

Visual Impact Provision – Peak District (East) Update on Metric 2.0 Biodiversity Net Gain Assessment

1. Introduction

- 1.1.1. AECOM Ltd was commissioned by National Grid to undertake a Biodiversity Net Gain ('BNG') assessment to quantify the overall effect on biodiversity and to inform the habitat mitigation requirement for the Peak District Visual Impact Provision (VIP) Project. (the 'Proposed Project') as detailed in Chapter 2 of the Environmental Assessment Report (EAR).
- 1.1.2. It is UK Government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2019). The Local Plan for Barnsley¹ states that one of its objectives is to protect and enhance Barnsley's environmental assets and achieve net gains in biodiversity. It also states that Barnsley will seek to protect, maintain, enhance and create, an integrated network of connected and multi-functional Green Infrastructure assets. This project is situated within the River Don Valley Corridor, identified as one of the green infrastructure assets (see Figure a, Section 2 and Appendix A). In addition, the Environment Bill, published by the UK Government in October 2019² and reintroduced into parliament (January 2020), includes proposals to make BNG a mandatory requirement within the planning system in England. Once enshrined in law it will require all developments³ to achieve a minimum of 10% net gain in biodiversity units relative to the site's baseline biodiversity.
- 1.1.3. The BNG assessment has been undertaken to quantify the overall effects of the Proposed Project on biodiversity using Natural England's Biodiversity Metric 2.0 Calculation in accordance with the accompanying guidance⁴ and best practice principles⁵. This report initially sets out the results of the BNG assessment for habitats on-site only, to inform the scale of the requirement for enhancement to achieve at least a 10% net gain. At this point it does not include details of off-site enhancements which will enable the Proposed Project to achieve a net gain in biodiversity. These details will follow as an amendment to this report once landowner discussions are finalised. The methodology for the assessment is outlined in Section 2, the results are presented in Section 3 and the conclusions are provided in Section 4.

1.2. Proposed Project

- 1.2.1. National Grid is proposing to underground a 2km section of existing 400kV Overhead line (OHL) that runs from the eastern entrance of the Woodhead Tunnel in Dunford Bridge, to Wogden Foot on the boundary of the Peak District National Park. The Proposed Project briefly comprises:
- Removal of the existing Sealing End Compound (SEC) at Dunford Bridge, eight pylons and 2km of OHL;
 - An underground XLPE cable of approximately 1.8km along the Trans Pennine Trail from the entrance of the Woodhead Tunnel to a proposed new SEC;
 - Construction of a new SEC and replacement tension pylon including a permanent access off the Trans Pennine Trail;

¹ Barnsley Local Plan (January 2019)

² Environment Bill (2019). The House of Commons, 15 October 2019.

³ All development within the scope of the Town & Country Planning Act

⁴ Natural England (2019). The Biodiversity Metric 2.0 – User Guide & Technical Supplement – Beta Test.

⁵ Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide (2019)

- Temporary laydown areas and access tracks to facilitate construction activities; and
- Construction and removal of a temporary Trans Pennine Trail diversion for use during the construction phase of the Proposed Project. The diversion will involve the use of two bridges, one being a permanent replacement of an existing bridge and one being temporary. Following construction approximately 410m of said diversion surface would be retained.

1.2.2. A planning application was submitted for elements of the Proposed Project in August 2019 to both the Peak District National Park Authority (PDNPA) and Barnsley Metropolitan Council (BMBC). The Proposed Project footprint including both permanent and all temporary works but excluding the conductor removal areas (due to no impacts on habitats), as defined by the Site Boundary, is approximately 19.6 ha. The Site Boundary is defined as being all land within the red line boundary depicted within the Phase 1 habitat survey map (Appendix B). It should be noted that this Site Boundary differs from the planning application red line boundary which only covers certain elements of the proposed works above.

