TECHNICAL NOTE

JBA Project Code:	2023s1213
Contract:	Worthing Car Park
Client:	Hemiko
Date:	02/01/2024
Author:	Vic Standing ACIEEM MSc BSc (Hons)
Reviewer:	Robin Searle ACIEEM BSc (Hons)
Subject:	Biodiversity Net Gain Assessment

1 Introduction

1.1 Background & Scope

JBA Consulting were commissioned by Hemiko to undertake a Biodiversity Net Gain Assessment for a multi-storey car park in Worthing, West Sussex, to identify opportunities for ecological mitigation and enhancement for the proposed on-site works.

JBA Consulting carried out an ecological walkover survey using UKHab Classification, along with a Habitat Condition Assessment and a Biodiversity Net Gain (BNG) Assessment using the Defra Biodiversity Metric 4.0 (JBA Consulting V2, 2024). The results are presented within this Technical Note, which should be read in conjunction with Appendices A-F, which are separate documents.

1.2 Site Location

The site is a multi-storey car park and associated landscaping just off the High Street, Worthing, West Sussex. The central point of the site is found at TQ 15057 02718. Three trees are present within the grassland parcels. The location of the site is shown below in Figure 1-1.

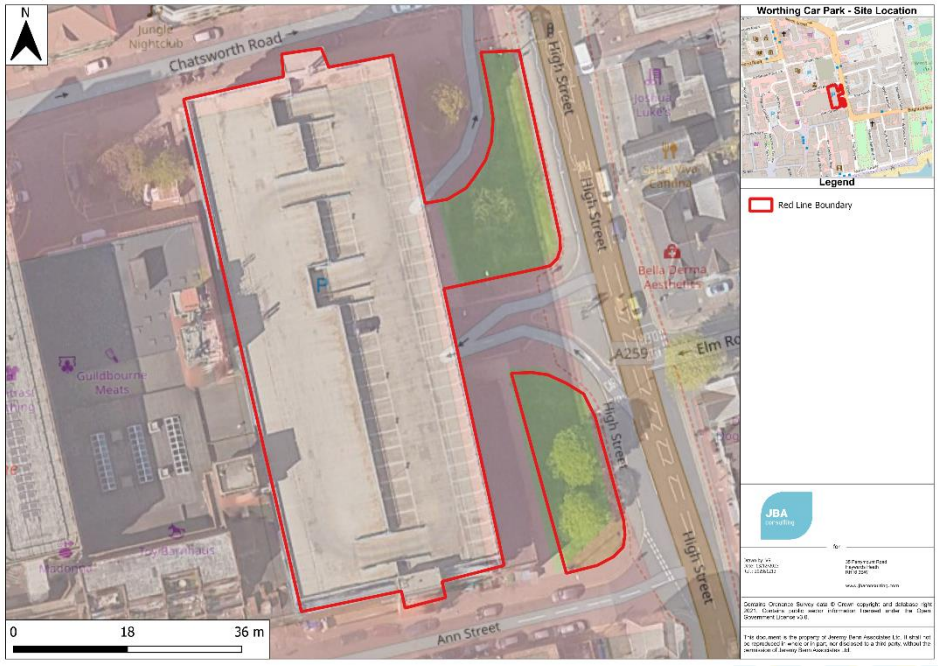


Figure 1-1: Worthing Car Park: Site Location Plan

1.3 Proposed Works

These works will include the creation of a new Energy Centre building with associated external compound, gas kiosk, and steel thermal store, and an additional substation to the south. Current landscaping plans make provisions for green walls on all aspects of

the new building, a green wall consisting of climbing plants on fencing for the compound, and a shrubbery screen between the building and the adjacent road.

2 Methodology

2.1 Desk Study

A desk-based review and gap analysis of all existing ecological baseline information for the site was made, in addition to a search of databases containing ecological records, priority habitats, and information on statutory and non-statutory designated sites.

