Biodiversity Net Gain Calculation for Bourne End Junior Sports Club, New Road, Bourne End, High Wycombe, Buckinghamshire SL8 5BS

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1 Executive Summary

1.1 Proposed Development

The proposed development involves construction of a new covered swimming pool adjacent to an existing sports hall on the site of tennis courts, with construction of new replacement playing areas in an area of playing field nearby. There will also be some minor landscaping works.

1.2 Net Gain Calculation Method

A Biodiversity Net Gain Calculation was carried out in July 2021 for the site, the calculation covered the proposed development area and adjoining areas where landscaping and planting was proposed. The calculation was made using the Biodiversity Metric 3.0, which was published by Natural England in 2021.

Information on habitat types and areas on site prior to and post development were input into the metric. This information was obtained from the following sources:

- Preliminary Ecological Assessments of the site carried out by Green Shoots Ecology in 2020
- Calculations of total areas of each habitat type on site prior to development was calculated using QGIS and/or Google Earth, using PEA habitat plans and Google Earth aerial photography.
- The architect was not able to supply details of areas and lengths of different habitat types on site after development, so these were estimated by copying site plans onto Google Earth and QGIS and calculating using QGIS.

1.3 Result of Net Gain Calculation

Based on the information input into the Metric the proposed development would result in:

A net gain in Habitat Units of 0.19, or net gain of 13.42% of habitat units

A net gain in Hedgerow Units of 0.2, or a net gain of 23.46% hedgerow units

The table shows the details of areas and habitats/linear features included in the calculation. Calculations assume that landscaping will be carried out as advised, to include the following:

The calculation for the Habitat Units assumes:

- The part of the existing scrub being retained on site remains undisturbed.
- The green wall being added includes a diverse range of flowering plant species
- The green roof being added is an intensive green roof with a range of plant species of ecological value

The calculation for the Hedgerow Units assumes:

- Existing boundary hedges will be retained.

1.4 Discussion

There will be a Net Gain of over 10% in both Area Based Habitat Units and Hedgerow Units. Therefore the development will make a contribution to biodiversity in excess of the minimum required.

2 Details of completion of the Metric

2.1 Factors to be included in calculation of the Metric

To carry out a Biodiversity Net Gain calculation with the biodiversity metric there are number of factors which need to be included.

- The area of each habitat needs to be calculated and the length of any linear features such as hedgerows
- The connectivity of the habitats needs to be recorded (high, medium or low)
- The strategic significance of the habitat needs to be recorded (within area formally identified in local strategy, location ecologically desirable but not in local strategy or area/compensation not in local strategy/ no local strategy
- The condition of each habitat parcel based on criteria listed in the Metric. Habitats are recorded as poor, fairly poor, moderate, fairly good, or good condition, with a few habitats of no ecological value not given a condition.

2.2 Explanation of calculation of data included in the Metric

2.2.1 Sources of information for the Metric

Information on habitats prior to development was calculated using:

- Using the Preliminary Ecological Assessment survey reports for the site (Green Shoots Ecology 2020). From this habitats on site are known and their condition and other features could be assessed based on species and features present in each habitat type.
- Using QGIS and/or Google Earth to calculate areas of each habitat parcel on site prior to development. The annexes include aeriel view of the current site and the proposed site layout.
- The total site area was estimated using QGIS

Information on habitats post development was calculated using:

- Information provided by the client on types of planting and landscaping being added and a plan showing these.
- Estimating areas of habitats by redrawing plans onto QGIS to enable areas to be calculated.

2.2.2 Details of data input into the Metric

The Metric includes specific habitat types which can be chosen. In cases where the habitat to be input does not appear to specifically match any of the habitats in the Metric or appears to match more than one, Habitat Definitions Version 1.0 (2018) is examined for a detailed definition of the habitats given in the Metric and the habitat in question is input as that with the detailed description most closely matching the habitat on site.

