

Network Rail

**170248 Headbolt Lane New
Station GRIP 4**

Biodiversity Net Gain Report

170248-ARU-REP-EEN-000025

Final | August 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 276736-00

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Drawings

Drawing 1.1: UK Habitat Classification.

1 Introduction

Ove Arup and Partners Ltd. (Arup) were commissioned by Buckingham Contracting Group Ltd, on behalf of Network Rail, to produce a Biodiversity Net Gain (BNG) assessment report in relation to a proposed Station and Car Park at Headbolt Lane (hereafter referred to as the ‘proposed Scheme’).

1.1 Site and Scheme Description

The proposed station and car park site is situated in an area of green space adjacent to the A506 and Headbolt Lane to the north (Grid Ref: SJ4130899815). The railway line is situated south of the Site running in a south-west to north-east alignment. The proposed station and car park site lies approximately 900m north east of the centre of Kirkby, Liverpool.

The proposed station and car park is predominately greenfield land with large housing estates to the north of Headbolt Lane and to the south adjacent to the existing railway line. The railway corridor between the existing Kirkby Station and the proposed new station is bordered by residential areas to the south and north.

Kirkby Brook flows east-west across the proposed station and car park site. Kirkby Brook is then culverted and continues west and confluences into Simonswood Brook which flows north-south under the railway corridor works to the east of the proposed station and car park site.

1.2 Context

The National Planning Policy Framework (NPPF) states that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity. The Government’s Spring Statement (2019), announced it would mandate net gains for biodiversity in the upcoming Environment Bill. As outlined in the draft bill, developments will be expected to achieve a minimum 10% net gain in biodiversity.

Comments received from Knowsley Metropolitan Borough Council (ES Volume I, Chapter 7: Ecology) following the submission of a scoping opinion and scoping report stated:

“Biodiversity enhancements should be incorporated into the scheme design in line with NPPF and local plan policy CS8, and also in anticipation of mandatory net gain due for inclusion as part of the pending Environment Bill. The Defra Biodiversity metric should be used to assess net gain. This should form part of the ES.”

1.3 Report Objectives

The objectives of this report are to:

- identify the habitats within the site (Drawing 1.1) and assess ecological condition in accordance with the Biodiversity Metric 2.0¹;
- determine the baseline Biodiversity Units for the site, calculated using the Biodiversity Metric calculator tool;
- determine the Biodiversity Units resulting from the proposed Scheme; and
- where appropriate, provide recommendations for further habitat enhancement and creation options to optimise the gain in Biodiversity Units.

1.4 Report Structure

The report includes:

- Section 2: Methodology;
- Section 3: Results; and
- Section 4: Discussion and Conclusion.

¹ Natural England (2019) The Biodiversity Metric 2.0 Calculation Tool. Available at: <http://publications.naturalengland.org.uk/publication/5850908674228224>

2 Methodology

2.1 BNG Overview

Projects and developments that adopt a BNG approach seek a positive impact, delivering biodiversity improvements through habitat creation or enhancement. The process adheres to the mitigation hierarchy, meaning that projects should first seek to avoid and then minimise losses of biodiversity on site as far as possible. Where losses are incurred, these should be compensated for through habitat restoration/enhancement on site. If compensating for losses within the site is not possible, as a last resort, residual biodiversity losses should be offset by gains elsewhere. Offsets are distinguished from other forms of mitigation in that they are created off site and require measurable conservation outcomes. In all instances, scheme designs should generate the best long-term outcomes for biodiversity.² Any replacement habitats should be of equivalent or higher biodiversity value than those being lost.

The BNG assessment involves the following key steps, described in further detail below:

1. Survey baseline habitats and undertake condition assessment.
2. Identify irreplaceable habitat.
3. Calculate baseline Biodiversity Units for the site using Biodiversity Metric 2.0.¹
4. Calculate Biodiversity Units for the proposed scheme.