The following sources were included in these searches:

- MAGIC mapping service (www.magic.gov.uk)
- Natural England GIS data (www.gis.naturalengland.org.uk/pubs/gis/GIS_register.asp)
- Biodiversity Metric 4.0 Calculator Tool (Panks et al, 2023a) (http://publications.naturalengland.org.uk/publication/5850908674228224)
- Biodiversity Metric 4.0 Technical Supplements (Panks et al, 2023b; 2023c)
- GA Plans ECW-NOR-XX-ZZ-DR-A-00001 Rev. P04 (Norr Consultants, 2023a)
- East & South GA Elevations ECW-NOR-XX-ZZ-DR-A-00101 Rev. P05 (Norr Consultants, 2023b)
- West & North GA Elevations ECW-NOR-XX-ZZ-DR-A-00102 Rev. P05 (Norr Consultants, 2023c)
- HV Substation – GA Plans ECW-NOR-XX-ZZ-DR-A-00002 P05 (Norr Consultants, 2023d)
- Visuals – Axonometric ECW-NOR-XX-ZZ-DR-A-00105 P05 (Norr Consultants, 2023e)

2.2 Site Visit

A site survey was undertaken on 22nd of November 2023 by Vic Standing ACIEEM MSc BSc (Hons). Habitat condition assessments for the two grassland parcels were conducted outside of the optimal period, however the habitats are predominantly urban, modified and grasses identifiable using vegetative identification techniques, and therefore the assigned conditions are believed to accurately represent the habitats.

2.3 BNG Assessment

The habitat condition for each habitat feature (FID) were utilised within the Worthing Car Park Metric 4.0 V2 calculation tool to quantify the total number of habitat units associated with the site, and to assess where further habitat units could potentially be gained through further ecological enhancements.

2.4 Limitations

The habitats and species present in a given area are subject to change over time. A single field visit of this nature captures and reports the situation at the time of survey.

As such, the advice contained within this report is considered valid for a period of 18 months before a review on the need for an updated survey/assessment must be made by an ecologist (CIEEM 2019).

The Biodiversity Metric 4.0 was released on 24th March 2023, and improvements and updates are likely to be made in the future. The results in this report are therefore based on the existing guidance and version of the metric available at the time of writing.

The biodiversity metric is designed to calculate habitat losses based primarily on habitat type, area and condition. Habitat areas are recorded in hectares and linear habitats in kilometres.

3 Results

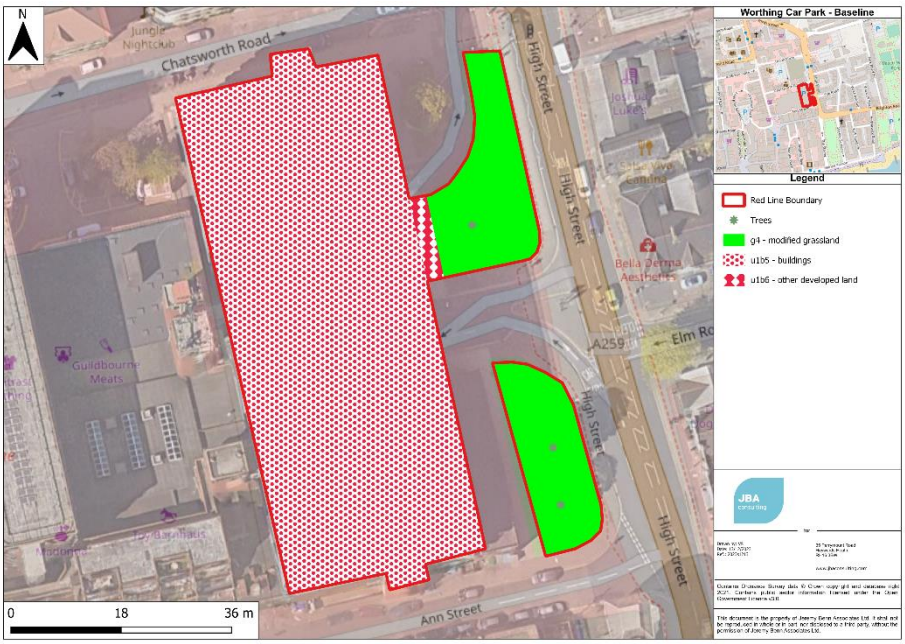


Figure 3-1: Worthing Car Park : Baseline Habitats

3.1 Habitats

The site comprises habitats including: sealed surface developed land comprising a multi-storey car park with associated pedestrian paving to the east, two parcels of grassland heavily disturbed by pedestrian footfall, and three individual trees.

