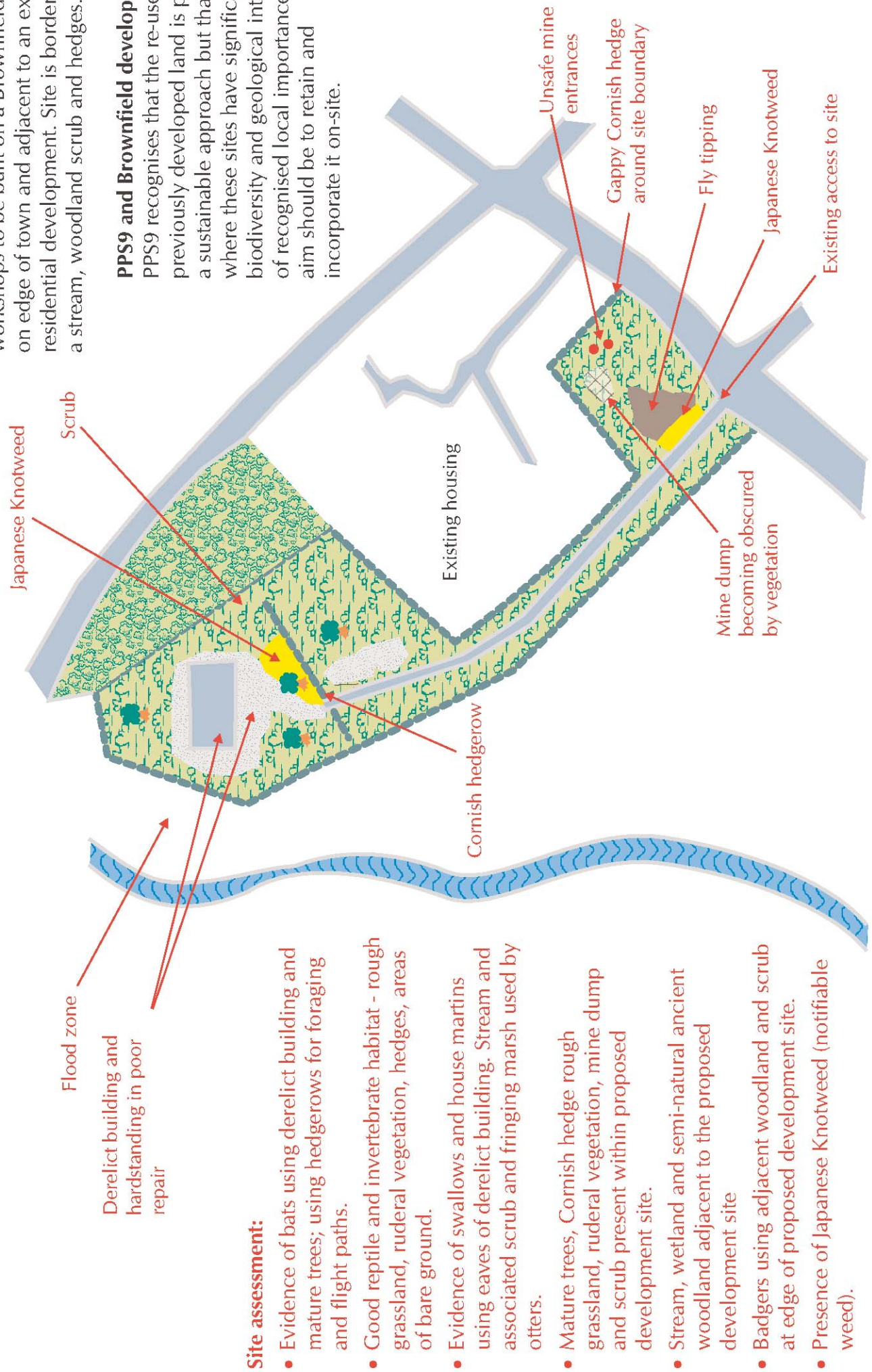
Case study 4. Industrial/commercial development on brownfield site. BEFORE

Scheme proposal

Small industrial units and commercial workshops to be built on a Brownfield site on edge of town and adjacent to an existing residential development. Site is bordered by a stream, woodland scrub and hedges.

