

EWR Alliance

Biodiversity Net Gain Strategy

Route Sections 2A, 2B & 2C



East West Rail Phase 2

Biodiversity Net Gain Strategy

Route Sections 2A, 2B & 2C

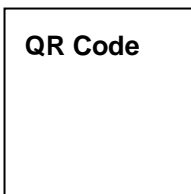
November 2020

Notice

This report was produced by the Alliance for the specific purpose of the Alliance

This report may not be used by any person other than the Alliance without the Alliance's express permission. In any event, Alliance accepts no liability for any costs, liabilities or losses arising as a result of the use of or reliance upon the contents of this report by any person other than the Alliance.

Document History



JOB NUMBER: 133735			DOCUMENT REF: 133735-EWR-REP-EEN-000496			
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
1	For issue	J Hicks	C Wansbury	T Oliver S Ricks S Croft	R Voigt	November 2020



Contents

Section	Page
Executive summary	iv
1. Purpose of this document	1
1.1. Structure of this strategy	1
1.2. The Alliance's vision	1
2. Terms and acronyms	3
3. Background	7
3.1. Planning condition	7
3.2. UK biodiversity policies and guidance	7
3.3. The Alliance's commitment to biodiversity net gain	10
3.4. Management documents	10
4. Roles and responsibilities	12
5. Communications and stakeholder management	14
5.1. Open door policy	14
5.2. Stakeholder engagement	14
5.3. Sharing learning and best practice	14
5.4. Generating ideas	15
6. Biodiversity net gain: making it meaningful	16
6.1. Principle 1. Apply the Mitigation Hierarchy	16
6.2. Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere	18
6.3. Principle 3. Be inclusive and equitable	18
6.4. Principle 4. Address risks	18
6.5. Principle 5. Make a measurable Net Gain contribution	19
6.6. Principle 6. Achieve the best outcomes for biodiversity	19
6.7. Principle 7. Be additional	19
6.8. Principle 8. Create a Net Gain legacy	19
6.9. Principle 9. Optimise sustainability	20
6.10. Principle 10. Be transparent	20
6.11. Beyond the principles	20
7. Biodiversity accounting	23
7.1. The Metric	23
7.2. Limitations with the Metric	24
8. Data management	25
8.1. Biodiversity net gain WebMap	25
8.2. Data sharing	25
9. Implementation of Biodiversity Net Gain on EWR2	26



9.1.	Environmental design for EWR2	26
9.2.	Landscape planting	27
9.3.	Ecological Compensation Sites	27
9.4.	Biodiversity offset sites	28
9.5.	Delivery agreements	29
10.	Management and maintenance arrangements	30
10.1.	During design	30
10.2.	During construction	30
10.3.	During operation	31
11.	Monitoring arrangements	32
11.1.	During construction	32
11.2.	During operation	32
12.	Reporting arrangements	34
12.1.	During construction	34
12.2.	During operation	34
13.	Risks and opportunities to delivery	35
13.1.	Risks	35
13.2.	Opportunities	36

Appendices

Appendix A – Location Plan

Appendix B – Stakeholders’ definition of ‘Local’

Appendix C – List of BNG workshops and conferences the Alliance has been involved in

Appendix D – Biodiversity offset selection

Appendix E – Example management, maintenance and monitoring report templates

Tables

Table 1 – Terms and definitions	3
Table 2 – Acronyms	5
Table 3 – Maturity matrix for EWR2 Sustainability Objective ENV03.	11
Table 4 – Roles and responsibilities	12
Table 5 – Responsibility assignment matrix	12
Table 6 – The Alliance’s approach to each stage of the Mitigation Hierarchy	16
Table 17 – Risks and solutions	35
Table C.1: Table of BNG workshops and conferences the Alliance has been involved in	41



Executive summary

East West Rail Phase 2 (EWR2) is the first major infrastructure project to commit to implementing measures to achieve an overall 10% net gain in biodiversity from the time the development comes into operation. To realise this commitment, the East West Rail Alliance (the Alliance) has authored this strategy to outline the steps that will be taken to achieve this ambitious biodiversity net gain commitment.

The Alliance are engaging with key stakeholders and will continue to consult with them to support their priorities for nature conservation. This strategy outlines the engagement process with stakeholders to date, including how the Alliance has managed stakeholder input into decision-making, and outlines how stakeholders will continue to be consulted going forward to ensure the successful implementation of biodiversity net gain on EWR2.

The Alliance has considered all relevant national, regional and local biodiversity policies and initiatives when determining the best implementation measures to biodiversity net gain in this strategy. The Alliance will not only follow the 10 good practice principles for biodiversity net gain on EWR2, but it will also apply industry-leading, innovative approaches to build on these principles to ensure real, tangible benefits for biodiversity, the environment and people alike.

Getting the data right is important and an accurate biodiversity accounting baseline, which reflects the true ecological reality of EWR2, is crucial in the delivery of a successful strategy. The Alliance will continue to work with Natural England to develop the current 'beta testing version' of the Biodiversity Metric 2.0 so that an accurate biodiversity accounting baseline can be calculated. In addition, the Alliance will provide key stakeholders with access to an interactive web-based mapping portal so they can visualise and understand the work being undertaken to achieve biodiversity net gain on EWR2.

This strategy builds on the environmental impact assessments that have been undertaken on EWR2, to date. The Alliance is committed to following the mitigation hierarchy (a prioritised sequence of four key actions: avoid, mitigate, compensate and offset). The Alliance's ecologists, engineers and designers have worked together to retain over 17% of habitats (totalling approximately 70 ha) within the footprint of EWR2 and avoid any impacts to ancient woodlands and veteran trees. The Alliance has adopted an innovative approach to the implementation of biodiversity net gain by delivering advanced compensatory habitats prior to construction of EWR2 even commencing. The Alliance has prioritised compensating for ecological impacts 'on-site' (i.e. within the footprint of EWR2) through sympathetic landscape planting and the creation of a network of Ecological Compensation Sites. If biodiversity net gain cannot be achieved on-site, the Alliance will seek partnerships in the local area to deliver biodiversity offsets 'off-site' (i.e. outside the footprint of EWR2). If biodiversity net gain cannot be achieved by these previous measures for any reason, then the Alliance will seek to work with organisations to deliver biodiversity offsets further afield.

This strategy sets out the management, maintenance, monitoring and reporting arrangements for biodiversity net gain over both construction and operational phases of EWR2. Where third party land is required, the Alliance will work with landowners to devise land agreements with protective covenants to secure the land for a period of 30-years, to be managed, maintained and monitored in accordance with relevant ecological management plans. The Alliance is responsible for the delivery, management, maintenance and monitoring of land used for biodiversity net gain during the construction phase of EWR2. At the end of the construction phase, land will either be handed back to third parties (in accordance with the land agreements), or handed back to Network Rail, for the long-term management and maintenance of the land. Network Rail will be responsible for appointing an entity or entities to complete the long-term monitoring of the land.

By following the measures outlined in this strategy, the Alliance can achieve its biodiversity net gain commitment and significantly contribute towards nature conservation priorities in the region.



1. Purpose of this document

This strategy document has been prepared by the East West Rail Alliance (hereafter referred to as 'the Alliance'), on behalf of Network Rail, to outline how East West Rail Phase 2 (hereafter referred to as 'EWR2') will deliver Biodiversity Net Gain (BNG).

The strategy document has been commissioned by the Alliance to discharge Condition 12b of the deemed planning permission associated with the Network Rail (East West Rail) (Bicester To Bedford Improvements) Order 2020 (hereafter referred to as 'the Order').

EWR2 is largely situated on existing railway infrastructure and most of the habitats present within the footprint of the project (i.e. within the red line boundary) are there because of the existing railway.

This strategy document sets out how the approach the Alliance will follow to achieve BNG for Route Sections 2A, 2B and 2C only as this is where works have commenced (see **Appendix A**). For the purpose of this document, the term 'Route-wide' refers to Route Sections 2A, 2B and 2C combined only.

1.1. Structure of this strategy

This strategy document is divided into the following Sections:

- Section 1 explains the purpose and structure of this document;
- Section 2 defines terms and acronyms used within this strategy;
- Section 3 provides a background to BNG on EWR2 and the policies and guidance pertaining to BNG;
- Section 4 details the roles and responsibilities for BNG within the Alliance;
- Section 5 details the Alliance's approach to communication and stakeholder engagement on BNG;
- Section 6 outlines how the Alliance has applied the 10 good practice principles for BNG and how it has gone above and beyond these principles to ensure real, tangible benefits for biodiversity;
- Section 7 details the biodiversity accounting tool being used to quantify BNG on EWR2, including limitations associated with the biodiversity accounting tool;
- Section 8 explains the Alliance's approach to data management for BNG;
- Section 9 details how biodiversity offset sites are selected and partners agreements;
- Section 10 details the management and maintenance arrangements for BNG during construction and operation phases of EWR2;
- Section 11 details the monitoring arrangements for BNG during construction and operation phases of EWR2;
- Section 12 details the reporting arrangements for BNG during construction and operation phases of EWR2;
- Section 13 details risks and opportunities for the implementation of BNG on EWR2.

1.2. The Alliance's vision

Through achieving BNG on EWR2 the Alliance is striving to ensure tangible benefits for biodiversity across the area, capturing regional aspirations and landscape-scale thinking. The Alliance is following



BNG good practice¹²³, using innovative approaches to ecological mitigation, to put the Alliance at the forefront of BNG. This document provides an overview of how the Alliance will deliver BNG, evidencing the work done to date and providing a clear vision of how the Alliance will continue to deliver their commitment to BNG to ensure the region's natural environment is in a better state than before the development.

¹ Biodiversity Net Gain: Good practice principles for development © CIEEM, CIRIA, IEMA, 2016

² Baker, J., Hoskin, R., Butterworth, T., Kerry, K. and White, N., (2019). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide*. CIRIA, CIEEM and IEMA.

³ BBOP (2018). *Business Planning for Biodiversity Net Gain: A Roadmap*. Business and Biodiversity Offsets Programme (BBOP). Forest Trends, 2018, Washington, D.C. Available from https://www.forest-trends.org/bbop_pubs/business-planning-bng Last accessed August 2020

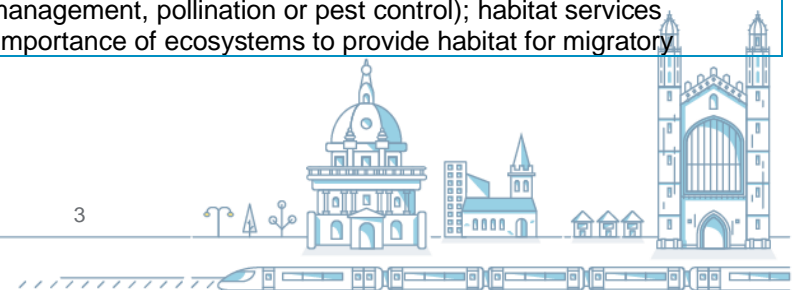


2. Terms and acronyms

The following section defines the terms and acronyms used within this strategy.

Table 1 – Terms and definitions

Term	Definition
Biodiversity	“Biological diversity” means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. This means the diverse wild plants found across our country and the habitats they form, such as woodland and grasslands, and the wild animals they support. Importance is placed on the rarest species and habitats, but the commonplace is also important. The value of biodiversity is twofold, its intrinsic value and the benefits it provides to people. For example, a parkland can support rare species, but it can also contribute to the physical and emotional health of the people who use it.
Biodiversity Metric 2.0	A metric developed by Defra which provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change.
Biodiversity net gain	Development and land management that leaves biodiversity in a better state than before. It is also an approach where developers and land managers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation.
Buckinghamshire Local Nature Recovery Strategy	Buckinghamshire has been chosen as one of five pilot areas to produce a Local Nature Recovery Strategy (LNRS). Buckinghamshire Council will receive a share of £1 million of funding from the government to set up a LNRS pilot study helping to identify the most valuable sites for wildlife, while also identifying areas for the restoration of nature in the county. This could see the creation of wildflower habitat for pollinators, green spaces for people, or new woodlands and wetlands which are important for both healthy communities and in the fight against climate change.
East West Rail Alliance	The East West Rail Alliance is responsible for the delivery of East West Rail Phase 2 Western Sections and consists of Atkins, Laing O’Rourke, VolkerRail and Network Rail.
East West Rail Phase 2 Western Section	The upgrade and reconstruction of existing and mothballed (no longer in use) sections of line that link Bedford with Bicester, and Milton Keynes with Aylesbury.
Ecosystem services	The direct and indirect contributions of ecosystems to human well-being. Ecosystem services can be split into four groups: provisioning services (products obtained from ecosystems such as food, fresh water, wood, fibre, genetic resources and medicines); regulating services (benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control); habitat services (importance of ecosystems to provide habitat for migratory



	species and to maintain the viability of gene-pools); and cultural services (non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values).
Environmental Net Gain	Achieving biodiversity net gain first and going further to achieve net increases in the capacity of affected natural capital to deliver ecosystem services.
Lawton principles	Making Space for Nature, the review of nature conservation in England completed by Professor Sir John Lawton, advocates a landscape-scale approach to conservation, to create “a coherent and resilient ecological network”, guided by 4 key principles, summarised as “ <i>more, bigger, better and joined</i> ”.
Local Natural Capital Plan project	The first project delivering under the Arc Environment pillar. It is a Defra Group-led project (cross-Defra, Natural England, Forestry Commission and Environment Agency), with a team hosted by the Environment Agency. It was conceived to develop a Local Natural Capital Plan (LNCP) for the Arc in order to support the delivery of environmental protection and enhancement as part of the planned growth and investment within the Arc.
Mitigation Hierarchy	<p>A prioritised sequence of four key actions (avoid, mitigation, compensate and offset) that should be followed by developers and landowners, in order, when designing development projects.</p> <ul style="list-style-type: none"> • Avoidance: measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity. • Mitigate: measures taken to reduce the duration, intensity and/or extent of impacts on biodiversity (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible. • Compensate: measures taken within the site to restore degraded ecosystems or recreate cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimised. • Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and/or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.
Natural capital	A way of thinking about nature as a stock that provides a flow of benefits to people and the economy.
Oxford-Cambridge (OxCam) Arc	The Oxford to Cambridge (OxCam) Arc is the name given to a cross-government initiative that supports planning for the future of the five ceremonial counties of Oxfordshire, Bedfordshire, Buckinghamshire, Cambridgeshire and Northamptonshire up until 2050. The Arc aims to ensure a harmonious delivery of improved



	connectivity, productivity and place-making, whilst ensuring pioneering environmental standards and enhancements are delivered. Because of the commitments to green growth, its governance and scale, the Arc represents a unique opportunity to put the Government's 25 Year Environment Plan into action. The creation of a Local Natural Capital Plan for the Arc is an essential first step to ensure a natural capital baseline and framework is provided that helps to monitor environmental change and de-risk growth.
Route Section 2A	Part of the OXD line between Bicester and Cherwell (ch 109739 to ch 101270)
Route Section 2B	Part of the OXD line between Steeple Claydon and Bletchley (ch 97870 to ch 80760) and a part of the BFO line in Bletchley (ch 80760 to ch 80600).
Route Section 2C	Part of the BFO line in Bletchley (ch 80600 to ch 79280), part of the DHF line in Bletchley (ch 79260 to ch 78850) and part of the BBM line in Bletchley (ch 178720 to ch 178490).
Route-wide	Route Sections 2A, 2B and 2C combined.
The Order	Network Rail (East West Rail) (Bicester To Bedford Improvements) Order 2020

