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AESC UK

AESC PLANTS THREE

BIODIVERSITY OFFSETTING ASSESSMENT (SEPERATED CALCULATIONS)

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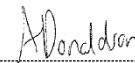
AESC PLANTS TWO AND THREE

BIODIVERSITY OFFSETTING ASSESSMENT (SEPERATED CALCULATIONS)

APRIL 2024

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EXECUTIVE SUMMARY

This report provides the results of a Biodiversity Net Gain assessment via the completion of a Statutory Biodiversity Metric (DEFRA 2023¹) on the proposed industrial development scheme in Washington, Sunderland. The assessment seeks to quantify the anticipated gains/losses in biodiversity through development and to consider Biodiversity Net Gain requirements as set out in the National Planning Policy Framework (NPPF 2023) and Environment Act (2021).

The calculation is informed by the Proposed Landscape Plan provided by RPS Ltd and the habitat data from the results of an update Habitat Survey undertaken by Wardell Armstrong (April 2024). Two calculations are presented, one for AESC Plant Two which as a previously consented development is subject to 0.01% BNG requirements, and a separate calculation for AESC Plant Three which is a live planning application and hence is subject to the full mandatory 10% requirements as set out by the Environment Act (2021). Where the application boundaries overlap this area has been included in the Plant 3 calculations and not within the Plant 2 areas.

Assuming there are no changes to the landscape design proposals and site layout, the AESC Plant Two scheme will deliver a -61.41% net loss in biodiversity (habitats), -38.28% (hedgerows) and no net change in watercourses. This is equivalent to -33.03, -1.47 and 0.00 units for habitats, hedgerows and watercourses, respectively.

The AESC Plant Three scheme will deliver a -14.81% net loss in biodiversity (habitats), -25.72% (hedgerows) and -26.04% (watercourses). This is equivalent to -28.36, -9.17 and -1.62 units for habitats, hedgerows and watercourses, respectively.

Given that the assessment identifies a reduction in site biodiversity following development, an external offset will be required. The delivery of external offset is under review and will be confirmed by Sunderland City Council.

A Habitat Management and Monitoring Plan will be required in order to confirm the habitat creation, management and monitoring requirements, over the 30-year management period.

¹ [Statutory biodiversity metric tools and guides - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/statutory-biodiversity-metric-tools-and-guides)

1 INTRODUCTION

1.1 Scope of Report

1.1.1 Wardell Armstrong LLP was commissioned by AESC UK to undertake a Biodiversity Offsetting Assessment in relation to an industrial development as part of the International Advanced Manufacturing Park (IAMP) development Scheme. The site is located along Washington Road, Sunderland (approximate central Ordnance Survey (OS) grid ref: NZ 32934 58939). The purpose of the assessment is to quantify the biodiversity losses and gains arising from the proposed development in-line with The Environment Act 2021.

1.1.2 This report is informed by a quantitative assessment using the Statutory Biodiversity Metric. The baseline habitat information taken from the Habitat Survey (Figure 12.4) (Wardell Armstrong 2024). The future condition of the site was informed by referring to plans provided by RPS Ltd as follows:

- Proposed Landscape Plan; Project Number NK020439P, Document 205.
- Schedule of Landscape Components.

1.1.3 This assessment focusses on a quantitative assessment derived from the Biodiversity Offsetting Metric. The report does not consider wider qualitative assessments which are required as part of the overall BNG assessment process. These assessments are considered as part of the associated Environmental Statement.

1.2 Background and Description of Development

1.2.1 The IAMP is a joint venture between Sunderland and South Tyneside Councils with Henry Boot Developments, as identified in the IAMP Area Action Plan (AAP) 2017-2032 (adopted 2017).

1.2.2 An application for the AESC Plant Two development was submitted to Sunderland City Council in 2020 (Ref.21/01764/HE4) and resubmitted in 2021 due to amendments to the scheme design (Ref.21/01764/HEA), for the construction of a single, three-storey industrial unit, comprising two battery manufacturing areas separates by a central spine of offices. The application was accepted and is in active construction.

1.2.3 The AESC Plant Three development is also for the construction of a single three-storey industrial unit, with two manufacturing plants, offices, a pack and warehouse building, carparking and a small gate house building. The area outlined for development lies to the immediate north of the Plant Two area.

1.3 Assessment of AESC Plant Two

1.3.1 The red line boundary for AESC Plant Two overlaps that of the AESC Plant Three development, shown in Plates 1 and 2, below.

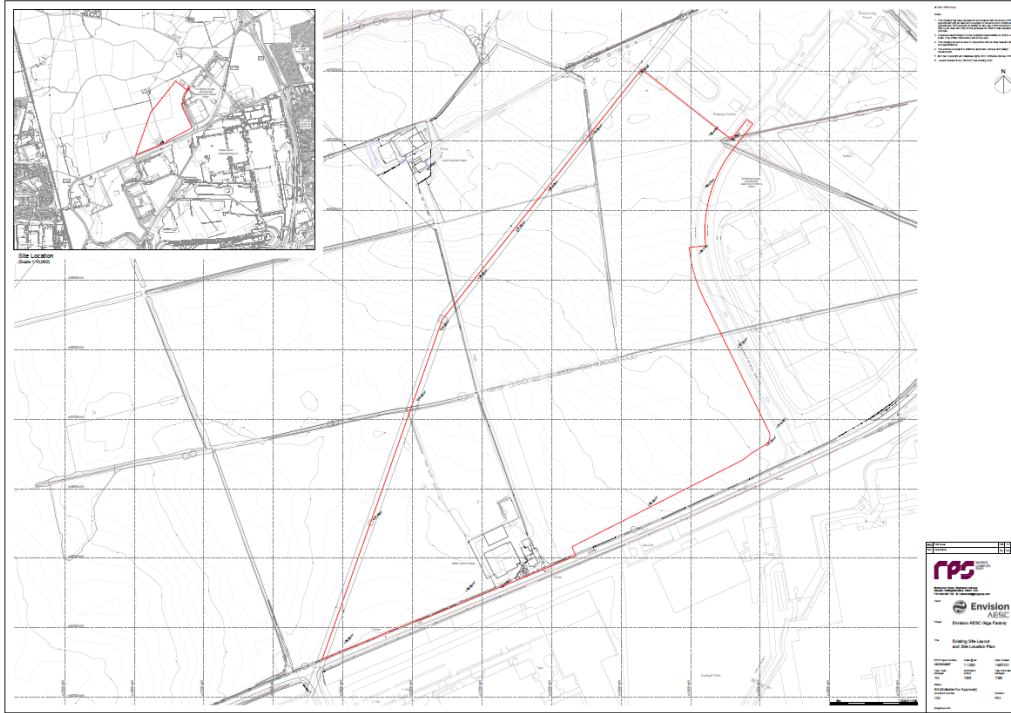


Plate 1: AESC Plant Two red line boundary (extract of Site Location Plan produced by RPS)