PPS9 and Brownfield development

PPS9 recognises that the re-use of previously developed land is part of a sustainable approach but that where these sites have significant biodiversity and geological interest of recognised local importance, the aim should be to retain and incorporate it on-site.



Site assessment:

- Evidence of bats using derelict building and mature trees; using hedgerows for foraging and flight paths.
- Good reptile and invertebrate habitat - rough grassland, ruderal vegetation, hedges, areas of bare ground.
- Evidence of swallows and house martins using eaves of derelict building. Stream and associated scrub and fringing marsh used by otters.
- Mature trees, Cornish hedge rough grassland, ruderal vegetation, mine dump and scrub present within proposed development site.
- Stream, wetland and semi-natural ancient woodland adjacent to the proposed development site
- Badgers using adjacent woodland and scrub at edge of proposed development site.
- Presence of Japanese Knotweed (notifiable weed).

Case study 4. Industrial/commercial development on a brownfield site: AFTER

Impact

The development will result in the loss of a redundant building used by bats and birds, a stretch of Cornish hedge, two mature native trees, scrub, rough grassland and an increase in runoff (from hard standing) disturbance and light pollution

Bat/bird house

A new building will be created (Natural England) for use by birds and bats. It will have eaves, pitched roof and open front. Bat boxes will be installed in the brick walls, located away from main lighting sources

Nature area

Log and rubble piles created (using felled timber) to provide refuge for animals

South facing bank provides good basking site for reptiles

Bird hide installed by existing gap in the hedge for locals and workers

The topsoil of the retained area will be stripped off and allowed to regenerate naturally

Trees retained and specimens of local provenance planted to mitigate for trees lost

Otters

Additional foraging areas have been created including pond and reed bed

Clean surface water
Water from site discharged to balancing pond using a sustainable drainage system (SUDS) including a reed bed and then to the stream

Fuel storage

All fuel tanks on site banded to prevent pollution to the stream

Hedge

The boundary hedge retained and infilled with native species of local provenance. The hedge was created using existing material on site to re-use material lost to the development. This retains the seed source and will provide additional nesting areas for birds when mature

Bird and bat building

Scrub/immature woodland

Scrub edge retained to provide habitat and buffer zone for the woodland

Living roofs/solar panel

Living roofs installed using rubble from on site and plants allowed to colonise naturally. Solar panels will be installed on the buildings. Correct orientation to ensure maximum use of sunlight

Mine entrances

Secure without preventing underground access where safe and permitted²⁸

Japanese knotweed

A management plan will be written to control and remove the plant either in situ or removed to a licensed site with a three year follow up