Table 2 – Acronyms

Acronyms	Full Term
BBOP	Business and Biodiversity Offsets Programme
BBOWT	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
BIF	Biodiversity Ideas Form
BM	Biodiversity Manager
BNG	Biodiversity Net Gain
BOA	Biodiversity Opportunity Area
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CRE	Contractor's Responsible Engineer
Defra	Department for Environment, Food and Rural Affairs
DEMP	Design Environmental Management Plan
EM	Ecology Manager
ENG	Environmental Net Gain
ESFL	Environment and Sustainability Functional Lead
EWR	East West Rail



Acronyms	Full Term
EWR2	East West Rail Phase 2
FME	Feature Manipulation Engine
GIS	Geographic Information System
GRIP	Governance for Railway Investment Projects
IEMA	Institute of Environmental Management and Assessment
LNCP	Local Natural Capital Plan
LNRS	Local Nature Recovery Strategy
LPA	Local Planning Authority
NCA	National Character Area
NE	Natural England
NPPF	National Planning Policy Framework
NRBC	Network Rail Biodiversity Calculator
NRN	National Recovery Network
OL	Objective Leader
SAP	Sustainability Action Plan
SMP	Sustainability Management Plan
VALP	Vale of Aylesbury Local Plan
VfM	Value for Money



3. Background

3.1. Planning condition

Under deemed planning permission associated with the Order, the project is subject to a series of planning conditions. Condition 12b relates to the BNG requirements for EWR2 as follows:

Condition 12b

No later than 6 months after the commencement of the development a strategy to achieve an overall 10% net gain in biodiversity for the development, including monitoring, maintenance, management and reporting arrangements, must be submitted for approval in writing by each local planning authority. From the time the development comes into operation measures to achieve an overall 10% net gain in biodiversity for the development (assessed in accordance with the 2019 update proposed by Department for Environment, Food & Rural Affairs to the 2012 Defra biodiversity metric) shall be implemented in accordance with the approved strategy.

Reason: To ensure that the development does not adversely affect the natural wildlife and ecology of the area, including protected species, and secures a net gain in biodiversity

3.2. UK biodiversity policies and guidance

3.2.1. Government's 25-year Environment Plan

The Government's 25-Year Environment Plan⁴ published in January 2018 includes a key commitment to embed an 'environmental net gain' principle for development, including housing and infrastructure. The Government's 25-Year Environment Plan states: *"We want to establish strategic, flexible and locally tailored approaches that recognise the relationship between the quality of the environment and development. That will enable us to achieve measurable improvements for the environment – 'environmental net gains' – while ensuring economic growth and reducing costs, complexity and delays for developers"*.

The Government's 25-Year Environment Plan further supports that the planning system should provide biodiversity net gains where possible, which the Government would like to make mandatory: *"We want to expand the net gain approaches used for biodiversity to include wider natural capital benefits, such as flood protection, recreation and improved water and air quality. They will enable local planning authorities to target environmental enhancements that are needed most in their areas and give flexibility to developers in providing them."*

3.2.2. The Environment Bill

The Environment Bill (re-introduced to Parliament in 2020) includes a change to the Town & Country Planning Act 1992 to ensure that the delivery of much-needed infrastructure is not at the expense of biodiversity⁵. This means that, subject to enactment in its current draft form, it will be mandatory that projects covered under the Town & Country Planning Act 1992 will need to ensure biodiversity is better off post-construction compared to pre-construction. There are areas of EWR2 that are being delivered separately to the Order subject to planning permission granted under the Town & Country Planning Act 1992.

⁴ www.gov.uk/government/publications/25-year-environment-plan Last accessed September 2020

⁵ <https://www.gov.uk/government/news/spring-statement-2019-what-you-need-to-know>



3.2.3. CIRIA / CIEEM / IEMA Principles

The CIRIA, CIEEM and IEMA 'Biodiversity Net Gain'⁶ sets out principles that developments must follow to achieve biodiversity net gain. These principles provide a framework that can contribute towards strategic priorities to conserve and enhance nature while progressing with sustainable development. The document details ten principles that set out good practice for achieving BNG and to gain the maximum benefit must be applied all together, as one approach. This will ensure the development leaves biodiversity in a better state than before. The principles also provide a way for industry to show that projects followed good practice. CIRIA / CIEEM / IEMA have also recently published a document to help and support developers implement the ten principles within new development projects⁷.

3.2.4. England Biodiversity 2020 strategy

Following the European Commission's target of 'No net loss of biodiversity', the UK government set out the Biodiversity 2020 strategy for England to "*halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.*"⁸. The UK Biodiversity Strategy 2020 was informed by a far-reaching study "Making Space for Nature"⁹. This study stated that we need to establish a much better and stronger connected natural environment through better protection and management of our designated and non- designated wildlife sites and by putting biodiversity first when undertaking development.

3.2.5. National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF). The revised National Planning Policy Framework¹⁰ was published on 24 July 2018.

Chapter 15 of the NPPF 'Conserving and enhancing the natural environment' sets out the requirements to consider BNG in planning decisions. Paragraph 170 states: "*Planning policies and decisions should contribute to and enhance the natural and local environment by: ... d) minimising impacts and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*"

3.2.6. Network Rail

Network Rail has recently published their Environmental Sustainability Strategy (2020 – 2050)¹¹, which contains four core priorities, of which one is 'Improved biodiversity of plants and wildlife'. Network Rail will continue to look after nature and protect, maintain and enhance biodiversity across the railway. This includes goals to 'achieve no net loss of biodiversity across the network by 2024 and net gain by 2035' and to 'be recognised as a leader in land management by 2030'. Network Rail have ambitions to go beyond recommendations in the independent Network Rail Vegetation Management Review (Varley

⁶ https://www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf

⁷ Baker, J., Hoskin, R., Butterworth, T., Kerry, K. and White, N., (2019). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide*. CIRIA, CIEEM and IEMA.

⁸ Defra (2011a). *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. Department of Environment, Food and Rural Affairs, London.

⁹ Defra (2010). *Making Space for Nature: A review of England's Wildlife Sites and Ecological Network*. Report of Committee chaired by Professor Sir John Lawton. Department of Environment, Food and Rural Affairs, London.

¹⁰ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

¹¹ <https://www.networkrail.co.uk/wp-content/uploads/2020/09/NR-Environmental-Strategy-FINAL-web.pdf> Last accessed: October 2020



Review)¹² of Network Rail’s vegetation management (for England and Wales), as well as stretching beyond the DfT’s target of Biodiversity Net Gain by 2040 by achieving it by 2035.

3.2.7. *National Infrastructure Commission – Oxford to Cambridge (Ox-Cam) Arc*

The National Infrastructure Commission’s report¹³ on the Oxford to Cambridge (Ox-Cam) Arc (hereafter referred to as ‘the Arc’) also states that the ‘Government should work with local authorities to ensure that strategic infrastructure, including new elements of East West Rail..., are planned and developed to achieve net gains in biodiversity’. This objective aligns with Network Rail’s aspirations for EWR2.

3.2.8. *Local planning authorities*

The local planning authorities within which the route sits are now mandating the delivery of BNG as part of any planning proposals.

Cherwell District Council

Cherwell Local Plan Policy ESD10 seeks a net gain in biodiversity from development proposals and also states ‘development proposals will be expected to incorporate features to encourage biodiversity and retain and where possible enhance existing features of nature conservation value within the site.’¹⁴

Buckinghamshire Council

The emerging Vale of Aylesbury Local Plan (VALP)¹⁵ should be referred to for the BNG policy for applications that fall within the previous Aylesbury Vale District Council administrative boundary of Buckinghamshire Council. The VALP includes two local plan policies relevant to BNG:

- Local Plan Policy NE1 which seeks a net gain in biodiversity: ‘*On greenfield sites, a net gain in biodiversity will be sought and on other sites no net loss and a net gain where possible in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources. These gains must be measurable using best practice in biodiversity and green infrastructure accounting...*’
- Local Plan Policy NE2 on river and stream that states: “*Development proposals must not have an adverse impact on the functions and setting of any watercourse and its associated corridor. They should conserve and enhance the biodiversity, landscape and consider the recreational value of the watercourse and its corridor through good design. Opportunities for de-culverting of watercourses should be actively pursued. Planning permission will only be granted for proposals which do not involve the culverting of watercourses and which do not prejudice future opportunities for de-culverting. Development proposals adjacent to or containing a watercourse shall provide or retain a 10m ecological buffer (unless existing physical constraints prevent) from the top of the river watercourse bank and the development and include a long-term landscape and ecological management plan for this buffer*”.

Milton Keynes Council

Milton Keynes Council’s draft Local Plan (Plan:MK) includes Policy NE3 that states developments should protect and enhance biodiversity, follow the policies and guidance in the Buckinghamshire and

¹² Varley, J. (2019). Valuing nature – a railway for people and wildlife... The Network Rail Vegetation Management Review. A report for the Department for Transport.

¹³ <https://www.nic.org.uk/our-work/growth-arc> Last accessed September 2020

¹⁴ Cherwell Local Plan 2011 – 2031 (2015) [Online] <https://www.cherwell.gov.uk/downloads/download/45/adopted-cherwell-local-plan-2011-2031-part-1-incorporating-policy-bicester-13-re-adopted-on-19-december-2016> Last accessed September 2020

¹⁵ Vale of Aylesbury Proposed Local Plan (2017) [Online] <https://www.aylesburyvaledc.gov.uk/valp-proposed-submission> Last accessed August 2020



Milton Keynes Natural Environment Partnership¹⁶, follow the mitigation hierarchy and deliver biodiversity offsets using an appropriate biodiversity metric when compensation is necessary¹⁷.

3.2.9. Government's Local Nature Recovery Strategy Pilot – Buckinghamshire

Buckinghamshire is one of the five local authority pilots that has been selected by the Government to test Local Nature Recovery Strategies (LNRS) as a new, ground-breaking mechanism to plan for Nature recovery at a local level¹⁸. The LNRS will form steps towards the Government's ambition to help create a national Nature Recovery Network (NRN). LNRSs will identify, map and prioritise local actions to create bigger, better and more connected natural places that benefit people, wildlife and the economy. Buckinghamshire is therefore mapping its most valuable sites and habitats for wildlife alongside its priorities for linking up and restoring nature. The results will inform the planned roll out of LNRSs across all areas in England, once the Environment Bill receives royal assent.

3.3. The Alliance's commitment to biodiversity net gain

EWR2 is the first major infrastructure project in the UK where BNG is a commitment, and not just a nice-to-have. The text below demonstrates the Alliance's commitments, prior to BNG becoming a planning condition:

- The VfM (Value for Money) statement, as part of the Pure Alliance Agreement (PAA) that was written in 2015, included a commitment to delivering net gains for biodiversity. Over time, this commitment has been refined following granting of the Order and the latest version (v7.5) states *"The EWR Alliance shall work to support the EWR Company and TWAO commitment to deliver a 10% biodiversity net gain utilising the Draft v2.0 of the Defra metric."*¹⁹.
- The Alliance has included commitment in the Alliance Charter since 2015 to *"Achieve demonstrable gains in biodiversity"*²⁰.
- The Alliance Sustainability Strategy, which is regularly maintained, was conceived in 2015/6 and since then it has always included an objective to deliver net gains for biodiversity. Over time, this commitment has been refined to state *"Protecting the natural environment and contributing to the conservation of nature in the region"* (Sustainability Objective ENV03).
- Prior to BNG being a planning condition associated with the Order, at Option Selection Governance for Rail Investment Project (GRIP) stage of the project (GRIP 3), as part of the Sustainability Key Results Area (KRA) devised in 2016, there was a BNG Key Performance Indicator (KPI) measure on EWR2. Expected levels was measurable Biodiversity gains of 2.5%, Stretch 5% and Excellence 10%. The Alliance is now committed to deliver the Excellence target of 10%.

3.4. Management documents

The Alliance's Sustainability Management Plan (SMP) has been developed to explain how the Alliance will manage the delivery of the commitments set out in the Charter, the Alliance's Sustainability Policy and Strategy.

¹⁶ <http://bucksmknep.co.uk/> Last accessed August 2020

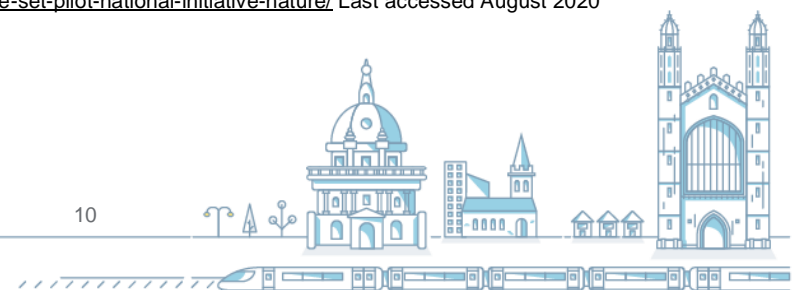
¹⁷ Milton Keynes Council Draft Local Plan - Plan:MK (2018) [Online]

https://miltonkeynes.objective.co.uk/portal/planmk/plan_mk_submission/proposed_submission_planmk?pointId=ID-4403280-POLICY-NE4 Last accessed August 2020

¹⁸ <https://www.buckinghamshire.gov.uk/news/buckinghamshire-set-pilot-national-initiative-nature/> Last accessed August 2020

¹⁹ Document reference: 133735-EWR-REP-MAN-000003_5.1

²⁰ Document reference: 133735-RCD-DCM-000004



For each action objective an Objective Leader (OL) has been identified and a Sustainability Action Plan (SAP) developed. Each SAP sets out the key actions required to deliver the action objective. The delivery of BNG is an action object and an OL has been appointed and SAP produced. The SMP includes a maturity description for the BNG objective to allow a tracking mechanism to monitor continual improvement in performance.

