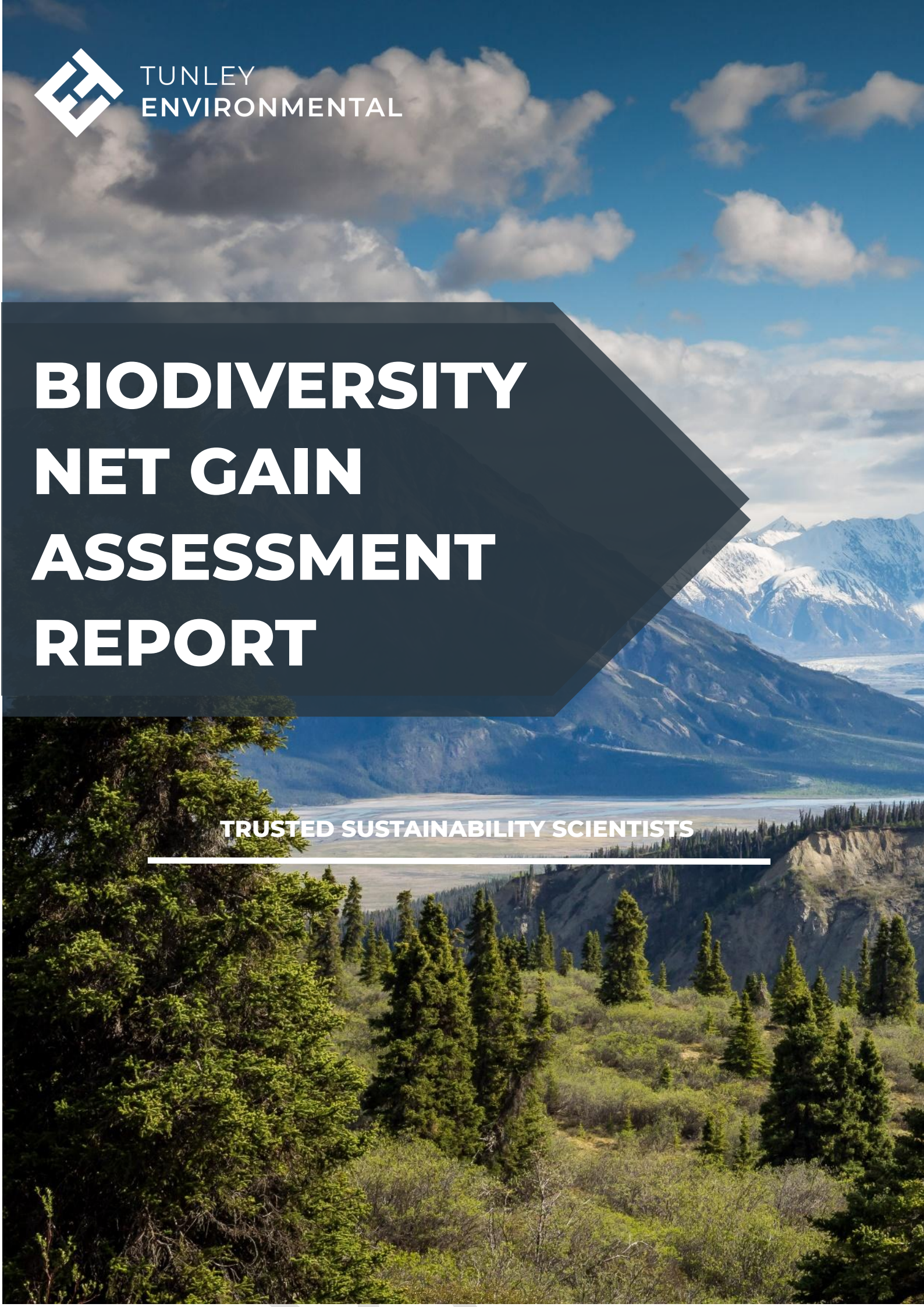

TUNLEY
ENVIRONMENTAL

BIODIVERSITY NET GAIN ASSESSMENT REPORT

TRUSTED SUSTAINABILITY SCIENTISTS

TUNLEY ENVIRONMENTAL

BIODIVERSITY NET GAIN ASSESSMENT REPORT

FOR

28-30 Leeds Rd, Birstall, Batley, WF17 0EW

in collaboration with

Studio J Architects

TUNLEY ENVIRONMENTAL

Contents

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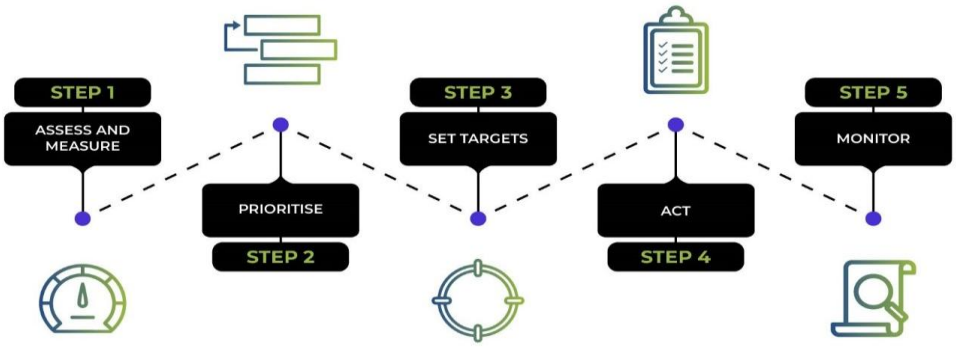
Nomenclature

Nomenclature	Description
Baseline Assessment	Before a development project begins, a baseline assessment is conducted to determine the existing biodiversity of the project site. This assessment establishes the current state of habitats, species, and ecosystem functions.
Biodiversity	The variety of life within a defined area for example, globally or in a specific habitat which can be described by a variety of metrics including species abundance or the living plant index and which we are dependent on to provide us with food, clean water and many more essentials.
Biodiversity Loss	The reduction in the variety and abundance of species in a particular ecosystem or across the entire planet. It can result from factors such as habitat destruction, pollution, climate change, and invasive species.
Biodiversity Net Gain	A concept that aims to ensure that development projects have a positive impact on biodiversity by enhancing or creating habitats.
Biodiversity Net Gain (BNG) Assessment	The quantification of the overall positive impact on biodiversity resulting from a specific activity or project. While biodiversity gain refers to the increase in the numbers, genetic variability, and species variety in a given area, BNG goes a step further by assessing whether the difference between biodiversity losses and gains leads to a net positive impact.
Biodiversity Units	A measure to describe the level of biodiversity present on a given site.
DEFRA Statutory (Official) Biodiversity Metric	Is a tool developed by the UK Government that provides a standardised approach to quantifying changes in biodiversity resulting from development activities. It assigns values to different habitats and species based on their ecological importance, and it allows for the calculation of a numerical score that reflects the overall biodiversity impact of a development.
