

Assessment of Biodiversity Biodiversity Net Gain (BNG)

Version 1
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Prepared for: Quod

Sovereign Phase 2

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1. Introduction

1.1 Background to the project

Amenity Tree was commissioned by the client to undertake a Biodiversity Assessment for the Sovereign Phase 2 scheme.

1.2 Site location and context

The Preliminary Ecological Appraisal stated:

‘The site is located within Huyton in an urban environment and enclosed by existing residential and commercial land uses. The habitat on site comprises of scattered trees, semi natural woodland, amenity grassland, scrub, introduced shrub and building including areas of hard standing access’.

The total area of the site is approximately 6.54 hectare.

1.3 Report purpose and legislative background

- 1.3.1 This assessment was requested by the client for the purposes of supporting a planning application for the site’s development in line with The Environment Act 2021, including Part 6 of the Environment Act 2021 ‘nature and biodiversity’, which allows for biodiversity gain in the planning system. Schedule 14 of the Environment Act 2021 has not been brought into force and there are no current regulations legally mandating BNG. However, some Local Planning Authorities have already adopted, in their local plans, a 10% biodiversity gain to be a condition of planning permission in anticipation of the Act becoming mandatory. A recent press release (27.09.23) has indicated BNG legally mandatory will now be delayed until the New Year 2024.

The British Standard BS 8683:20211 defines BNG as “*a specific, quantifiable outcome from project activities that deliver demonstrable benefits for biodiversity compared to the baseline situation.*”

The National Planning Policy Framework 2021 (NPPF) emphasises the importance of protecting and enhancing the natural environment. The NPPF

approach to BNG is set out in Paragraph 179b, which is to “*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*”.

1.3.2 A Preliminary Ecological Appraisal confirmed habitats present. Therefore, the habitats present are confirmed and using the UK Habitats Classification System (UKHAB) it is possible that the appropriate habitat classification is used in the BNG metric.

1.3.3 The scope of the Assessment is therefore:

- Assessment of the habitats within the site in accordance with the UK Habitats Classification (UK Habitats Classification Working Group, 2018).
- Completion of Condition Assessments of each habitat in accordance with those presented in The Biodiversity Metric 4.0: Auditing and accounting for biodiversity value: technical supplement (Crosher, et al., Beta version, July 2019).

2. Survey Methods

2.1 Vegetation and Habitats

2.1.1 An extended phase one habitat survey plan (in accordance with JNCC, 2010) is provided in appendix 2 which confirmed the habitats present. Appendix 3 is the habitat mapping based on the UK Habitat Classification system (UK Habitats Classification Working Group, 2018) which details scattered trees, improved grassland, standing water, ditch, and hedgerow habitats.

2.1.2 Table 1 details the conversion used from JNCC habitats to UK Habitat classifications / BNG metric habitat descriptors.

JNCC Habitat type	UK Habs/ BNG metric descriptors.
Scattered trees	Individual urban trees

Amenity grassland	Modified grassland
Scrub	Scrub
Introduced shrub	Introduced shrub
Building	Urban sealed
Hard standing	Urban sealed

2.1.3 Whilst on the site the habitat survey searched for all plants including those that are considered rare, uncommon or are statutorily protected such as those listed in schedule 9 of the *Wildlife and Countryside Act 1981* (as amended).

2.2 Limitations

2.2.1 The survey was conducted in June 2023 and within the optimal survey period for vascular plants as determined by JNCC, 2010 (August 2021), and broad species and habitats were identifiable.

2.3 Evaluation

2.3.1 Habitats have been assessed to determine whether they meet those described in the UK Biodiversity Action Plan – Priority Habitat descriptions which are used to form Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

2.3.2 <https://www.daftlogic.com/projects-google-maps-area-calculator-tool.htm> and aUTOCAD has been used to measure habitat size and all habitats are calculated as areas.

2.3.3 The BNG Assessment tool “The Biodiversity Metric 4.0 – Natural England 2023) is used for the evaluation and condition assessment is made using the technical support provided by Natural England.