The maturity matrix for EWR2 Sustainability Objective ENV03 is detailed below (Table 3).

Table 3 – Maturity matrix for EWR2 Sustainability Objective ENV03.

Complier	Risk Mitigator	Opportunity Maximiser	Champion
<p>The Alliance meets minimum legal and client biodiversity requirements. The Alliance has carried out all necessary baseline surveys and obtained all relevant consents and authorisations.</p> <p>Regular monitoring and reporting are undertaken.</p>	<p>The Alliance can demonstrate reduction in biodiversity impacts in the design process, based on DEFRA's biodiversity mitigation hierarchy:</p> <ul style="list-style-type: none"> • Avoid • Mitigate • Compensate • Offset <p>Alliance has identified all habitat associated with the project and has undertaken biodiversity accounting calculations and established a strategy for biodiversity net gain.</p> <p>There is a developing awareness of biodiversity in the Alliance team.</p>	<p>The Alliance can demonstrate steps taken in the design of ecological compensation and mitigation to achieve wider environmental benefits.</p> <p>The Alliance works with the client to challenge existing standards and practices to benefit biodiversity.</p> <p>The Alliance has developed biodiversity objectives and targets in consultation with key stakeholders.</p> <p>The Alliance team are aware of biodiversity issues through formal training and awareness raising.</p> <p>The Alliance is recognised as an industry influencer for its biodiversity work.</p> <p>The Alliance seeks to use innovative solutions to reduce impacts to biodiversity.</p>	<p>The Alliance is committed to formal partnering arrangements with nature conservation groups, landowners and stakeholders to deliver biodiversity net gain outcomes in perpetuity.</p> <p>Secured management and monitoring of biodiversity net gain sites in perpetuity.</p> <p>Alliance has gained national recognition for its biodiversity work. The Alliance is viewed as a sector leader and innovator in biodiversity.</p>



4. Roles and responsibilities

The following section outlines the roles and responsibilities for the production, acceptance, implementation and review/update of this strategy.

The roles and responsibilities for delivering the BNG strategy and objectives are outlined below (Table 4)

Table 4 – Roles and responsibilities

Role	Abbreviation	Responsibilities
Environment and Sustainability Functional Lead	ESFL	<ul style="list-style-type: none"> Lead for Environment and Sustainability in the Alliance and for management review Setting the direction for this strategy Provide technical expertise and point of contact Link into wider Network Rail Biodiversity Agenda and other industry and cross-industry best practice Lead on key performance indicator work streams and gaining other industry awards Forecasting and period reporting on budget and programme with programme controls
Ecology Manager	EM	<ul style="list-style-type: none"> Contribute to the design, implementation and maintenance of the Ecology component of the IMS Review of unit metric calculation Review of the strategy
Biodiversity Manager	BM	<ul style="list-style-type: none"> Completes the biodiversity accounting calculations for the project Production of the strategy Monitor and report on progress as appropriate
Environment Representative	N/A	<ul style="list-style-type: none"> A member of the Network Rail environment team that is consulted and informed on the strategy
Project Leader	N/A	<ul style="list-style-type: none"> Ensure that the 10% Biodiversity Net Gain target is achieved

Table 5 below outlines the roles and responsibilities of individuals in the Alliance and Network Rail for delivering BNG on EWR2.

Table 5 – Responsibility assignment matrix

The Alliance procedure/document RACI	The Alliance Roles				Network Rail / EWR Co Roles
R = Responsible A = Accountable C = Consulted I = Informed Accountabilities shall not be delegated. Responsibilities may be delegated but all such	ESFL	EM	BM	Project Lead	Environment Representative



delegations shall be formally recorded.					
Strategy production	A	C	R	C	I
Strategy acceptance	A	C	R	I	I
Strategy implementation	A	C	R	A	C
Strategy review/update	A	C	R	I	I



5. Communications and stakeholder management

5.1. Open door policy

The Alliance shall actively engage relevant stakeholders throughout the process. The Alliance also welcomes external communication from relevant stakeholders throughout the process.

Since 2015, the Alliance has been engaging with conservation key stakeholders on the topic of BNG. The Alliance held the first set of workshops with conservation key stakeholders in 2015, and since then the Alliance has welcomed conservation key stakeholders to submit BNG idea. The workshops with conservation key stakeholders have been instrumental in how we shape our BNG strategy and on our ecological mitigation design principals. For example, we have targeted planting larval food plants for rare terrestrial invertebrates such as black, brown and white-letter hairstreak butterflies in discussion with local butterfly experts.

5.2. Stakeholder engagement

As part of the formal and informal consultation the Alliance has undertaken with nature conservation groups, local authorities, local conservation experts and landowners (hereafter referred to as 'key stakeholders') there is strong support for the delivery of BNG.

A key aspect of the principles to achieve BNG^{Error! Bookmark not defined.} is for developers, such as Network Rail, to work with key stakeholders to support their priorities for nature conservation and biodiversity. Fundamentally, the approach to achieving BNG is inclusive, and aims to strengthen links between biodiversity measures that developers implement, and nature conservation work undertaken by key stakeholders.

Network Rail's approach to BNG is based on good practice principles developed by CIRIA/ CIEEM / IEMA, BBOP and Defra^{21,22,23}. In reviewing the potential of biodiversity offsetting for the UK, the Making Space for Nature report¹² recommended that these principles be tested through Defra's pilots²⁴. However, an interim evaluation of the pilots found that "*some of the challenges around the principles remain insufficiently explored, including addressing concepts such as in perpetuity, additionality, and the involvement of communities*"²⁵.

Given this finding, and as people interpret principles such as additionality differently, a key stage for EWR2 has been to explore how key stakeholders define the principles in its specific context. It was important to gain consensus amongst key stakeholders on tangible context-specific definitions that can be used to select and implement biodiversity offsets going forward. For EWR2, key stakeholder definitions of 'local' were used to help define the strategy, determining the multipliers which will be used for spatial risk in the post-development metric; this can be seen in Error! Reference source not found..

5.3. Sharing learning and best practice

The Alliance shall engage in Network Rail and wider industry events to share lessons learnt and promote best practice.

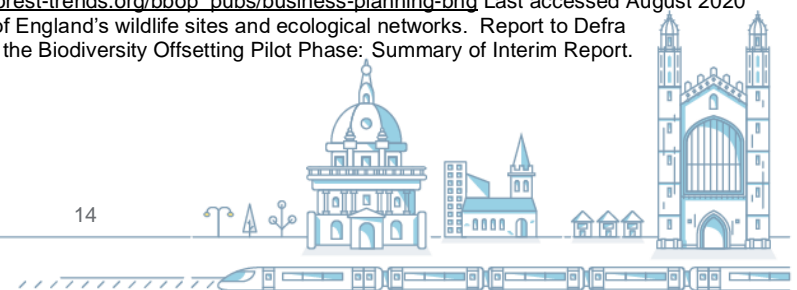
²¹ Biodiversity Net Gain: Good practice principles for development © CIEEM, CIRIA, IEMA, 2016

²² Baker, J., Hoskin, R., Butterworth, T., Kerry, K. and White, N., (2019). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide*. CIRIA, CIEEM and IEMA.

²³ BBOP (2018). *Business Planning for Biodiversity Net Gain: A Roadmap*. Business and Biodiversity Offsets Programme (BBOP). Forest Trends, 2018, Washington, D.C. Available from https://www.forest-trends.org/bbop_pubs/business-planning-bng Last accessed August 2020

²⁴ Lawton et. al. (2010). Making space for nature: a review of England's wildlife sites and ecological networks. Report to Defra

²⁵ Collingwood Environmental Planning (2013). Evaluation of the Biodiversity Offsetting Pilot Phase: Summary of Interim Report.



A list of workshops and conferences that the Alliance has been involved in is found in Error! Reference source not found..

5.4. Generating ideas

Key stakeholders will be engaged to submit ideas for offset sites (including their designs and long-term management) as per Section 9.



6. Biodiversity net gain: making it meaningful

Biodiversity units are used to help answer the question – how much is needed to achieve BNG? However, the Alliance recognises that biodiversity cannot be reduced to numbers alone. The Alliance is not only committed to achieve a measurable net gain for biodiversity, but also to contribute to the region’s nature conservation and therefore meaningfully linking with the strategies and plans of the nature conservation community along the corridor of EWR2. All other questions about achieving BNG (e.g. what habitat to create or enhance, which species are to use the habitat, which ecological functions it should generate) are based on a qualitative assessment of the biodiversity affected by EWR2. This means that BNG offset designs are based on EWR2’s impact on biodiversity as a whole, factoring in connectivity and ecological functions. Then the biodiversity unit calculation helps to identify the amount needed to achieve genuine net gains for biodiversity.

To demonstrate how the Alliance will deliver genuine gains for biodiversity, the following sub-sections outline how the Alliance is applying the 10 good practice principles for BNG²⁶ on EWR2 and applying innovative approaches to ecological mitigation. The Alliance’s approach aims to ensure that interventions will deliver real, tangible gains for biodiversity.

6.1. Principle 1. Apply the Mitigation Hierarchy

The Alliance is fully committed to applying the Mitigation Hierarchy. The application of the Mitigation Hierarchy is the most important principle as it impacts on all the other principles. It is also done as the first stages of a project and has had the most work completed to date on EWR2, therefore it has been given more coverage in this document.

The Design Environmental Management Plan (DEMP)²⁷ sets out the Alliance approach to sustainable design and avoidance/reduction of negative effects through the iterative design process. Biodiversity loss is included in this DEMP and included as a risk in the EWR2 Risk and Opportunity Register.

The main mechanism for identifying opportunities for avoidance and reduction of losses is through Sustainable Design workshops. At each GRIP stage²⁸ an ecology and landscape themed workshop including key design/engineering leads and the ecology and landscape specialists takes place to identify ideas and opportunities to avoid or reduce impacts in design and also during construction. The output of these workshops is recorded in a log held on eB, which records the opportunities to avoid, reduce and mitigate biodiversity impacts and if/how that opportunity has been successful. As part of an Integrated Design, the Alliance has an appointed Environment CRE (Contractors Responsible Engineer), present at Integrated Design meetings, checks and reviews to ensure that environmental considerations are made in the project design.

How the Alliance has implemented the DEMP through the on EWR2 to ensure the Mitigation Hierarchy has been followed is detailed below (Table 6).

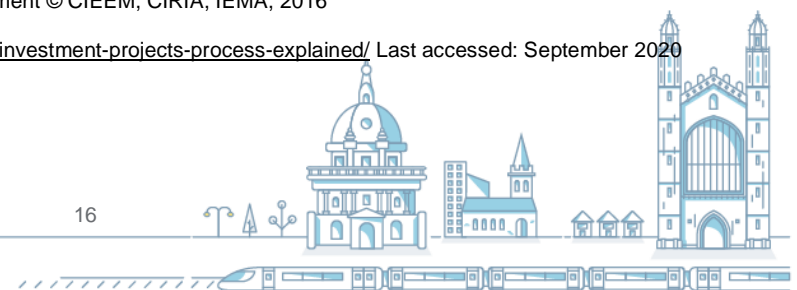
Table 6 – The Alliance’s approach to each stage of the Mitigation Hierarchy

Stage of Mitigation Hierarchy	The Alliance’s approach
Avoid	At the feasibility stage of EWR2, ecologists were engaged to identify key important ecological features that should be avoided. This resulted in EWR2 design avoiding any direct impacts to irreplaceable habitats or statutory designated sites.
Mitigate	As part of the Environmental Impact Assessment process, losses or impacts were assessed on ecological features, including direct

²⁶ Biodiversity Net Gain: Good practice principles for development © CIEEM, CIRIA, IEMA, 2016

²⁷ 133735-EWR-REP-EEN-000028

²⁸ <https://www.railengineer.co.uk/grip-governance-for-railway-investment-projects-process-explained/> Last accessed: September 2020



Stage of Mitigation Hierarchy	The Alliance's approach
	<p>habitat loss, indirect losses from factors such as noise, shadowing or hydrological changes, as well as impacts around severance and connectivity both during construction and operational phases. This process identified steps to mitigate these impacts, including steps to reduce impacts through construction best practice measures.</p> <p>During the detailed design stage of EWR2, ecologists were involved in design/engineering workshops to reduce impacts to habitats within EWR2 boundary during construction. This led to approximately 17.4% of all habitats within EWR2 boundary being retained. In addition, where practicable, this process led to the retention of several features used by protected species such as badger setts, great crested newt breeding ponds and bat roosts.</p>
Compensate	<p>A network of Ecological Compensation Sites (ECSs) are being created (some ECSs were created prior to the Order being made) to compensate for impacts on protected and notable species and habitats. These ECSs are situated adjacent to the railway, spread along the railway corridor and will be connected by reinstatement planting along the new railway to create a restored green corridor. The total area of the ECSs across Route Sections 2A, 2B and 2C is 99.12 ha.</p>
Offset	<p>Despite strictly adhering to the mitigation hierarchy, the Alliance will need to deliver offset sites to achieve the required 10% BNG target. As it has not possible to include BNG offset sites in EWR2 boundary for legal reasons, the Alliance will offset the remaining biodiversity units offsite as per detailed in Section 8.</p> <p>To give confidence that biodiversity offsetting will be used appropriately to generate long-term gains for nature, EWR Alliance will follow the 10 good practice principles for BNG²⁹.</p>

6.1.1. *The Alliance's unique and innovative approach to the mitigation hierarchy*

The Alliance undertook unique and innovative steps early in the design for EWR2: where it was clear that certain habitats for protected species could not be avoided, the Alliance entered into legal agreements with adjacent landowners where possible, to secure and deliver ECSs in advance of the Order being made. Not only did this help EWR2 work towards achieving BNG, but it also meant that EWR2 could use special protected species licencing policies for great crested newts³⁰, avoiding the need for great crested newt fencing across large parts of the project. Many ECSs (comprising a total area of 45.2 ha) were created before the Order came into force in February 2020³¹. This meant that once pre-commencement conditions were closed out, Natural England were able to immediately grant a great crested newt mitigation licence following licencing policies. The delivery of advanced ECSs therefore not only provided habitat for protected species but they de-risked the construction programme for EWR2 and contributed towards BNG.