2.2 Baseline Habitat Survey

A field survey was conducted by NLG Ecology Ltd. in July 2020, March 2021 and May 2021 to collect relevant habitat condition information for the Biodiversity Metric 2.0. The survey covered habitats within the red line boundary (Drawing 1.1).

The habitats were assigned a UK Habitat Classification habitat type, which underpin the BNG calculations.³ As part of the field survey, condition assessments were performed in the field using the condition assessment protocol detailed in the Biodiversity Metric 2.0 technical supplement.⁴

² Baker, J., Hoskin, R. and Butterworth, T. (2019) Biodiversity net gain. Good practice principles for development. A practical guide. CIEEM, IEMA, CIRIA, UK.

³ UK Habitat Classification Working Group (2020) *UK Habitat Classification – Habitat Definitions V1.1*. Available at <https://ukhab.org>.

⁴ Crosher, I., Gold, S., Heaver, M., Heydon, M., Moore, L., Panks, S., Cott, S., Stone, D., & White, N. (2019) *The Biodiversity Metric 2.0: Auditing and Accounting for Biodiversity Value: Technical Supplement* (Beta version, July 2019). Natural England.

2.3 Baseline Rivers and Streams Survey

The aquatic habitat field survey was also conducted by NLG Ecology Ltd. in March and May 2021. This field survey consisted of a MoRPh assessment.⁵ The MoRPh survey technique involves an assessment of the quality of physical habitat and hydromorphological functioning of rivers and is used to provide a river condition value for the rivers and streams component of the BNG calculation.

The Biodiversity Metric 2.0 defines rivers and streams as those classified as 'Main River' or 'Ordinary Watercourse'. Kirkby Brook is defined as a Main River.⁶ The Biodiversity Metric 2.0 calculates river and stream habitats separately to terrestrial habitats, presenting rivers as River Units. There are two field survey elements required to determine the River Units associated with a river or stream, river distinctiveness and river condition. The methodology for these elements is described below.

2.3.1 River Distinctiveness

Determination of River Distinctiveness was consistent with the approach set out in the BNG Metric 2.0.⁴ The distinctiveness categories for rivers and streams are based on two classifications: Priority Habitats as defined by the Joint Nature Conservation Committee (JNCC)⁷ and 'River Naturalness'.⁸

Priority Habitat includes several river types:

- Chalk Rivers;
- Watercourses with water crowfoot assemblages (Habitats Directive Annex I habitat H3260);
- Active shingle rivers; and
- Headwater streams (unmodified).

The Natural England Priority River Habitat map⁹ was consulted to determine whether the watercourse on site was mapped as Priority Habitat. In addition, an assessment of whether the watercourse met the qualifying criteria for Priority Habitat as defined by JNCC was undertaken using the field survey data collected.

⁵ Gurnell, A., England, J., Shuker, L. and Wharton, G. (2019) 'The MoRPh Survey: A Modular River Physical Survey for Citizen Scientists Field Guide, Available at: <https://modularriversurvey.org/>

⁶ Environment Agency (2020) Main River Map. Available at: <https://www.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a5638>

⁶ Accessed: 17/05/2021.

⁷ As defined under Section 41 of the Natural Environmental and Rural Communities Act 2006.

⁸ Natural England (2019) Guidance on river naturalness assessment, <http://priorityhabitats.org/wp-content/uploads/River-naturalness-assessment-guidance-document-December-2019.pdf> Accessed: 21/01/2021.

⁹ Natural England (2017) Priority River Habitat - Rivers (England), <https://naturalengland-defra.opendata.arcgis.com/datasets/priority-river-habitat-rivers-england?geometry=-2.221%2C54.646%2C-0.914%2C54.785> Accessed: 21/01/2021.