1.2.3. National Grid submitted an additional subsequent planning application in November 2019 for enhancements to the existing visitor car park at Dunford Bridge as part of the VIP project. The proposals include the resurfacing and extension of the existing car park and amenity area to provide clearly demarcated parking spaces (including four accessible spaces), a dedicated parking area for horseboxes, a formal turning area for the public bus service, and a redesigned amenity area which will include accessible picnic benches, seating and information boards. The design also includes proposals for a new accessible link between the car park/amenity area and the Trans Pennine Trail immediately north of the Stanhope Arms. This BNG assessment also includes the car park application boundary in its calculations.

2. Methodology

2.1. Biodiversity Metric 2.0

2.1.1. A BNG assessment involves making a comparison between the biodiversity value of habitats present within a site prior to a development (i.e. the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (i.e. 'post development'). The comparison is undertaken in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.

2.1.2. Natural England's Biodiversity Metric 2.0⁶ calculates the overall loss or gain in biodiversity as a result of development projects by assessing the distinctiveness (i.e. type of habitat and its value), condition, extent, ecological connectivity and strategic significance of habitats on site pre- and post-development. To achieve BNG, the biodiversity unit score must have a post-development score higher than the baseline score. When calculating the post-development biodiversity units, the metric includes a series of standard 'risk multipliers' to account for the inherent uncertainties in creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the predicted value of the proposed new habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required in order to achieve BNG. This provides added assurance that what is being proposed will achieve the stated BNG.

2.1.3. The metric assesses and generates separate outputs for area-based habitats⁷ and linear based habitats. For the purpose of the BNG assessment, the output with the lowest value is used to determine whether a proposed development has achieved BNG. A development cannot claim to achieve net gain until BNG is predicted across all area-based and linear based habitats.

Biodiversity data

2.1.4. The Phase 1 habitat maps (presented in Appendix B) were based on surveys undertaken by AECOM in 2018 (hereafter referred to as 'the baseline') have been utilised to determine the baseline area-based habitats. All baseline habitats defined within the Site Boundary were assigned a condition based on assumptions informed by the baseline, professional judgement and application of the condition assessment criteria outlined in the

⁶ Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide (2019)

⁷ This includes all area-based terrestrial and intertidal habitats. All habitats from the low water mark to the high-water mark can and should be assessed using Metric 2.0 where they are impacted by development. Any marine habitats beyond the low water mark cannot be assessed using Metric 2.0.

Biodiversity Metric 2.0 – Technical Supplement⁸. All habitats within the baseline plan were first assigned an appropriate JNCC Phase 1 habitat⁹ category, before being digitised using GIS to provide area and length measurements. Habitats were converted to UK Habitat Classification habitat categories (maps of this classification are shown in Appendix C), before being inputted into the metric under one of the three broad habitat types. The data was utilised to determine the baseline biodiversity units.

2.1.5. It should be noted that the mapping contained in Appendix B, C, D and E includes the entire Site Boundary and the car park application boundary. The areas between pylons where the overhead lines (OHL) are to be lowered to the floor and wound in are shown, but due to the temporary nature of these activities, and thus very short term impacts on the habitats where these activities will occur, they are excluded from the metric.

Post intervention data

2.1.6. A Landscape Mitigation Plan (hereafter referred to as 'Proposed Landscape Plan') was used to determine the extent of habitats on site post-development in order to calculate the biodiversity units likely to be generated by those habitats retained, enhanced, created or succession accelerated as part of the Proposed Development (see Appendix D). Before the data could be input into the metric calculator, the Proposed Landscape Plan was first converted into GIS, in UK Habitat Classification, where habitat area and length were calculated. This also included landscape proposals for the car park application (Appendix E).

2.1.7. The following information has been captured within the calculation tool:

- All baseline and proposed (post-development) area-based, hedgerow and river habitats categorised using UK Habitat Classification;
- The area in hectares (ha) of all area-based habitats and length, in kilometres (km) of all linear habitats i.e. hedgerow and river habitats;
- Distinction between which baseline habitats are to be lost, retained, enhanced or outlined for accelerated succession;
- Habitats proposed for creation post-development;
- Condition scores of all baseline habitats;
- Target condition scores of all habitats proposed for creation, enhancement or accelerated succession;
- Connectivity score of all habitats; and
- Strategic significance of all habitats.