²⁹ Baker, J., Hoskin, R., Butterworth, T., Kerry, K. and White, N., (2019). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide*. CIRIA, CIEEM and IEMA.

³⁰ <https://www.gov.uk/government/news/new-licensing-policies-great-for-wildlife-great-for-business>

³¹ <https://www.networkrail.co.uk/news/first-new-railway-in-50-years-between-oxford-and-bletchley-takes-major-step-forward>



This innovative approach has meant that the number of offsets required has been significantly reduced (as these are accounted for as on-site habitat creation to compensate for environmental impacts on EWR2), saving Network Rail money in the long term. It also demonstrated to key stakeholders that the Alliance is committed to benefitting the environment. This unique and innovative approach was published in a knowledge-sharing article for the rail industry³².

6.2. Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere

As outlined in Section 6.1 above, ecologists were involved at the option selection stage of EWR2, to ensure the design of EWR2 avoided any direct impacts to irreplaceable habitats or statutory designated sites.

As documented in the EWR2 ES³³ and subsequent addendum³⁴, an exercise was undertaken to identify irreplaceable habitats, such as ancient woodlands and ancient wood pasture and parklands, that are too small (<2 ha) to have been included in the Ancient Woodland Inventory (AWI)³⁵. There was no conclusive evidence based on historic maps and ecological surveys to confirm any additional irreplaceable habitats within or immediately adjacent to EWR2 boundary that are not shown on the AWI. In addition, during the Detailed Design stage (GRIP5), all veteran trees will be protected from loss and impacts.

6.3. Principle 3. Be inclusive and equitable

As outlined in Section 5, the Alliance considers stakeholder engagement as crucial when designing and implementing BNG during each stage of EWR2. At the early stages of EWR2, key stakeholders were involved in helping identify and design BNG offset sites and key definitions when determining gains such as defining terms like 'local' in the context of EWR2 (Error! Reference source not found.). Key stakeholders have been engaged with shaping this strategy document thus far and involvement will continue as we move to select and design offsets and their implementation, monitoring and evaluation. The Alliance aims to continue to work in partnership with key stakeholders where possible and share the benefits fairly among key stakeholders, for example not offsetting impacts occurring in Cherwell in Milton Keynes.

6.4. Principle 4. Address risks

The Alliance understands the need to mitigate difficulty, uncertainty and other risks to achieving BNG (see Section 10). By using the 2019 'beta-version' of the Biodiversity Metric 2.0 (hereafter referred to as 'the Metric (beta testing version)'), which includes risk factors relating to difficulty and time to target condition, the Alliance will apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised. For example, all habitats created within ECSs, biodiversity offsetting sites and the landscape planting will be subject to inspections during the construction phase of EWR2. The contractor creating the habitats will replace failures.

³² Hicks, J., Price, J., Voigt, R. & Wansbury, C. (2020) Biodiversity Net Gain: Sharing Practice Experience of a New Approach, *Rail Technology Magazine* (June/July 2020) pp. 24-25

³³ Network Rail (2018) *Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

³⁴ Network Rail (2018) *Further Ecological Information to Support the Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

³⁵ <https://data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodland-england> Last accessed: September 2020



6.5. Principle 5. Make a measurable Net Gain contribution

The Alliance has committed to achieve a 10% measurable net gain for biodiversity (10% BNG) to ensure overall gains for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities. This commitment is within in the Alliance's Charter and VfM statement and it was a KRA prior to BNG being a planning condition. Biodiversity accounting has been completed using the Metric (beta testing version) and the results are displayed and explained in Section 8 below.

6.6. Principle 6. Achieve the best outcomes for biodiversity

The Alliance is committed to achieve the best outcomes for biodiversity, demonstrated by the Alliance's commitment to achieve a 10% biodiversity net gain. To ensure the best outcomes for biodiversity are achieved, the Alliance will use robust, credible evidence (generated from surveys and local record centre records) and work with local experts to make clearly justified choices when:

- delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses;
- compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation;
- achieving BNG locally to the development while also contributing towards nature conservation priorities at local, regional and national levels (e.g. LNCP project, LNRS etc);
- enhancing existing or creating new habitat; and
- enhancing ecological connectivity by creating more, bigger, better and joined up in accordance with the Lawton principles³⁶.

6.7. Principle 7. Be additional

The Alliance recognises that BNG requires achieving nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway). This means the Alliance will not fund management regimes that are/should be carried out already on habitats/wildlife sites under separate agreements of existing management plans. Despite not being mandated in legislation yet (forth-coming Environment Bill is on hold), the Alliance is committed to deliver BNG.

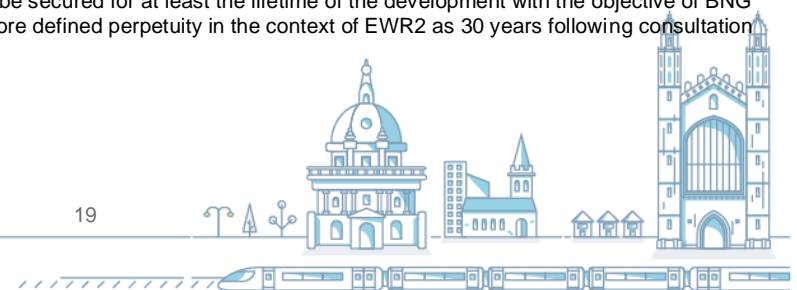
6.8. Principle 8. Create a Net Gain legacy

The Alliance is determined to create a lasting BNG legacy, ensuring actions carried out by the Alliance generate long-term benefits (see Section 10). To do this, the Alliance will:

- engage with key stakeholders and local experts and to consider practical solutions that secure BNG delivery in perpetuity³⁷;
- plan for adaptive management and securing dedicated funding for long-term management;

³⁶ Defra (2010). Making Space for Nature: A review of England's Wildlife Sites and Ecological Network. Report of Committee chaired by Professor Sir John Lawton. Department of Environment, Food and Rural Affairs, London.

³⁷ Biodiversity compensation and offsets should be planned for a sustained net gain over the longest possible timeframe. For development in the UK, the expectation is that compensation and offset sites will be secured for at least the lifetime of the development with the objective of BNG management continuing in the future. The Alliance has therefore defined perpetuity in the context of EWR2 as 30 years following consultation with Natural England.



- design compensation and offsets to be resilient to external factors, especially climate change and spreading of diseases (such as including wych elm instead of English elm within planting mixes as wych elm has greater field resistance to Dutch elm disease³⁸);
- mitigate risks from other land uses;
- avoid displacing harmful activities from one location to another; and
- support local-level management of BNG activities.

6.9. Principle 9. Optimise sustainability

The Alliance will prioritise BNG and, where possible, optimise the wider environmental benefits for a sustainable society and economy. The Alliance will seek to reuse materials, such as timber from construction operations, in the delivery of ecological features on compensation and offset sites. In addition, the Alliance has collaborated internally to ensure engineering designs, where practicable, maximise biodiversity benefits. For example, compensatory flood storage areas on EWR2 have been retrofitted with bespoke wet/dry grassland seed mixes to also benefit wildlife.

6.10. Principle 10. Be transparent

The Alliance is committed to clear and transparent communication with all key stakeholders. All BNG decisions and activities will be communicated in a transparent and timely manner, sharing the learning with all key stakeholders.

6.11. Beyond the principles

6.11.1. *Bats and biodiversity net gain*

The Bat Conservation Trust has recently published guidance on how to incorporate bats into BNG designs on projects³⁹. The Alliance has always sought in the design of ecological compensation and offsets to explore how bats can also be incorporated into delivering BNG. This is particularly important as 13 species of bats, including Bechstein's and barbastelles, have been recorded on EWR2. The way the Metric (beta testing version) is able to account for bats is by applying a strategic position multiplier; habitats created that link up bat habitats, such as woodlands, that are currently unconnected are given a higher strategic significance in the Metric (beta testing version), generating a greater number of biodiversity units.

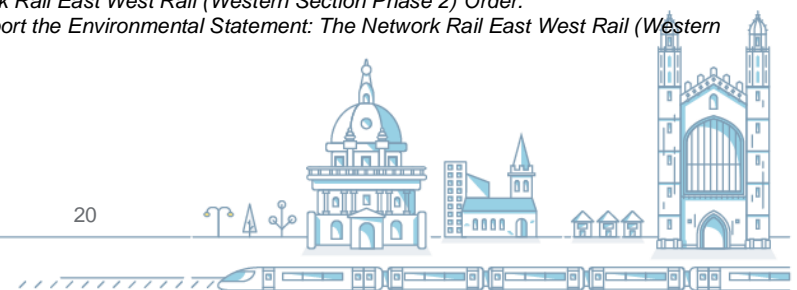
The Alliance has adhered to all the policy and legal requirements for bats, but the Alliance wants to go further and deliver the best BNG outcomes for bats. Firstly, the Alliance identified which species of bats were affected by EWR2, using data collected from the EWR2 ES⁴⁰ and subsequent addendum⁴¹ and subsequent field survey to then focus on how to compensate impacts and provide gains for these bat species. The Alliance located ECSs as close to where we have impacts to bat roosts as possible and designed the ECSs to include a range of habitats to support the bats species impacted based on the different bat species habitat requirements.

³⁸ <https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/dutch-elm-disease/#:~:text=lf%20a%20Wych%20elm%20is,to%20have%20field%20resistance>. Last accessed October 2020

³⁹ Bat Conservation Trust (2020) *Core Sustainance Zones and habitats of importance for designing Biodiversity Net Gain for bats* <https://cdn.bats.org.uk/pdf/Bat-Species-Core-Sustenance-Zones-and-Habitats-for-Biodiversity-Net-Gain.pdf?mtime=20200808090656&focal=none>. Last accessed October 2020

⁴⁰ Network Rail (2018) *Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

⁴¹ Network Rail (2018) *Further Ecological Information to Support the Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.



When selecting biodiversity offsetting sites, the Alliance will aim to ensure these sites are located and designed to benefit bats. To do this, the Alliance will identify a) Core Sustenance Zones (CSZ)⁴² for bat roosts recorded within EWR2 boundary and within the wider landscape and b) the habitats of importance for bats within those CSZs in accordance with Bat Conservation Trust's best practice. These sets of information provide the basic essentials for providing BNG for bats. The Alliance will aim to create biodiversity offsetting sites that fall within the CSZs and connect / enhance the habitats of principal importance that the bats depend on. It must be noted that as the locations of biodiversity offsetting sites are outside the EWR2 boundary, the locations of these sites are subject to landowner agreement only. The locations of biodiversity offsetting sites therefore may not always perfectly match the CSZs.

BNG for bats should be defined as the improvement of quality and quantity of commuting and foraging habitats for target bat species within CSZ. It is important to note that BNG for bats should not just be restricted for roosts impacted by EWR2, but it should also extend to roosts away from EWR2 that overlap with CSZs with impacted roosts. By doing this, other roosts can benefit from BNG offsets which can increase the resilience and viability for those roosts too.

6.11.2. *People and biodiversity net gain*

The Alliance acknowledges the need to address social impacts from BNG and wants people, both affected by the development of the project and BNG activities, to be no worse off during the construction and operational phases of EWR2 and the duration of associated mitigation measures. The Alliance is committed to following good practice principles⁴³ to ensure BNG has positive impacts to people, such as enhancing people's wellbeing by improving their access to green spaces. The Alliance has created and enhanced green spaces along Public Rights of Way for members of the public to enjoy. The Alliance has also worked with landowners to ensure that the management of habitats on third party land, where practicable, tie in with landowner's livelihoods, such as creating species-rich grasslands that can be grazed by livestock at certain times of the year or woodlands where long term management will provide timber through sympathetic management.

6.11.3. *Environmental net gain*

EWR2 links directly to the sustainable growth of the Arc. The NIC report *Partnering for Prosperity*⁴⁴ acknowledges the important role green infrastructure, such as EWR2, has in this strategic growth. The Alliance will work with other infrastructure and other developers in the region towards a coordinated approach to investing in a regional green infrastructure network, maximising the natural capital it can bring to the region.

The drafted legislation in the Environment Bill⁴⁵ is mandating projects covered under the Town and Country Planning Act to deliver a 10% BNG. However, Defra's vision is not to stop with biodiversity but to expand this approach to also deliver wider Environmental Net Gain (ENG).

Defra explain their vision as '*achieving environmental net gain means achieving biodiversity net gain first and going further to achieve net increases in the capacity of affected natural capital to deliver ecosystem services*⁴⁶.

Although the Alliance is committed to primarily benefitting biodiversity in the form of BNG, the creation and enhancement of habitats for wildlife, if designed considerately, can also deliver enhanced natural

⁴² CSZs refers to the area that surrounds a bat roost within which habitat availability and quality will have a significance influence on the resilience and conservation status of the colony using the roost.

⁴³ Bull, J. *et al.* (2018). *Ensuring No Net Loss for people and biodiversity: good practice principles*. Oxford, UK. DOI: 10.31235/osf.io/4ygh7 Last accessed: September 2020

⁴⁴ <https://www.nic.org.uk/wp-content/uploads/Partnering-for-Prosperity-Report.pdf>

⁴⁵ <https://www.gov.uk/government/news/spring-statement-2019-what-you-need-to-know>

⁴⁶ Defra (December 2018) *Net Gain Consultation Proposals*



capital value. This is ENG. Creation and enhancements of habitats, such as woodlands and grasslands, primarily benefit biodiversity but they also provide ecosystem services benefits in the form of: provisioning services (timber and hay); regulatory services (flood control, improve pollination, sequester carbon, improve climate resilience); cultural services (spiritual, aesthetic, recreational, educational) and supporting services (hydrological cycle, soil stability, nutrient cycling and primary production).

The Alliance will continue to collaborate with the LNCP project to add to their work and provide data and evidence to use in the Arc and beyond.



7. Biodiversity accounting

7.1. The Metric

In accordance with the condition of the deemed planning consent, the Alliance must use the Defra 2019 'beta-version' of the Biodiversity Metric 2.0 (hereafter referred to as 'the Metric (beta testing version)').