2.3.4 Other government advice on wildlife such as the National Planning Policy Framework (NPPF) or the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017, is

referenced where applicable and any impacts on protected species are evaluated in accordance with current guidance.

3. Survey results

3.1 History of site

3.1.1 The recent history of the site can be examined using historic aerial imagery. The site appears to be the same habitat types as 2018. Prior to this the scrub habitat was amenity grassland

3.1.2 An examination of <https://magic.defra.gov.uk/MagicMap.aspx> indicates the following.

The site is located within SSSI Impact Zone for Mersey Estuary SSSI which is located 6675m from site. The development proposal does not appear to conform to those development types that require the LPA to consult Natural England on the likely risks.

Multi-Agency Geographic Information for the Countryside website data has confirmed the following habitats and species apply to the site and its immediate locality:

- There are no section 41 habitats listed on the inventory on the site
- There are numerous areas of listed woodland within the 1km
- The site is outside the National Habitat Network All Habitats Combined (England)
- There are no important Bird Areas, Seabird considerations, or water and wetland considerations in respect of avian species.
- The closest granted European Protected Species (EPS) license application by Natural England was for bat species C-PIP;S-PIP;BLE;NATT approximately 750m from site.

3.2. Site description and condition assessment of habitats

3.2.1 The site is best described as managed improved grassland site with scattered rural trees.

3.2.3 A condition assessment for the modified grassland is provided in appendix 5. The condition habitat assessment scored 1 essential criterion and 4 criteria passed making it a moderate condition.

A condition assessment for the urban trees is provided below and in appendix 5. The condition habitat assessment scored 4 criteria passed making it a moderate condition. There are 38 medium trees, all medium condition.

A condition assessment for the woodlands is provided below and in appendix 5. The condition habitat assessment scored 24 / 39 making it a poor condition.

A condition assessment for the scrub is provided below and in appendix 5. The condition habitat assessment scored 3 criteria passed making it a moderate condition.

3.2.4 Summary of area based habitat (6.54 Ha)

Habitat ref	UK Habitat Classification Type	Condition Assessment Result	Ha / Linear M
Habitat 1	Individual urban trees	Moderate	1.39
Habitat 2	Modified grassland	Moderate	0.3
Habitat 3	Scrub	Moderate	0.72
Habitat 4	Introduced shrub	NA	0.12
Habitat 5	Urban sealed	NA	4.4
Habitat 6	Woodland	Poor	1.0

NOTE: The increase in the site size is due to urban trees oversailing habitats beneath

4. Evaluation and Assessment

4.1 Proposed habitat creation and enhancement

The site shall be developed as proposed in appendix 4. The total area of the site is approximately (6.54 Ha)

Landscape proposal	BNG descriptor	Hectare coverage / linear M / tree numbers
All new infrastructure including roads, building, and sealed hard surfacing	sealed surfacing	4.4
Wildflower areas (enhanced from amenity grassland)	Neutral grassland	1.2
Native hedge mix (enhanced from amenity grassland)	Introduced shrub	0.12
Retained woodland (enhanced)	Woodland - mixed	1.0
Retained scrub	Scrub other	0.22
Tree planting	Urban trees	Large 0, Medium 70, Small 0 Total 2.56 (UTC calculator)
Retained trees	Retained urban trees	Large 0, Medium 38, Small 0 Total 1.39 (UTC calculator)

4.2 Habitat creation methods – Neutral grassland

Other neutral grassland contains Emorsgate EM4 flowering meadow.
Grassland will be enhanced throughout the site in moderate condition

Recommended Seed Mixes:

- Emorsgate Seeds EM4

Considerations:

- If soil is being imported into the site, then nutrient poor soil should be used to create wildflower areas in order to support the establishment of the meadow.
- Don't add fertiliser as this will increase fertility of the soil and negatively impact the wildflower meadow.

- Reducing soil fertility: Due to the baseline conditions of the site intensive nutrient stripping techniques are not considered necessary and therefore nutrients should be removed from the grassland through silage cuts

Creation Methodology:

- Create a fine tilth for a seedbed by digging or rotovating the soil then firming and raking.
- Sow seed mixture evenly by hand at 5g per square meter during, late summer/early autumn.

