

1 Purpose

This document provides information on how to manage biodiversity for those working on infrastructure projects or maintenance works. This guidance is to support the *Level 2 Contract Requirements Environment standard NR/L2/ENV/015*.

1.1 Network Rail's interaction with biodiversity

As one of the larger landowners in Britain, Network Rail has the potential to affect a wide range of UK habitats and species, including many that are in decline and protected by legislation. This means that while Network Rail meets its obligation to provide a safe, timely and cost-effective railway network, we must also take account of the impacts that we have on local and national biodiversity.

In urban areas it is not uncommon for communities to rely on the railway network as a key component of their local greenspace landscape, despite not having direct access to these spaces. Rail landholdings and lineside vegetation corridors also provide a very important biodiversity function, by joining up fragments of greenspace that might otherwise be isolated and vulnerable. This connectivity allows wildlife to interact and disperse, and can provide vital resilience to wildlife populations. However, pressures from continuing urbanisation and the expansion of the railway network could threaten the habitats and wildlife found beside the railway.

As illustrated in Figure 1 below, Network Rail can have significant interaction with biodiversity through:

- Infrastructure development projects and renewals; and
- Asset maintenance.

Figure 1: Impacts of development projects and maintenance on biodiversity



- Likely to convert a % of green infrastructure to grey infrastructure
- Will lose habitats, and may stress, degrade or isolate remaining habitats and biodiversity features
- Risk of causing harm to wildlife during or as a consequence of works
- Impacts need careful consideration to apply the biodiversity mitigation hierarchy (see section 5)
- Unavoidable losses may need offsetting to restore equivalent biodiversity value

- Shouldn't reduce the net available area of green infrastructure, BUT.....
- Will change the habitat character and condition
- Risk of causing harm to wildlife during or as a consequence of works
- Impacts need careful consideration to apply the biodiversity mitigation hierarchy (see section 5)
- Change may be temporary or permanent depending on future maintenance
- Risk of causing other impacts such as local community disapproval

Figure 1 is for illustrative purposes only and it should be noted that contact with wildlife and biodiversity impact can occur through a wide range of interventions, including but not restricted to:

- Disturbance, trimming or removal of all types of vegetation (even ornamental planting schemes may be used by birds in the nesting season);
- Disturbance, maintenance/repair, or demolition of buildings or civil engineering structures (frequently used by bats and nesting birds) (below ground sub-structures may also be used by amphibians);
- Disturbance, maintenance or removal of water bodies, balancing ponds and land drainage infrastructure / features;
- Maintenance or removal of water storage tanks and structures (sometimes used by amphibians, including great crested newts);
- Disturbance or movement of earthworks (badger setts may be present, or open ground used by ground nesting birds);
- Disturbance or movement of materials left along the railway or stock-piled in depots (may have been colonised by plants and /or inhabited by protected species if materials have been left undisturbed for a period of time);
- Pollution emissions and incidents (oil or chemical leaks / spills can be directly harmful to aquatic or terrestrial wildlife; light and noise emissions can disturb sensitive animals such as bat roosts).

1.2 Benefits to Network Rail

Taking biodiversity into account when planning, designing and implementing rail infrastructure development projects or maintenance works brings a range of benefits including:

- Reduced risk of non-compliance with legal requirements
- Reduced risk of delays and unplanned costs from unforeseen / inadequately considered ecological constraints
- Use of green infrastructure solutions to improve resilience of the network (flood resilience, overheating, etc.)
- Recognition and enhanced reputation for contribution to national biodiversity goals
- Increased regulator confidence where infrastructure works demonstrate responsible sustainability behaviours
- Increased investor confidence where infrastructure has proven sustainability credentials.

2 Integrating biodiversity into planning, design and delivery

Network Rail is ultimately accountable for leading and creating a culture where ecological risks, constraints and opportunities are managed responsibly through delivery of rail infrastructure projects and maintenance works.

2.1 Environment and Social Appraisal (ESA)

In accordance with Level 2 standard *Environment and Social Requirements – Design and Construction (ESR-DC) (NR/L2/ENV/015)*, all project and maintenance works shall complete an ESA to evaluate which environmental and/or social themes are likely to be impacted by the proposed activities.

The ESA process includes consideration of Biodiversity and should take account of: proximity to designated statutory sites and non-statutory designated sites, likely presence of protected species, likely presence of invasive non-native species and more general impacts on loss of green infrastructure and biodiversity.

For Network Rail the desk study would be expected to take place during the Environment and Social Appraisal (ESA) see 3.1.1 and 8.2.1.

The ESA will dictate the level of ecological planning required. See section 3 for more information.

2.2 Competent, professional advice

Those involved in the planning and management of projects, maintenance works, or other activities where biodiversity could be a material consideration should ensure that they have access to appropriate professional ecological expertise to:

- Assess the habitats, structures and ecological features affected by the works and the scope for protected or notable species and/or habitats to be impacted;
- Establish whether any of the project or works proposals are likely to have a ‘significant impact’ on biodiversity;
- Identify any measures necessary for compliance with statutory obligations, and national or local planning policy;
- Make recommendations on applying the mitigation hierarchy to minimise adverse impacts and maximise opportunities to enhance biodiversity
- Provide data for the completion of the Network Rail Biodiversity Calculator (where required).

Please note: In this context significance does not relate to the size and scale of the project, but to the consequence of the proposed change on local or national biodiversity. For example a small-scale maintenance activity on a viaduct could have a ‘significant impact’ if it were to disturb or destroy a locally or nationally important bat roost.

Please note: Judgement on ‘significant impact’ can only be made if the relative importance of the biodiversity resource affected by the works, and the sensitivity of that resource to change is understood. This should also take into account the extent, duration, timing and recoverability of the proposed change. Significance is therefore often a professional judgement that can only be made once sufficient information is known about the biodiversity resource and how it is likely to be affected by the change. Gathering information and following the advice of competent professionals is therefore a critical element of planning works. See sections 2.3 and 3.

Internal Competent Advice (Network Rail)

Some Network Rail business units have access to internally employed professional ecologists who should be consulted when planning projects or maintenance works. These individuals will also advise on the limits of their own knowledge, skills and experience and at what point additional external competent professional resources will be required.