Habitat	The specific environment or type of ecosystem in which a particular species of organism lives. Habitats can range from forests and wetlands to grasslands and urban areas.
Habitat Condition	The state or quality of a habitat, taking into consideration factors such as biodiversity, ecological processes, and overall health. Habitat condition assessment is essential in determining the effectiveness of conservation or restoration efforts.
Habitat Distinctiveness	The unique characteristics and features that differentiate one habitat from another. Distinctiveness is often assessed based on the diversity of species, ecological functions, and physical attributes of a habitat.
Habitat Strategic Significance	The local importance of a habitat determined by assessing both its geographic location and the specific type of habitat it represents. This evaluation helps in understanding the unique value and contribution of the habitat in its surrounding ecosystem.
On-Site	Refers to activities, impacts, or features that occur within the boundaries of a specific development or project site. In the context of Biodiversity Net Gain, on-site measures may include habitat creation, enhancement, or protection within the project area.
Off-Site	Relates to actions or effects that occur outside the boundaries of the development or project site. Off-site measures in Biodiversity Net Gain may involve compensatory actions, such as creating or enhancing habitats in a different location to offset any biodiversity loss caused by the development.
Small Site	A small residential site is a development which is less than 1 hectare with less than 9 dwellings, or where the number of dwellings is unknown an area of less than 0.5 hectares. A small commercial site is a development which has created floor space of less than 1,000 m^2 or with a total site area of less than 1 hectare.
Major Development	A major development is any development, either residential or non-residential, which falls out of the requirements of a small site. This means more than 9 dwellings or greater than 0.5 hectares for residential developments or greater than 1,000 m^2 floor space, or over a hectare for non-residential developments.