2.2. River Habitats

2.2.1. Habitat categories, associated distinctiveness and condition scores are approached differently for rivers. In line with current guidance¹⁰, a desk study was undertaken to identify all river habitats present within the Proposed Project Site using the 'Discovering Priority Habitat in England' river data map¹¹. Following this, where data was available, river habitats were assigned a habitat category and distinctiveness using a combination of Section 41 (NERC Act, 2006) Priority Habitat descriptions, and River Naturalness Assessment class scores.

2.3. Connectivity

2.3.1. Connectivity scores for all habitats are required to develop an output from Metric 2.0. These connectivity scores were determined following the approach outlined within the Biodiversity Metric 2.0 – Technical Supplement¹² and the Biodiversity Metric 2.0: Connectivity Tool Guidance¹³. Natural England's Metric Connectivity Tool 2.0¹⁴ was therefore used to determine the connectivity scores for all habitats with high or very high distinctiveness as this is

⁸ Natural England (2019). The Biodiversity Metric 2.0 – Technical Supplement – Beta Test.

⁹ JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

¹⁰ Natural England (2019b). The Biodiversity Metric 2.0 – User Guide & Technical Supplement – Beta Test.

¹¹ Discovering Priority Habitats in England. River data - <https://priorityhabitats.org/rivers-data/>

¹² Natural England (2019c). The Biodiversity Metric 2.0 – Technical Supplement – Beta Test.

¹³ Natural England (2019d). Biodiversity Metric 2.0: Connectivity Tool Guidance (published December 2019).

¹⁴ Natural England (2019e). Biodiversity Metric Connectivity Tool (BMCT) 2.0 – Auto Install Version (published December 2019).

what Metric 2.0 allows. For habitats with a distinctiveness of moderate to very low, low connectivity was attributed in line with current guidance.

2.4. Strategic Significance

2.4.1. The Metric 2.0 requires the strategic significance of all baseline and proposed habitats to be defined. Strategic significance refers to areas of local priority for biodiversity and nature improvement, identified within local planning policies. As part of this assessment, the following local planning policy document was reviewed to determine the strategic significance of the Scheme's habitats:

- Barnsley Local Plan (January 2019).

2.4.2. The River Don Valley Green Infrastructure Corridor's zone of influence within this assessment was discussed in a recent consultation meeting with AECOM, National Grid, Barnsley Council and the Yorkshire Wildlife Trust. It was agreed that the entire project should be assessed as falling within this zone of influence. Within the local plan document the River Don Valley Corridor is indicated within a high level sketch figure (see Figure a), therefore in order to determine the strategic significance of the baseline habitats for this metric it was agreed that a buffer would be placed around the site at a distance equivalent to the northern most point where the Proposed Project meets Brook Hill Lane (see Appendix A). Habitats that fall within this buffer have therefore been classed as 'Within area formally identified in local strategy' in the metric.