Project teams should enquire about access to in-house Network Rail ecologist resources before appointing external resources.

External Competent Advice (appointed by Network Rail)

Network Rail has a framework contract for Ecology Advisory Services with suppliers who are approved to offer a range of surveying and advice services in regional territories. The suppliers were tendered and selected to offer competent services at competitive rates and should be used whenever Network Rail teams need access to independent ecological support services.

The following are available on { HYPERLINK "<https://safety.networkrail.co.uk/home-2/environment-and-sustainable-development/environment/ecology-biodiversity/>" }:

- A standard **Contract Advice Note** (CAN) to describe the services covered by the framework and how to award a commission.
- A **Statement of Works (SoW) form** to be used when commissioning the services of one or more of the framework consultants. The SoW form has been designed to establish a clear, mutual understanding of the services being sought and enable accurate, transparent pricing of consultancy works.
- A **summary of contact details** for the framework Ecology Advisory Services suppliers.

External Competent Advice (appointed by Supplier)

Where ecological service providers are appointed by Network Rail suppliers there is no mandate for the Network Rail Ecology Advisory Services framework to be used. However, the supplier awarding the contract has a duty to ensure that the ecological services provider selected, and the named individuals deployed by that supplier, are professionally competent. This means having the necessary knowledge, experience, and skills to (a) carry out the particular tasks and responsibilities they are being expected to perform, and (b) that they can provide *bona fide* professional advice and opinions on those matters.

Principal contractors should retain a register of the CVs and competence records (training and experience) for all named ecological professionals who are appointed to provide ecological and/or

biodiversity accounting services to the project/works team. This register should be available to Network Rail on request.

Professional Competency Standards

The Chartered Institute of Ecology and Environmental Management (CIEEM) provide a range of competency tools including:

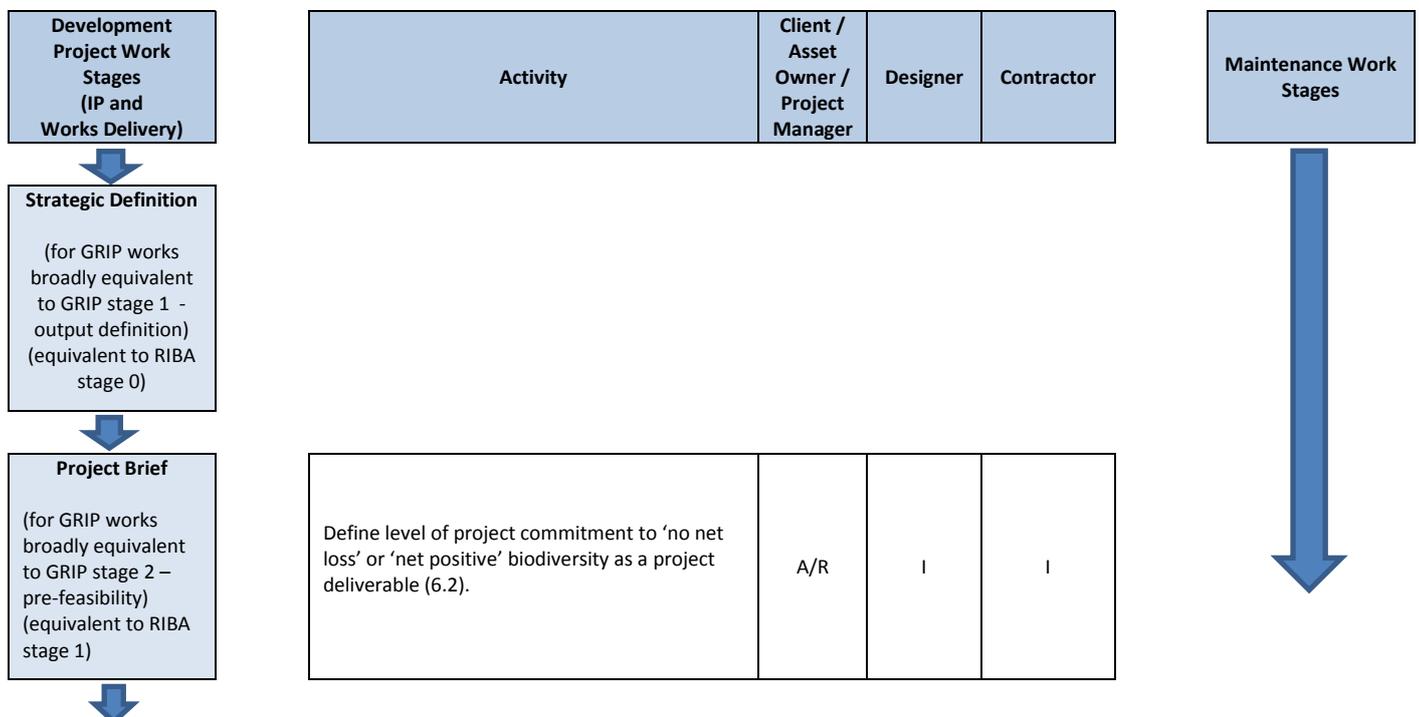
- Technical Guidance Series (TGS) – various topics downloadable to CIEEM members and non-members; (see section 9 – Further Guidance)
- Professional Guidance Series (PGS) – various topics only available to CIEEM members;
- Competency Framework, Levels and Competency Matrix.

2.3 Managing biodiversity through the project stages

The following model RACI (Figure 2) recommends the key activities and responsibilities for managing biodiversity and ecological impacts during the life-cycle phases of project and maintenance works.

In this RACI diagram Network Rail business units discharging project management duties on behalf of the client, such as Infrastructure Projects or Works Delivery, are incorporated in the Client/Asset Owner / Project Manager column.