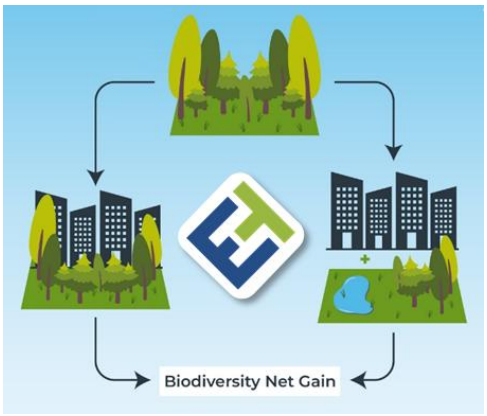
Methodology and Quantification Standards

This Biodiversity Net Gain (BNG) report has been completed using methodology consistent with the Science Based Targets for Nature (SBTN), Nature Positive Initiatives, and DEFRA Regulations.



Science-Based Targets for Nature Steps which Tunley Environmental's Biodiversity Net Gain (BNG) services aligns with to achieve reduced impact on Nature.

Biodiversity was quantified using the DEFRA (Department for Environment, Food & Rural Affairs) statutory (official) biodiversity metric as a tool to assess and measure biodiversity in the context of development projects. This metric is specifically designed to assist in quantification of the impact that development activities have on biodiversity and determine whether Biodiversity Net Gain (BNG) is achieved. Where BNG refers to the idea that the biodiversity value of a site should be enhanced due to development, ensuring a "net gain" in ecological terms. Tunley have completed all calculations within small site metric along with any required documents such as habitat condition. These additional documents will be submitted alongside this form in the excel format for LPA approval.



Tunley Environmental's conceptualisation of Biodiversity Net Gain.

Where applicable, the equivalent small site biodiversity metric was utilised for developments under the requirements for the statutory (official) biodiversity metric. The BNG assessment was further completed using methodology consistent with the international standard BS 8683:2021 (Process for designing and implementing BNG). Information on data sources and assumptions made to support this analysis are provided in Appendix A.

Executive Summary

Biodiversity, which underpins over half of the global economy, is in crisis due to human activity, threatening around a million species with extinction at rates far beyond the natural norm. Biodiversity net gain (BNG) is a concept implemented into the *Town and Country Planning Act 1990* that aims to ensure that development projects in the UK, specifically England, have a positive impact on biodiversity by enhancing or creating habitats either on-site or off-site, or a combination of both.

According to the UK government a major development is defined as a residential development where the number of dwellings is greater than 9 or the area is greater than a hectare, or if an unknown number of dwellings, the site area is more than 0.5 hectares. For a commercial development a small site is where floor space created is less than 1,000 square metres or the total site area is less than 1 hectare.

The site at 28-30 Leeds Rd, Birstall, Batley, WF17 0EW is a predominantly an urban area with no priority habitats or designated sites within the development boundary. Although Deciduous Woodland priority habitats were identified within a 500 m radius, these areas will not be affected by the proposed development as they are outside the development boundary (See Magic map results). The site is being developed into an extension of commercial unit. The site has a total area of 440 m^2, and plans propose a car garage extension, and therefore as stated in the *Town and Country Planning Act*, this site is classified as a small site.