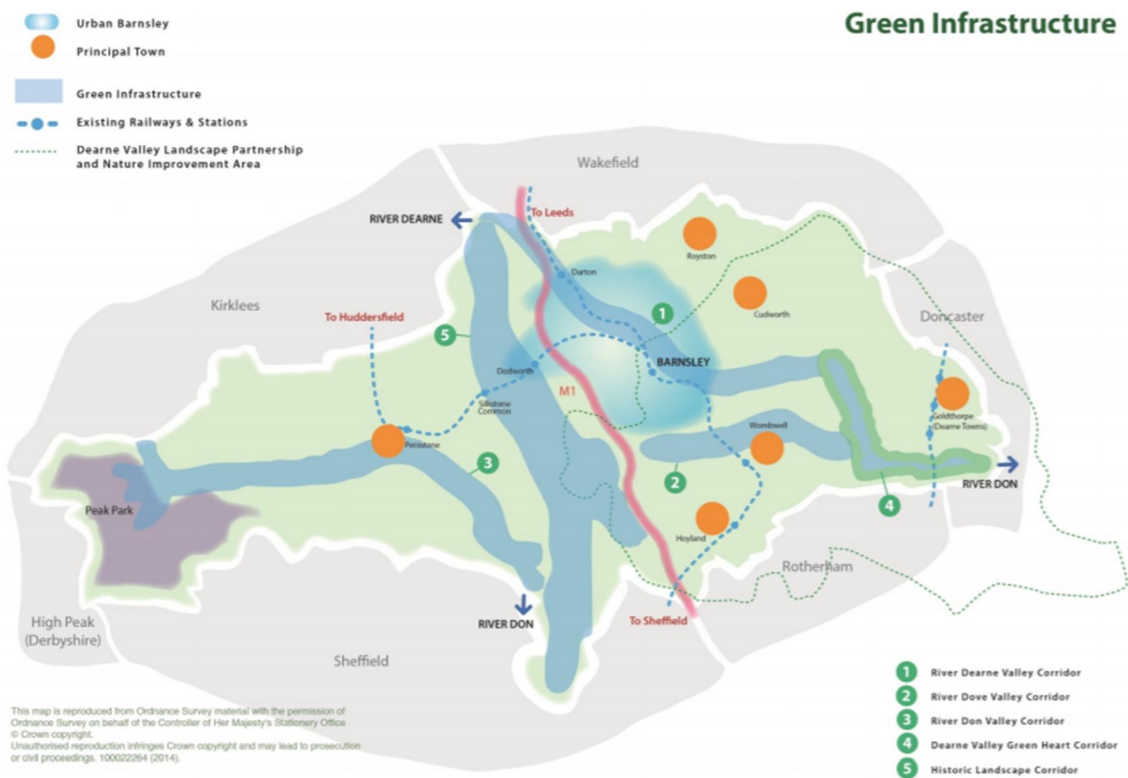


Figure a: River Don Valley Corridor representation sketch – taken from Barnsley Local Plan (2019)

2.5. Additionality beyond existing legal requirements

2.5.1. Best practice guidance requires all BNG assessments to achieve 'additionality'^{15,16} over and above the legal requirement i.e. any habitat enhancement or creation required as part of a protected species licence should not be included within the assessment. As such, BNG needs to be achieved through the creation or enhancement of additional habitat in lieu of habitat bound by a legal requirement.

¹⁵ Natural England (2016). Review of the High Speed 2 No Net Loss in Biodiversity Metric.

¹⁶ CIRIA (2019) Biodiversity net gain. Good practice principles for development. A practical guide.

2.5.2. Currently, there is no guidance available on how to approach additionality within Metric 2.0 in order to ensure avoiding assessing otherwise legally required habitat mitigation. Therefore, the approach has been taken with this assessment to remove off-site tree planting and enhancements for willow tit from this analysis.

2.6. Assumptions

2.6.1. In undertaking the calculation, the following assumptions were made:

- All baseline and proposed post-development habitats within the red line Site boundary and car park application boundary have been included within the calculation to provide the site habitat biodiversity value;
- The Phase 1 habitat survey was carried out prior to the instruction for a biodiversity metric calculation to be undertaken to support the application; therefore, the majority of habitat condition assessments were not carried out during the field survey. As a result, baseline condition scores have been assigned retrospectively to habitats based on informed assumptions drawn from the information collated through the Phase 1 survey and Site visits;
- The habitats used in the calculation have been based on the Phase 1 habitat survey (AECOM, 2018) undertaken for the Proposed Project Site and Proposed Landscape Plan and fitted to a JNCC habitat code by a GIS technician and ecologist. All JNCC habitat codes were then subsequently converted to the most relevant UK Hab Habitat Classification. In accordance with the Natural England's Metric 2.0 technical guidance (Phase 1/UK Hab conversion table);
- Where baseline condition has been assigned retrospectively a reasonable precautionary approach has been adopted to prevent underestimating the value of the baseline habitat;
- The habitats used in the post-development calculation have been based on the Landscape Mitigation Drawings¹¹ and fitted to a JNCC habitat code by a GIS technician and ecologist. All JNCC habitat codes were then subsequently converted to UK Habitat Classification habitat types;
- Target conditions have been selected in accordance with the Natural England Biodiversity Metric 2.0 User Guide and Technical Supplement¹⁷; and
- The assessment assumes that habitats created as part of the Proposed Project will be subject to ongoing management to ensure that they reach the allocated target condition.