Figure 2: Managing biodiversity through project stages



Development Project Work Stages (IP and Works Delivery)	Activity	Client / Asset Owner / Project Manager	Designer	Contractor	Maintenance Work Stages
Definition, Concept Design and Option Selection (for GRIP works broadly equivalent to GRIP stage 3 – option selection) (equivalent to RIBA stages 2 and 3)	Undertake ESA in accordance with ESR-DC (see 2.1) and GRIP.	A/R	R	C/I	Works Definition and Scheduling
	Select and appoint competent professional ecological advisory resources (see 2.2).	A/R	R	C/I	
	Undertake ecological desk studies for each alternative option site (see 3.1.1).	A/R	R	C/I	
	Plan and undertake Preliminary Ecological Appraisals (PEA) for each alternative option site (see 3.1.4) –taking account of seasonal constraints (3.2).	A/R	R	C/I	
	Confirm ecological impacts, constraints and opportunities for each alternative option site.	A/R	R	C/I	
	Apply the mitigation hierarchy to prioritise options that avoid impacts on the conservation status of protected species, and minimise general loss of ecological resources. (5).	A/R	R	C/I	
	Projects required to undertake biodiversity accounting (6.1) – can use the Network Rail Biodiversity Calculator to generate a preliminary baseline biodiversity units scorecard for each option site to compare the variance between retained, modified, degraded and lost habitats.	A/R	R	C/I	
	Identify and consult with stakeholders over works requirements and biodiversity impacts and opportunities.	A/R	R	C/I	
	Use PEAs and outputs from Biodiversity Calculator to assess and rank options in terms of biodiversity impact.	A/R	R	C	
	Select preferred option based on the optimal biodiversity protection outcome that also meets other project / works strategic outcomes. NB. A NR environment professional and preferably ecologist should be given the opportunity to attend option decision meetings when ecological impacts need to be taken into account.	A/R	R	C	

Development Project Work Stages (IP and Works Delivery)	Activity	Client / Asset Owner / Project Manager	Designer	Contractor	Maintenance Work Stages
Detailed Technical Design (for GRIP works directly equivalent to GRIP stages 4 - single option development and 5 – detailed design) (equivalent to RIBA stage 4)	Review the mitigation hierarchy to prioritise avoidance of impacts on the conservation status of protected species, and minimise general loss of ecological resources (5)	A/R	R	R	Works Technical Planning
	Where invasive non-native species (INNS) species are confirmed, consult and plan appropriate control measures.	A	R	R	
	Define clear accountabilities, responsibilities and governance arrangements (e.g. progress review meetings and leadership decision making) across the value chain for delivery of biodiversity legal obligations and project deliverables.	A/R	R	R	
	Plan and undertake Phase 2 Surveys, where need is confirmed from PEA Reports (see 3.1.4 and 3.1.5) – taking account of seasonal constraints (3.2).	A/R	R	C	
	Apply for protected species mitigation licenses (where required) – providing all necessary information to support licence approval.	A/C	C	R	
	Plan arrangements for protecting retained biodiversity features during construction / works.	A/C	C	R	
	Prepare a schedule of protected species licence conditions/obligations, consent conditions and mitigation requirements applicable to the works.	A	C	R	
	Develop design and construction / works specifications for protected species licence conditions, consent conditions, mitigation requirements, and to meet the biodiversity accounting target (where set).	A	R	R	
	Incorporate biodiversity protection measures, protected species licence conditions, consent conditions, INNS controls, and design and construction / works specifications for mitigation into draft Environment and Social Management Plan (ESMP), and other instructional documents, including but not limited to, site inductions, the safe work pack (SWP) process, method statements, tool box talks, task briefing documents, and pre-construction information packs (PCIPs).	A	R	R	

Development Project Work Stages (IP and Works Delivery)	Activity	Client / Asset Owner / Project Manager	Designer	Contractor	Maintenance Work Stages
	For projects required to undertake basic biodiversity accounting (6.1) – use the Network Rail Biodiversity Calculator to finalise the design-stage biodiversity unit balance sheet / scorecard comparing the post-project score against the pre-project score.	A/R	R	R	
	For projects where ‘no net loss’ or ‘net positive’ biodiversity has been set as a project deliverable (6.2) - use the Network Rail Biodiversity Calculator to quantify net biodiversity unit losses between the post-project score and the pre-project score based on habitats lost, or degraded to a lower score. Use the findings to define and quantify the off-setting credits needed to redress and balance the biodiversity score at project completion.	A/R	R	R	
	For projects where ‘no net loss’ or ‘net positive’ biodiversity has been set as a project deliverable - plan and negotiate the offsetting schemes to redress and balance the biodiversity score at project completion.	A/R	R	R	
	For projects where ‘no net loss’ or ‘net positive’ biodiversity has been set as a project deliverable - incorporate additional design and construction specifications for biodiversity offsetting into draft Environment and Social Management Plan (ESMP), and other instructional documents, including but not limited to, site inductions, the safe work pack (SWP) process, method statements, tool box talks, task briefing documents, and PCIPs.	A/R	R	R	
	Implement engagement plans with stakeholders.	A/R	R	R	
	Assess and plan resourcing and funding arrangements needed for management and/or monitoring of ecological mitigation / offsetting measures beyond scheme handback. New assets with management duties need to be integrated through the Network Rail Asset Management Plan process (NR/L3/MTC/089)	A/R	R	R	
	Provide newly acquired design-phase ecological surveys; protected species records; protected species mitigation licenses; INNS records, etc. to Network Rail in an approved GIS compatible format to enable updates to Network Rail geospatial databases. (8)	A/R	R	R	



Development Project Work Stages (IP and Works Delivery)	Activity	Client / Asset Owner / Project Manager	Designer	Contractor	Maintenance Work Stages
Construction, Handover and Close-Out (for GRIP works directly equivalent to GRIP stage 6 - 8) (equivalent to RIBA stages 5 and 6)	Implement governance arrangements to monitor delivery of biodiversity legal obligations and project deliverables.	A/C	C	R	Maintenance Works, Handover and Close-Out
	Implement arrangements for protecting retained biodiversity features during construction / works.	A/C	C	R	
	Monitor delivery of the schedule of protected species licence conditions/obligations, consent conditions and mitigation requirements applicable to the works.	A/C	C	R	
	Implement design and construction / works specifications for protected species licence conditions, consent conditions, mitigation requirements, and to meet the biodiversity accounting target (where set).	A/C	C	R	
	Where INNS species were confirmed implement appropriate control measures.	A/C	C	R	
	Maintain biodiversity protection measures, protected species licence conditions, consent conditions, INNS controls, and design and construction / works specifications for mitigation in the Environment and Social Management Plan (ESMP), and other instructional documents, including but not limited to, site inductions, the safe work pack (SWP) process, method statements, tool box talks, task briefing documents, and PCIPs.	A/C	C	R	
	For projects required to undertake basic biodiversity accounting – use the Network Rail Biodiversity Calculator to finalise the as-built-biodiversity scorecard comparing the post-project score against the pre-project score (6.1).	A/C	C	R	
	For projects where ‘no net loss’ or ‘net positive’ biodiversity has been set as a project deliverable -maintain additional design and construction specifications for biodiversity offsetting in the Environment and Social Management Plan (ESMP).	A/C	C	R	
	For projects where ‘no net loss’ or ‘net positive’ biodiversity has been set as a project deliverable – implement the agreed offsetting schemes to redress and balance the biodiversity score at project completion.	A/C	C	R	