Tunley Environmental have conducted an independent assessment to quantify the biodiversity value of the site before and after development to assess biodiversity of the site. Using data provided by Studio J Architects the baseline biodiversity units of the site were calculated to be 0.04 units over an area of 440 m^2. This is comprised of developed land; sealed surface and vegetated garden. Within the proposed development there are plans to developed land; sealed surface and vegetated garden. These initiatives will create 0.00'area habitat' units translating to a -41.53% net loss in 'area habitats' units. Given that the proposed development will result in a biodiversity net loss in 'area habitats', the developer is committed to purchase '0.0189' off-site biodiversity credits from a 3rd party provider to meet the 10% BNG requirement (Figure 1).

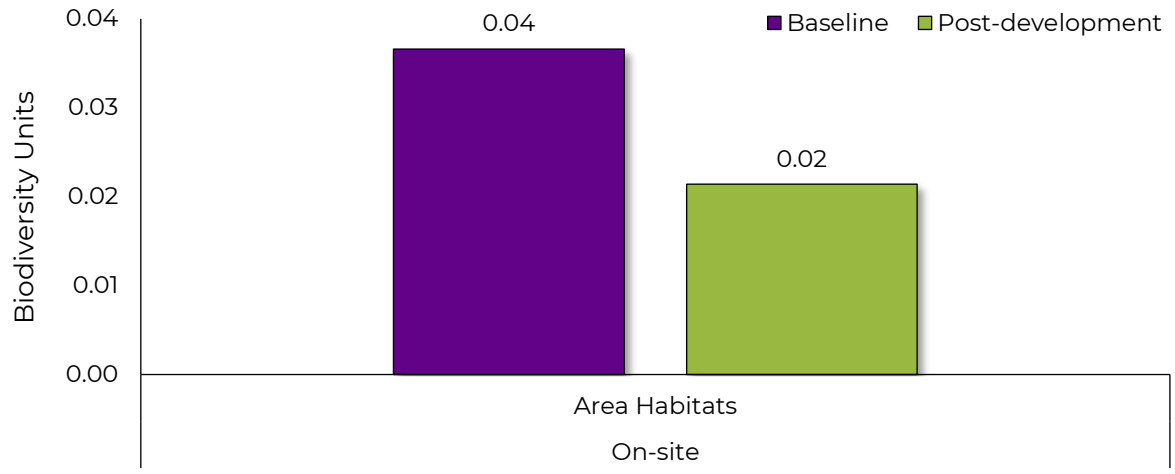


Figure 1. Total biodiversity units of the site, before and after development by Studio J Architects

Introduction

Biodiversity is the foundation of the global economy. The World Economic Forum (WEF) estimates that over 50% of the world's GDP, equivalent to 33 trillion pounds, significantly depends on nature and the services it provides. However, biodiversity is amid a severe global crisis. Human-induced changes in land and sea use, overexploitation, invasive species, pollution, and climate change are the primary drivers of rapid biodiversity decline. Human activity threatens approximately a million species with extinction, some within decades, and species are disappearing at a rate of tens to hundreds of times faster than the natural pace. Between 1970 and 2016, populations of mammals, birds, amphibians, reptiles, and fish have, on average, decreased by 68%. Human activity has dramatically altered 75% of the land surface, significantly impacted 66% of the ocean, and led to the loss of 85% of wetlands.

Recognising the severity of this crisis, the integration of Biodiversity Net Gain (BNG) and ecosystem restoration emerges as a crucial strategy for mitigating the adverse effects of human activities on biodiversity. BNG aims to ensure that development projects not only avoid causing harm to ecosystems but actively contribute to a net positive impact on biodiversity. By implementing measures such as habitat creation, restoration, and protection, BNG seeks to counterbalance the negative ecological footprint of development. The particular site in question, which is car garage planned for extension, is situated in Leeds City Council. Studio J Architects are consulting on this matter and have been asked to provide a BNG assessment alongside their application.