Access track

The existing access track will be used to minimise impact

Mine dump

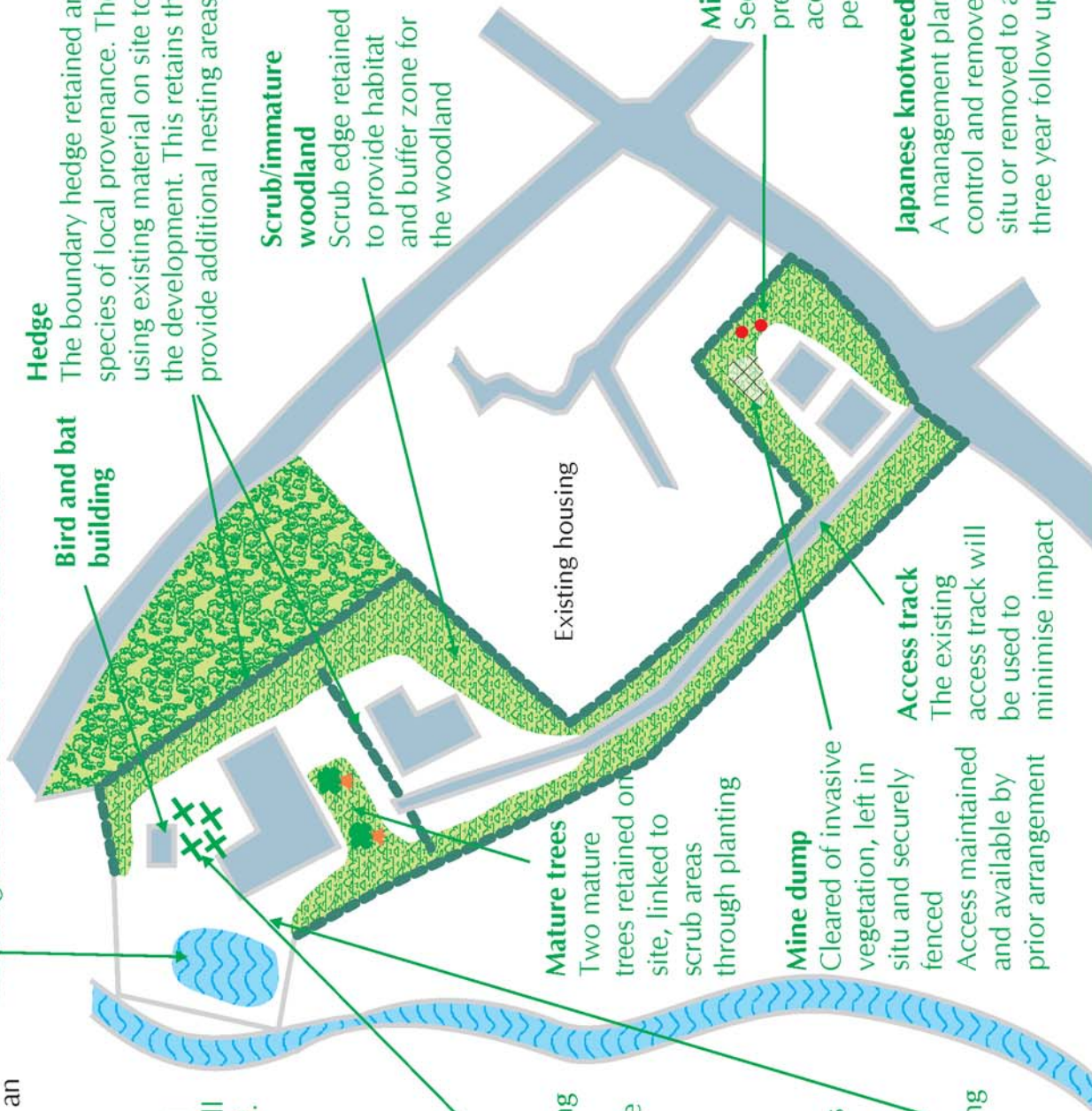
Cleared of invasive vegetation, left in situ and securely fenced