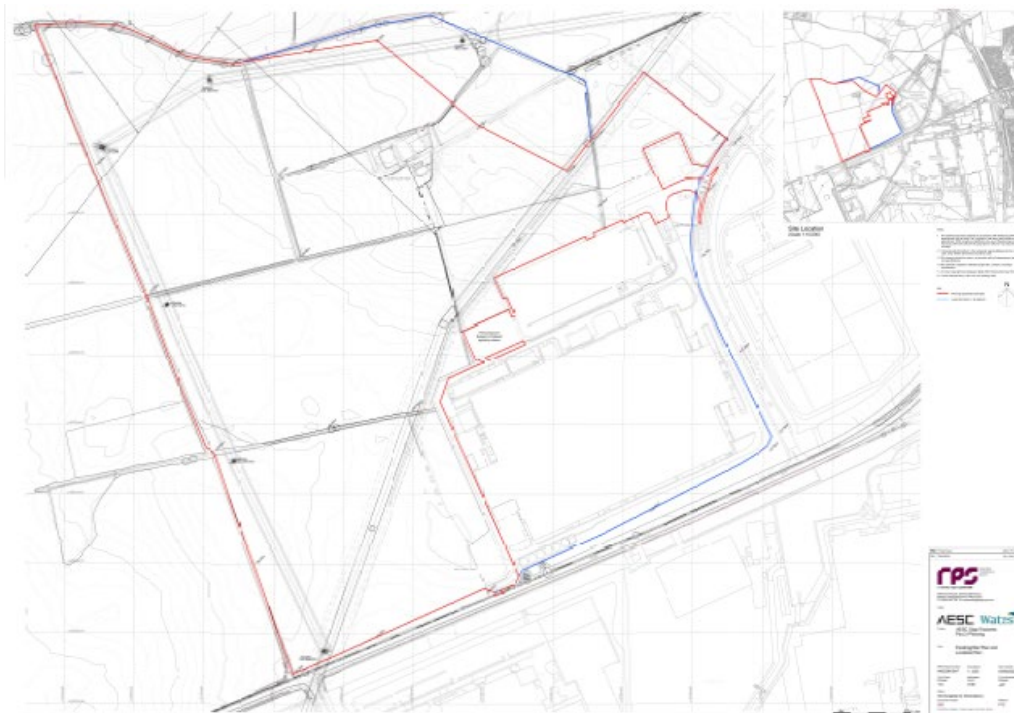


Plate 2: AESC Plant Three red line boundary (extract of Site Location Plan produced by RPS)

- 1.3.2 A Biodiversity Offsetting Assessment was undertaken by Ecology Solutions 2021 (Appendix 12.3) of the AESC Plant Two Boundary (see Plate 1), using the respective Proposed Landscape Plan by RPS (Project NK020439P, Document Number 103). The assessment identified a net gain of 2.44 habitat units (+3.17% net gain) using the Metric 2.0 and did not assess impacts to hedgerows or watercourses.
- 1.3.3 The biodiversity offsetting area/primary landscaping area proposed within the Plant Two development is now being utilised for construction of industrial units within the Plant Three development, meaning the 2021 BNG for Plant Two is no longer accurate.
- 1.3.4 In order to accurately identify the value of proposed habitats between the two developments, a separate calculation is provided for Plant Two and Plant Three. Where there is overlap between the application boundaries, this area has been extracted from the Plant Two site and has been included in the site area for Plant Three. This ensures that the entirety of the Plant Three net gain requirements will be at the higher 10% level, which is currently mandatory, whereas the Plant Two BNG is defined by the lower NPPF requirement of 0.1%. For clarity, both figures are presented in this report.
- 1.3.5 As the Plant Two area is now under construction, the baseline habitats and condition outlined in the Ecology Solutions report (2021) and the superseded landscaping of the areas outside of current Plant Three landscaping, have been used to inform this assessment. All calculations have been updated into the Statutory Metric. An assessment of hedgerows within the Plant Two area has been made using descriptions and photographs within the previous Ecological Appraisal (E3 Ecology Ltd, 2020; Appendix 12.2), with all hedgerows assumed to be lost.

1.4 Site Description

- 1.4.1 The area of detailed ecological study referred to as the 'Site' comprises a series of formerly arable fields covering approximately 62 ha (both AESC Plant Two and AESC Plant Three, including intersecting areas). The Site comprises multiple grassland fields, the majority of which are other neutral grassland with some being modified grassland, with boundary hedgerows and wet/dry ditches. Smaller parcels of ruderal/ephemeral vegetation, dense scrub, bare ground, artificial unvegetated; unsealed surface and developed land; sealed surface (in the form of roads, tracks and buildings) are also present.

1.4.2 The Site is bounded by north and to the west and west by arable grasslands. A number of industrial parks are present to the south, with industrial facilities at a lower density to the west. The A1290 lies to the immediate south of the Site. Residential housing is present around the wider landscape to the east, south and west, with vast arable land to the north.

1.4.3 There are multiple statutory and non-statutory designated sites within 2km of the proposed development, including the Durham Coast SAC and SSSI, the Northumbria Coast SPA and RAMSAR, and 18 LWS designations. Notably, the Usworth Burn lies parallel to the northern boundary, and the River Don LWS lies 0.41km north of the Site.

1.5 Focus of Biodiversity Offsetting

1.5.1 Consultation with Sunderland City Councils Principal Ecologist emphasised the need to protect ground nesting birds and Birds of Conservation Concern on site, specifically grey partridge *Perdix perdix*, northern lapwing *Vanellus vanellus*, common linnet *Linaria cannabina*, skylark *Alauda arvensis*, starling *Sturnus vulgaris*, tree sparrow *Passer montanus*, whitethroat *Sylvia communis*, yellowhammer *Emberiza citrinella* and barn owl *Tyto alba*. Mitigation and compensation for these species is therefore the focus of landscaping on site, as opposed to a numerical net gain.

2 BIODIVERSITY NET GAIN PRINCIPLES

2.1 Biodiversity Net Gain Framework

2.1.1 Biodiversity Net Gain (BNG) is a method used to ensure the delivery of development results in a positive impact on biodiversity, whereby a quantitative assessment is undertaken utilising measurements on pre-development and post-development value.

2.1.2 This is a requirement set out in Schedule 7A of the Town and Country Planning Act (1990) (as inserted by Schedule 14 of the Environment Act 2021²). The legislation states that the biodiversity value attributable to the development must exceed the pre-development biodiversity value of onsite habitat by a minimum of 10%.

2.1.3 The assessment must show that the development design has followed the mitigation hierarchy, a clear order set to retain habitats and avoid biodiversity losses *in situ*. If not possible, offsite provisions may be utilised. Only as a last resort, should damage or lost habitat be compensated for using statutory credits.

2.2 The Environment Act

2.2.1 The Environment Act (2021) establishes a comprehensive legal framework for environmental improvement within the UK, forming one of the key measures to deliver the vision set out under the Environmental Improvement Plan (2023³). The preceding Environment Bill (2020⁴) has recently received Royal assent and hence its status is now an Act of Parliament.