The only on-site habitats with biodiversity value are the modified grassland (all in poor condition) and the individual trees.

The existing on-site ecological baseline was calculated using Defra Metric 4.0 as follows:

- A total of 1.15 habitat units were calculated for terrestrial (polygon) habitats.

Figure 3-1 below shows the onsite habitats recorded that are included in the assessment. A summary of the Metric output is provided in Table 1-1, which shows the key inputs and the calculated baseline habitat units for the site.

Table 1-1: Summary of On-site BNG Baseline Area Terrestrial (Polygon) Habitats

FID	UKHab Classification Code	UKHab Habitat	Area (Hectares)	Habitat Condition	Baseline Habitat units
1	u1b5	buildings	0.2804	n/a	0.00
2	g4	modified grassland	0.039	Poor	0.08
3	g4	modified grassland	0.0323	Poor	0.06
5	u1b6	other developed land	0.0039	n/a	0.00
n/a	n/a	3 x medium trees	0.1099	Moderate	1.01
Total On-site Terrestrial (Polygon) Habitat Baseline Units					1.15

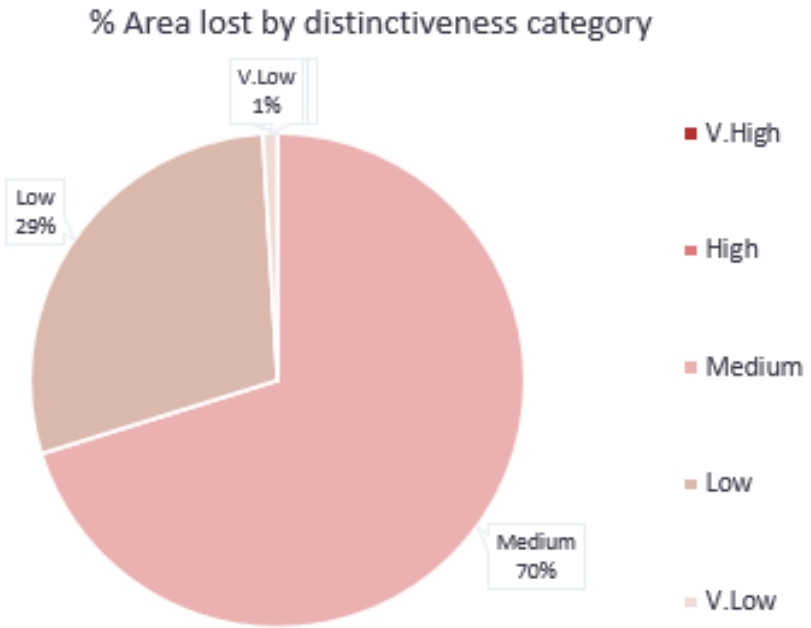
3.2 Invasive Non-native Species

No invasive non-native species were noted during the surveys.

3.3 Post Development

3.3.1 Potential Habitat Losses

The works areas which result in the permanent loss of 0.0733ha of medium distinctiveness habitats (two individual trees) and 0.0301ha of low distinctiveness habitats (modified grassland).



3.3.2 Potential for Biodiversity Net Gain

Current proposals will result in a net loss for biodiversity. This is based upon the current landscape proposals (refer to Figure 3-4) and the implementation of all recommendations set out within this report and the Biodiversity Metric calculation tool V2 (refer to Appendix B):

- Terrestrial (polygon) Habitats: creation of a façade-bound green wall on all four sides of the new energy centre building (FID 1NEW), a second green wall (in the form of climbing plants; FID 2NEW) on the new fencing to the east, and a line of shrub plants (FID 10) to the east of the new building. Current landscaping proposals for the scheme will deliver a loss of -0.65 habitat units, equating to a -56.18% BNG for terrestrial habitats.

Refer to Figures 3-2 to 3-3: Metric Headline Results Outputs and Change in Habitat Units by Habitat Type and refer Appendix B for the full detailed Biodiversity Metric.

FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-0.65	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	-56.18%	Total net gain achieved is less than target set ⚠
	Hedgerow units	0.00%	
	Watercourse units	0.00%	
Trading rules satisfied?		No - Check Trading Summaries ▲	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	1.15	1.27	0.76	
Hedgerow units	10.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓
Watercourse units	10.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓

Figure 3-2: Metric Headline Results Outputs

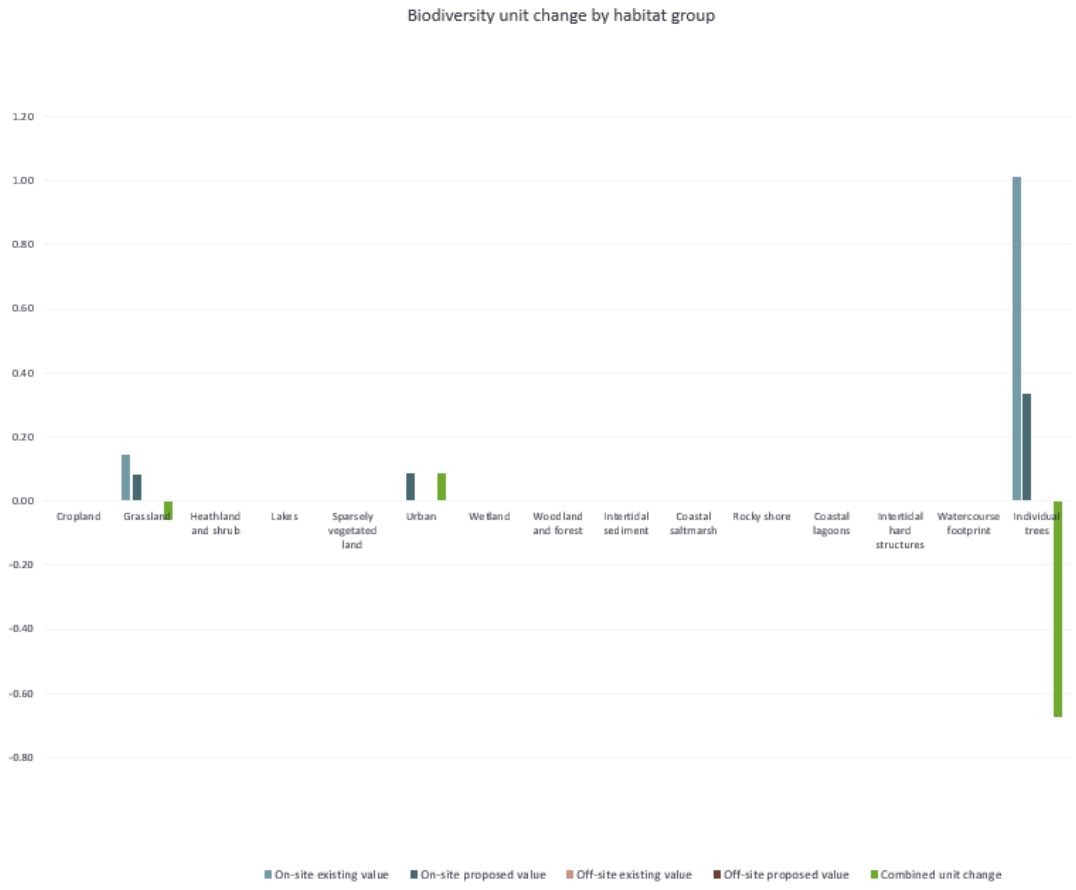


Figure 3-3: Worthing Car Park: Post-Development Habitat Changes

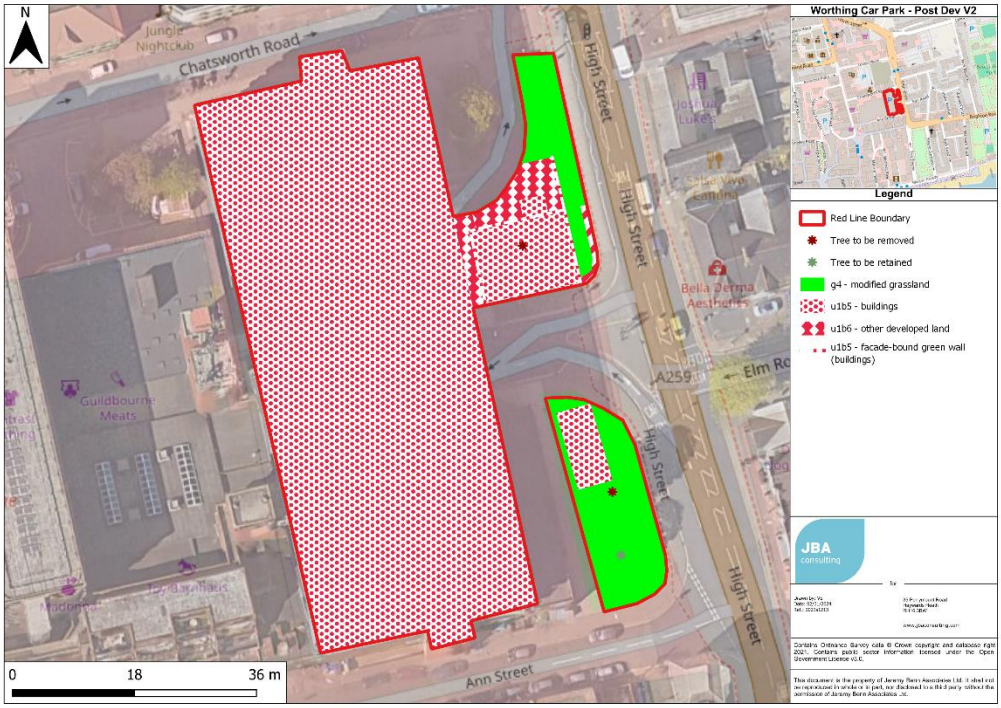


Figure 3-4: Worthing Car Park: Post-Development Habitats

The resulting BNG values following the completion of works and replanting for area habitats is shown in Table-2 below. This currently represents a biodiversity net-loss of 0.65 units, or -56.18%.

Table 1-2: Post-works Assessment – On-site Habitat Areas

FID	UKHab Habitat Code	Baseline area (ha)	Baseline units	Post-works area (ha)	Post works units	Unit change
1	u1b5	0.2804	0.00	0.2804	0.00	0.00
2	g4	0.039	0.08	0.0151	0.03	-0.05
3	g4	0.0323	0.06	0.0261	0.05	0.01
5	u1b6	0.0039	0.00	0.0029	0.00	0.00
n/a	3 x medium trees	0.1099	1.01	0.0366	0.34	-0.67
1NEW	u1b5 (843)	n/a	n/a	0.0199	0.08	+0.08
10	u1 (847)	n/a	n/a	0.0011	0.00	0.00
2NEW	u1b5 (842)	n/a	n/a	0.0019	0.01	+0.01

FID	UKHab Habitat Code	Baseline area (ha)	Baseline units	Post-works area (ha)	Post works units	Unit change
6	u1b5	n/a	n/a	0.0161	0.00	0.00
8	u1b5	n/a	n/a	0.0011	0.00	0.00