Tunley Environmental has conducted an independent small site Biodiversity Net Gain (BNG) assessment to identify and quantify the biodiversity of the site before and after the development. This BNG assessment calculates the biodiversity value of the land by evaluating the number of habitats present, the habitat types, size, condition, and location. These data inputs are utilised within the small site's statutory metric, due to the development size, to quantify the biodiversity units present before development. This is the baseline habitats and gives a value for baseline biodiversity units. Below shows the most recent aerial image of the site at 28-30 Leeds Rd (Figure 2).

Figure 2. Aerial image of the site at 28-30 Leeds Rd.

Baseline Results (Pre-development)

Prior to analysing the biodiversity units post development we must conduct a baseline assessment on the site pre-development. This baseline assessment is conducted to determine the existing biodiversity on the project site. This assessment establishes the current state of habitats, species, and ecosystem functions.

The baseline assessment for the site at 28-30 Leeds Rd was conducted by analysing site photos to distinguish habitat types as well as implementing Google Earth to accurately analyse site plans alongside dimensions to yield overall meters of the project site by habitat type. Some example images are shown in Figure 3.

Figure 3. Images provided to Tunley by Studio J Architects of the site.

A map of the habitats identified from these images is overlaid into the arial image above in Figure 4.

Figure 4. Aerial view separated by different habitat types identified on site pre-development.

For the proposed site for development, 'area habitats' biodiversity units were identified pre-development (Figure 4 and Table 1). The UK habitat classification (UKHab) system is utilised to define habitats inputted within the metric. The different 'habitat types' identified on-site for this project included developed land; sealed surface and vegetated garden, with 257 m^2 of developed land; sealed surface contributing the greatest area.

Table 1. Explanation of baseline habitat types, habitat characteristics, and habitat area/length.

Habitat Type	Habitat Characteristics	Habitat Area	Unit	Condition	Biodiversity Units
Developed land; sealed surface	Areas where the surface has been sealed by materials such as concrete, tarmac, or buildings.	257.00	m^2	N/A - Other	0.00
Vegetated garden	Gardens that support a variety of plants.	183.00	m^2	Condition Assessment N/A	0.04

Biodiversity Net Gain Results

The site at 28-30 Leeds Rd aims to consider biodiversity impact by implementing habitat enhancement and habitat creation to account for any biodiversity net loss due to construction, as well as to improve the site for the users of this site whilst still contributing to BNG goals.

The plan below (Figure 5) shows the proposed site landscape developed and designed by Studio J Architects which retains 364 m^2 of its 440 m^2 area habitats and includes the design and retention of developed land; sealed surface and vegetated garden.