2.2.2 The Environment Act is intended to establish the structure for long-term environmental governance and accountability and includes key measures to drive improvements for nature. In particular, it introduces a mandatory requirement for BNG in the planning system, to ensure that new developments enhance biodiversity and create new green spaces for local communities to enjoy. The Act sets out a requirement for developments to deliver a minimum of 10% improvement in biodiversity value relative to the value of the site pre-development.

² [Environment Act 2021 \(legislation.gov.uk\)](https://www.legislation.gov.uk)

³ [Environmental Improvement Plan 2023 - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

⁴ [Environment Bill 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

2.3 The Rules and Principles of Biodiversity Net Gain

2.3.1 There are four rules that are integral to achieving BNG, as summarised in Table 1 below:

Rule 1	The trading rules of this biodiversity metric must be followed (see Section 2.3.3 below).
Rule 2	Biodiversity unit outputs, for each type of unit, must not be summed, traded, or converted between types. The requirement to deliver at least a 10% net gain applies to each type of unit.
Rule 3	To accurately apply the biodiversity metric formula, you must use the biodiversity metric calculation tool or small sites biodiversity metric tool (SSM) for small sites. The tools remove the need for a user to manually calculate the change in biodiversity value. The tool will summarise the results of the calculation and inform a user whether the biodiversity net gain objective has been met.
Rule 4	In exceptional ecological circumstances, deviation from this biodiversity metric methodology may be permitted by the relevant planning authority.

2.3.2 In addition, all developments are required to follow the Ten Good Practice Principles of Biodiversity Net Gain (CIEEM, 2019). Each of the principles, and whether the development can meet them, is summarised within Appendix 1.

Trading Rules

2.3.3 The trading rules are designed to compensate for specific habitat losses up to no net loss, based on the distinctiveness band of a habitat type. Once at no net loss, any habitat creation and enhancement measure may be utilised to achieve $\geq 10\%$ net gain. The basis of trading rules is set out, below:

- Removal of very high distinctiveness habitats should be avoided and only considered when absolutely necessary in line with planning policy. If this is the case, bespoke compensation is likely to be required (i.e. Instigation of Rule 4).
- Removal of habitats of high distinctiveness should also be avoided. However, if considered necessary, the same habitat is required as compensation.
- Medium distinctiveness habitats may be compensated for by a habitat of the same broad category, or a higher distinctiveness habitat type.
- Low distinctiveness habitats may be compensated for by another habitat of low distinctiveness, or higher.
- Very low distinctiveness habitats do not require compensation.

3 METHODS

3.1 Overview

3.1.1 In general terms, the Biodiversity Metric Calculation Tool (DEFRA, 2023) is a (web based) spreadsheet which allows a calculation of biodiversity losses and anticipated gains in biodiversity to be calculated. The calculation uses biodiversity units as a proxy measure to illustrate the change in value arising from a development; biodiversity units are calculated using a number of parameters including the size of a parcel, habitat type, habitat distinctiveness, condition of the habitat and location.

3.1.2 Three types of units are measured, all of which must achieve a minimum of 10% gain relative to each unit. These are habitat units (ha), hedgerow units (km) and watercourse units (km).

3.1.3 To assess the quality of a habitat, the metric scores habitats of different types, such as woodland or grassland, according to their relative biodiversity value. Habitats that are scarce or declining typically score highly relative to habitats that are more common and widespread. The metric also takes account of the condition of each habitat parcel, calculated using Statutory biodiversity metric condition assessments. Finally, the metric accounts for whether or not the habitat is sited in an area identified locally, typically in a relevant policy or plan, as being of strategic significance for nature.

3.2 Habitat Assessment and Mapped Output

3.2.1 The system of habitat classification used to survey habitat is UKHab Version 2 (UKHab Ltd, 2023), with a minimum mapping unit (MMU) resolution set at 25m². The condition assessment survey for AESC Plant 2 was undertaken on 10th April 2024.

3.2.2 Three drawings are presented as follows:

- NT15821 12.1 - Biodiversity Net Gain – Baseline Conditions;
- NT15821 12.2 - Biodiversity Net Gain – Habitat Creation;
- NT15821 12.3 - Biodiversity Net Gain – Habitat Retention.

3.2.3 Each drawing shows the baseline or post-development features labelled with an alpha numeric code e.g. MG1 (Modified Grassland 1), SRH2 (Species Rich Hedge 2), which is replicated in the report descriptions in section 4 (below). The drawings show the application boundary for AESC Plant 3 as well as the habitat information for Plant 2.

3.2.4 To calculate the total 'tree' area for individual urban/rural trees, the root protection area (RPA) is calculated using the 'Tree Helper' within the metric calculation tool.

Individual trees are mapped as points and are overlain across habitat features. Therefore, the RPA will effectively be counted twice within the metric calculation; thereby ensuring that both the tree and underlying habitat are appropriately accounted for.

- 3.2.5 Please note, the number of individual trees may differ to that of any arboriculture reports, due to the different habitat classification systems used.
- 3.2.6 To ensure there is no discrepancy in Site area, watercourses are mapped twice; once according to their area as watercourse footprints within the habitat features (in ha) and a second time according to their length within the appropriate watercourse feature type. Only the latter is valued and incorporated into the baseline/ post-development value of a Site.
- 3.2.7 In accordance with the User Guide and Technical Supplement Guide, ditches are mapped according to the retention of water throughout the year; dry ditches (standing water <4 months of the year) are disregarded unless adjacent to a hedgerow or line of trees, whereas wet ditches (standing water >4 months of the year) are mapped under the relevant 'ditch' watercourse feature. When wet ditches lie adjacent to hedgerows or lines of trees, both features are mapped separately within their relative calculation.

3.3 Habitat Quality Inputs

Habitat Distinctiveness

- 3.3.1 Distinctiveness is defined as a collective measure of biodiversity based on parameters including species richness, diversity and rarity. Habitats are pre-assigned to one of five distinctiveness bands within the metric calculation tool, each of which are valued a 'score' per the following:

- Very High: 8
- High: 6
- Medium: 4
- Low: 2
- None 0

Habitat Condition Assessment

- 3.3.2 Each habitat parcel identified is given a condition score, based on the condition assessment data collected during the survey. The methodology used to assign a

condition to utilises the random quadratic sampling, Statutory Condition Assessment Sheets and professional judgement. Condition scores provide a value based on the following outputs:

- Good condition: All criteria met, with minor variation;
- Moderate Condition: All but one/two criterion met; or
- Poor Condition: Five or more criteria failed unless specified alternatively.

3.3.3 A summary of the condition assessment for each habitat is presented in Section 4 Results, below.

River Condition Assessment

3.3.4 Watercourses are valued using a River Condition Assessment (RCA), in which a modular river physical habitat field survey (MoRPh) (see Appendix 12.18 of the Environmental Statement) and desk study (River Type) are undertaken to generate a final Condition Score based on the evaluation of 32 Condition Indicators (CIs), which represent positive and negative attributes of the fluvial river reach under investigation.