The Metric (beta testing version) is an excel-based tool with built-in formulae, parameters and multipliers. The Metric (beta testing version) expands the distinctiveness and condition categories and better defines spatial significance compared to the original 2012 Defra biodiversity metric⁴⁷. Connectivity can also be assessed in the Metric (beta testing version). Defra is currently developing a bespoke tool to assess ecological connectivity however this has not been published to date. Instead, ecological connectivity has been determined based on the current guidance within the user guide for the Metric (beta testing version). The difficulty multipliers for delivery risk and the time for a habitat to reach its target condition are predefined for all categories and are a function of distinctiveness and condition. The Metric also distinguishes between on-site habitats (habitats within the planning application boundary of a project) and off-site habitats (affected habitats outside the planning application boundary of a project).

The Metric (beta testing version) updates and replaces the original Defra biodiversity metric (published in 2012). Biodiversity Metric 2.0 has been developed with input from a wide range of environmental NGOs, developers, land managers, Government agencies and other interested parties. The main differences between the Metric (beta testing version) and the original Defra biodiversity metric are that the Metric (beta testing version):

- uses habitat features derived from the UK Habitat (UKHab)⁴⁸ and European Nature Information System (EUNIS)⁴⁹ classification systems as a proxy measure for wider biodiversity
- has an improved consideration of ecological connectivity;
- covers an extended range of habitat types including green infrastructure and rivers.

The Metric (beta testing version) has been published as a 'beta test' version to enable wider user feedback, although Natural England has said that it is suitable for use. Whilst the Metric (beta testing version) is being tested and before official release, the Metric (beta testing version) is undergoing periodical fixes/corrections. Due to the use of the beta testing version it is acknowledged that there may be errors within the calculations (see Section 7.2), although at the time of preparing this report, this remains the most appropriate tool.

The Metric is a habitat-based metric, which does not incorporate species into the biodiversity accounting. The Alliance understands that BNG is by no means just about generating a single number for nature based on habitats alone though; it is about using a biodiversity metric as a proxy indicator for the Alliance to try and deliver genuine net gains for biodiversity. The Alliance has tried to find the middle ground when making decisions, using the ecological information about all the key species in the local area in combination with the numbers appropriate generated from biodiversity accounting to guide

⁴⁷<http://publications.naturalengland.org.uk/publication/602020453888192#:~:text=The%20metric%20is%20a%20habitat,determining%20a%20proxy%20biodiversity%20value.&text=It%20is%20an%20improved%20version,or%20requested%20by%20industry%20experts>. Last accessed October 2020

⁴⁸ UK Habitat Classification: <https://ukhab.org/ukhab-documentation/> Last accessed: September 2020

⁴⁹ <https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification> Last accessed: October 2020



decision making for offsets. The Alliance strives to ensure offset designs will truly be beneficial for nature but also count for the fact that the metric has been used appropriately.

7.2. Limitations with the Metric

Following consultations with Natural England, Buckinghamshire Council and Milton Keynes Council to date (November 2020), it has been acknowledged by all parties that there are underlying errors with the mechanics of the Metric (beta testing version) spreadsheet. These errors have prevented the Alliance from accurately calculating the biodiversity accounting baseline for EWR2. The Alliance is continuing to work with Natural England to identify and fix errors with the Metric (beta testing version). The final, updated version of the Biodiversity Metric 2.0 is expected to be published by Natural England in January 2021, which will correct these errors and allow users to generate a more accurate biodiversity accounting baseline. Natural England have confirmed the new biodiversity metric will address existing errors with the Metric (beta testing version), including but not limited to:

- Time to Target Condition multipliers (particularly addressing issues with scrub, woodland, grassland and ponds);
- accelerated succession;
- ecological connectivity;
- Detailed Results spreadsheet (and associated figures);
- Habitat Group spreadsheet; and
- Phase 1/UKHab Translations.

The Alliance and Natural England have acknowledged, based on the above errors with the mechanisms behind the Metric (beta testing version) spreadsheets, the biodiversity accounting baseline using the Metric (beta testing version) on EWR2, as presented the Biodiversity Accounting Assessment report⁵⁰, does not accurately reflect a true biodiversity accounting baseline for the Alliance to base a BNG strategy on. The current biodiversity accounting baseline reporting in the Biodiversity Accounting Assessment report is based on the most up to date design information.

Natural England has agreed to provide the Alliance with an untested version of the new biodiversity metric in late November 2020 to test run it on EWR2 prior to publishing the new biodiversity metric to the public. The Alliance will re-run the biodiversity accounting calculations, reflecting the latest design information, using the new biodiversity metric once provided by Natural England, to assist Natural England in refining the revised metric.

⁵⁰ 133735-EWR-REP-EEN-000500



8. Data management

Good data management is essential when dealing with large datasets like on EWR2.

8.1. Biodiversity net gain WebMap

Baseline mapping of existing environmental assets has allowed the Alliance to see the most important assets that should be protected, enhanced, and highlight where the Alliance needs to consider opportunities to create offset sites (through carefully considered habitat creation and restoration) that will also result in wider and more connected environmental benefits.

The Alliance has developed an open-source, browser-hosted interactive BNG mapping portal (hereafter referred to as the 'BNG WebMap')⁵¹ to allow the Alliance and stakeholders alike to engage, interact and query spatial data relevant to biodiversity within its geographical context, highlighting spatial relationships that would otherwise be difficult to portray in a static pdf map. Key stakeholders will be provided the link to the BNG WebMap along with a unique username and password. The BNG WebMap contains data layers to help the Alliance and stakeholders visualise the Alliance's BNG goals and to help inform decision making for biodiversity offset sites going forward. Land shown on the BNG WebMap does not mean public access at present.

8.2. Data sharing

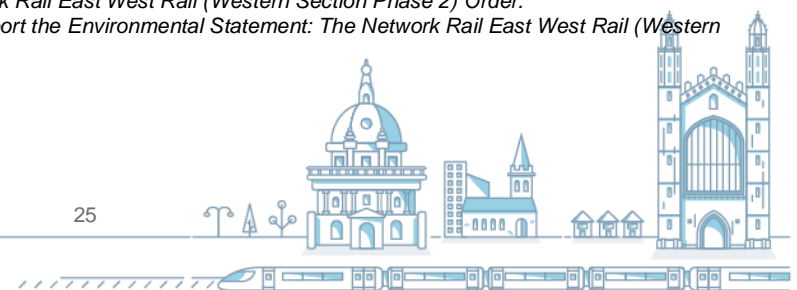
The Alliance is committed to transparent data sharing. The Alliance has provided the Local Environmental Record Centres (LERCs) with all of the ecological data gathered to inform the EWR2 ES⁵² and subsequent addendum⁵³. The Alliance will also provide the LERCs with all of the ecological data gathered during construction. The Alliance will also work closely with the LNCP project and Buckinghamshire's LNRS to share environmental information to ensure joined-up, collaborative environmental projects are delivered across the region.

The Alliance will hold a workshop with key stakeholders once an accurate biodiversity accounting baseline has been determined (see Section 8). This will enable discussion to ensure the Alliance is considering all the relevant information key stakeholders want considered when determining the best areas for locating BNG sites. The Alliance will then use the BNG WebMap, in consultation with key stakeholders, to base the decision-making on locating BNG sites to primarily benefit biodiversity but also wider environmental benefits.

⁵¹ The BNG WebMap is built around Atkins spatial Common Data Environment (sCDE). The sCDE is a BIM level 2 certified, cloud-based spatial database that stores, manages and serves data across EWR2. It leverages automated data translations to ensure that data remains current, auditable and accessible by all those who need it.

⁵² Network Rail (2018) *Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

⁵³ Network Rail (2018) *Further Ecological Information to Support the Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.



9. Implementation of Biodiversity Net Gain on EWR2

9.1. Environmental design for EWR2

Ecological surveys have been conducted to understand the potential ecological impacts of EWR2. The EWR2 ES⁵⁴ and subsequent addendum⁵⁵, outlining the ecological survey results and impact assessment, was submitted as part of the Order application in 2018. These environmental assessments followed the mitigation hierarchy⁵⁶, outlined in the National Planning Policy Framework⁵⁶, whereby development projects should first avoid, then minimise, and finally compensate for environmental impacts. Compensation should ideally be achieved in the first instance as onsite compensation but offsite compensation (referred to as 'a biodiversity offset') can be delivered as a last resort⁵⁷. EWR2 has undergone an iterative design process, influenced by these processes and principles.

The location of EWR2 is fixed, as the route follows existing infrastructure, but ecologists were able to influence the design to avoid ecologically important areas before the red line boundary was fixed (e.g. avoiding ancient woodlands).

To then minimise environmental impacts, ecologists were involved in detailed design meetings to reduce impacts to habitats. This led to the final red line boundary of EWR2 being significantly reduced and altered, and the retention of approximately 17.4% of habitats (totalling approximately 70 ha) within the red line. Where ecological impacts could not be avoided or minimised, 24 ECSs (approximately 99 ha) were incorporated into the red line boundary. These ECSs compensate for impacts on protected and notable species and habitats. They are situated adjacent to the railway, spread along the route and will be connected by reinstatement lineside landscape planting along the new railway to create a restored green corridor.

The Alliance took innovative steps early in the project design: where it was clear that certain habitats for protected species could not be avoided. On behalf of Network Rail, the Alliance entered into land agreements with adjacent landowners to secure and deliver ECSs in advance of the Order being made. Not only did this help EWR2 work towards achieving BNG, but it also meant that the EWR2 could use special protected species licensing policies for great crested newts⁵⁸, avoiding the need for great crested newt fencing across large parts of the project. Many ECSs (approximately 44 ha) were created up to three years before the Order came into force in February 2020⁵⁹. This meant that the compensatory habitats for great crested newts could establish prior to the construction phase of EWR2 commencing and that Natural England could grant a great crested newt mitigation licence, following licensing policies. The delivery of advanced ECSs therefore not only provided habitat for protected species but they de-risked the construction programme for EWR2 and contributed towards BNG.

Despite delivering onsite compensation, the Alliance has not been able to achieve 10% BNG target on EWR2 onsite as is not possible to compulsorily purchase land solely for the purposes of BNG.

In order to achieve the 10% BNG target, the Alliance will deliver biodiversity offsets following the principles outlined in this strategy. The Alliance will enter partnership discussions to deliver biodiversity offset sites in the local area as a first option. It is recognised that this approach is dependent on successfully negotiating third party land and agreements. As a last resort, after compensating for

⁵⁴ Network Rail (2018) *Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

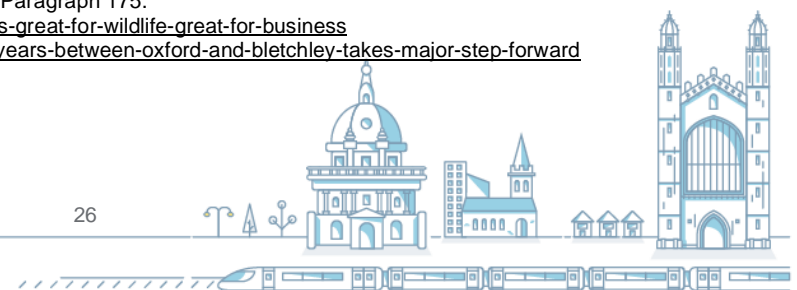
⁵⁵ Network Rail (2018) *Further Ecological Information to Support the Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

⁵⁶ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁵⁷ National Planning Policy Framework (2018) (as amended). Paragraph 175.

⁵⁸ <https://www.gov.uk/government/news/new-licensing-policies-great-for-wildlife-great-for-business>

⁵⁹ <https://www.networkrail.co.uk/news/first-new-railway-in-50-years-between-oxford-and-bletchley-takes-major-step-forward>



ecological impacts of EWR2 onsite, if it is not possible to deliver the required number of biodiversity offset sites locally in partnerships to achieve the 10% BNG target, the Alliance will invest into habitat banking with organisations such as the Environment Bank to achieve the 10% BNG target. In this event, the Alliance would seek to specify that the funds invested into habitat banking should be used for relevant species / habitats such as rare bats, barn owls, invertebrates, woodland and open mosaic habitats and within the counties affected by EWR2.

9.2. Landscape planting

The Alliance has sought to compensate for as much of the project's ecological impacts as possible within the landscape design within the railway and associated highway corridor. The landscape design is sympathetic to wildlife whilst following the Network Rail safety guidelines⁶⁰. It includes a network of grasslands, scrub, hedgerows and trees to connect the retained areas of habitats and restore a green corridor for wildlife.

9.3. Ecological Compensation Sites

In addition to the landscape planting along the railway corridor, ECSs have been designed to compensate for ecological impacts. They have been designed and selected considering:

- the 'Making Spaces for Nature' report⁶¹ and Biodiversity 2020: A strategy for England's wildlife and ecosystem services⁶²;
- licence requirements for protected species;
- proximity to where the ecological impacts occur;
- consultation comments from stakeholders;
- landowner requirements for continued use of the land where applicable;
- existing habitats and species present on the existing land;
- proximity to priority habitats, designated sites, Biodiversity Opportunity Areas (BOAs), watercourses and ancient woodlands;
- Biodiversity Action Plans and other local initiatives;
- species and habitats sympathetic to the local Landscape Character⁶³;
- existing biological, chemical and physical properties on the land;
- other environmental considerations e.g. heritage, flood risk, contaminated land, landscape;
- other constraints e.g. utilities; and
- public accessibility.

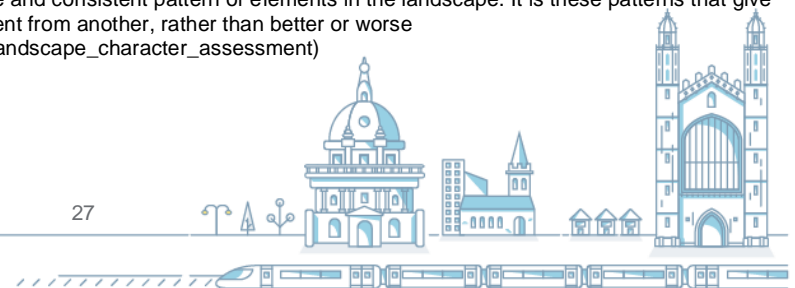
ECSs have been designed to incorporate a variety of habitats including scrub, woodland, lowland meadow, open mosaic habitat, hedgerow, ditches and ponds. ECSs will provide habitat for translocation of protected species (where determined necessary and under licence where appropriate)

⁶⁰

⁶¹ Lawton, J. H., et al. "Making Space for Nature: a review of England's wildlife sites and ecological network." Report to DEFRA (2010).