Development Project Work Stages (IP and Works Delivery)	Activity	Client / Asset Owner / Project Manager	Designer	Contractor	Maintenance Work Stages
	For projects where 'no net loss' or 'net positive' biodiversity has been set as a project deliverable - use the Network Rail Biodiversity Calculator to finalise the as-built biodiversity scorecard to demonstrate delivery of the 'no net loss' or 'net positive' biodiversity target (6.2).	A/C	C	R	
	Maintain engagement plans with stakeholders.	A/C	C	R	
	Transfer resourcing and funding arrangements to operational business units and third party agencies for management and/or monitoring of ecological mitigation / offsetting measures beyond scheme handback. New assets with management duties need to be integrated through the Network Rail Asset Management Plan process (NR/L3/MTC/089)	A/C	C	R	
	Provide newly acquired construction-phase data on ecological surveys; protected species records; protected species mitigation licenses; INNS records, etc. to Network Rail in an approved GIS compatible format to enable updates to Network Rail geospatial databases. (8)	A/C	C	R	

3 Surveys

Gathering and interpreting information is critical to planning and managing any works that might have impact on biodiversity. The information should be used by a competent person to make properly informed decisions about what works should be done, when and how. Failure to undertake this type of planning could constitute culpable ignorance if it resulted in the breach of a legal duty.

Network Rail is developing a process for uploading survey reports and geospatially mapping key protected species information from surveys (see s.8).

The following table describes the key industry survey types.

3.1 Ecological surveys - types and purpose¹

<p>3.1.1</p>	<p>Desk study</p>	<p>An exercise to collate and interpret existing information that could be relevant to the proposed project or works, including the wider zone of influence of the works site.</p> <p>Desk studies should collate a variety of data types within the survey area including records of:</p> <ul style="list-style-type: none"> • nationally designated statutory sites • non-statutory designated sites • protected species and habitats • known roosts, setts or other protected sites used by protected species on a seasonal basis • known locations of Invasive non-native species. <p>The desk study area (the radius of data searching beyond the site boundary) should be chosen and clearly defined to reflect the sphere of influence of the works. This should be treated as a judgement of the professional ecologist selected to lead the works appraisal.</p> <p>Typically for works with localised impacts the desk study search area may only be 100-500m beyond the worksite. For larger scale works and projects the search area may extend 1-2 km beyond the work site.</p> <p>For Network Rail the desk study would be expected to take place during the Environment and Social Appraisal (ESA). Data sources that can be consulted include:</p> <ul style="list-style-type: none"> • National – MAGIC and NBN (national biodiversity network) Gateway websites; • Local - Local Record Centres (LRCs) within the National Biodiversity Network Local – wildlife groups • Network Rail – previous surveys • Network Rail – GIS / GRV • Network Rail – the Hazard Directory
<p>3.1.2</p>	<p>Phase 1 Habitat Survey</p>	<p>A specific survey to assess the habitats and vegetation types within an area of land and classify them in accordance with national guidelines, published by the Joint Nature Conservation Committee (JNCC). Habitats are assigned according to a specified list of vegetation categories, and maps produced using standard colours and symbols for the different habitat categories.</p>

¹ Section 3.1 - Table of surveys based on Chartered Institute of Ecology and Environmental Management (CIEEM) – Guide to ecological surveys and their purpose – December 2017

<p>3.1.3</p>	<p>Preliminary Ecological Appraisal (PEA)</p>	<p>An assessment of the habitats and ecological features present, or potentially present, within a site and within the wider zone of influence of a project or work site.</p> <p>A PEA normally comprises a desk study and a site walkover survey, also known as an Extended Phase 1 Habitat Survey.</p> <p>The key objectives of a PEA are to:</p> <ul style="list-style-type: none"> • identify the habitats and ecological features of a site; • establish the scope for protected or notable species and/or habitats; • determine the likely or potential impacts of projects or works upon those species/habitats; • identify the likely ecological constraints; • outline recommendations for applying the mitigation hierarchy; • identify any additional (phase 2) surveys that may be required; • identify opportunities for ecological enhancement. <p>The findings of a PEA are typically presented in a PEA Report (PEAR).</p> <p><i>Note: The Chartered Institute of Ecology and Environmental Management (CIEEM) have published specific 'Guidelines for Preliminary Ecological Appraisal'.</i></p>
<p>3.1.4</p>	<p>Phase 2 Surveys</p>	<p>The term sometimes used to describe additional, more specific surveys, usually undertaken after a PEA.</p> <p>Phase 2 surveys may include, for example, surveys that follow defined methods to confirm the presence or likely absence of a protected species (bats, great crested newts, etc.), or detailed botanical (or other taxon) surveys of potentially important habitats.</p> <p>The need for Phase 2 Surveys will vary depending on the location, nature, and scale of the proposed project or works, the habitats present, species likely or potentially present, and the likely impacts.</p>
<p>3.1.5</p>	<p>Ecological Impact Assessment (EclA)</p>	<p>An assessment of the likely significant ecological effects of a project, irrespective of the scale or type of project. The subsequent report is termed an EclA Report.</p> <p>On large scale projects the EclA may form the ecological component of an Environmental Impact Assessment (EIA).</p> <p><i>Note: The Chartered Institute of Ecology and Environmental Management (CIEEM) have published specific 'Guidelines for Ecological Impact Assessment'.</i></p>