Access maintained and available by prior arrangement

Mature trees

Two mature trees retained on site, linked to scrub areas through planting

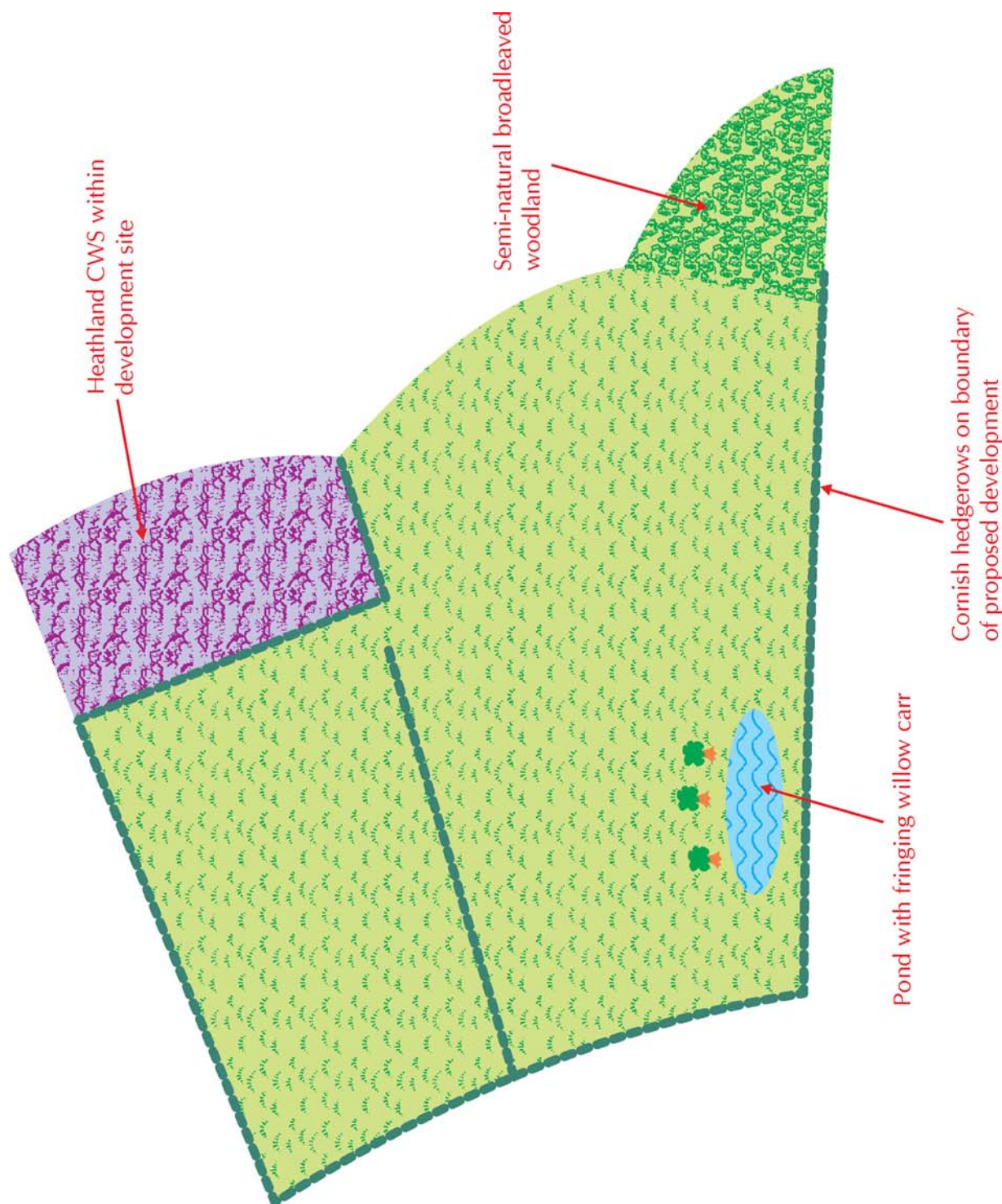
Existing housing



Case study 5: Quarry/mineral development: BEFORE

Site assessment

- Cornish hedges surrounding proposed development site and one internal hedge over workable mineral
- Agriculturally improved grassland
- Heathland CWS within proposed development area.
- Small semi-natural broadleaved woodland within proposed development site.
- Pond and fringing willow/wetland supporting amphibians and invertebrates (eg. Dragonflies)
- Geological interest.
- Bats using species-rich hedgerows/heathland/pond for foraging and flight paths.
- Record search showed an internationally rare moss has been found on Cornish hedges in this area, but a survey found none present at this site.