⁶² Defra. "Biodiversity 2020: a strategy for England's wildlife and ecosystem services." (2011).

⁶³ Landscape character is defined as the distinct, recognisable and consistent pattern of elements in the landscape. It is these patterns that give each locality its 'sense of place', making one landscape different from another, rather than better or worse (http://www.worcestershire.gov.uk/info/20014/planning/1006/landscape_character_assessment)



and to support the recovery of species populations affected by EWR2 as documented in the EWR2 ES⁶⁴ and subsequent addendum⁶⁵.

9.4. Biodiversity offset sites

Despite sympathetic onsite designs, it has not been possible to achieve the desired 10% BNG target onsite. The Alliance will provide offsets offsite to achieve the desired 10% BNG target. The Alliance will first seek to provide biodiversity offsets in partnerships in the local area.

The biodiversity offset site selection process method will comprise:

- The Alliance to provide key stakeholders with Biodiversity Ideas Form (BIF) to propose biodiversity offset site ideas as part of workshops. A blank BIF is shown in **Appendix D**;
- Key stakeholders submit BIF to the Alliance. Any BIF submitted to the Alliance historically (pre-2020) will be reassessed using the Metric (beta testing version);
- Assessment of the proposed biodiversity offset site ideas against the BNG scorecard to identify those that meet the agreed principles for the process. The BNG scorecard is shown in **Appendix D**;
- Assessment of the proposed biodiversity offset site ideas against the ecological mitigation inventory to identify those that complement the mitigation hierarchy process;
- Shortlist of suitable proposed biodiversity offset site ideas subject to ecological surveys to determine site suitability in consultation with key stakeholders;
- Preparation of proposed biodiversity offset site idea summary sheets to facilitate the next stage in the offset selection process following ecological surveys;
- Engage with the landowner of the proposed biodiversity offset site to ensure they are happy with the proposed biodiversity offset site idea;
- Once land owner has agreed to proposed biodiversity offset site idea, the Alliance will seek necessary permissions (i.e. planning applications if necessary) to construct proposed biodiversity offset site idea.

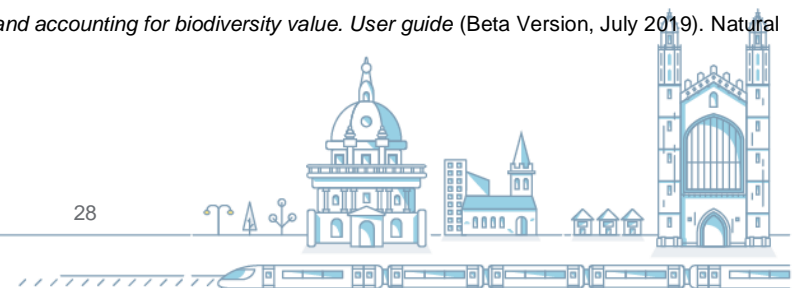
This process has been followed and one biodiversity offsetting site has been delivered in early 2020 in Route Section 2A / within Buckinghamshire Council's jurisdiction. This biodiversity offsetting site has created a small area of broadleaved plantation woodland on existing improved grassland between two ECSs. Once established, it will increase ecological connectivity between the two ECSs and it will provide wider ENG benefits such as visual and noise screening for the landowner.

Biodiversity offsetting sites will be selected and designed to ensure there is no trading down of habitats of Very High, High and Medium distinctiveness on EWR2. This will be applied at the Route-wide scale, as well as at Route Section and Local Planning Authority area scales. Avoiding trading down means not replacing biodiverse habitats (defined as habitats of Very High, High and Moderate distinctiveness) with large areas of less biodiverse habitats that generate the same number of habitat units generated by the biodiverse habitats in the baseline calculations⁶⁶. For example, it is not appropriate to offset 100 habitat units generated from Woodland and forest – Lowland mixed deciduous woodland (High distinctiveness) with 100 habitat units generated from Grassland – Modified grassland (Low distinctiveness).

⁶⁴ Network Rail (2018) *Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

⁶⁵ Network Rail (2018) *Further Ecological Information to Support the Environmental Statement: The Network Rail East West Rail (Western Section Phase 2) Order*.

⁶⁶ Crosher et al. (2019). *The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide* (Beta Version, July 2019). Natural England



If it is not possible to achieve the 10% BNG target through delivery of biodiversity offset sites in partnerships in the local area, the Alliance will invest in habitat banking with organisations such as the Environment Bank to achieve the 10% BNG target.

9.5. Delivery agreements

Where third party land agreements are required, for example ECSs and biodiversity offset sites, the Alliance will work with landowners to devise land agreements to secure the land for a period of 30-years and be managed, maintained and monitored in accordance with relevant management plans.

Once the land agreement is signed and relevant permissions have been sought, the Alliance will be responsible for the construction, management, maintenance and monitoring of land as detailed in Sections 10 and 11 below. The land agreements will include a protective covenant to ensure the long-term use of the land as a biodiversity offset site.

Where possible, local contractors will be used to deliver BNG.



10. Management and maintenance arrangements

10.1. During design

During the design stage, the Alliance communicated predicted BNG achievements from EWR2 to key stakeholders in the form of newsletter updates and BNG workshops.

10.2. During construction

The management and maintenance reports for the landscaping planting within each EWR2 development stage, ECS and biodiversity offset site will be made available to the relevant LPA at the end of each Network Rail financial year (starting in March 2021 as construction phase of EWR2 only officially started in June 2020).

10.2.1. *Landscape planting*

The Alliance will employ a Landscape Clerk of Works (LCoW) who will be responsible to ensure the management and maintenance of landscape planting for the construction phase of EWR2 (excluding ECSs and biodiversity offset sites) is completed in accordance with the relevant management plans.

An Inspection and Test Plan (ITP) is developed prior to starting the landscape planting. An ITP is a document that describes the plan for managing the quality control and assurance of a construction activity (e.g. landscape planting), providing information on the approvals, activities, requirements, overview of the method(s) to be used, responsibilities of relevant parties, checks and inspections and documentary evidence to be provided to verify compliance i.e. each site was built according to the required drawings and specification. The ITP includes 'hold points' which are points during construction that works must pause until a specialist has signed that stage of the works off as built to the drawings specification. Upon completion of landscape planting within each EWR2 development stage, the Alliance will sign off the ITP. The landscape planting within each EWR2 development stage is only signed off as complete following agreement with the Alliance LCoW. Once the ITP has been signed off for the landscape planting within each EWR2 development stage, the management and maintenance programme begins.

A contractor will be appointed to complete management and maintenance of landscape planting for the construction phase of EWR2. The contractor will complete pre- and post- condition surveys, including a dilapidation report, for the landscape planting in each EWR2 development stage prior to commencing the management and maintenance activities (inclusive of photographic documentation). The contractor will replace planting and seeding failures for all landscaping works throughout the construction phase until the land is handed back to Network Rail. The contractor will carry out surveys following all planting activities (inclusive of photographic documentation). Any habitats considered either 'dead, diseased or damaged' shall be replaced by the contractor.

10.2.2. *Ecological Compensation Sites and biodiversity offset sites*

An ITP is developed prior to starting the construction of ECSs and biodiversity offset sites. Upon completion of construction of each ECS and biodiversity offset site, the Alliance will sign off the ITP. The ITP for each site is only signed off as complete following agreement with the Alliance Biodiversity Manager that the site has been built to the required drawings and specification. Once the ITP has been signed off for each ECS and biodiversity offset site, the management and maintenance programme begins.

A contractor will be appointed to complete the management and maintenance on the ECSs and biodiversity offset sites during the construction phase of project. The contractor will complete pre- and post- condition surveys, including a dilapidation report, for each of the ECS and biodiversity offset site prior to commencing the management and maintenance activities (inclusive of photographic documentation). The contractor will replace planting and seeding failures for all landscaping works. The contractor will carry out surveys following all planting activities (inclusive of photographic



documentation). Any habitats considered either 'dead, diseased or damaged' shall be replaced by the contractor.

10.3. During operation

10.3.1. *Network Rail permanently acquired land*

All land still owned by Network Rail at the end of the construction phase of EWR2 will be handed back from care of the Alliance to Network Rail following an agreed handover process, along with the relevant the ecological management plans and the management, maintenance and monitoring reports for the landscape planting. An example management, maintenance and monitoring report is shown in **Appendix E**. This land will be added to Network Rail's asset register and will fall into Network Rail's funding cycle for management and maintenance.

10.3.2. *Network Rail temporarily acquired land*

Landscape planting and Ecological Compensation Sites

It is intended that all landscape planting and ECSs where the land has been temporarily acquired by Network Rail, under a land agreement, will be handed back to the landowner or a third party under a formal agreement to manage and maintain at the end of the construction phase of EWR2. Prior to hand back of the land to the landowner or third party, the Alliance will ensure that the landowner or third party is competent to complete the management and maintenance activities. The ecological management plans are developed with landowner input to ensure they are able to complete the long-term management. The landowner or third party will be responsible for completing the management/maintenance section of the management, maintenance and monitoring report (**Appendix E**) for the land and will submit it to Network Rail at the end of Network Rail's financial year (March) each year for the remainder of the 30 years.

Biodiversity offset sites

The mechanism for managing and maintaining each biodiversity offset sites will need to be agreed on a case by case basis. Unless the biodiversity offset site has been permanently acquired by Network Rail, it is anticipated that the Alliance will hand the biodiversity offset sites back to landowners or third parties under a formal agreement after the construction phase of EWR2 for them to manage for the remainder of the 30 years. The landowner or third parties will be responsible for completing the management and maintenance sections of the management, maintenance and monitoring reports (**Appendix E**) for each biodiversity offset site and will submit these to Network Rail at the end of Network Rail's financial year (March) each year for the remainder of the 30 years.



11. Monitoring arrangements

11.1. During construction

The Alliance will report both predicted and actual BNG achievements during the construction period. This will involve communicating the EWR2 footprint and actual losses and gains in biodiversity during construction. It will also involve communicating updated predictions of EWR2's BNG outcomes e.g. if there were changes from the design stage. Communications to key stakeholders will take the form of quarterly digital newsletters from the Alliance.

11.1.1. *Landscape planting*

The Alliance is responsible for monitoring the landscape planting during the construction phase of EWR2. The Alliance has created management, maintenance and monitoring reports (**Appendix E**) for each of its ECSs and biodiversity offset sites. The LCoW will complete the monitoring surveys for landscape planting during the construction phase of EWR2. Once both the management/maintenance and monitoring sections have been completed, the Alliance will sign off the management, maintenance and monitoring report (**Appendix E**) as complete for that year and will submit the report to the relevant LPAs at the end of the Network Rail financial year (starting in March 2021 as the construction phase of EWR2 only officially started in June 2020).

11.1.2. *Ecological Compensation Sites and biodiversity offset sites*

The Alliance is responsible for monitoring the ECSs and biodiversity offset sites during the construction phase of EWR2. In addition, monitoring of the ECSs is a requirement of the Natural England protected species development licences (bats, great crested newts, otter and badger) on EWR2. Protected species data collected as part of the monitoring surveys required under the Natural England protected species licences will be submitted to Natural England as per the licence conditions and the records will be provided to the LERCs.

The Alliance has created Management, Maintenance and Monitoring reports (**Appendix E**) for each of its ECSs and biodiversity offset sites. The Alliance will either complete the monitoring surveys itself for each ECS of biodiversity offset site or it will appoint an entity to complete these monitoring surveys each year during the construction phase of EWR2. Once the monitoring section of the Management, Maintenance and Monitoring report has been completed it will be submitted to the Alliance at the end of Network Rail's financial year (March) each year during the construction phase of EWR2. Once both the management/maintenance and monitoring sections have been completed, the Alliance will sign off the Management, Maintenance and Monitoring report (**Appendix E**) as complete for that year and will submit the report to the relevant LPAs and Network Rail at the end of the Network Rail financial year (starting in March 2021 as the construction phase of EWR2 only officially started in June 2020).

11.2. During operation

During the operational phase of EWR2, Network Rail will be responsible for communicating actual and predicted BNG achievements to conservation key stakeholders in the form of reporting monitoring activities undertaken for BNG (e.g. assurance management plans are being adhered to) and updated predictions on EWR2's BNG outcomes and achievements (e.g. whether monitoring of offset sites shows incremental achievements in BNG over the 30-year period).

11.2.1. *Network Rail permanently acquired land*

Landscape planting for each EWR2 development stage where retained by Network Rail, will be added to their asset register and will fall into Network Rail's funding cycle for monitoring.

Network Rail will then be responsible for appointing an entity or entities to complete the monitoring surveys of permanently acquired ECSs and biodiversity offsetting sites during the operational phase of EWR2. The appointed entity is / entities are responsible for completing the monitoring section of the



management, maintenance and monitoring reports (**Appendix E**) and submitting these to Network Rail at the end of Network Rail's financial year (March) each year for the 30 year period. Once both the management/maintenance and monitoring sections have been completed, Network Rail will sign off the management, maintenance and monitoring report (**Appendix E**) as complete for that year and will submit the report to the relevant LPAs as per Section 12 below.

11.2.2. *Network Rail temporarily acquired land*

Landscape planting and Ecological Compensation Sites

It is intended that all landscape planting and ECSs where the land has been temporarily acquired by Network Rail, under a land agreement, will be handed back to the landowner or a third party under a formal agreement to manage and maintain at the end of the construction phase of EWR2. Network Rail will, however, still be responsible for monitoring surveys of the temporarily acquired land for landscape planting and ECSs.

Network Rail will be responsible for appointing an entity or entities to complete the monitoring surveys of landscape planting of ECSs that have been temporarily acquired by Network Rail during the construction phase of EWR2 but will be handed back to the landowners or third parties during the operational phase of EWR2 for the remainder of the 30 year monitoring period. The appointed entity is / entities are responsible for completing the monitoring section of the management, maintenance and monitoring reports (**Appendix E**) and submitting these to Network Rail at the end of Network Rail's financial year (March) each year for the 30 year period. Once both the management/maintenance and monitoring sections have been completed, Network Rail will sign off the Management, Maintenance and Monitoring report (**Appendix E**) as complete for that year and will submit the report to the relevant LPAs as per Section 12 below.