<p>3.1.6</p> <p>Habitats Regulations Assessment (HRA)</p> <p>(in Scotland referred to as Habitat Regulations Appraisal)</p>	<p>A requirement under the provisions of the EU Birds and Habitats Directives, where any proposal (including permitted development) may have a significant effect on a 'European Site'.</p> <p>In this context, 'significant' means any effect on the features for which the site has been designated, which could undermine the site's conservation objectives, and which cannot be excluded on the basis of objective information.</p>
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3.2 Surveys - timing

Surveys need to be conducted at certain times of year to optimise the chances of finding evidence and making informed decisions. When planning surveys it is important to seek professional advice and consult an appropriate seasonal survey calendar (see **Appendix B**) for the species under investigation. As a general rule the following guide times can be applied:

Desk study	Anytime
Preliminary Ecological Appraisal	April - Sept
Phase 1 habitat survey	April - Sept
Phase 2 surveys	Seasonally dependent on target species

4 Ecological Reports

Ecological reports should have a logical structure and be prepared in accordance with the *Chartered Institute of Ecology and Environmental Management (CIEEM) Guidance Series No. 9 Ecological Report Writing*.

5 Biodiversity mitigation hierarchy

The overarching aim when planning projects and works should always be to minimize harm and maximize benefits to biodiversity. The generally accepted way to do this is to apply the 'mitigation hierarchy' which arranges actions in a descending order of preference as represented in Figure 3.

Figure 3: Biodiversity mitigation hierarchy



The mitigation hierarchy should underpin all decisions made through the project planning process, particularly during design where the greatest opportunity exists to apply the principles. The hierarchy is a sequential process from top to bottom and each step should be carefully considered in turn and addressed to the maximum extent before progressing to the next level.

Avoidance Design principles should always focus on avoiding biodiversity impacts as a primary objective. This might be achieved for example, by proposing alternative designs, changes to site layout, or selecting another site where no harm to biodiversity would occur.

Mitigation Adverse effects that cannot be avoided should be adequately mitigated. Mitigation measures are intended to minimize the negative risks.

Compensation The protection of biodiversity resources should largely be achieved through the combination of avoidance and mitigation. If there are negative impacts that cannot be avoided or fully mitigated they will represent a residual net loss or degradation of biodiversity resource and compensatory measures should be considered.

Enhancement Most projects have opportunities to enhance poor biodiversity resources or create new benefits for wildlife and these should be explored alongside the application of the other hierarchy principles.

6 Biodiversity accounting

Network Rail has adopted the principle of biodiversity accounting so that we can measure the impact that infrastructure projects and maintenance works have on biodiversity. In November 2017 we launched a new bespoke biodiversity accounting tool, called the Network Rail Biodiversity Calculator.

The Biodiversity Calculator is based on biodiversity unit calculations and metric issued by the Department for Environment, Food and Rural Affairs (Defra). It is a habitat-based calculation, which captures all the losses, degradations and gains in habitats impacted by projects and works. It requires information on the area of each habitat on site, and the condition and distinctiveness of each habitat. The tool also incorporates factors to reflect the application of the Mitigation Hierarchy and guidance on achieving Biodiversity Net Positive (where that outcome has been specified see 6.2).

Biodiversity accounting will be applied in two ways as follows:

6.1 Basic biodiversity accounting

Use of the calculator is a mandatory requirement on all works valued at more than £20,000 **OR** where the total worksite footprint is greater than 1500m².

Projects and works meeting these criteria will be required to use the Network Rail Biodiversity Calculator to produce a biodiversity balance sheet comparing the post-project biodiversity units with the pre-project biodiversity units, based on the habitats areas retained, modified, degraded and lost.

6.2 Biodiversity accounting for 'no net loss' or 'net gain' biodiversity outcomes

Certain projects may adopt targets to achieve 'no net loss' or 'net gain' biodiversity outcomes. These projects will use the calculator in the normal way but where losses and score reductions occur they will need to invest in compensation measures and off-setting arrangements to regain or exceed the pre-project biodiversity units score.

6.3 Biodiversity calculator and guidance

The Biodiversity Calculator template and other support documents, including a User Guide, a recorded Webinar, and FAQs, are available on { HYPERLINK "<https://safety.networkrail.co.uk/home-2/environment-and-sustainable-development/environment/ecology-biodiversity/biodiversity-calculator/>" } under Biodiversity.

6.4 Reporting performance from biodiversity calculators

Completed calculators should be sent to Clive Jones at { HYPERLINK "<mailto:clive.jones@networkrail.co.uk>" } A dedicated STE email account may be set up to receive copies of biodiversity calculators.

Network Rail will introduce KPI measures to report high level output data from project biodiversity calculations. These will be introduced through the normal business unit KPI reporting platforms. Further guidance will be produced when these reporting systems are introduced.

7 Protected species mitigation licences

Where the presence of a European protected species has been confirmed from surveys a European protected species mitigation licence must be obtained before any work can be undertaken that might have an impact upon the species that would otherwise be illegal, such as:

- capturing, killing, disturbing or injuring them (on purpose, or by not taking enough care)
- damaging or destroying their breeding or resting places (even accidentally)
- obstructing access to their resting or sheltering places (on purpose, or by not taking enough care)

A protected species mitigation licence must be applied for from the relevant statutory nature conservation organisation (SNCO).

Application for a mitigation licence must be in a prescribed format and contain three principal components:

- a) a reasoned statement to show that the activity fits the test criteria and there are no satisfactory alternatives;
- b) a method statement to show what will be done to reduce the impacts of the proposed work on the affected species;
- c) prescribed forms of evidence to show that the ecological consultant has the necessary experience to apply for a mitigation licence.

The 'reasoned statement' must show that **all** the following criteria are met:

- There is a genuine need and purpose for the proposed activity, such as being in the public interest;
- There are no satisfactory alternatives that would meet the stated purpose while causing less harm to the species;
- The proposals are 'proportionate';
- There will be no long-term adverse effect on the conservation status of the species in question if the licenced action goes ahead.

Note: In this context 'proportionate' means – the work involved in preparing and implementing all ecological surveys, impact assessments, and measures for avoidance, mitigation, compensation and enhancement should be in proportion to the predicted degree of risk to biodiversity, and to the nature and scale of the proposed development or works.