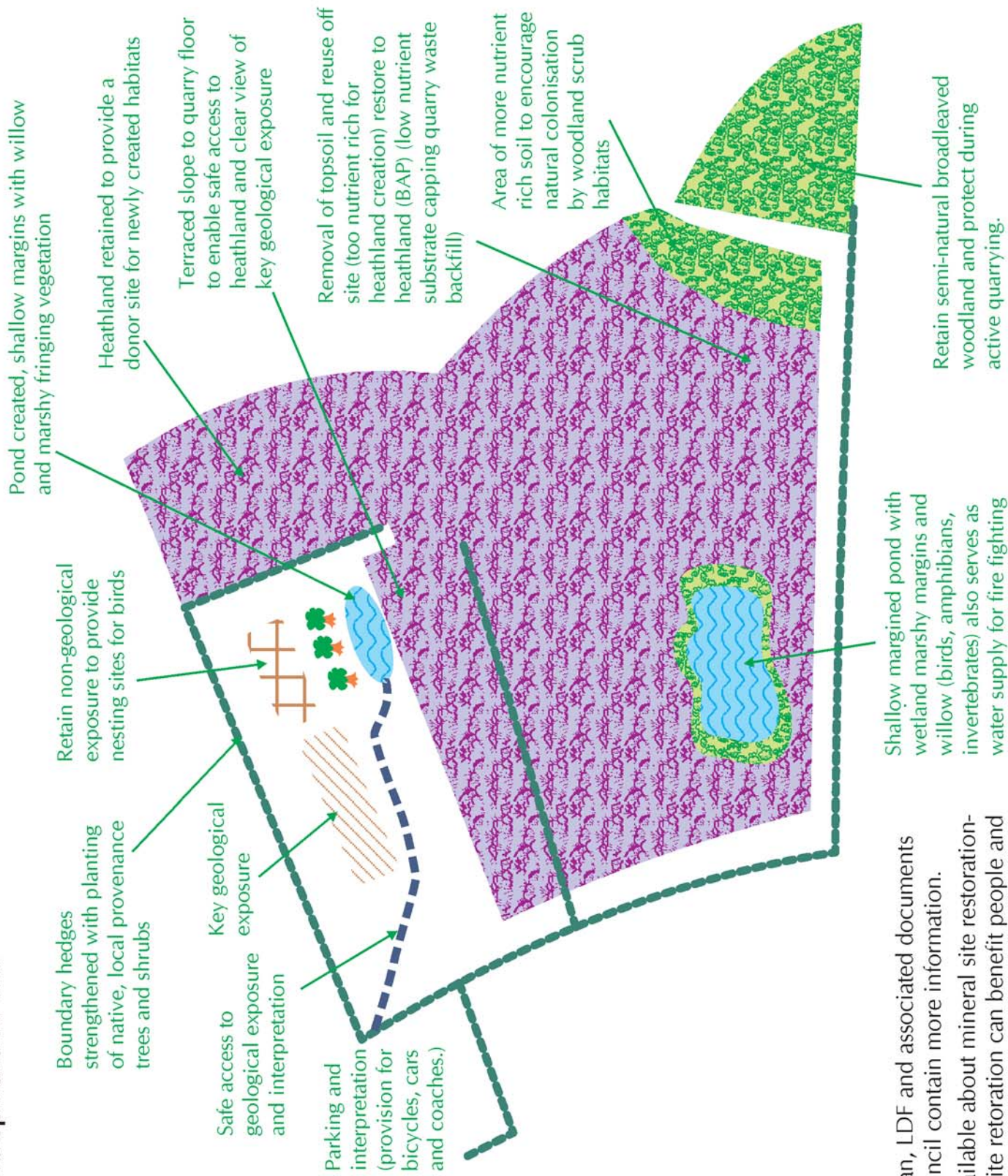


Cornwall County Council as the mineral planning authority will be preparing a Supplementary Planning Document on the design, landscaping, restoration and aftercare of mineral excavation and waste management sites which will supplement this Biodiversity and Geological Conservation SPD Good Practice Guidance.

Case study 5: Quarry/mineral development: AFTER

Mitigation and enhancement:

- Heathland CWS retained and protected by translocating hedge (to be lost to development) to western boundary of heathland and around parking.
- Key geological exposures identified and safe access for research and education provided together with interpretation and designate new RIGS/CGS site.
- Provide geological on-site rock store of material for research and education.
- Restoration of rest of site to heathland (UK HAP target) and associated habitats (scrub, wetland).
- Legal agreement (eg. section 106) to ensure management plan and long term management of heathland and geological interest is secured by keeping exposure clean and free of vegetation; to include provision for off site parking and site interpretation (could include lease/sale to conservation organisation/ local wildlife trust)
- The Cornwall minerals and waste plan, LDF and associated documents available from Cornwall County Council contain more information.
- The RSPB has a useful document available about mineral site restoration-Nature after minerals: how mineral site restoration can benefit people and wildlife A.M.Davies 2006 www.rspb.org.uk/ourwork/library/reports.asp



Appendix 1. Organisation contacts and their role in planning.