3.3.5 This may only be done by accredited ecologists who have undertaken the appropriate training. In this instance, the RCA was undertaken by Ryan Evans, who has accreditation from the Modular River Survey 'River Condition Assessment' training dated 21/03/2024. Evidence of certification is available upon request.

3.3.6 Exceptions to this methodology are made for ditches and canals, which are assessed using the standard Statutory Condition Assessment Sheets.

Strategic Significance

3.3.7 Strategic significance gives additional unit value to habitats that are located within preferred locations for biodiversity and environmental objectives. The habitats will usually have been summarised in a local strategy planning document which articulates where biodiversity is of high priority and the places where it is less so. Strategic significance utilises published local plans and objectives to identify local priorities for targeting biodiversity and nature improvement, such Nature Recovery Areas, local biodiversity plans, National Character Area objectives and green infrastructure strategies.

3.3.8 A score based on whether the habitat type or location has been identified locally as significant for nature conservation of either Low, Medium or High Significance, as follows:

- High Strategic Significance (High potential & within area formally identified in local policy);
- Medium Strategic Significance (Good potential but not in area defined in local policy); or
- Low Strategic Significance (Low potential and not in area defined in local policy).

3.3.9 In this instance, the International Advanced Manufacturing Park (IAMP) Area Action Plan (AAP) 2017 – 2037⁵ has been used to afford areas within AESC Plant Three ‘formally identified’ status, excepting habitats that do not deliver measures set out within the plan i.e. developed land. This has been clarified by Sunderland City Councils Principal Ecologist (email dated April 9th 2024).

Temporal Risk Multipliers

3.3.10 Delays to habitat creation and enhancement are incorporated into the metric calculation to account for the time taken to reach target condition (i.e. the date at which the application is granted to the end of habitat creation and enhancement). This is reflected through a risk multiplier automatically applied to the calculation. Creation in advance may also be utilised when habitat creation or enhancements are made prior to site clearance (e.g. when habitat banking).

3.4 Quality Assurance & Environmental Management

3.4.1 The calculation and the report have been overseen, checked and verified by a member of CIEEM, who is bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 8683:2021 (2021) *Process for Designing and Implementing Biodiversity Net Gain* and as stated within specialist guidance, as appropriate and referenced separately.

3.4.2 ArcGIS software was used to obtain all baseline and predicted final development and offsetting areas. Any alterations to the final area results must be completed using the same software.

⁵ [International Advanced Manufacturing Park \(IAMP\) Area Action Plan - South Tyneside Council](#)

3.5 Limitations

- 3.5.1 The Proposed Landscape Plans NK020439P 205 (Plant Three) and NK020439P 103 (Plant Two) provided by RPS have been used to inform details of proposed habitats following completion of the development. Any subsequent revisions will require an update to the assessment presented in this report.
- 3.5.2 The Proposed Landscape Plans NK020439P 103 (Plant Two) have been superseded by NK020439P 205 (Plant Three) landscaping, so any habitats not included within the Plant Three landscape design (i.e. within the Plant Two are only) are assumed to be landscaped as in the Plant Two landscape design.
- 3.5.3 The (quantitative) calculations should not be considered in isolation or be taken to be the only biodiversity requirements relevant to the proposed development. It will be necessary to consider other qualitative assessment of ecological/biodiversity value including protected species assessments. In this case, the qualitative assessment elements will be included within the Environmental Statement.
- 3.5.4 The condition assessments of individual habitats are seasonal and although a habitat survey can be completed throughout the year, the optimal period for botanical surveys when most species are showing is between April and September. The condition assessment of AESC Plant Three was undertaken in April 2024, following earlier mapping during September 2023 and the assessment of AESC Plant Two was undertaken in April/June 2021. During the habitat condition assessment of AESC Plant Three, the weather was unseasonably cold and wet leading to poor growing conditions and saturated land, hence it may be necessary to verify the condition assessment prior to BNG condition discharge to ensure habitat condition accuracy. The two surveys undertaken to date provide sufficient confidence in a robust BNG position with only minor changes possible following additional survey.

4 RESULTS

4.1 Habitats Baseline and Condition Assessment

4.1.1 Table 2, below, provides a summary of baseline habitat conditions. Habitat descriptions are split where necessary to allow heterogeneous stands/polygons to be described. Alpha numeric codes are provided in parentheses to allow cross referencing with Drawing NT15821 12.1 Habitat Baseline. Table 2 also provides a summary and rationale for the condition assessment with justification for any deviation from the guideline recommendations.

Table 2: Habitat Description and Condition Assessment Summary		
Baseline Habitat	Habitat Description	Condition Assessment
Area Features		
Cropland - Cereal crops (C1)	Formerly present within the Plant Two area, to the southwest of the site. A cultivated field for wheat <i>Triticum spp</i> , which at the time of survey was in stubble.	Condition assessment N/A.
Grassland - Modified grassland (MG1)	Modified grassland in 'good' condition is present in the central fields of Phase Three. Species include abundant perennial ryegrass and frequent soft brome	Good – 5 out of 7 criteria met. Fails B – sward height consistently tall.
Grassland -Modified grassland (MG2, MG3)	Within both the Plant Two and Plant Three areas, modified grassland fields in 'poor' condition area are present. Species are generally uniform and fast growing, with dominant perennial ryegrass.	Poor – 5 out of 7 criteria met. Fails A – fewer than 6-8 species per m ² , B – sward height consistently tall.
Grassland - Other neutral grassland (ON1, ON3, ON5-ON7, ON9-ON11)	The majority of the fields on Site are other neutral grassland in moderate condition, representing formerly arable land that has been left to regrow without cultivation. The fields support abundant Yorkshire fog, frequent perennial ryegrass <i>Lolium perenne</i> , crested dog's-tail <i>Cynosaurus cristatus</i> , creeping buttercup <i>Ranunculus repens</i> , Timothy <i>Phleum pratense</i> , dandelion <i>Taraxacum agg</i> , and occasional ribwort plantain <i>Plantago lanceolata</i> , hogweed <i>Heracleum spondylium</i> .	Moderate – 4 out of 6 criteria met. Fails E - cover of species indicative of sub-optimal condition over 5% and F – fewer than 10 vascular plant species per m ² .
Grassland - Other neutral grassland (ON2, ON8, ON12-ON14)	A small parcel of grassland to the south and of North Moor Farm. Significant piles of material are harming the grassland, as is frequent access. The other neutral grassland within the Plant Two area, representing formerly arable land, has also been assessed as 'poor' condition.	Poor – 2 out of 6 criteria met. Fails B – sward height consistently tall, C – bare ground over 5%, E – cover of species indicative of sub-optimal condition over 5% and F - fewer than 10 vascular plant species per m ² .
Heathland and Shrub - Bramble scrub (BS1)	A small parcel within the Plant Two area to the south. The scrub was dominated by bramble <i>Rubus fruticosus</i> , with small amounts of hawthorn <i>Crataegus monogyna</i> , cherry <i>Prunus spp.</i> and sycamore <i>Acer pseudoplatanus</i> emerging.	Poor – assessed in 2021 survey. No further details available.
Heathland and Shrub - Mixed scrub (MS2)	A small parcel of mixed scrub is present to the north of Tree Line 1.	Good – 5 out 5 criteria met.