2.7. Constraints

2.7.1. The BNG metric has gone through several iterations from metric 1.0 to metric 2.0 during the lifespan of this project and as a result of this the assessment of habitat, condition, distinctiveness and connectivity has changed significantly between version 1.0 and 2.0. Natural England's Metric 2.0 is currently in beta test phase, and a final version of the metric and calculation tool is expected in autumn 2020. Therefore, there is potential for the calculations that underpin the metric to change slightly within the final version. Nevertheless, Metric 2.0 is the best available tool for calculating the units needed to achieve BNG and is increasingly being used by regulatory bodies and other organisations as the standard tool to inform the level of biodiversity enhancement that needs to be delivered. It does not however take away the need for well informed and best practice decisions on the type or enhancements that are appropriate.

2.7.2. It is important to note that the BNG assessment assumes several things based upon the information provided within the Landscape Mitigation Drawings. This includes the following:

- Approximations of habitat areas;
- Habitat loss assumed based on current proposals; and,
- Newly created habitat categories have been assumed based on the current outline design guide drawings.

2.7.3. In addition, it is important to note that the output for area-based habitats is dependent on all created habitats meeting the condition criteria outlined within Natural England's Biodiversity Metric 2.0 Technical Note¹⁸.

¹⁷ Natural England (2019). The Biodiversity Metric 2.0 – User Guide & Technical Supplement – Beta Test.

¹⁸ Natural England (2019). The Biodiversity Metric 2.0 – Technical Supplement – Beta Test.

Management methodology to meet this condition target will therefore need to be outlined within the overarching Landscape Masterplan/ Ecological Management Plan for the Proposed Project.

3. Results

3.1. Biodiversity Metric 2.0 Calculation Tool Output

On-site baseline habitats

- 3.1.1. Habitats present within the Site Boundary (as previously detailed in the EAR Chapter 7) comprise of a mixture of mostly modified grassland (improved/poor semi improved, and amenity fall into this UK Hab classification) (10.1ha), lowland mixed deciduous woodland (2.8ha) and neutral grassland (2.5ha). The areas of neutral grassland which have been identified as being of higher botanical interest including that present at Dunford Bridge and within Wogden Foot Local Wildlife Site (LWS) have been recognised by inclusion in the Metric as good quality to recognise their value as detailed in the EAR. None of the grassland areas have been included in the Metric as unimproved grassland (very high distinctiveness), the assigned distinctiveness is considered appropriate given the known relatively recent origin of the grassland (establishing over the last c. 40 years). While recognising the apparent conflict with the baseline report which was prepared before the definitions for BNG were known, the definition of the Lowlands Meadows priority habitat type is restricted to unimproved grasslands. These are usually of ancient or long-standing origin. In contrast, the grassland at Wogden Foot, while botanically diverse, is of known secondary origin over substrates of artificial origin. Given this context, this area of grassland has been categorised as a botanically diverse example of semi-improved grassland. In addition, the affected area of grassland is also not considered a good proxy for the wider grassland. Instead, it is at the interface with a part of the site where woody vegetation is invading the grassland (as visible using aerial imagery) with negative implications for the sward structure and composition. It is therefore considered that use of very high distinctiveness would be not deemed appropriate, and that the assigned distinctiveness is more consistent with the origins and quality of the affected small area of grassland.
- 3.1.2. An area of botanically more interesting grassland at Dunford Bridge (on the north side of the cable corridor) will be entirely avoided, retained and protected but is included in the metric for completeness as it is within the Site Boundary. The remainder of the grassland at Dunford Bridge within the working areas will be reinstated once works are complete. The linear habitat included in the BNG calculation is a short section of the River Don and small tributaries which fall partially within (or align to) the Site Boundary but will be entirely retained and protected through design and mitigation, therefore will not be affected by the Proposed Project. Therefore, the linear running water habitat has been included in the Habitat Retained section of the BNG calculation demonstrating no impact.