2.3.2 River Naturalness

A ‘River Naturalness Assessment’ was also carried out based on field survey data. This assessment method has been created by Natural England to highlight rivers and streams that should be classified as priority river habitat in response to a known lack of reporting of priority river habitat, particularly for headwater streams. The River Naturalness Assessment derives class scores based on their perceived naturalness ranging from 1 (natural systems) to 5 (modified) based on the following criteria: physical, hydrological, water quality and biological.¹⁰

2.3.3 River Condition Assessment

The River Condition Assessments (RCA) has two elements, the reach scale assessment and the sub-reach scale assessment. Both elements are combined within the online information system ‘Cartographer’¹¹ providing a final condition assessment for the waterbodies.

Reach scale assessment

The reach scale assessment is a largely desk-based and is used to identify the indicative river type¹² of the watercourses present within the study area. The assessment captures information including river sinuosity, extent of meandering, gradient and valley confinement to assign the river to one of 13 possible river types. The desk-based information, along with the maximum and average size of the bed material (derived from the sub reach scale assessment), is entered into the Cartographer information system which assigns a river type.

Sub reach scale assessment

The subreach assessment follows the MoRPh method.⁵ Within each subreach five contiguous MoRPh (MoRPh5) modules are surveyed, capturing data on the local physical structure and vegetation morphotypes from the river channel. Subreaches are required to cover a minimum of 20% of the channel within the red line boundary, meaning multiple subreaches are required for medium to large sites.

2.4 Baseline Biodiversity Unit Calculation

The Biodiversity Metric provides a proxy value for biodiversity in the form of Habitat Units, Hedgerow Units and River Units. Baseline habitat losses are calculated using the Biodiversity Metric 2.0 calculation tool.¹ The tool provides a score for different habitats and linear features according to their distinctiveness and adjusts their value according to the condition, ecological connectivity and strategic significance of the habitat. The habitat distinctiveness values are based

¹⁰ Mainstone, C. (2019) Guidance on river naturalness assessment.

¹¹ Cartographer, Available at: <https://cartographer.io/> Accessed: 21/12/2020.

¹² Gurnell, A., England, J., Scott., S., Shuker, L (2020) A Guide To Assessing River Condition Part of the Rivers and Streams Component of the Biodiversity Net Gain Metric.

on the species richness, rarity (local, regional, national and international scales) and degree to which the habitat supports species rarely found in other habitats.

Each of the habitats recorded during the baseline field survey were entered into the site habitat baseline calculator. The habitat distinctiveness score is auto-populated by the tool based on the habitat type. Habitat condition scores were added based on the data collected during the baseline field survey.

The connectivity value in the Biodiversity Metric is based on the relationship of a habitat to proximal similar or related semi-natural habitats, facilitating flows of species and ecosystems. A BETA tool has been issued by Natural England to calculate the connectivity of 'high' and 'very high' distinctiveness habitats, using the National Biodiversity Climate Change Vulnerability Model (NBCCVM).¹³ Whilst the connectivity tool is refined, remaining habitats that do not fall into these distinctiveness bands were automatically assigned a 'low' ecological connectivity value, in accordance with the metric guidance. For this scheme, all habitats were assigned a low ecological connectivity.

The strategic significance of each habitat is based on a landscape scale assessment. Published local plans and objectives were used to identify the local priorities for biodiversity and nature improvement.¹⁴ The habitats were then scored accordingly, based on their value to the local plan (Figure 2.1).

Strategic Significance categories			
Category	Score	Point applied to calculation	
		Pre-impact	Post-impact
High strategic significance High potential & within area formally identified in local policy	1.15	Yes	Yes
Medium strategic significance Good potential but not in area defined in local policy	1.1	Yes	Yes
Low Strategic Significance Low potential and not in area defined in local policy	1	Yes	Yes

Figure 2.1: Strategic significance categories and scores.

2.5 Post-Scheme Biodiversity Unit Calculations

The baseline units were compared with the proposed Scheme and soft landscaping design to calculate the change in Biodiversity Units. The soft landscaping design is located within the proposed station and car park site and does not include the wider red line boundary where the troughing works are proposed along the rail corridor of the proposed Scheme.