Table 2: Habitat Description and Condition Assessment Summary

Baseline Habitat	Habitat Description	Condition Assessment
Heathland and Shrub - Mixed scrub (MS1)	Boundary scrub is present along the north of the Site, to the immediate south of the River Don tributary. Scrub comprises hawthorn, blackthorn <i>Prunus spinosa</i> , crack willow, elder <i>Sambucus nigra</i> and bramble <i>Rubus fruticosus</i> .	Moderate – 3 out of 5 criteria met. Fails C – Himalayan balsam present, and D – no well-developed edge.
Lakes - Ponds (non-priority) (P1)	A small waterbody was present within the Phase Two area, within the neutral grassland.	Poor – assessed in 2021 survey. No further details available.
Sparsely vegetated land - Ruderal/Ephemeral (RE1-RE2)	Ruderal vegetated formed within the Plant Two area as a result of lacking cultivation of arable fields.	Poor – assessed in 2021 survey. No further details available.
Urban - Artificial unvegetated, unsealed surface (U3-U7, ON4)	Access tracks have been formed to facilitate the movement of overhead power lines. The removal of the inner farm as also results in significant areas of artificially unvegetated land.	Condition assessment N/A.
Urban - Bare ground (BG1-BG2)	This habitat is present within both the Plant Two and Plant Three areas, were access routes and active works have resulted in bare ground.	Condition assessment N/A.
Urban - Developed land; sealed surface (U1-U2, U8)	North Moor Farm (Buildings 1,2,3) and road infrastructure across the site.	Condition assessment N/A.
Linear Features		
Species rich native hedgerow (H7)	To the east of North Moor Farm, a small mixed species hedgerow length is present.	Good – 3 failures. Fails A1 as height <1.5m, A2 as width <1.5m, and C2 as nettle cover the understorey.
Species rich native hedgerow (H6, H8 H15-H18)	Present throughout the site, mixed species hedgerows in moderate condition.	Moderate – 4 failures Fails A1 as height <1.5m, A2 as width <1.5m, B2 as hedgerow gappy and C2 as nettle cover the understorey.
Species rich native hedgerow with trees (H1 – H3)	Field boundary hedgerow to the northwest, well-established with mature trees.	Good – 2 failures. Fails B1 as gappy understorey and C2 and nettles dominate understorey.
Species rich native hedgerows with trees – associated with a bank or ditch (H10)	Well-established hedgerows with mature trees along dry ditches.	Good – 2 failures. Fails B2 – some gaps over 5m, and C2 – nettles dominant in understorey.
Native hedgerow (H5)	A boundary hawthorn <i>Crataegus monogyna</i> hedgerow in the centre of the site.	Good – no failures.
Native hedgerow (H13-H14)	Within the Plant Three area. Short boundary hedgerows dominated by bramble and hawthorn, or gorse <i>Ulex europaeus</i> , dogrose <i>Rosa canina</i> and hawthorn.	Moderate – 4 failures Fails A1 as height <1.5m, A2 as width <1.5m, B2 as hedgerow gappy and C2 as nettle cover the understorey.
Native hedgerow with trees (H9, H12)	Hawthorn hedgerows with immature trees (with one mature sycamore <i>Acer pseudoplatanus</i> in H12).	Moderate – 4 failures. Fails A1 as height <1.5m, A2 as width <1.5m and C2 as nettles dominate understorey.

Table 2: Habitat Description and Condition Assessment Summary		
Baseline Habitat	Habitat Description	Condition Assessment
Native hedgerow – associated with a bank or ditch (H4)	Hawthorn hedgerow along a dry ditch to the northeast.	Good – no failures.
Native hedgerow with trees – associated with a bank or ditch (H11)	Boundary hedgerow running along a partially wet ditch, to the centre of the site.	Moderate – 3 failures. Fails B1 as gappy understorey, B2 as some gaps over 5m, and C2 as nettles dominate understorey.
Ecologically valuable line of trees – associated with a bank or ditch (TL1)	Mature line of Ash <i>Fraxinus excelsior</i> , elm sp <i>Ulmus sp</i> , crack willow <i>Salix fragilis</i> , Sessile Oak <i>Quercus petraea</i> , and Field maple <i>Acer campestre</i> .	Moderate – 3 out of 5 criteria met. Fails B as some gaps >5m, and D and ground adjacent is disturbed.
Line of trees (TL2)	Boundary tree line to the northwest, comprises of semi-mature elm.	Good – no failures.
Line of trees (TL3 - TL4)	Within Plant Three area.	Moderate - 3 out of 5 criteria met. Fails B as some gaps >5m, and D and ground adjacent is disturbed.
Watercourse Features		
Other Rivers and Streams (R1)	The Usworth Burn lies within 50m of the northern boundary of the site, therefore it has been included within the assessment.	Moderate. See MoRPH Assessment for full details.
Ditch – Ditches (D1-D4)	Two wet ditches were present to the south of the Plant Three Area. A number of dry ditches were also recorded, however these were not recorded within the metric (unless associated with a hedgerow or line of trees)	Poor – 3 out of 8 criteria met. Fails B – little submergent plant species present, D – aquatic marginal vegetation not present, E – physical damage present in over 5% of ditch, F – water levels below 50cm in summer, G – ditch heavily shaded across length.

4.2 Post Development Habitats

4.2.1 Table 3, below, provides a summary of the proposed habitats following completion of development, and their anticipated condition. This includes all habitats to be created as well as those that will be enhanced and retained. Alpha numeric codes are provided in parentheses to allow cross referencing with Drawing NT15821 12.2 and 12.3 Created Habitats and Retained and Enhanced Habitats.

Table 3: Post Development Habitat Summary		
Proposed Habitat	Habitat Description	Condition Assessment
Area Features		
Grassland - Other neutral grassland (ON15)	Proposed species rich neutral grassland (EM1), shade tolerate neutral grassland (EH1) and flood meadow (EM8). 10-20% wild flowers with 80-90% grass mix. Grassland to be regularly mown with cutting collected.	Good – 6 out of 6 criteria met.
Grassland - Other neutral grassland (ON16)	Close mown lawn, 100% grasses to include common bent. Slender-creeping red-fescue and chewings fescue. Grassland to be regularly mown with cutting collected.	Poor – 4 out of 6 criteria met, excluding essential criteria F as fewer than 10 plant species per m2 and B as sward to be mown.
Urban – Artificial unvegetated; unsealed surface (U9)	Gravel hardstanding around offices and ancillary buildings.	Condition assessment N/A.
Urban – Developed land; sealed surface (U10)	Buildings and associated infrastructure.	Condition assessment N/A.
Urban – Introduced shrub (U11)	Proposed non-native ornamental shrub, with species selected to include nectar rich plants for pollinators.	Condition assessment N/A.
Woodland and forest – Wet woodland (W1)	Proposed wet woodland mix to include a mix of native species.	Moderate – 30 points. Loses points due to age class and regeneration of woodland due to recent planting.
Individual trees – Urban tree	A mix of native species to be planted at extra heavy standard.	Good – 6 out 6 criteria met due to advanced age at planting.
Linear Features		
Species rich native hedgerow (H19-, H20, H22)	Proposed native hedge planting with native hedge mix, running parallel to the river.	Good – No failures.
Species rich native hedgerow (H15, H17-H18)/ with trees (H1, H12)/ associated with a bank or ditch (H2, H10-H11)	The retained boundary hedgerows will be retained and where possible, enhanced.	Good – Hedgerows with gaps are to be restocked with a range of native species and monitored biennially, management to >1.5 in height and width. Creation of grassland will reduce nutrient status under hedgerow.
Line of trees (TL1-TL2)	The boundary line of trees to the north will be retained.	Good – no failures.
Non-native ornamental hedgerow (H23-H26)	Proposed non-native ornamental hedge planting.	Poor – automatically assessed.