The 'method statement' is used by the statutory nature conservation organisation to make sure the proposed work won't have a harmful effect on the protected species concerned. The statement requires knowledge of the species and is usually completed by a consultant ecologist. It will typically need to include details of:

- the proposed work
- surveys conducted, with details of species numbers and how the species uses the site
- an assessment of the potential impacts of the proposed work

- mitigation plans (how the applicant will reduce or cancel the damage if you can't avoid affecting the species)
- compensation plans (how the applicant will compensate for any unavoidable damage)
- timetable of work being licensed.

Where protected species mitigation licence is granted it will normally attach conditions that must be fulfilled throughout the execution of the works, and sometimes beyond the completion of the work to verify that the mitigations measures are successful.

Management of mitigation licences on Network Rail projects and works

- The Principal Contractor will be responsible for applying for protected species mitigation licenses and should be the named licence holder for the duration of the works.
- Any mitigation proposals must be agreed and approved by NR before being submitted to the SNCO to ensure that on-going management duties and budgets are integrated into Network Rail asset management functions.
- Principal contractors should retain a register of all the protected species mitigation licenses with a detailed plan listing all the itemised mitigation licence conditions that are to be managed during the works. This register should be available to Network Rail on request.
- Where mitigation licence duties and conditions will persist after completion of construction works the Principal Contractor must make arrangements to transfer the licence holder's name and duties to an appropriate Network Rail asset owner/manager.

Network Rail is currently integrating environmental content such as handover of new environmental asset management duties into the Level 3 standard NR/L3/MTC/089 Asset Management Plan standard. Further guidance will be created once these new arrangements are fully defined.

Network Rail is developing a process for uploading and geospatially mapping key information from mitigation licenses (see s.8).

8 Updating Geospatial Records

Network Rail is in the process of improving the collation, management, and visualisation of historic and contemporary ecological data. It is intended that species records will be available to the business, through a centralised mapping platform such as GeoRINM Viewer (GRV). This will enable data to be viewed spatially when conducting desk studies (see 3.1.1) for new work sites, improving intelligence, risk management, and the provision of appropriate control measures.

The data types currently planned for mapping include: protected species, invasive non-native plant species, records of ecological surveys, records of protected species mitigation licenses, designated sites, and habitat types.

To support these activities Network Rail will also be creating standard processes, templates and data collation methods to capture and upload ecological records. For example we are creating web form

templates for collecting key information from protected species mitigation licenses and ecological survey reports. This will enable licenses and surveys to be spatially mapped, and support the extraction of contemporary protected species location records from surveys.

All future licenses and reports will need to be provided in a format that enables geospatial mapping. Further guidance will be created once these new arrangements are fully defined.

9 Habitat Regulation Assessment

This section provides guidance for when work is required within, adjacent to, or up to 2km from a European designated site (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs))². This guidance can also be applied for internationally designated sites (Ramsar wetland sites).

European designated sites are those with qualifying features (biological or geological) which have been given legal protection. The preservation of those features will inform the conservation objectives of the site.

Each statutory designated site will have a Site Management Statement (SMS) issued by the relevant statutory nature conservation organisation (SNCO). The SMS sets out guidance on how the qualifying features (biological or geological) for which the site was designated should be protected, conserved and enhanced. It is important to be aware of the qualifying features and conservation objectives for a site which is within the vicinity of the work.

When working within the vicinity of a designated site it is important to assess whether the proposed activity is considered approved works within the terms of the SMS. For all activities/operations that are not approved within the SMS there is a legal duty to apply to the statutory nature conservation organisation (SNCO) for permission (assent) to undertake the work. The application process is often referred to as a section 28H assent.

Where a section 28H assent is granted the SNCO will normally attach conditions that must be fulfilled throughout the execution of the works.

9.1 Legislation:

- Special Areas of Conservation are designated under the Habitat Regulations (transposed from the European Habitats Directive).
- Special Protection Areas are designated under the Habitat Regulations (transposed from the European Birds Directive).
- Ramsar sites are wetlands of international importance identified from the Ramsar Convention.

² Note that for SACs with bats as a qualifying feature this can be up to 30km.

Under Article 6(3) of the Habitats Directive, an appropriate assessment is required where a plan or project is likely to have a significant effect upon a European site, either individually or in combination with other projects.

Further to this, Article 6(4) states that only where there are no alternative solutions and there are imperative reasons of over-riding public interest (IROPI) for the development and compensatory measures have been secured.

The 2010 Habitats Regulations (as amended) require the competent authority³ before deciding to authorise a project which is likely to have a significant effect on a European site: “to make an appropriate assessment of the implications for that site in view of that site’s conservation objectives”.

Note: Statutory nature conservation organisations (SNCOs)⁴ have the enforcement power to stop a project on site (and have done in the past) if it is considered to be having a likely significant effect on a European or Internationally designated site and the appropriate assessments and control measures have not been completed.

9.2 Methodology:

The following steps set out the method needed to determine if a project will have Likely Significant Impact as a result of a proposed project and what to do if it does. At all stages decisions must be well documented by the project and made available on request.

9.2.1 Identification of sites:

European and international sites will be identified during the Environment and Social Appraisal (ESA) of a project. This is done using GeorINM and MAGIC maps⁵.

Where sites are identified the qualifying features for a given site can be found on the Joint Nature Conservation Committee (JNCC) website⁶.

9.2.2 Stage 1: Screening

The first stage is to identify whether there is going to be a likely significant effect on the designated site. If it cannot be made certain that there will be no likely significant effect then a precautionary approach must be taken. The assessment must take into account other projects going on in the area to ensure there will be no cumulative effects.