¹³ Taylor S., Knight M. & Harfoot A. 2014. National biodiversity climate change vulnerability model. Natural England Research Report NERR054. Natural England.

¹⁴ Knowsley Local Plan: Core Strategy Adopted January 2016. Available at: <https://localplanmaps.knowsley.gov.uk/documents/knowsley-local-plan-adopted-core-strategy.pdf> Accessed 17/05/21.

To calculate the post-scheme Biodiversity Units, the following process was undertaken:

- The UK Habitat Classification map was overlaid with the proposed Scheme and soft landscaping design (170248-ARU-REP-EEN-000024) to identify all areas of proposed habitat retention, removal, enhancement or creation. These habitats were added to the habitat enhancement or creation section of the Biodiversity Metric calculator tool.
- The areas of enhancement were assigned a habitat type that best aligned to the proposed soft landscaping and the feasibility of achieving that habitat type.
- The biodiversity metric calculation tool automatically applies a temporal multiplier based on the time it is likely to take for the proposed habitat to reach the target condition. A difficulty multiplier is also automatically assigned based on the difficulty of the enhancement category. These multipliers determine the calculation of Habitat Units delivered.
- The Street Tree Helper tool (within the Biodiversity Metric calculator tool) was used to calculate an approximate area (ha) of Street Trees being delivered in the soft landscaping design. This was applicable to native broadleaved trees only.
- The steps above were also followed to calculate the future proposed River Units for the site.

2.6 Assumptions and Limitations

NLG Ecology Ltd. undertook the BNG and MoRPh field surveys. The surveyor undertaking the MoRPh assessment was not accredited at the time of survey, however, the information was analysed through Cartographer utilising an accredited agent's account. A MoRPh5 survey consists of five contiguous MoRPh surveys. One of the MoRPh5 subreaches was not sampled in a contiguous manner. However, the characteristics of the river channel and surrounding bank top habitat throughout the proposed station and car park site was recorded to be homogenous. In addition, a comparison with the output from the second MoRPh5 subreach which was sampled in line with methodology was made. The condition score from both MoRPh5 subreaches were the same. Therefore, this is unlikely to be a limitation of the assessment.

The grassland area to the west of the location of the proposed car park has been earmarked for future expansion of the car park. This development will be considered in a separate planning application. However, in line with good practice principles² these require “*BNG to be sustained ‘over the longest possible timeframe’ with the expectation that it covers ‘at least the lifetime of the development (e.g. often 25 to 30 years) with the objective of net gain management continuing in the future.’*” Consequently, it is assumed that this area would be re-seeded as grassland following construction of the proposed Scheme, but that the grassland type and target condition of ‘other neutral grassland’ would not be reached prior to the potential expansion of the car park. Therefore, this area of grassland has been assigned as ‘urban amenity grassland’.

3 Results

3.1 Baseline Calculation

Kirkby Brook is surrounded by a mix of semi-improved grassland, poor semi-improved grassland, tall ruderal vegetation and dense scrub. Dense scrub and broadleaved and plantation woodland were recorded along the rail corridor.

3.1.1 Habitat Baseline

The habitat types recorded on site or included in the baseline (in accordance with UK Habitat Classification³ used for the Biodiversity Metric 2.0) include:

- Heathland and shrub – Bramble scrub;
- Heathland and shrub – Mixed scrub;
- Grassland – Other neutral grassland;
- Woodland and forest – Other woodland; broadleaved;
- Urban – Amenity grassland; and
- Urban – Built linear features.

Table 3.1 summarises the baseline habitat types and the number of Habitat Units attributed to existing habitats within the site.

Table 3.1: Baseline habitat areas and Habitat Units.