4.3 Quantitative Results and Conclusion

4.3.1 The assessment concludes that the development is not expected to meet the ten principles of BNG as set out in Appendix 1, as the development will result in a net loss of biodiversity and does not meet the Trading Rules, in the absence of an identified external offset area.

Plant Two

- 4.3.2 The existing area-based habitats onsite have a biodiversity value of 53.79 habitat units. 0.23 units will be retained and no units enhanced, along with 20.53 units created. Overall this will result in a post-development value of 20.76 with a net change of **-33.03 Habitat Units** or **-61.41%**.
- 4.3.3 The existing hedgerows onsite have a biodiversity value of 20.76 hedgerow units. No units will be retained, with 2.05 enhanced and 0.32 created as a result of development. Overall, this will result in an overall value of 2.37 hedgerow units and a net change of **-1.47 Hedgerow Units** or **-38.28%**.
- 4.3.4 There are no watercourse units within the Plant Two development area.

Plant Three

- 4.3.5 The existing area-based habitats onsite have a biodiversity value of 191.54 habitat units. 2.82 units will be retained and 121.83 enhanced, along with 38.53 units created. The value of the site post development will be in the order of 163.18 units, hence a net change of **-28.36 Habitat Units** or **-14.81%**.
- 4.3.6 The existing hedgerows onsite have a biodiversity value of 35.65 hedgerow units. 13.22 hedgerow units will be retained, with 4.76 enhanced and 8.50 created as a result of development. Overall, this will result in an overall value of 26.48 hedgerow units and a net change of **-9.17 Hedgerow Units** or **-25.72%**.
- 4.3.7 The existing River and Stream features onsite have a value of 6.22 units. Ditches will be partially lost, resulting in a net loss of **-1.62 Watercourse Units** or **-26.04%**.

4.4 Biodiversity Offsetting

- 4.4.1 Given that the assessment identifies a reduction in site biodiversity following development, an external offset will be required.
- 4.4.2 With regards to the provision of and external offset site to deliver the required BNG, a memo has recently been released⁶ summarising the Council's position on BNG stating:

⁶ Sunderland City Council, Item No. 20. CABINET MEETING – 14 MARCH 2024. EXECUTIVE SUMMARY SHEET – PART I

“Cabinet is recommended to:

- Approve the principle of the use of appropriate Council sites for the delivery of BNG and authorise the Executive Director of City Development, in consultation with the Deputy Leader and the Director of Finance, to identify and determine which Council sites shall be made available for BNG;*
- Authorise the Director of Finance, in consultation with the Executive Director of City Development and the Cabinet Secretary, to grant leasehold interests on such terms as are approved (including where appropriate the grant of rent concessions) to relevant third parties of Council land for the delivery and management of BNG.”*

4.4.3 In the event that a local external offset site cannot be identified, the Statutory Credits system remains available to ensure compliance with the Environment Act, as necessary.

Plant Two

- 4.4.4 To reach a 0.1% net gain, 33.08 habitat units and 1.48 hedgerow units are required. Trading Rules have not been met by the development, therefore the compensation must deliver a minimum of the following units (or a higher distinctiveness equivalent).
- 4.4.5 Any compensation in excess of this should deliver habitats/hedgerows of medium or higher distinctiveness, in order to compensate for the loss of low distinctiveness habitats.

Plant Three

- 4.4.6 To reach a 10% net gain, 47.51 habitat units, 12.73 hedgerow units and 2.24 watercourse units are required. Trading Rules have not been met by the development, therefore the compensation must deliver a minimum of the following units (or a higher distinctiveness equivalent).
- 4.4.7 Any compensation in excess of this should deliver habitats/hedgerows/watercourses of medium or higher distinctiveness, in order to compensate for the loss of low distinctiveness habitats.

Monitoring

- 4.4.8 A Habitat Management and Monitoring Plan will be required in order to confirm the habitat creation, management and monitoring requirements, over the 30-year management period.

5 REFERENCES

- BSBI (2021) BS 8683:2021 Process for designing and implementing Biodiversity Net Gain.
- CIEEM (2021). Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK.