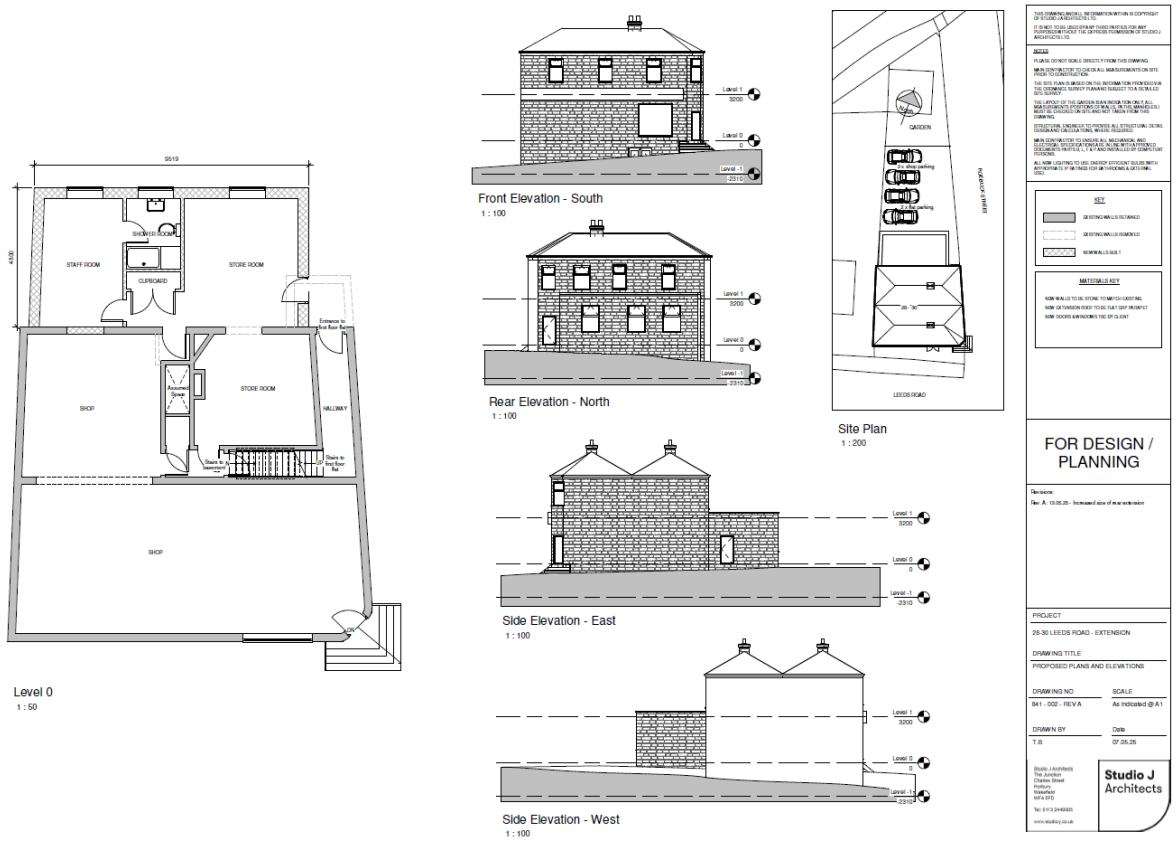


Figure 5. Proposed plan for the site.

These changes in habitats were taken into account through the calculation of their areas, provided by Studio J Architects and verified with an arial view map, as seen in Figure 6.

Figure 6. Aerial view of the site of post-development.

Of the 76 m² area 'habitats' that will be lost during development, the plan creates more developed land, sealed surface in its stead (Table 2).

Table 2. Explanation of habitat type, habitat characteristics, and habitat area of all habitats to be created post-development.

Habitat Type	Habitat Characteristics	Habitat Area	Unit	Condition	Biodiversity Units
Developed land; sealed surface	Areas where the surface has been sealed by materials such as concrete, tarmac, or buildings.	76.00	m²	N/A - Other	0.00

The incorporation of these new habitats creates 0.00 biodiversity units, which brings the site to a total of 0.02 biodiversity units post-development, translating to -41.53% net loss in biodiversity. These habitats therefore do not ensure that the 10% net gain target for biodiversity will be met (see Table 3).

Table 3. Detailed losses and gains of biodiversity 'area habitat' units resulting from development.

Description of modifications	Losses & Gains of Biodiversity units
Total on-site baseline biodiversity area habitat units	0.04
On-site retention of baseline biodiversity 'area habitat' units - 257 m² of developed land; sealed surface in n/a - other condition - 107 m² of vegetated garden in condition assessment n/a condition	0.02
On-site loss of baseline biodiversity 'area habitat' units - 0 m² of developed land; sealed surface in n/a - other condition - 76 m² of vegetated garden in condition assessment n/a condition	-0.02
On-site creation of area habitats (all low strategic significance): - 76 m² of developed land; sealed surface in n/a - other condition	+0.00
On-site enhancement of area habitats (all low strategic significance):	+0.00
Total on-site post-development biodiversity 'habitat' units	0.02
Total net gain in biodiversity 'habitat' units	**-0.02**
Overall percentage net change in biodiversity 'habitat' units	**-41.53%**

Evidence for Off-site Biodiversity Credits

Studio J Architects are committed to complying with BNG regulations for the site at 28-30 Leeds Rd, Birstall, Batley, WF17 0EW, in England. Whilst they are not able to reach 'on-site' biodiversity gains for area habitats with a unit deficit of 0.018, they will purchase 'off-site' area habitat units to reach 10% area habitat net gain.