Table 1: Development Site - Details of information input for calculation of baseline habitat and hedgerow units

Habitat type on metric table	**Area**	**Condition**	**Details of retention or removal of habitat**
Modified Grassland (Amenity grassland)	Area calculated using QGIS	Assessed using grassland habitat types condition sheet. Amenity grassland on site is fairly species rich and is classed as having a fairly poor condition in the condition table	The development will results in grassland areas at the front of the site being removed as well as a grassy bank adjoining thr existing tennis courts. This habitat area will be reduced by around 40%
Modified Grassland (rough, semi-improved grassland)	Area calculated using QGIS	Assessed using grassland habitat types condition sheet. This grassland is classed as being of moderate condition.	A small area of infrequently mown rough grass is present at the rear of the existing building, on a steep bank and in a raised walled area. These habitats will be removed.
Mixed scrub	Area calculated using QGIS	Assessed using scrub habitat types condition sheet. Assessed as of Moderate condition.	Scrub is found at the front of the site between the hedge along the road and existing car parking spaces Also it is present along the edge of the existing building up to the road, along the northern site edge. Scrub along the northern site edge will be retained, but scrub along the front of the site will be removed for car parking spaces. This habitat will be reduced by around 50%.
Introduced shrub	Area calculated using QGIS	This type of habitat can only be given a Poor condition in the table.	Ornamental shrubbery areas are located at the western end of the tennis courts, these will be removed during the development.
Hardstanding and buildings	Area calculated using QGIS	Not assessed, this habitat is not given a condition, condition input in table is N/A – Other, with score for condition of 0 as per Metric rules	The site area covered in hardstanding and building roofs will be reduced by about 5% after development, as the swimming pool will be covered with a large green roof.
Linear habitat type on metric table	**Length**	**Condition**	**Details of retention or removal of habitat**
Native species poor hedgerow	Length measured using QGIS	Assessed using hedgerows and lines of trees condition table. Assessed as Good condition.	There are native hedgerows along the front of the site and along the edge between the site and adjacent houses. All the native hedges will be retained.

Table 2: Development Site - Details of information input for calculation of post-development habitat and hedgerow units

Habitat type on metric table	Area or length	Condition	Details of creation and retention of habitats
Modified Grassland (Amenity grassland)	Area calculated using QGIS	Management would remain as mowing regularly and condition would remain as fairly poor.	Around 60% of this habitat will be retained on site.
Mixed scrub	Area calculated using QGIS	Scrub condition would remain unchanged, so moderate.	Around 50% of scrub onsite is being retained.
Urban - Developed land; sealed surface	Area calculated using QGIS	Not assessed, this habitat is not given a condition, condition input in table is N/A – Other, with score for condition of 0 as per Metric rules	Overall area covered by hardstanding and roofs will be reduced slightly as although new car parking areas will be added, the tennis court area will be replaced by a building with a green roof.
Urban – Green wall	Area provided by client	Moderate condition aimed for	This habitat is being added to the side of the main building and will be 3-m x 7m.
Urban - Tree	Number of trees to be added supplied by client	Not assessed, automatically allocated a condition of Moderate according to Metric rules	6 trees to be added near new pool area, mix of native and ornamental , assumed as medium size
Urban – Intensive Green Roof	Area calculated using QGIS	Condition of moderate to be aimed for.	Will be added to roof of new building.
Urban – Introduced Shrub	Area calculated using QGIS	Automatically given a condition of poor.	Will be added to area adjacent to site entrance.
Linear habitat type on metric table	**Length**	**Condition**	**Details of retention or removal of habitat**
Native species poor hedgerow	Length measured using QGIS	Assessed using hedgerows and lines of trees condition table. Assessed as Good condition.	There are native hedgerows along the front of the site and along the edge between the site and adjacent houses. All the native hedges will be retained.
Native species poor hedgerows	Length measured using QGIS	Poor condition likely	144 m of new native hedgerows to be added in sections around car parking areas.