9	u1b6	n/a	n/a	0.0065	0.00	0.00
11	u1b5	n/a	n/a	0.0062	0.00	0.00
Total On-site Terrestrial (Polygon) Habitat Baseline Unit Change						-0.65

No watercourses or hedgerow linear features are present on site, therefore no net gain is currently included within the mitigation plans.

3.4 Recommendations

The BNG outputs generated by the Biodiversity Metric based upon the current scheme design indicate a -56.18% BNG for terrestrial (polygon) habitats will be delivered based upon the following measures and subject to ongoing management and post monitoring surveys. Offset BNG measures will be required, secured through an offsetting provider or the purchase of statutory credits, in order to achieve the minimum target of 10% net gain (Worthing Borough Council, 2023). Offsite habitats used for BNG offsetting are required to be registered with Natural England. A habitat trading deficit is also present through the loss of modified grassland and the single tree in moderate condition, both of which require proportionate creation of the same habitat or a higher distinctiveness habitat.

All habitat creation and enhancement measures are recommended to be detailed within a 30 year habitat management and maintenance plan, and post monitoring surveys will be required in years 1, 5, 10, 15, 20, 25, 30. The Worthing Car Park Biodiversity Metric will be required to be updated following each post monitoring survey to determine if the desired habitat condition target is met and BNG for the scheme is delivered in accordance with predicted percentage gains outlined within this report.