Baseline Habitat	Distinctiveness	Condition	Existing Area (ha)	Value (Habitat Units)
Heathland and shrub – Bramble scrub	Medium	Fairly poor	1.27	8.37
Heathland and shrub – Mixed scrub	Medium	Fairly poor	0.93	6.13
Grassland – Other neutral grassland	Medium	Moderate	2.28	20.02
Grassland – Other neutral grassland	Medium	Fairly poor	0.48	3.16
Grassland – Other neutral grassland	Medium	Poor	1.62	7.11
Woodland and forest – Other woodland; broadleaved	Medium	Moderate	0.21	1.85
Woodland and forest – Other woodland; broadleaved	Medium	Fairly poor	0.24	1.58

Baseline Habitat	Distinctiveness	Condition	Existing Area (ha)	Value (Habitat Units)
Urban – Amenity grassland	Low	Moderate	0.10	0.40
Urban – Built linear features	N/A	N/A	1.49	0

3.1.2 Rivers and Streams baseline

River Distinctiveness

The river naturalness assessment undertaken on Kirkby Brook is summarised in Table 3.2 and returned an overall classification of Class 3. This was based on the data collected during the MoRPh survey and observations pertaining to the physical, hydrological, chemical and biological naturalness components.

Table 3.2: River naturalness assessment details.

Naturalness component	Class	Description	Confidence level
Physical	3	The reach length has natural meanders, however it is culverted at either extent and confluences into Simonswood Brook which is recorded to be heavily modified. ¹⁵ No riparian trees were recorded along the channel length.	High – field survey and desk study data used to inform assessment.
Hydrological	2	The watercourse was recorded to be slow flowing with only minor change in flow types where the water level was shallow.	High – field survey and desk study data used to inform assessment
Chemical	3	Filamentous algae were recorded within the watercourse during the MoRPh assessment. In addition, given the urban location of Kirkby Brook and evidence of pollution and litter recorded at Simonswood Brook where they confluence downstream, Kirkby Brook is likely subject to similar pollution events.	Moderate – field survey data used to inform assessment. No water quality testing kit utilised.
Biological	3	Himalayan balsam <i>Impatiens glandulifera</i> , was recorded along the banks of Kirkby Brook more than 5% of the channel length.	High - field survey data used to inform assessment
Overall	Class 3		

¹⁵ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069060630>

River Condition Assessment

Reach Scale Assessment

The reach scale assessment determined Kirkby Brook to be 'Type F' river, based on desk study information including a low sinuosity index and an unconfined channel.

Sub reach Scale Assessment

The subreach component of the river conditions assessment consisted of two subreaches, composed of five MoRPh modules of 10m length.

MoRPh subreach survey locations were undertaken between national grid reference: SJ4120099728 to SJ4149299812 and SJ4126299760 to SJ4120099728.

The final condition assessment derived by the Cartographer information system for Kirkby Brook was 'Fairly Poor' condition, for both MoRPh5 subreaches.

3.2 Post-Scheme Calculation

3.2.1 Habitat Calculation

The BNG metric has been used to calculate how the proposed Scheme affects the overall Biodiversity Units on site.

Table 3.3 outlines the habitats retained within the Site that will not be impacted by the proposed Scheme. It also denotes the areas of habitat that will be lost as a result of the proposed Scheme.

Table 3.3: Habitats retained and lost

Baseline habitat	Condition	Area Retained (ha)	Baseline Units Retained	Area Lost (ha)	Baseline Units Lost
Heathland and shrub – Bramble scrub	Fairly poor	0.43	2.52	0.84	5.55
Heathland and shrub – Mixed scrub	Fairly poor	0.005	0.03	0.92	6.09
Grassland – Other neutral grassland	Moderate	0.79	6.85	1.50	13.18
Grassland – Other neutral grassland	Fairly poor	0.15	3.16	0	0
Grassland – Other neutral grassland	Poor	0.10	0.89	1.42	6.23
Woodland and forest – Other woodland; broadleaved	Moderate	0.08	0.72	0.13	1.13
Woodland and forest – Other woodland; broadleaved	Fairly poor	0.24	1.58	0	0
Urban – Amenity grassland	Moderate	0.01	0.29	0.03	0.12

Baseline habitat	Condition	Area Retained (ha)	Baseline Units Retained	Area Lost (ha)	Baseline Units Lost
Urban – Built linear features	N/A	0.83	0	0.65	0
TOTAL				5.49	32.30

Table 3.4 outlines the proposed habitat enhanced within the proposed Scheme and the resulting Habitat Units. This includes the habitat areas recorded as poor semi-improved grassland and tall ruderal vegetation in the Preliminary Ecological Appraisal (ES Volume I, Chapter 7: Ecology, Appendix 7A).