Biodiversity offset sites

The mechanism for monitoring each biodiversity offset site will need to be agreed on a case by case basis. Unless the biodiversity offset site has been temporarily acquired by Network Rail, under land agreement, but handed back to a landowner who is competent to complete monitoring surveys, it is anticipated that the Alliance will hand over the remaining 30 years monitoring of the biodiversity offset sites to Network Rail at the end of the construction phase of EWR2 by an agreed Network Rail handover process. The monitoring arrangements will then be as per the 'Landscape planting and Ecological Compensation Sites' subsection of Section 11.2.2 above.



12. Reporting arrangements

12.1. During construction

The Alliance will report management, maintenance and monitoring activities at the end of each Network Rail financial year during the construction phase of EWR2 (March). Reporting will comprise:

- submitting management, maintenance and monitoring reports (**Appendix E**) for the relevant LPAs for each ECS and biodiversity offset site;
- producing an annual update for key stakeholders outlining achieved and predicted BNG targets;
- organising and attending workshops with key stakeholders and engaging with regional strategic initiatives (e.g. LNCP, LNRS) to discuss achieved and predicted BNG targets; and
- accompanied field visits with key stakeholders showing the progress with implementation of BNG on site.

12.2. During operation

The Alliance will hand over BNG reporting arrangements to Network Rail once the construction phase of EWR2 is complete. Network Rail, or a nominated entity, will be responsible for the following reporting arrangements:

- submitting management, maintenance and monitoring reports (**Appendix E**) for the relevant LPAs for each ECS and biodiversity offset site every 5 years for the remainder of the 30-year period.



13. Risks and opportunities to delivery

The following section outlines the possible risks and opportunities associated with implementation of BNG on EWR2 and the mitigation that will be applied to ensure successful delivery of this strategy.

13.1. Risks

The possible risks to the Alliance when implementing BNG and the solutions that minimise these risks are detailed below (Table 17).

Table 7 – Risks and solutions

Risk	Mitigation
Delays and unnecessary costs from failing to address potential effects on biodiversity from EWR2.	Apply the mitigation hierarchy early in the process of selecting compensation and offset sites for BNG.
Inefficient land management leading to unnecessary costs.	Secure wider environmental benefits alongside BNG.
Inefficient design process leading to unnecessary costs and not maximising environmental benefits.	Streamline design process, engage stakeholders early, conduct land surveys prior to starting design.
BNG targets are not achieved	<p>Implement a consistent quality assurance process to ensure BNG targets are checked, confirming conformity in terms of quantity, quality and timeliness for both implementation of compensation and offsets as well as achievement of outcomes.</p> <p>Audits will be carried out during different project life cycle stages to check site progress and analyse records.</p> <p>If any of the habitats fail during the first 5 years / operational phase (whichever is the latter) despite correct implementation and management/maintenance, it is unreasonable to request Network Rail to re-create the habitats. Network Rail has already been penalised during the biodiversity accounting calculations by the Difficulty multiplier (difficulty of creating the habitat). This multiplier reduces the predicted units generated from creating the habitat based on how likely the habitat is to fail.</p> <p>If habitats fail due to incorrect habitat implementation and management/ maintenance, then the Alliance (during construction) or Network Rail (during operation) will be responsible for rectifying failures.</p>
Long-term management is not implemented	Audits will be carried out to ensure responsible entities are completing long-term management.



Risk	Mitigation
	Payments for long-term management will be paid yearly following proof that management and maintenance activities have been completed at the correct times of year.
Use of 'beta version' of the Metric (beta testing version) which may provide inaccurate biodiversity accounting calculations	<p>Work with Natural England to identify issues with the 'beta version' of the Metric (beta testing version) for the baseline calculations and work with them to try and resolve errors in the calculations. Any limitations using the Metric (beta testing version) must be documented clearly to all stakeholders.</p> <p>Following working with Natural England to identify issues with the 'beta version' of the Metric (beta testing version), if additional errors are found in the Metric (beta testing version) following submission of this document, the Alliance will help to identify errors to Natural England but reserve the right to review changes.</p>

13.2. Opportunities

13.2.1. *Be ready for the future*

The UK Government's 25-year plan and the forthcoming Environment Bill for England describes government ambitions to mainstream BNG. For the companies in the Alliance, experience in BNG will help to anticipate implications for the organisations and ensure a smooth transition when aligning future projects and operations with requirements to deliver BNG.

13.2.2. *Improve site selection and acquisition*

- Need to avoid costly consent processes and rectification measures where possible by applying the mitigation hierarchy early (e.g. avoid highly biodiverse features);
- Gain stakeholder input to identify areas where supporting local biodiversity priorities will be most valuable;
- Quantify and budget for resources to achieve BNG by estimating the biodiversity outcomes of compensation and offset sites being considered;
- Work with existing landowners to deliver projects that benefit biodiversity whilst also benefiting people i.e. create habitats that landowners can manage and profit from.

13.2.3. *Secure consents*

The Alliance can avoid costly delays to obtain consents or permits for delivering BNG by:

- Apply the mitigation hierarchy, measuring biodiversity outcomes and make evidence-based decisions to demonstrate that legal and planning conditions have been met or exceeded;
- Demonstrating how EWR2 supports local biodiversity priorities;



- Engaging with stakeholders early to address their concerns and ‘smooth progression through the planning process’ and minimise ‘misunderstanding and controversy’⁶⁷

13.2.4. *Improve stakeholder relations*

By being transparent with communications on BNG, supporting local priorities for biodiversity and engaging with relevant stakeholders with help the Alliance continue to build strong relations with regulators, local communities and key stakeholders.

13.2.5. *Create high-quality places*

By implementing well-considered compensation and offset sites following the good practice principles, it can create places which enhance people’s well-being and quality of life. There is an opportunity to benefit people and the biodiversity simultaneously.

13.2.6. *Additional environmental benefits*

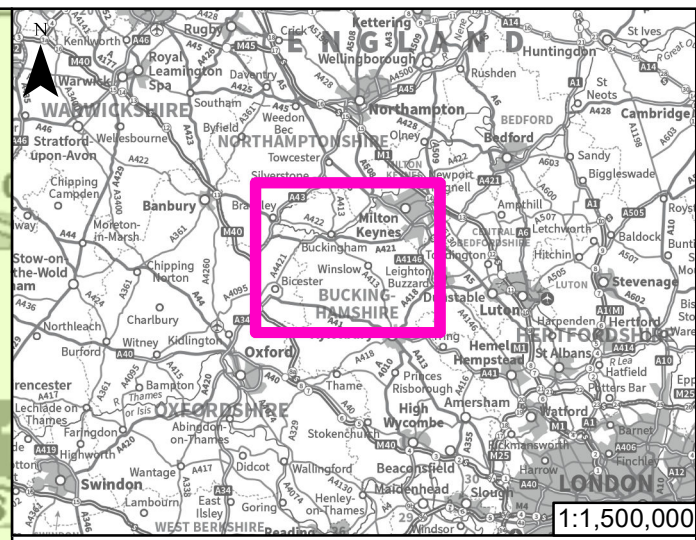
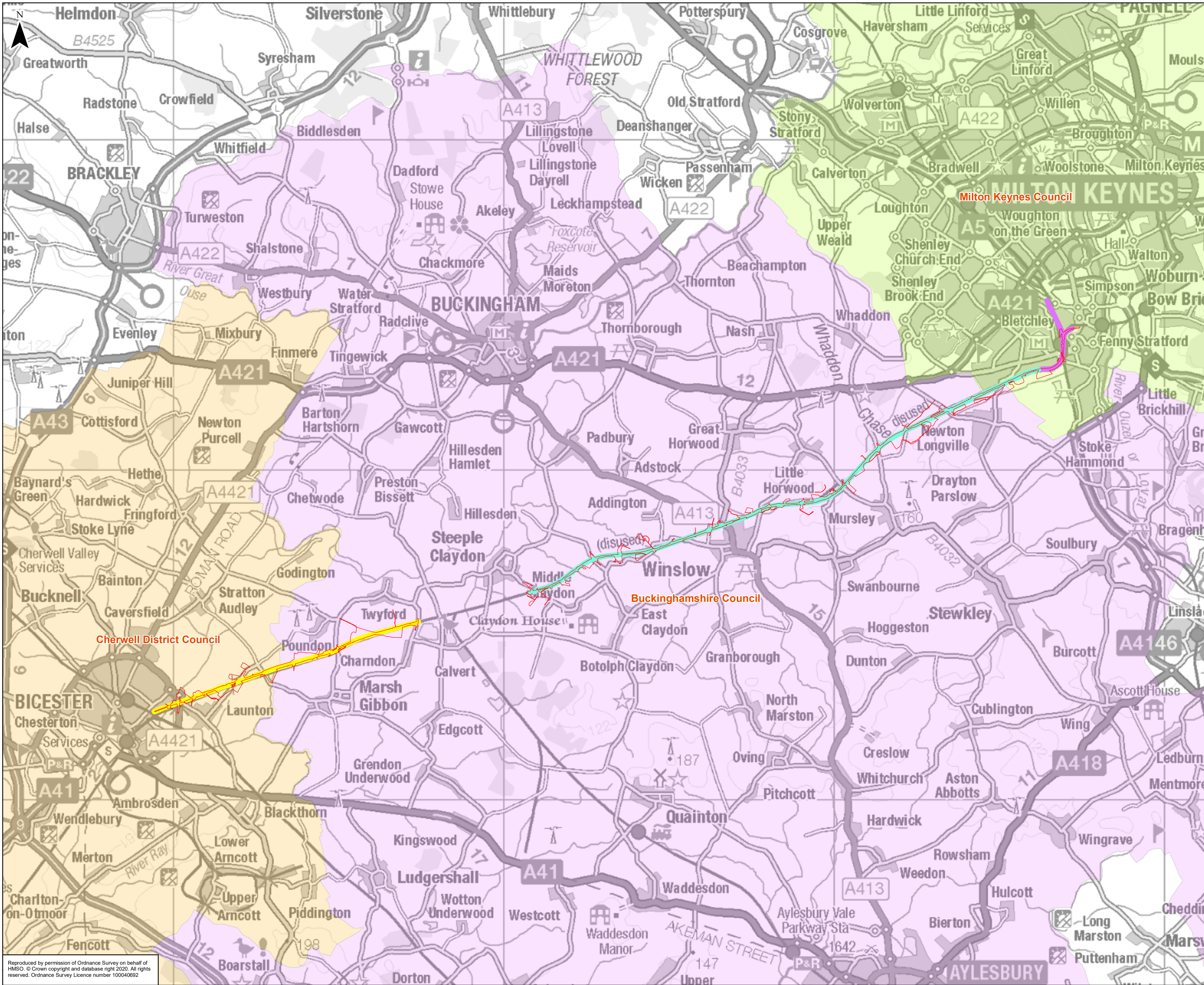
Well-considered BNG can help EWR2 achieve additional environmental benefits, such as improved air quality, soil stability, flood management and adaptation to climate change. To achieve this, the Alliance will engage with the LNCP and LNRS teams to try and contribute to strategic offsets.

⁶⁷ CIEEM (2018) *Guidelines for ecological impact assessments in the UK and Northern Ireland, third edition*, Chartered Institute of Ecology and Environmental Management, Winchester, UK.



Appendix A – Location Plan





- ROUTE SECTION 2A
- ROUTE SECTION 2B
- ROUTE SECTION 2C
- TRANSPORT AND WORKS ACT ORDER
- BUCKINGHAMSHIRE COUNCIL
- CHERWELL DISTRICT COUNCIL
- MILTON KEYNES



Rev	Date	Description of Revisions	Dsmd	Chkd	Appr	Status	Suitability
B01	05/11/20	DRAFT ISSUE	KP	LM	JH	PUBLISHED - STAGE APPROVED	A1



Project: THE NETWORK RAIL (EAST WEST RAIL BICESTER TO BEDFORD IMPROVEMENTS) ORDER

Drawing Title: BIODIVERSITY NET GAIN STRATEGY APPENDIX A - LOCATION PLAN

Designed	Krithika S Patwardhan	Signed	<i>Krithika</i>	Date	05/11/2020
Drawn	Krithika S Patwardhan	Signed	<i>Krithika</i>	Date	05/11/2020
Checked	Mould Lewis	Signed	<i>Mould</i>	Date	05/11/2020
Approved	James Hicks	Signed	<i>James</i>	Date	05/11/2020

Scale(s): 1:75,000
 Design Package Risk Classification: NORMAL
 Alternative Reference: Alternative_Ref
 Drawing Number: 133735_RW-EWR-XX-XX-DR-LE-013162

Sheet	1 of 1
Revision	B01

Reproduced by permission of Ordnance Survey on behalf of HMRSO. © Crown copyright and database right 2020. All rights reserved. Ordnance Survey Licence number 100040692

Appendix B – Stakeholders’ definition of ‘Local’

This Appendix provides the definitions of the key BNG principles by local authorities and conservation stakeholders on EWR2.

Guidance requires the ‘offsetting strategy’ to be defined on a project by project basis. For EWR2, stakeholder definitions of ‘local’ were used to help define the strategy, determining the multipliers which will be used for spatial risk in the post-development metric. These definitions were determined at workshops the Alliance ran with key stakeholders in 2015.

Stakeholder definitions of key biodiversity accounting principles

During the initial stakeholder engagement workshop, participants were asked to define ‘local’. Stakeholders came up with the following wide-ranging definitions and comments:

- Three miles;
- Within the normal movement range of the species;
- Range/extent of the species and/or habitat;
- Within the same Landscape Character Area;
- The area to which an individual feels a personal sense of belonging or attachment;
- Starts at the distribution capacity of the most sensitive element;
- Has to be scalable for/appropriate to different communities starting at distribution capacity of most sedentary;
- Lawton principles;
- Within same Conservation Target Area or Biodiversity Opportunity Area (BOA);
- As close to impact as possible within reason. Within the same district or just over the border;
- Walking distance, up to 10 miles;
- Immediate area, village/neighbourhood, town, county for a linear project;
- Within a few miles;
- Local is NOT a uniform distance;
- Different for different species, covers foraging sites/territories;
- Based on the area of impact;
- Local differs between species and habitats;
- Divided by character area rather than purely by distance-based criteria;
- Distance depends on what is impacted on a day-to-day basis;
- Locality is important for seed provenance, harvest seed for mitigation/offset sites as locally as possible;
- Localisation of national/international policies, i.e. apply the National Pollinator Strategy at a local level;
- Avoid using distance except for an outer limit, suggest 5 miles;
- Better to add to existing or connected habitat of similar character; and
- Where species is or where it ought to be. Historical mapping may be useful.