Below we provide evidence of quotation which further demonstrates Studio J Architects commitment to secure remaining biodiversity units from Environment Bank in the form of Other Neutral Grassland with Medium distinctiveness (Figure 7).

Unit Type Impacted	Distinctiveness	Units Impacted	Habitat Type Provided	Distinctiveness	Habitat Bank	Proximity Locale Type	Proximity	Units Provided	Unit Price (exc. VAT)	Total Price (exc. VAT)
Residual biodiversity habitat	Low	0.02	Other neutral grassland	Medium	RCHD2301-R	LPA	Adjacent	0.02	£23,500.00	£470.00
	Subtotal	***0.02***					***Subtotal***	***0.02***		***£470.00***
Spatial risk offset habitat	N/A	0.00	Other neutral grassland	Medium	RCHD2301-R	LPA	Adjacent	0.01	£23,500.00	£235.00
	TOTAL	**0.02**					**TOTAL**	**0.03**		***£705.00***

Grand Total ***£2,500.00***

Figure 7. Biodiversity offsetting quote provided to Studio J Architects by Environment Bank

Conclusion

The BNG assessment by Tunley Environmental have confirmed the site at 28-30 Leeds Rd, Birstall, Batley, WF17 0EW will not reach the national standard of 10% biodiversity net gain by achieving a **-41.53% net loss** for 'habitats'. Therefore, due to constraints onsite, the area habitat units required to comply with national standard of **10% net gain will be achieved offsite by the purchase of units through an accredited seller**.

BNG approaches offer a pathway to not only safeguard the intricate web of life on Earth but also to preserve the essential ecosystem services that underpin the global economy and human prosperity. As the urgency of addressing biodiversity loss intensifies, a comprehensive strategy that integrates conservation, sustainable development, and restoration efforts is essential to ensure a resilient and biodiverse future for the planet.

Appendix

Data Sources

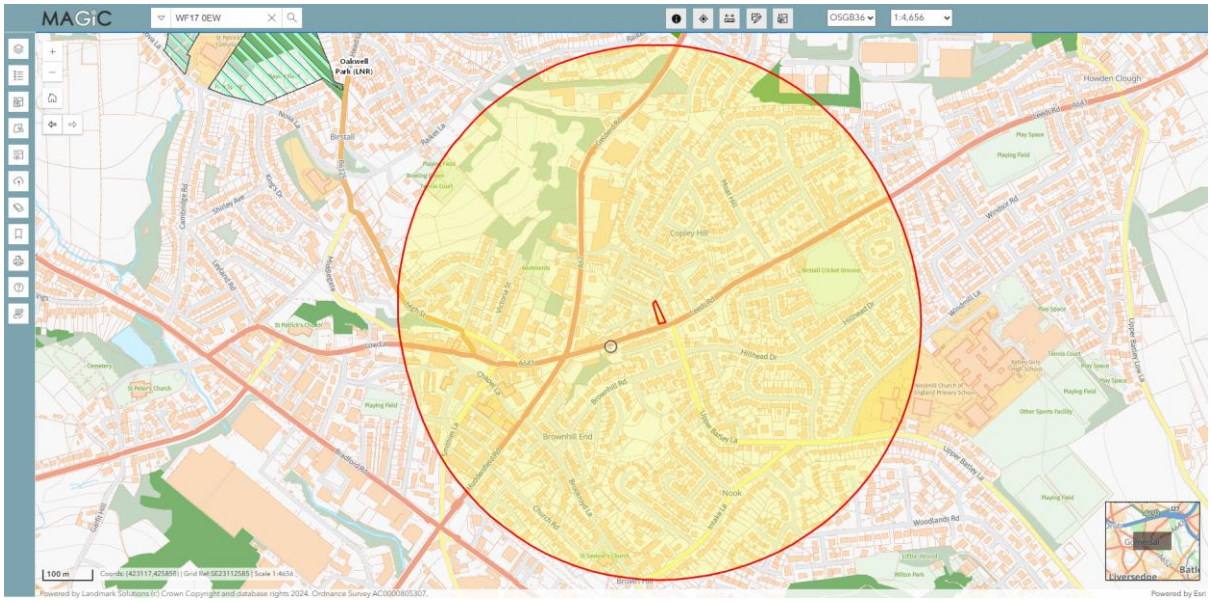
All data results were analysed through the small site metric from DEFRA. Below are the results directly from this metric site. The excel version of the metric will also be submitted alongside this report for further evidence and LPA approval and for compliance with BNG regulations.