Table 3.4: Proposed habitat enhancement measures

Baseline Habitat	Distinctiveness of Baseline Habitat	Existing Condition	Area to be Enhanced (ha)	Proposed Habitat	Distinctiveness of Target Habitat	Target Condition	Habitat Units Delivered
Grassland - other neutral grassland	Medium	Poor	0.10	Grassland - other neutral grassland	Medium	Moderate	0.75
Grassland - other neutral grassland	Medium	Fairly poor	0.32	Grassland - other neutral grassland	Medium	Moderate	2.63
Urban – amenity grassland	Low	Moderate	0.07	Grassland - other neutral grassland	Medium	Moderate	0.51
Total:			0.49	Total:			3.89

Table 3.5 outlines the proposed habitat creation within the proposed Scheme and the resulting Habitat Units. This includes:

- reinstatement of grassland areas lost as part of the construction phase;
- proposed “wildflower” meadow and ornamental shrubs and grasses within the public use area; and
- scattered native broadleaved trees within the ‘non-public’ area of the proposed station and car park.

Table 3.5: Proposed habitat creation

Proposed Habitat	Habitat Distinctiveness	Habitat Condition	Area to be Created (ha)	Habitat Units Delivered
Grassland - other neutral grassland	Medium	Moderate	0.79	4.85
Grassland - other neutral grassland	Medium	Moderate	0.81	4.99
Urban – introduced shrub	Low	Moderate	0.28	1.21
Woodland and forest – other woodland; broadleaved	Medium	Moderate	0.02	0.05

Proposed Habitat	Habitat Distinctiveness	Habitat Condition	Area to be Created (ha)	Habitat Units Delivered
Urban – amenity grassland	Low	Moderate	0.50	2.00
Total:			2.40	13.10

Table 3.6 outlines the proposed hedgerow creation within the proposed Scheme and the resulting Hedge Units.

Table 3.6: Proposed hedgerow creation

Proposed Habitat	Habitat Distinctiveness	Habitat Condition	Length (km)	Hedge Units Delivered
Native species rich hedgerow	Medium	Moderate	0.54	2.42
Total:			0.54	2.42

3.2.2 River Condition

Two footbridges currently cross Kirkby Brook within the proposed station and car park site. The proposed Scheme includes the construction of one new footbridge and the replacement of one footbridge with a new road bridge, i.e. one new road bridge, one new footbridge and retention of one footbridge. The proposed new road bridge, (approximately 15m wide), would replace one of the existing footbridges, which is approximately 3.5m wide. The additional width of the proposed new road bridge and additional footbridge have the potential to impact the river condition criteria across this area, including shading and bank top naturalness (i.e. the presence of artificial ground).

Himalayan balsam was recorded along the banks of Kirkby Brook. It is recommended as part of the enhancement measures that this invasive species is removed and controlled to increase biodiversity (see Landscape and Ecological Management Plan, document ref. no: 170248-ARU-REP-EEN-000024).

Consequently, the subreach component of the river condition assessment was re-run at the post-scheme stage with changes made to the condition criteria for one of the five MoRPh modules. This assumed a change in the presence of invasive species and a change in the bank top managed ground. The final condition assessment derived from the Cartographer information system for Kirkby Brook changed from 0.21 to 0.75. This is an improvement in the condition score. However, the overall condition remained “Fairly Poor.”¹² Consequently, there was no change to the overall River Units at the post-scheme stage.