3 References

Green Shoots Ecology (December 2020) - Preliminary Ecological Assessment at Bourne End Junior Sports Club, New Road, Bourne End, High Wycombe, Buckinghamshire SL8 5BS

Natural England Joint Publication JP039 (2021) – The Biodiversity Metric 3.0 - auditing and accounting for biodiversity TECHNICAL SUPPLEMENT

Natural England Joint Publication JP039 (2021) – The Biodiversity Metric 3.0 - auditing and accounting for biodiversity USER GUIDE

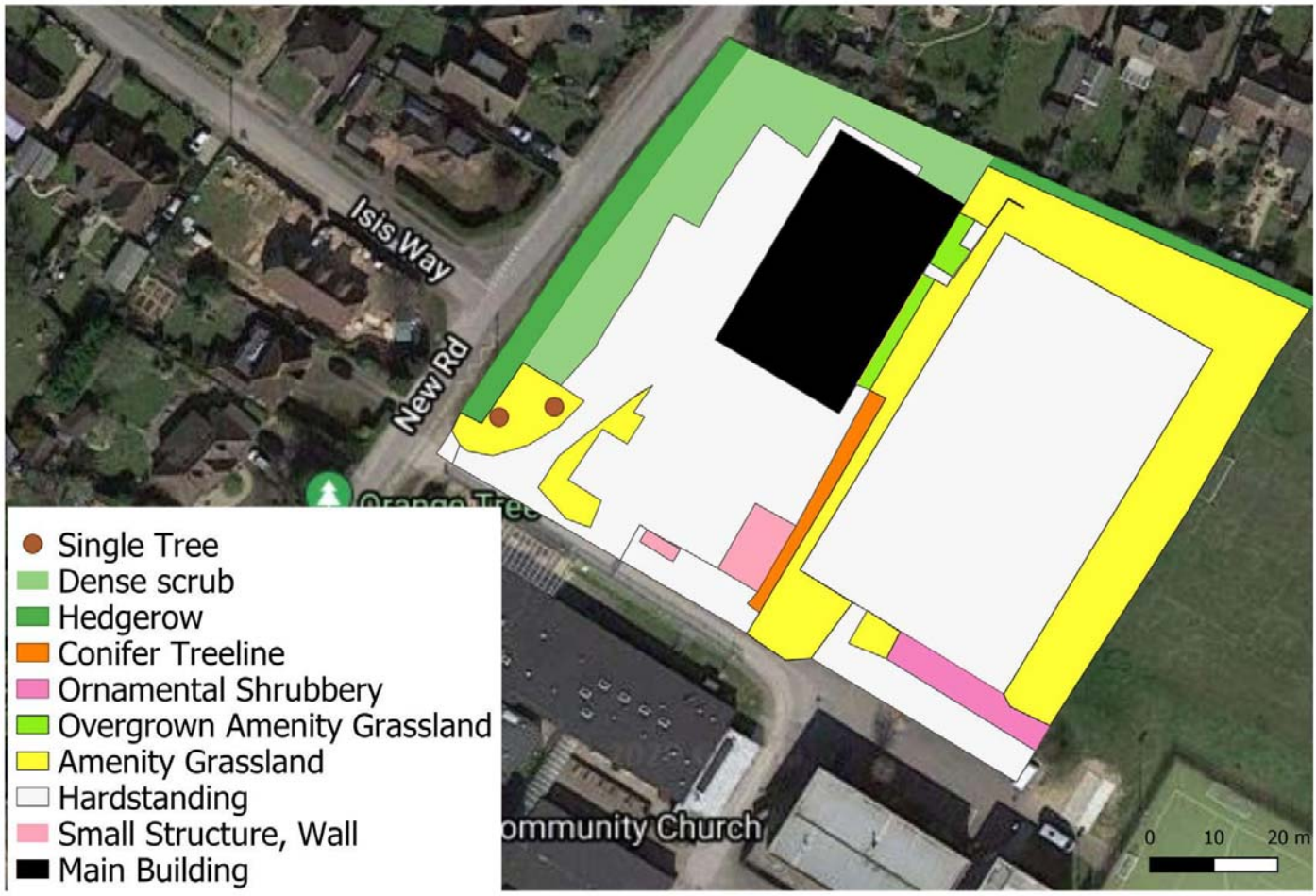
The UK Habitat Classification Working Group (May 2018) – Habitat Definitions Version 1.0

4 Annexes

Annex 1 –Habitats Prior to Development

Annex 2 – Proposed Site Layout

Annex 1 – Habitats Prior to Development



Map Data from Google

Annex 2 – Proposed Site Layout