Organisation	Role in Planning Process	Contact Details
Natural England (Local Team Office)	Has a statutory role as consultee or advisor on protected species, development affecting statutory sites and ecological/geological aspects of EIA	Natural England: Cornwall, Devon and Isles of Scilly Team, Pydar House, Pydar Street, Truro, TR1 1XU. 01872 245045. cornwall@naturalengland.org.uk
Natural England (Licensing Section, Bristol)	Has a statutory role to issue and advise upon licences for legally protected species for the purposes of development	Natural England: Wildlife Management and Licensing Service, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ 0845 601 4523 wildlife@naturalengland.org.uk
Environment Agency	Has a statutory role as a consultee or advisor on sustainable development	Environment Agency, Sir John Moore House, Victoria Square, Bodmin, PL31 1EB cornwall.planning@environmentagency.gov.uk
Cornwall County Council	Minerals and waste planning authority and highway authority. Historic Environment Service: pre-application advice and general guidance on archaeology and historic landscapes; advice provided to LPAs on impact and mitigation. Living Environment Service: General guidance/ pre application advice for trees and ecology on applications to be determined by the County Council	Cornwall County Council Living Environment Service St.Clement Building Old County Hall Truro TR1 3AY 01872 322000
Caradon District Council	Local Planning Authority for all applications except minerals and waste and County Council developments in the Caradon District	Caradon DC, Luxstowe House Liskeard PL14 3DZ 01579 341000
Carrick District Council	Local Planning Authority for all applications except minerals and waste and County Council developments in the district	Planning and Leisure Services Carrick District Council, Carrick House Pydar Street, Truro TR1 1EB 01872 224400
Kerrier District Council	Local Planning Authority for all applications except minerals and waste and County Council developments in the Kerrier District	Kerrier DC, Council Offices Dolcoath Avenue, Camborne TR14 8SX 01209 614000
North Cornwall District Council	Local Planning Authority for all applications except minerals and waste County Council developments in the North Cornwall District	Development Control 3-5 Barn Lane Bodmin PL31 1LZ 01208 893333
Restormel Borough Council	Local Planning Authority for all applications except minerals and waste and County Council developments in the Restormel Borough	Planning and Building Control Restormel Borough Council Penwinnick Road, St.Austell PL25 5DR 01726 223300
Penwith District Council	Local Planning Authority for all applications except minerals and waste and County Council developments in the Penwith District	Planning and Building Control Penwith District Council St Clare, Penzance TR18 3Q 01736 362341
Cornwall Wildlife Trust	Non-statutory consultee to planning applications affecting County Wildlife Sites and for major developments	Five Acres, Allet, Truro, TR4 9DJ 01872 273939 info@cornwt.demon.co.uk
RSPB	Non-statutory consultee to planning applications affecting RSPB reserves and major developments likely to impact on areas important for birds.	The Manor Office, Marazion Penzance TR17 0EF 01736 711682
RIGS Group (Geology)	Non-statutory consultee to planning applications affecting County Geology Sites (RIGS) and minerals and waste planning applications	Five Acres, Allet, Truro TR4 9DJ 01872 273939 www.cornwallgeology.org.uk
Cornwall AONB Team	Advise on development proposals that are potentially damaging to the character of the Cornwall AONB	Cornwall AONB unit, Fal Building Treyew Road, Truro TR1 3AY 01872 322350 info@cornwall-aonb.gov.uk
Tamar Valley AONB unit	Advise on development proposals that are potentially damaging to the character of the Tamar AONB	Cotehele Quay, Cothele, St Dominick, Saltash, PL12 6TA 01579 351681 info@tamarvalley.org.uk
Environmental Records Centre for Cornwall and the Isles of Scilly	Collates, manages and disseminates environmental information, Five Acres,	Allet, Truro TR14 9BL 01872 273939 ext 240. www.ercis.co.uk
Forestry Commission	Consultee on any development that is within, or will potentially have an effect on, ancient woodland	Mamhead Castle, Mamhead, Nr Exeter, Devon, EX6 8HD. 01626 890666