Terrestrial Habitat Creation and Enhancement Recommendations:

- g4 modified grassland:
  - FID 2 will be partially retained (0.0151ha) in Poor condition.
  - FID 3 will be partially retained (0.0261ha) in Poor condition.
- u1b5 (843) façade-bound green wall:
  - Four panels of green wall (FID 1NEW) will be created on the façades of the new energy centre building.
  - A length of fencing with wildlife-friendly climbing plants (FID 2NEW) will be created to the east of the new energy centre building.
- u1 (847) introduced shrub:
  - A screen of introduced shrub (FID 10) will be created along the south-eastern boundary of the new energy centre building.
- Urban trees:
  - One of the three trees will be retained intact in Moderate condition.

Other options for improving the BNG score that are not currently shown on the landscape plans would include:

- Enhancing the condition of the two grass parcels through seeding with an appropriate grassland and wildflower mix; restricting public access to allow the sward to grow tall; and sensitive management such as twice-yearly cuts as per Natural England's lowland

grassland management handbook to achieve Good condition. A sward height of at least 200mm should be maintained during the flowering season to provide habitat for a wide range of terrestrial invertebrates.

- Planting 30-40 small to medium trees, either on-site or at a nearby off-site location, installed using BS 8545:2014 guidance. The base of any newly planted trees should be kept weed free while they are establishing (1-2 years). If trees require pruning, this should also be done in winter when they are dormant. Any planting undertaken should comprise native species suited for the soil type and location. Any tree (including replacement plants) removed, uprooted, destroyed, or be caused to die, or become seriously damaged or defective, within five years of planting, shall be replaced by the developer(s) or their successors in title, with species of the same type, size and in an agreed location, in the first available planting season following removal.
- Planting native and wildlife-friendly shrub species in the new bed to the south-east of the building.

4 Conclusions

A BNG assessment for Worthing Car Park was carried out and based upon current scheme designs and proposed ecological enhancements, the scheme will deliver a loss of -56.18% BNG for terrestrial polygon habitats, subject to the creation and enhancement of all habitats outlined within the recommendation section of this report, and within the Worthing Car Park Biodiversity Metric V2 calculation tool. A habitat trading deficit is also present, requiring proportionate creation of the same habitat or a higher distinctiveness habitat. Offset BNG measures (or alternative on-site enhancements) will therefore be required, secured through an offsetting provider or the purchase of statutory credits.

All newly created or enhanced habitats will be required to be managed and maintained for a minimum of thirty years post construction and in accordance with measures set out within a management plan. Updated habitat condition assessments are recommended every five years to demonstrate the habitats reach their intended target condition and delivery of BNG at the site.

5 References

Norr Consultants (2023a). GA Plans ECW-NOR-XX-ZZ-DR-A-00001 Rev. P04

Norr Consultants (2023b). East & South GA Elevations ECW-NOR-XX-ZZ-DR-A-00101 Rev. P05

Norr Consultants (2023c). West & North GA Elevations ECW-NOR-XX-ZZ-DR-A-00102 Rev. P05

Norr Consultants (2023d). HV Substation – GA Plans ECW-NOR-XX-ZZ-DR-A-00002 P05

Norr Consultants (2023e). Visuals – Axonometric ECW-NOR-XX-ZZ-DR-A-00105 P05

Panks et al (2023a). Biodiversity Metric 4.0 Calculation Tool

Panks et al (2023b). Biodiversity Metric 4.0 - Technical Annex 1- Condition Assessment Sheets

Panks et al (2023c). The Biodiversity Metric 4.0 User Guide – Technical Annex 2 – Technical Information

Stace, C. (2019) New Flora of the British Isles, 4th Edition. C&M Floristics

Worthing Borough Council (2023). Local Plan 2020-2036

5.1 Resources

Natural England lowland grassland management handbook [available at: https://publications.naturalengland.org.uk/publication/35034]

Forestry Commission management of semi-natural woodlands [available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1037796/Managing_semi-natural_woodland_in_England.pdf]