APPENDIX 1 ASSESSMENT OF TEN PRINCIPLES OF BNG

APPENDIX 1 – ASSESSMENT OF TEN PRINCIPLES OF BNG

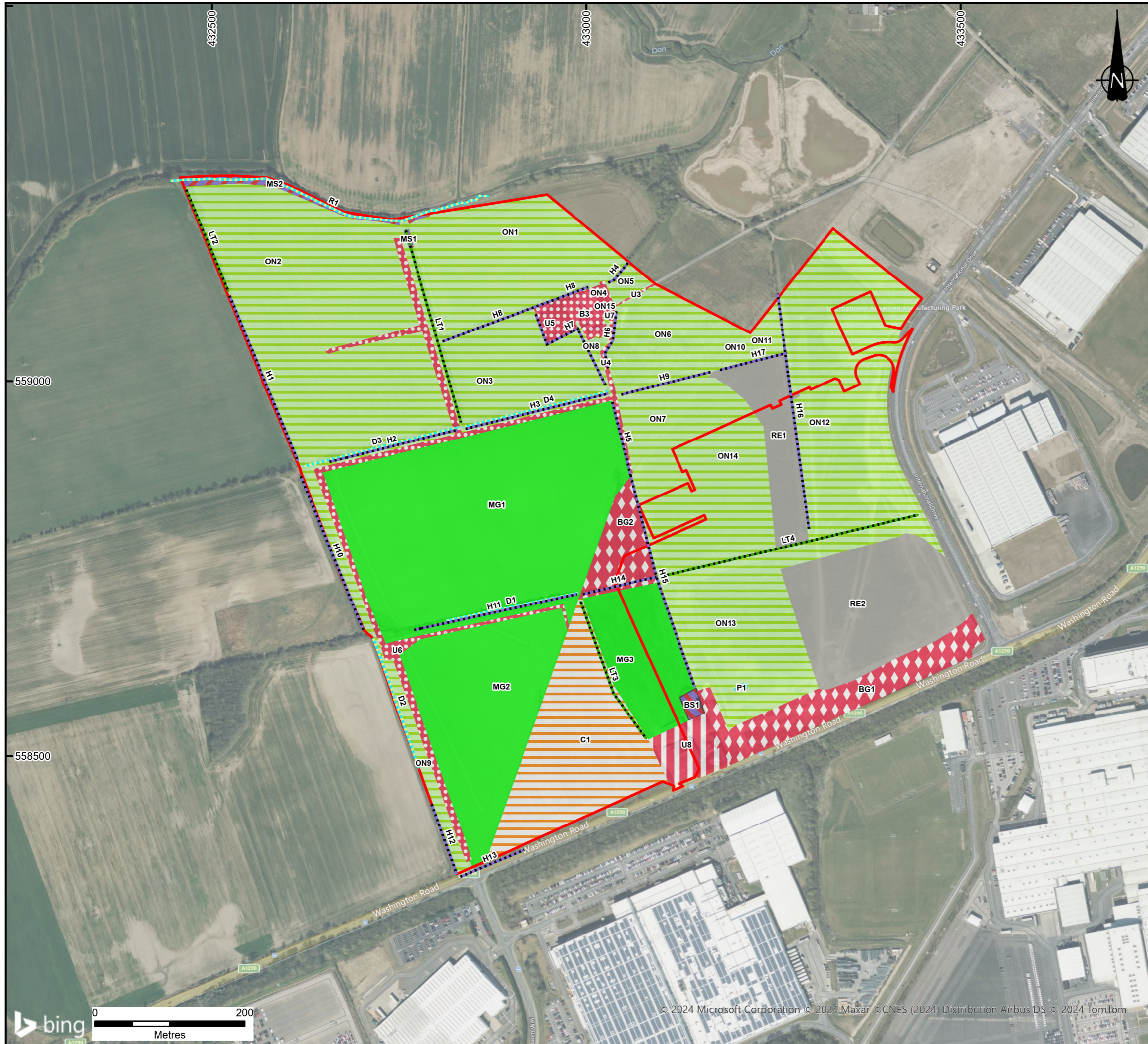
Principle	Guidance ⁷	Assessment
1: Apply the Mitigation Hierarchy	Measures to avoid and minimise biodiversity loss and to rehabilitate/restore biodiversity affected by the project are: 1) defined and documented, 2) implemented and monitored; and 3) managed for the duration of the project’s impacts. For example, maintain records of the consideration of alternatives as evidence of avoidance measures implemented.	Pass: Priority habitats have been retained wherever possible, with a full management plan proposed to ensure created and retained habitats are maintained at good condition. The project ecology reports provide evidence that the hierarchy has been adopted and alternatives are discussed in the Planning Statement.
2: Avoid losing biodiversity that cannot be offset by gains elsewhere	Project documents describe any impacts to irreplaceable and vulnerable biodiversity resources, e.g., permanent loss or damage to semi-natural ancient woodland, ancient climax vegetation communities, veteran trees, endemic and internationally rare species that cannot be replaced within reasonable timeframes. Projects with impacts on irreplaceable habitats cannot achieve BNG. These projects should demonstrate where biodiversity compensation has been provided but cannot claim project-wide achievement of BNG. These projects should transparently and comprehensively refer to the impacts on irreplaceable habitats in communications and reports.	Pass: The project has retained habits of high biodiversity value where possible, and no irreplaceable habitats have been lost.
3: Be inclusive and equitable	Evidence of input from and consultation with nature conservation bodies, the local community, the local planning authority and other relevant stakeholders. (NB: For smaller scale projects, this may be part of the planning consultation process). Terms of Reference for any Stakeholder Partnerships are agreed and published, with	Pass: The biodiversity offsetting assessment will be reviewed by the local county ecologist, checking that rules of biodiversity offsetting have been adhered to.

⁷ Taken from CIEEM (2021). Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK.

	the roles and responsibilities of members clearly defined.	
4: Address Risks	<p>Evidence that BNG has been achieved within the project.</p> <p>Sources of risk and uncertainty in design and implementation of mitigation are documented.</p> <p>Identify risks that may present themselves during the 30-year management period and how these should be dealt with.</p>	<p>Pass: The metric 4.0 has an inbuilt difficulty multiplier which addresses the risks of habitat creation. A delay in habitat creation has been accounted for, and the habitat creation will be supported by a 30-year management plan.</p>
5: Make a measurable Net gain	<p>Suitable metric is used for all habitat impacts quantified relative to the 'pre-project' condition of each habitat.</p> <p>Gains anticipated from habitat creation, enhancement and positive management are quantified relative to the predicted condition in the absence of BNG activities.</p>	<p>Fail: The development will result in a net loss of habitat, hedgerow and watercourse units.</p>
6: Achieve the best outcomes for Biodiversity	<p>Evidence is provided that BNG commitments contribute (now or in the future) to regional and national conservation goals, e.g., Local Nature Recovery Strategies.</p> <p>Provide evidence that the BNG design has considered where it is possible to contribute to supporting priority species populations.</p> <p>Provide evidence to show where additionality has been proven within the built environment and what gains are achieved.</p>	<p>Pass: Enhancements to the Site have been made where possible, to increase the sites value in terms of biodiversity. Landscaping is focused on creation of habitats for priority bird species.</p>
7: Be additional	<p>Evidence is provided that the conservation gains were caused by project activities and would not have occurred in other circumstances.</p>	<p>Pass: Enhancements to habitats have been made wherever possible.</p>
8: Create a Net Gain legacy	<p>Evidence is provided that those responsible for implementing project biodiversity management have the requisite management and technical capacity for their specified roles.</p> <p>Key Performance Indicators are set for biodiversity features affected by the project and specific, measurable and time-bounded targets for indicating conservation success are clearly stated.</p>	<p>Pass: The biodiversity offsetting assessment and subsequent management plan will ensure that the proposed habitats are maintained and allowed to development into the highest standard of habitats.</p>

	<p>Evidence is provided that any reasonably foreseeable future developments that might affect long-term commitments to biodiversity, including developments by third parties, have been considered. Evidence that legal and financial mechanisms are in place to guarantee the financial and institutional viability of all biodiversity management for a minimum 30 years or at least the duration of the project’s impacts. Evidence is provided that management is adapted, where necessary, throughout implementation to deliver the agreed conservation outcomes and monitoring is in place to identify risks to achieving specified outcomes.</p> <p>Evidence that the design has considered where it is possible to create features for species, in particular, priority species.</p>	
<p>9: Optimise sustainability</p>	<p>Evidence provided that the project prioritises BNG targets, but then seeks opportunities for gains for the wider environment, the community and the economy.</p>	<p>Pass: The development will contribute to the local community and economy, increasing the number of jobs available in the area.</p>
<p>10: Be transparent</p>	<p>The commitment to BNG is stated by the project developer in a publicly available document.</p> <p>Results of project audits are publicly available where claims of BNG are made at relevant project stages, including project closure and any deviations from original design specifications are clearly stated.</p> <p>Evidence that the best available scientific knowledge and methods have been used in BNG design and implementation and knowledge is transferred back to the scientific community.</p>	<p>Pass: Choices of habitat and condition have been outlined and justified within the condition assessments. Any limitations of the assessment have been clearly stated in the report.</p>

DRAWINGS



KEY

- Site Boundary
- c1c - cereal crops
- g3c - other neutral grassland
- g4 - modified grassland
- h3 - mixed scrub
- h3d - bramble scrub
- r1a - eutrophic standing water
- s - sparsely vegetated land
- u1b - developed land, sealed surface
- u1b6 - other developed land
- u1c - artificial unvegetated unsealed surface
- h2a - hedgerow (priority habitat)
- w1g6 - line of trees
- r1e - canal or ditch

Notes:

Boundaries are indicative
 Aerial imagery shown for context purposes only.