Habitat Classification and Justification

We conducted a thorough assessment of all habitat types utilising the guidelines outlined in "The UK Habitat Classification Version 2" (UKHab). UKHab serves as a comprehensive, hierarchical system that integrates seamlessly with existing classifications in the UK and Europe. It's architecture, inclusive of primary habitats and secondary codes, enhances the accuracy and consistency of habitat assessments by allowing for the direct attachment of additional features such as habitat mosaics and management strategies. This approach not only facilitates the integration of legacy datasets but also enables efficient sharing of habitat data at regional, national, and international levels. BNG Compliance adheres to these classifications, ensuring consistency and compliance with ecological standards. It's essential that a trained and certified ecologist completes the assessment. For more information, please visit: UKHab. Below are excerpts from the UK Hab classification version 2 for relevant habitat types.

Magic Map Results

The below results from Magic Map demonstrates that the site is within 500 metres of 1 area of Deciduous woodland. Although the proximity is close, the site does not alter the area at a large scale as it is classified as a small site, and the relative changes are less than 1000 m2. Thus, the risk is not as high as a larger site. Additionally, the surrounding area of the site is also residential, further demonstrating that the site will not be disrupting any designated habitats within the boundary lines.



Competency

Dr Alejandra Zazueta Lopez is a Biodiversity Scientist at Tunley Environmental. She holds Environmental Engineering and a PhD in Physical Geography degrees. Alejandra has completed several hours of professional training with UKHab for habitat identification and Biodiversity Net Gain (BNG) assessments. She is competent to conduct BNG assessments, provided the habitats are signed off by an ecologist.

Tara Garraty, BSc, MSc, PhD (Pending), is a certified ecologist (holding three higher education degrees in conservation and ecology) with over 15 years of experience in sustainability and conservation. She has led ecological surveys in the UK and Tropics, gaining hands-on experience in diverse ecosystems. Tara has completed professional training with Natural England, CIEEM, and UKHab, focusing on Biodiversity Net Gain (BNG) regulations and UK habitat identification. She remains committed to ongoing training to stay current with BNG standards. At Tunley, she created and facilitated “Navigating Biodiversity Net Gain regulations” CPD sessions, showcasing her leadership and expertise in ecology and BNG regulations.

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Approval

Author:	Dr Alejandra Zazueta Lopez
Position:	Biodiversity Scientist
Written Date:	12th June 2025
Peer-reviewed by:	Dr Luan Ho, MIEnvSc, BEng
Position:	Science Team Co-Lead
Reviewed Date:	13th June 2025
QA approved by:	☒ Approved ☐ Revision: [CODE] Dr Aaron Yeardley, PhD, MEng, AMIChemE
Position:	Science Team Co-Lead
Approval date:	13th June 2025
Reference:	Studio J Architects_Leeds Rd-BNG_24-2-A
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