Taking these stakeholder views into account, the following parameters have been deemed appropriate to define the three risk categories in the context of the Project for biodiversity offsetting going forward:

- **Inside:** within or next to the development OR within the same BOA as the loss (or a proportion of it);
- **Outside:** within the same National Character Area (NCA) as the loss (or a proportion of it); and
- **No contribution:** outside the NCA(s)/BOA(s) within which habitat losses associated with EWR2 occur.



Appendix C – List of BNG workshops and conferences the Alliance has been involved in

Table C.8: Table of BNG workshops and conferences the Alliance has been involved in

Event	Date
HS2 Green Corridor Implementation Group workshop	16 th September 2020
OxCam LNCP stakeholder group webinar	16 th September 2020
New standard on biodiversity net gain for built environment webinar	21 st May 2020
LENS in Oxfordshire: Business Networking Workshop	1st May 2020
Landscape Enterprise Network in Oxfordshire	20 th March 2020
OxCam LNCP Stakeholder Group Webinar	17 th March 2020
LNCP Workshop	26 th November 2019
Westminster Energy, Environment & Transport Forum policy conference: Biodiversity and species protection - net gain, governance and local approaches	21 st November 2019
OxCam Local Natural Capital Plan Stakeholder Meeting	7 th November 2019
Natural Capital at the Regional Scale (East) Working Group Chaired by Anglian Water	3 rd July 2019
East West Rail Biodiversity Net Gain Stakeholder engagement session	17 th May 2019
Developing Environmental Performance Indicators for the England's Economic Heartland Transport Strategy	30 th April 2019
Oxford to Cambridge Growth Arc Environmental Net Gain Opportunities with EA and NE	13 th March 2019
Network Rail Biodiversity Net Gain Pilots Lessons Learned Workshop	11 th March 2019
Social Principles for Biodiversity No Net Loss – Symposium – The University of Oxford	18 th November 2018
De-Risking growth - Workshop with The Environment Agency, Homes England & Natural England to discuss the vision for CaMKOx	25 th July 2018
Accounting for Natural Capital – Ecosystem Knowledge Network	17 th May 2018
Natural Capital Eco-metric workshop – Ecosystem Knowledge Network	5 th December 2017
The Natural Capital Investment in the Growth Corridor Summit	18 th October 2017
Natural Capital Investment Plan for the Growth Corridor	27 th September 2017



Event	Date
East West Rail Generating Net Positive Ideas Workshop	27 th November 2015
East West Rail Net Positive Early Stakeholder Engagement Workshop	July 2015



Appendix D – Biodiversity offset selection

D.1.1 Biodiversity Ideas Form



Biodiversity Net Gain - Ideas

Questions	Answers	
Where is the site?		Grid Ref:
Which Local Authority is it in?		
Who owns it?		
Who uses it and how do they use it?		
What habitat is on the area – please list each habitat, its size (in hectares) and describe it		
A summary of this biodiversity idea - the aim and how it will be achieved		
The details of this biodiversity idea....for example habitats planted, restored / enhanced, size (in hectares)		
Other notes		



D.1.2 Biodiversity net gain scorecard



Offset Provider & Proposal:				
Good Practice Principles ¹			Score (circle)	Justification & Evidence
In-kind offsets	Does the offset represent the biodiversity affected by EWR2 as far as possible, with respect to species composition (animals and plants), habitat structure, ecological function and people's use and cultural values of that biodiversity?	The offset represents all biodiversity affected	10	
		The offset represents some of the biodiversity affected	5	
		<i>The offset does not represent any of the biodiversity affected - only considered further if it is a true Out-Of-Kind offset and agreed by all EWR2 stakeholders</i>		
Like-for-better	For high distinctiveness habitats affected by EWR2, the offset habitats are also 'high' distinctiveness For medium or low distinctiveness habitats affected by EWR2, is the offset a higher distinctiveness (i.e. like-for-better)? For example, species-poor scrub is offset by creating species-rich scrub	Mandatory	10	
		Like-for-better for all habitats	10	
		Like-for-better for some habitats	5	
Landscape context	Does the offset contribute towards biodiversity conservation priorities at local, regional &/or national levels?	At all levels	10	
		At some levels	5	
		No contribution	0	
Local	Is the offset 'local' to the EWR2 footprint?	Immediately adjacent and/or within the movement range of the most sensitive feature of impact	10	
		Within the same conservation / landscape area (e.g. BOAs, LCAs etc)	5	
		Within the local authority area but not any of the above	0	
Deliver real benefits for biodiversity	Does the offset expand and/or restore habitats (i.e. not just protect the extent of what is there)?	Expands and/or restores habitats	10	
		Only protects the extent of existing habitat	0	
Connectivity	Does the offset contribute towards enhancing ecological networks by creating more, bigger, better and joined areas for biodiversity ² ?	Enhances ecological networks	10	
		Does not enhance ecological networks	0	
Deliver long-term benefits	Is the offset at significant risk from future development and/or land use change?	As far as practically known, no significant risk	10	
		As far as practically known, there is some / could be significant risk	0	
Local stakeholder participation	Will the offset be delivered in partnership with and/or involving local interest groups and communities?	Local interest groups and/or communities will be partners and involved	10	
		Local interest groups and/or communities will be only involved (not formal partners)	5	
		No partnerships or involvement with local interest groups and/or communities	0	
Value	Is the offset good value for money?	Yes it represents wise use of public funds	10	
		No this use of public funds is not proportionate to the scope of impact	0	
In perpetuity	The offset can be secured at least as long as the development's impacts and preferably in perpetuity	Mandatory	10	
Additional	The offset achieves new conservation outcomes that are above and beyond what would have occurred if the offset had not taken place (i.e. not deliver something that would have happened anyway)	Mandatory	10	
TOTAL SCORE				
			out of 120	

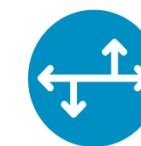
¹ Adapted from Business & Biodiversity Offset Programme (BBOP) (2012) Standard on Biodiversity Offsets. BBOP, Washington, D.C.; and Defra (2011) Guiding principles for biodiversity offsetting, UK.

² As discussed in Lawton (2010) Making Space for Nature

Appendix E – Example management, maintenance and monitoring report templates

E.1.1 During construction





EAST WEST RAIL PHASE 2 - MANAGEMENT, MAINTENANCE AND MONITORING REPORT

SITE NAME

MANAGEMENT AND MAINTENANCE (please tick applicable actions that have been carried out within last 12 months in accordance with Ecological Management Plan)

Spring (March to May) **Summer (June to August)**

Grassland cut & collect (Mar-Apr)
Grassland grazing (Mar-Apr)
Compost heap replenishment (following cut and collect)
Cuttings/arising taken off site (following cut and collect)
Weed removal (when required)
Marshy grassland grazing (Mar-Jul)

Marshy grassland grazing (Mar-Jul)
Grassland cut & collect (late Jul-early Aug) Compost heap replenishment (following cut and collect)
Cuttings/arising taken off site (following cut and collect)
Weed removal (when required)

Autumn (September to November) **Winter (December to February)**

Grassland aftermath grazing (Sept-Oct)
Grassland scarification (Sept-Oct)
Calcareous grassland cut & collect (Sept)
Half of pond margins cut & collect (Sept)
Woodland ride cut & collect (Sept)
Compost heap replenishment (following cut and collect)
Cuttings/arising taken off site (following cut and collect)
Weed removal (when required)

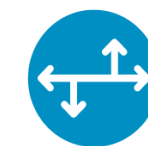
Hedgerow maintenance (Dec-Feb)
Scrub maintenance (Dec-Feb)
Rotational grassland cut (Dec-Feb)
Waterbody maintenance (Dec-Feb)
Cuttings/arising taken off site (following cut and collect)

Notes (please include any issues or deviations from Ecological Management Plan)

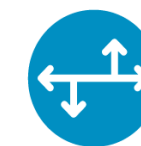
SECTION TO BE COMPLETED ONCE ALL MANAGEMENT AND MAINTENANCE ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

Person/Contractor responsible for management and maintenance	Name	Date	Signature

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN SUBMITTED OF EACH MANAGEMENT AND MAINTENANCE ACTIVITY



MONITORING		
Protected Species Surveys		
Species	Evidence Found	Monitoring Notes <i>(include numbers of individuals/species/type of evidence where applicable)</i>
Great crested newt	Y / N	
Bats	Y / N	
Otter	Y / N	
Badger	Y / N	
Other (please state) _____	Y / N	
Habitat Assessment		
Habitat	Favourable condition <i>(delete as appropriate)</i>	Monitoring Notes <i>(include observations)</i>
Grassland(s) <i>include separate notes on different grassland types</i>	Y / N	
Woodland	Y / N	
Hedgerow	Y / N	



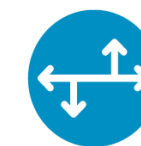
Scrub	Y / N	
Waterbodies	Y / N	
Ecological features <i>(hibernacula, log piles, compost heaps, wildlife embankments, rubble areas)</i>	Y / N	
Other (please state) _____	Y / N	

Additional notes *(include any additional observations or issues)*

SECTION TO BE COMPLETED ONCE ALL MONITORING ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

Person/Contractor responsible for monitoring	Name	Signature	Date

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN SUBMITTED OF EACH MONITORING ACTIVITY



SECTION TO BE COMPLETED ONCE ALL MANAGEMENT, MAINTENANCE AND MONITORING ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

EWR Alliance sign off	Name	Signature	Date

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN RECEIVED OF EACH MANAGEMENT, MAINTENANCE AND MONITORING ACTIVITY

ONCE COMPLETE PLEASE SEND THIS ANNUAL MANAGEMENT AND MONITORING REPORT TO THE FOLLOWING CONSULTEES:

- CHERWELL DISTRICT COUNCIL
- BUCKINGHAMSHIRE COUNCIL
- MILTON KEYNES DISTRICT COUNCIL

E.1.2 During operation



NETWORK RAIL - MANAGEMENT, MAINTENANCE AND MONITORING REPORT

SITE NAME

MANAGEMENT AND MAINTENANCE (please tick applicable actions that have been carried out within last 12 months in accordance with Ecological Management Plan)

Spring (March to May)	Summer (June to August)
Grassland cut & collect (Mar-Apr) <input type="checkbox"/> Grassland grazing (Mar-Apr) <input type="checkbox"/> Compost heap replenishment (following cut and collect) <input type="checkbox"/> Cuttings/arising taken off site (following cut and collect) <input type="checkbox"/> Weed removal (when required) <input type="checkbox"/> Marshy grassland grazing (Mar-Jul) <input type="checkbox"/>	Marshy grassland grazing (Mar-Jul) <input type="checkbox"/> Grassland cut & collect (late Jul-early Aug) <input type="checkbox"/> Compost heap replenishment (following cut and collect) <input type="checkbox"/> Cuttings/arising taken off site (following cut and collect) <input type="checkbox"/> Weed removal (when required) <input type="checkbox"/>
Autumn (September to November)	Winter (December to February)
Grassland aftermath grazing (Sept-Oct) <input type="checkbox"/> Grassland scarification (Sept-Oct) <input type="checkbox"/> Calcareous grassland cut & collect (Sept) <input type="checkbox"/> Half of pond margins cut & collect (Sept) <input type="checkbox"/> Woodland ride cut & collect (Sept) <input type="checkbox"/> Compost heap replenishment (following cut and collect) <input type="checkbox"/> Cuttings/arising taken off site (following cut and collect) <input type="checkbox"/> Weed removal (when required) <input type="checkbox"/>	Hedgerow maintenance (Dec-Feb) <input type="checkbox"/> Scrub maintenance (Dec-Feb) <input type="checkbox"/> Rotational grassland cut (Dec-Feb) <input type="checkbox"/> Waterbody maintenance (Dec-Feb) <input type="checkbox"/> Cuttings/arising taken off site (following cut and collect) <input type="checkbox"/>

Notes (please include any issues or deviations from Ecological Management Plan)

SECTION TO BE COMPLETED ONCE ALL MANAGEMENT AND MAINTENANCE ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

Person/Contractor responsible for management and maintenance	Name	Date	Signature

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN SUBMITTED OF EACH MANAGEMENT AND MAINTENANCE ACTIVITY

MONITORING		
Protected Species Surveys		
Species	Evidence Found	Monitoring Notes <i>(include numbers of individuals/species/type of evidence where applicable)</i>
Great crested newt	Y / N	
Bats	Y / N	
Otter	Y / N	
Badger	Y / N	
Other (please state)	Y / N	
Habitat Assessment		
Habitat	Favourable condition <i>(delete as appropriate)</i>	Monitoring Notes <i>(include observations)</i>
Grassland(s) <i>include separate notes on different grassland types</i>	Y / N	
Woodland	Y / N	
Hedgerow	Y / N	

Scrub	Y / N	
Waterbodies	Y / N	
Ecological features <i>(hibernacula, log piles, compost heaps, wildlife embankments, rubble areas)</i>	Y / N	
Other (please state) _____	Y / N	

Additional notes *(include any additional observations or issues)*

SECTION TO BE COMPLETED ONCE ALL MONITORING ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

Person/Contractor responsible for monitoring	Name	Signature	Date

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN SUBMITTED OF EACH MONITORING ACTIVITY

SECTION TO BE COMPLETED ONCE ALL MANAGEMENT, MAINTENANCE AND MONITORING ACTIVITIES FOR THE YEAR HAVE BEEN COMPLETED

Network Rail sign off	Name	Signature	Date

PLEASE TICK THIS BOX TO CONFIRM PHOTOS HAVE BEEN RECEIVED OF EACH MANAGEMENT, MAINTENANCE AND MONITORING ACTIVITY

ONCE COMPLETE PLEASE SEND THIS ANNUAL MANAGEMENT AND MONITORING REPORT TO THE FOLLOWING CONSULTEES:

- CHERWELL DISTRICT COUNCIL
- BUCKINGHAMSHIRE COUNCIL
- MILTON KEYNES DISTRICT COUNCIL

East West Rail Alliance
Phoenix House
2nd Floor
Elder Gate
Milton Keynes
MK9 1AA