B A	AMENDED DITCHES AND HABITATS FIRST ISSUE	04/2024 11/2023	GER SRW	AD AD	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT	AESC UK				
PROJECT	AESC PLANT 3				
DRAWING TITLE	FIGURE 12.1 BIODIVERSITY NET GAIN - BASELINE CONDITIONS				
DRG No.	NT15821/FIGURE 12.1	REV	B		
DRG SIZE	A3	SCALE	1:5,000		
DRAWN BY	SRW	CHECKED BY	AD		
		APPROVED BY	TP		





KEY

- Site Boundary
- g3c - other neutral grassland
- u - urban
- u1b - developed land, sealed surface
- u1c - artificial unvegetated unsealed surface
- w1d - wet woodland
- h2a - hedgerow (priority habitat)
- h2b - other hedgerow
- Rural Trees

Notes:

Boundaries are indicative
 Aerial imagery shown for context purposes only.

B A	REVISED HABITATS FIRST ISSUE	04/2024 11/2023	GER SRW	AD AD	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

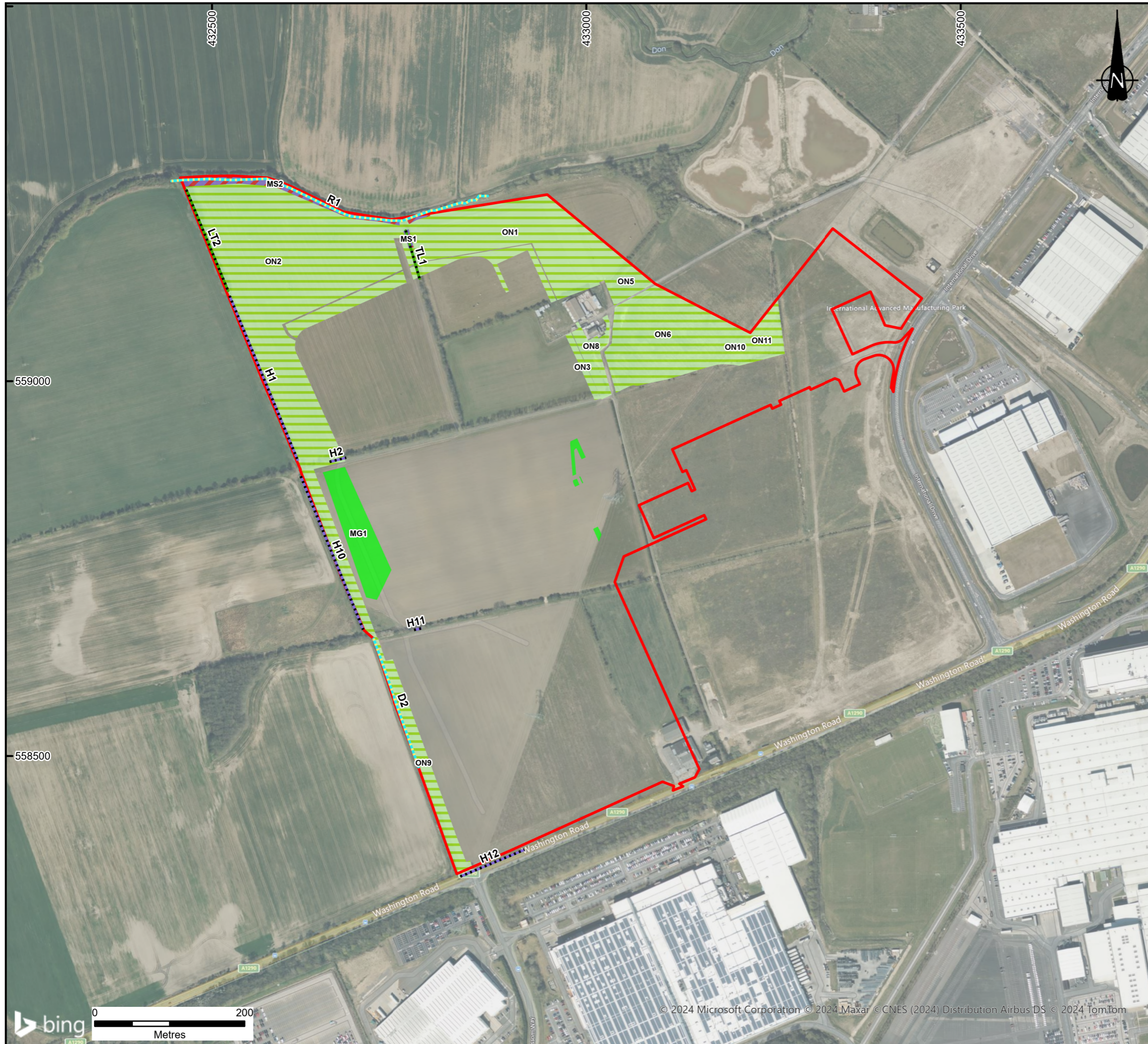
CLIENT	AESC UK
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PROJECT	AESC PLANT 3
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DRAWING TITLE	FIGURE 12.2 BIODIVERSITY NET GAIN - HABITAT CREATION
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DRG No.	NT15821/FIGURE 12.2	REV	B
DRG SIZE	A3	SCALE	1:5,000
DRAWN BY	SRW	CHECKED BY	AD
		APPROVED BY	TP





KEY

- Site Boundary
- g3c - other neutral grassland
- g4 - modified grassland
- h3 - mixed scrub
- h2a - hedgerow (priority habitat)
- w1g6 - line of trees
- r1e - canal or ditch

Notes:
 Boundaries are indicative
 Aerial imagery shown for context purposes only.

B A	REVISED HABITATS FIRST ISSUE	04/2024 11/2023	GER SRW	AD AD	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT AESC UK					
PROJECT AESC PLANT 3					
DRAWING TITLE FIGURE 12.3 BIODIVERSITY NET GAIN - HABITAT RETENTION					
DRG No. NT15821/FIGURE 12.3			REV B		
DRG SIZE A3	SCALE 1:5,000	DATE 12/04/2024			
DRAWN BY SRW	CHECKED BY AD	APPROVED BY TP			



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