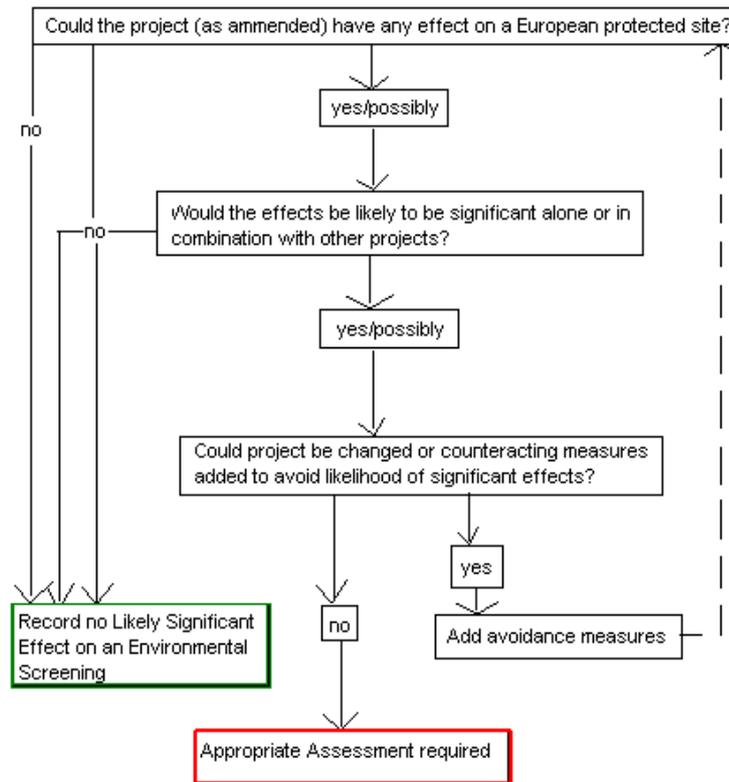
³ In the case of permitted development the competent authority is Network Rail, while in the case of projects requiring planning, the competent authority is the Local Authority.

⁴ Natural England/Natural Resources Wales/Scottish National Heritage, Environment Agency/Scottish Environmental Protection Agency

⁵ { HYPERLINK "http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx" }

⁶ { HYPERLINK "http://jncc.defra.gov.uk/page-4" }

The following flow chart can assist in the screening process:



9.2.3 Stage 2: Appropriate assessment

The next stage is to consider the likely significant impacts on the integrity of the European site. Mitigation options will be considered at this stage to ensure any impacts are reduced to a level that they are no longer significant.

This stage will likely require ecological survey and advice. Network Rail has framework ecological consultants who can provide these services.

Consultation will be required with the relevant SNCOs. In most cases this will be Natural England/Natural Resources Wales/Scottish Natural Heritage, but in some cases this could also include the Environment Agency/Scottish Environment Protection Agency.

Any long term maintenance or monitoring requirements resulting from mitigation should be discussed with the relevant route team and included within the Asset Management Process.

9.2.4 Stage 3: Assessment of alternative solutions

If there are still residual impacts as a result of the project following the appropriate assessment, then Option Selection (GRIP 3) must be re-visited to identify whether there are any alternative solutions to achieve the objectives of the project.

9.2.5 Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)

If after re-visiting Option Selection (GRIP 3) there are no alternative solutions then the project will be required to establish whether there are Imperative Reasons of Overriding Public Interest for the project to be delivered.

If the Reasons are significant health and safety or environmental benefits, then so long as appropriate compensation measures are put in place with agreement of the relevant SNCO, then the project can take place. The European Commission should be informed of such decisions.

If the Reasons are not related to health, safety or environment then compensation measures will need to be agreed by the relevant SNCO, the Government and the European Commission before an agreement can be made.

10 Response to unplanned events

In the event of any protected species, or suspected protected species, being found while working on site:

- Stop work immediately near the suspected protected species;
- Report the finding, along with any potential harm caused, to your line manager and to the relevant environment manager and ecologist who represents the Network Rail team leading the works (IP, Route Business, Property or Supply Chain Operations);
- Record any sightings of species on the EcoReporter app.

11 Further Guidance

- BS 42020:2013 – Biodiversity Code of practice for planning and development
- Chartered Institute of Ecology and Environmental Management (CIEEM) – Technical Guidance Series ‘*Competencies for Species Survey (CSS)*’. These are provided as an overview document and a series of modules for individual species or groups.
- Chartered Institute of Ecology and Environmental Management (CIEEM) – Technical Guidance Series ‘*Guidelines for Preliminary Ecological Appraisal*’.
- Chartered Institute of Ecology and Environmental Management (CIEEM) – Technical Guidance Series ‘*Guidelines for Ecological Impact Assessment*’.

- Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series No. 9 'Ecological Report Writing'.
- Chartered Institute of Ecology and Environmental Management (CIEEM) – Technical Guidance Series 'Principles for Producing Guidance'.
- Chartered Institute of Ecology and Environmental Management (CIEEM) – Technical Guidance Series 'Guidelines for accessing and using biodiversity data in the UK'.
- The Biodiversity Planning Toolkit; { [HYPERLINK "http://www.biodiversityplanningtoolkit.com"](http://www.biodiversityplanningtoolkit.com) }
This resource provides a range of guidance on protected species, wildlife site designations, legislation, survey timetables, and mitigation.
- Joint Nature Conservation Committee; { [HYPERLINK "http://jncc.defra.gov.uk"](http://jncc.defra.gov.uk) }
This resource gives background information about nature conservation and summaries of, and links to, relevant legislation for each UK nation, and designations for different wildlife sites.
- Natural England; { [HYPERLINK "http://www.naturalengland.org.uk"](http://www.naturalengland.org.uk) }
- Scottish Natural Heritage; { [HYPERLINK "http://www.snh.gov.uk/"](http://www.snh.gov.uk/) }
- Natural Resources Wales: { [HYPERLINK "http://www.ccw.gov.uk/Splash.aspx"](http://www.ccw.gov.uk/Splash.aspx) }
- Infrastructure Planning Commission – Advice Note 10 – Habitat Regulations Assessment relevant to nationally significant infrastructure projects – April 2011
- GB Non-native species secretariat: { [HYPERLINK "http://www.nonnativespecies.org/home/index.cfm"](http://www.nonnativespecies.org/home/index.cfm) }
- NR/L3/MTC/089 Asset Management Plan

Appendix A: Terms and definitions

Biodiversity

The variety and variability of plant and animal (and other) life found in a given place. The term also embraces other levels of diversity such as the variation between different habitats, or the genetic diversity within a given species.

Biodiversity accounting

Assigning numerical values to different areas of ecological habitat based on habitat type, condition, distinctiveness, and difficulty to recreate.

Please note: The accounting method enables the creation of a balance sheet to compare the pre-project numerical score with a post-project score based on habitat areas retained, areas lost or degraded by development, plus areas enhanced or created through mitigation or biodiversity compensation, or offsetting.