On-site post development habitats

- 3.1.3. A total of 15.8ha of existing terrestrial habitat will be lost during the construction, of which only 0.28ha is permanent loss (Sealing End Compound and access road), the remaining impacts will be temporary loss with habitats reinstated through landscaping measures, 3.83ha of habitat will be retained, 0.33ha of this retained habitat would be enhanced through appropriate management.
- 3.1.4. As detailed in Section A-2 of the Metric (Site Habitat Creation), the proposed landscape restoration and planting plan for the Proposed Project (within the Site Boundary) will result in the creation and/or restoration (following temporary impacts) of the following habitats, totalling 15.42ha:
- Additional 2.6ha of hardstanding features including footpath replacement;
 - Creation / replacement following temporary impacts of the following areas of habitat on-site including;
 - 8.5ha of modified grassland;
 - 1.6ha of neutral grassland;
 - 1.3ha of lowland deciduous woodland; and

- 0.6ha of mixed scrub

Calculation results

- 3.1.5. All baseline habitats and habitats created, enhanced or proposed for accelerated succession are present within the accompanying metric assessment for the Proposed Project (Appendix F). A summary of the headline results is shown in Figure 1.
- 3.1.6. As detailed in Sheet A-1 (Site Habitat Baseline) of Metric 2.0, the entire extent of the Site Boundary of the Proposed Project covers a total area of 19.6ha. The habitats identified pre-development are of mixed ecological value and are classed as low to medium distinctiveness, apart from the lowland heathland and lowland mixed deciduous woodland (classed as high). Modified grassland, a habitat of low distinctiveness, covers approximately 51% of the Site Boundary total land cover.
- 3.1.7. **The baseline biodiversity value using Metric 2.0 has been calculated as 102.76 biodiversity units (terrestrial habitats) and 11.20 biodiversity units (aquatic habitats)**
- 3.1.8. **The Proposed Project in the absence of any enhancement will result in a loss of -69.95 biodiversity units from the permanent and temporary habitat loss. The aquatic habitats will be unaffected.**
- 3.1.9. The Proposed Landscape Plan includes grassland, woodland and scrub. **The value of the proposed on-site mitigation (i.e. habitats to be created, retained and restored on-site), is 81.59 biodiversity units, which comprises 48.37 units created, 27.83 units retained and 5.39 units restored on-site.**

On-site baseline	Habitat units	102.76
	Hedgerow units	0.00
	River units	11.20
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	Habitat units	81.59
	Hedgerow units	0.00
	River units	11.20
Off-site baseline	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement & succession)	Habitat units	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	Habitat units	-21.17
	Hedgerow units	0.00
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	Habitat units	-20.60%
	Hedgerow units	0.00%
	River units	0.00%

Figure b. Biodiversity Metric 2.0 Output for Visual Impact Provision – Peak District (East). ‘Total net % change’ relates to the overall gain/loss of biodiversity credits.

4. Conclusion

- 4.1.1. The results of the BNG assessment demonstrate that an overall net loss of -21.17 biodiversity units or a 20.60% loss in biodiversity post-development would occur without offsite enhancements.
- 4.1.2. National Grid is committed to achieving an increase in BNG in excess of the 10% government target. To achieve a 10% net gain on the Proposed Project off-site enhancements currently being investigated would need to achieve a minimum of 31.45 biodiversity units. National Grid is therefore proposing to deliver more than this number of units through off site enhancement works.

4.1.3. As stated earlier, this report sets out the results of the BNG assessment for habitats on-site only and does not include proposals for off-site enhancement which will enable the Proposed Project to achieve a net gain in biodiversity. These details will follow as an amendment to this report once landowner discussions are finalised.

Appendix A River Don Habitat Green Infrastructure Corridor

Appendix B Phase 1 Habitat Plan

Appendix C UK Habitat Classification Plan

Appendix D Proposed Landscape Plan

Appendix E Car Park General Arrangement Drawings

Appendix F Metric 2.0 Calculation Tool