3.3 Summary

Table 3.7 provides a summary of the overall losses/gains in Habitat Units, Hedgerow Units and River Units.

Table 3.7: Summary of losses/gains in Biodiversity Units.

Biodiversity Unit	Net Change in Units	Net % Change*
Habitat	-18.41	-37.31%
Hedgerow	2.43	N/A*

Biodiversity Unit	Net Change in Units	Net % Change*
River	0.00	0%

*The net % change of hedge cannot be calculated as there was no baseline hedgerow within the site to calculate a % change.

4 Discussion and Conclusion

The BNG metric provides Biodiversity Units for habitats and linear features as separate entities, i.e. Habitat, Hedgerow and River Units. The BNG metric guidelines state that the Biodiversity Units calculated through the core habitat area-based metric and each of the linear units are unique and cannot be summed or converted. When reporting biodiversity gains or losses with the BNG metric, the different Biodiversity Unit type must be reported separately and not summed to give an overall Biodiversity Unit value.

4.1 Habitat Units

An overall loss of Habitat Units (-37.31%) was calculated following the proposed Scheme design. Despite the enhancement of habitats retained and the creation of habitats of higher distinctiveness and condition (Table 3.4 and Table 3.5), these areas were not sufficient to mitigate the loss of baseline habitat. The largest loss of habitat units is attributed to loss of “grassland – other neutral grassland” in moderate condition. The proposed habitat enhancement and creation will improve the biodiversity value of the habitats retained and provide additional habitats to those recorded during the baseline assessment, i.e. the addition of trees and enhancement of grassland and marginal aquatic areas through an increase in diversity of the grassland sward.

4.2 Hedgerow Units

A positive net change in Hedgerow Units was calculated for the proposed native rich hedgerow. Due to the absence of hedgerows within the site baseline, a net % change could not be calculated within the BNG metric (Table 3.6). The creation of hedgerow within a site would ideally be positioned to provide connectivity with existing hedgerows or linear features to optimise benefits for biodiversity. As there are no existing hedgerows within the site, the proposed hedgerow location provides additional nesting and foraging opportunities for common breeding birds, bats, hedgehog and amphibians.

4.3 River Units

No net change in River Units was calculated, due to the existing watercourse channel being retained as a Class 3 river in “Fairly Poor” condition. The proposed Scheme includes a clear span bridge design for both the road bridge and footbridge; consequently, there are no supporting structures within the channel which may impact on the geo-morphology and freshwater ecology of the river.

4.4 Conclusion

The enhancement and creation measures are likely to provide an increase in biodiversity within the site and provide additional resource for breeding birds, bats, amphibians, hedgehog and invertebrates. However, the overall reduction in Habitat Units for ‘other – neutral grassland’ following the proposed Scheme

design was deemed significant in relation to the CIEEM EcIA guidelines¹⁶ (ES Volume I, Chapter 7: Ecology).

Disclaimer

This report is the result of survey work undertaken in July 2020, March 2021 and May 2021. This report refers, within the limitations stated, to the condition or proposed development of the site at the time of the inspections. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. It is also advised that if there is a delay of over a year in undertaking the works, a re-survey may be required. No warranty is given as to the possibility of future changes in the condition of the site.

This report is produced solely for the benefit of Network Rail and no liability is accepted for any reliance placed on it by any other party. This report is prepared for the proposed uses stated in the report and should not be used in a different context.

¹⁶ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

Drawings

Drawing 1.1: UK Habitat Classification.



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- A horizontal scale bar labeled "Metres" at the top center. Below the label, the bar has four major tick marks labeled "0", "75", "150", and "300" from left to right. The bar is divided into three equal segments by these marks.

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Client
Network Rail

Project Title

Headbolt Lane New Station GRIP 4

Drawing Title

Drawing 1.1 -
UK Habitat Classification

Scale at A3
1:6,000

Role

Suitability Issue

Arup Job No
270765-00

Name _____

Re

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