Biodiversity offsetting

Biodiversity offsets are conservation activities designed to deliver measurable biodiversity benefits in compensation for losses. Biodiversity offsets require that losses resulting from development and gains achieved through an offset are measured in a consistent way.

Please note: The valuation of offsetting needs to take a range of factors into account, such as (a) the location of the new ecological resource and spatial connectivity with other resources, and (b) how long it would take for a newly created habitat to reach an equivalent maturity and ecological value to the resource that was lost.

Competent person

An individual who has the qualifications, training, skills and experience relevant to the task they are being asked to undertake.

Consent

A formal authorisation / approval from a regulatory body to allow works or development that would otherwise not be permitted in law.

Culpable ignorance

Failure to exercise an ordinary level of care to acquire knowledge of the law or facts of a situation which could result in (a) an unsound judgement or (b) an act / omission that causes a breach of a legal duty.

Environmental Impact Assessment

The process used to assess the effects that certain public and private projects have on the environment. The EIA process must satisfy the requirements of EU Directives.

Favourable conservation status

The condition relating to a specified species where the following three tests are met:

- a) the population dynamics of the species concerned is maintaining itself on a long-term basis;
- b) the natural range of the species is not being reduced in the foreseeable future;
- c) there is, and will continue to be, a sufficiently large area of connected suitable habitats to maintain the species population on a long-term basis.

Invasive Non-Native Species

Any non-native animal or plant that has the ability to persist and spread causing damage in the environment, the economy, to human health, or adversely impacting the way we live.

Please note: Native species are generally considered to be those land animals and plants that colonised Great Britain as ice retreated at the end of the last ice age, before rising sea levels separated Britain from mainland Europe. The term 'non-native species' is used to describe any species or subspecies that has arrived since that time (normally by a human process) outside its natural distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce. The equivalent term 'alien species' is used by the { [HYPERLINK "http://www.biodiv.org/default.shtml"](http://www.biodiv.org/default.shtml) } (CBD). The term 'Non-native species' does not apply to genetically modified organisms (GMOs), bacteria and viruses.

There are many non-native species found in the UK but only a relatively small number are considered to be invasive.

Nationally designated statutory site

An area with qualifying features (biological or geological) which have been given legal protection and designated at a national level with protection by European and/or national legislation.

Non-statutory designated site

An area without statutory protection but designated at a local level and protected by national and local planning policy.

Professional ecologist

An individual who has, through relevant education, training and/or experience, gained recognised qualifications and experience in the field of ecology and environmental management.

Protected species

Any species given protection through legislation. Legal protection may apply to the animal or plant alone, or be extended to apply to the habitats and physical places occupied by an animal even when the animal is not present.

Please note: European protected species (EPS) are those of Europe-wide conservation concern as listed in Annex IV of the European Habitats Directive. Strict protection duties are transposed into UK law.

Additional species are protected by domestic UK legislation only.

Protected species licence

A licence required from a statutory nature conservation organisation (SNCO) to perform activities that would otherwise be prohibited by protected species legislation.

Site Management Statement (SMS)

A document issued to the owners and occupiers of nationally designated statutory sites by the relevant statutory nature conservation organisation (SNCO). The SMS sets out guidance on how the qualifying features (biological or geological) for which the site was designated should be protected, conserved and enhanced.

Statutory Nature Conservation Organisation (SNCO)

The government's advisory bodies for the UK natural environment with the remit to protect biodiversity, promote nature conservation and conserve and enhance the landscape (amongst other duties). The SNCOs for England, Scotland and Wales are Natural England, Scottish Natural Heritage, and Natural Resources Wales respectively.

Value Chain

The organisations and stakeholders involved directly in creating and managing infrastructure assets, including asset owners/managers/clients, designers, contractors, and product/material manufacturers/suppliers.

Appendix B: Ecological survey and mitigation calendar.

Note 5: This is for guidance only and a professional ecologist should always be consulted (see section 2.2).

	January	February	March	April	May	June	July	August	September	October	November	December
Approx. survey timings												
Approx. mitigation timings												
Bats	Inspection of hibernation roosts			Ltd activity survey	Emergence surveys for summer roosts and activity surveys					Ltd activity survey	Inspection of hibernation roosts	
	Hibernation period. No closure of hibernation roosts		Optimum period for roost closure		Roost closure possible. No closure of maternity roosts.				Optimum period for roost closure		Hibernation period. No closure of hibernation roosts	
	Sett survey and bait marking				Limited sett survey and bait marking						Sett survey and bait marking	

	January	February	March	April	May	June	July	August	September	October	November	December
Approx. survey timings												
Approx. mitigation timings												
Badgers	Breeding season – no sett closure or disturbance						Sett closure under licence					Breeding season
Nesting Birds	Wintering birds surveys		Breeding bird surveys - optimal				Ltd breeding bird surveys		Migrant birds		Wintering birds surveys	
	Vegetation clearance	Vegetation clearance will require a precautionary method of work and any nests found will need to be left undisturbed						Vegetation clearance				
Otters	Activity surveys											
	Site specific mitigation											
Great	Habitat assessment only		Surveys of ponds (two of the surveys must be undertaken between mid-April and mid-May)				Habitat assessment only					

	January	February	March	April	May	June	July	August	September	October	November	December
Approx. survey timings												
Approx. mitigation timings												
crested newts	Hibernation		Undertake mitigation and work under precautionary method of working.							Hibernation		
Water voles	Habitat assessment only		Ltd activity survey	Activity surveys			Ltd activity survey		Activity survey		Habitat assessment only	
	Site specific mitigation											
Reptiles	Habitat assessment only		Activity survey						Ltd survey		Habitat assessment only	
	Hibernation		Undertake mitigation and work under precautionary method of working.							Hibernation		
Dormouse	Habitat assessment only			Activity surveys						Habitat assessment only		
	Hibernation			Mitigation		Breeding season – no mitigation			Mitigation		Hibernation	

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	January	February	March	April	May	June	July	August	September	October	November	December
Approx. survey timings												
Approx. mitigation timings												
White clawed crayfish	Habitat assessment only			Torch survey only			Activity surveys				Habitat assessment only	
	Overwintering			Breeding season			Mitigation				Overwintering	