Additional Methodology:

- Designate some areas of grassland for creation of a calcareous species sward with thin poor soils and good drainage. These areas should be managed in line with 'other neutral grassland' once established.
- Remove topsoil and spread limestone chippings.
- Translocation of soils from habitats within the site to be removed by development should be carried out by an experienced contractor alongside Suitably Qualified Ecologist (SQE) who can identify appropriate soils.

Habitat creation methods – Native woodland enhancement

Woodland will be enhanced throughout the site to moderate condition

Enhancement methodology:

- All woodland creation shall conform to The Management of Semi-natural Woodlands 3. Lowland Mixed Broadleaf Woods practical guide. Forestry Commission 2003.
- The woodland needs to be protected from damage from wild, domestic, and feral herbivore. Should damage be detected during monitoring measures such as fencing may be required to protect the woodland.

- Open space within the woodland should be at 10% cover. This target should be met through planting up excessive open space with native species or felling excessive woodland cover as required.
- The number of native species shall be at least five, supplementary planting shall be needed.
- Woodland should be allowed to regenerate naturally; this may require felling to create open spaces. Coppicing some trees to promote regeneration as a mixture of stool sprouts and seedling regeneration.
- Standing deadwood should be created within the woodland including large dead branches, dead stems, and stumps. Dead or dying trees within the woodland should be left standing wherever possible. If the woodland is lacking in dead wood, then designate some trees to be 'ring barked' and allow them to fall and decompose naturally. Dead wood from site clearance could also be placed within woodland

Monitoring:

Habitat will be monitored for controlled and/or invasive species annually and appropriate action taken to remove if found.

Monitor for significant browsing damage from herbivores.

Monitor percentage of open space within woodland.

Tree health should be monitored for pests, diseases, and crown dieback. An expert should be consulted on management practices should tree health be compromised.

Amount of deadwood should be monitored with 50% of woodland containing dead wood.

Habitat creation methods – Urban trees

Recommended Species: At least 70% of trees should be native species found in the local area, taking into account the requirement to plant trees that will be appropriate for anticipated changes in climate.

Considerations:

- Trees will adapt to natural conditions. Additional watering will only be required during a particularly long dry spell
Trees are to be planted within the tree planting season (October to March inclusive).
- Up to 30% of trees will not establish and therefore supplementary planting over the following three years will be required to achieve prescribed numbers over the longer term.

Creation Methodology:

- Advanced nursery stock trees or larger will be planted within optimal tree planting season (October to March inclusive).
- Suitable wooden stakes will be used to support the trees.
- Weeds will be controlled around the base of the trees by applying organic mulch (10cm depth in a 50cm buffer around trees), this will also assist with water retention. This will be applied in early summer until trees are successfully established (minimum 3 years).

4.3 Management and monitoring

The following section details management and monitoring methodologies for the habitats proposed to be created and retained on site

The site should be subject to a UKHAB classification survey alongside a condition assessment of the created and enhanced habitats. This survey should be carried out by a suitably qualified ecologist, starting 1 year after the project is completed, with follow up visits within year 2, 5, 10, 20, until the final visit on year 30. A report provided by an independent assessor shall be submitted to the LPA, when habitats as listed in the Biodiversity Metric are judged to have reached target condition.

A review of management of all habitats should be undertaken at years 10 and 20 with the management programme will be updated/adjusted accordingly.

General Management

The following management practices are recommended throughout the site in order to protect created habitats from harmful management practices.

- Weed control will be undertaken using non-chemical interventions wherever possible including mulching and hand pulling. Where deemed necessary, the spot application of eco-friendly herbicides may be used, avoiding areas containing waterbodies such as ponds and rivers.
- The application of fertilisers will be avoided as excessive nutrient loading will negatively alter the species composition of the habitats.
- Care should always be taken when maintaining habitats to avoid damage or disturbance to protected species such as breeding birds and water vole.
- Any arisings and/or cuttings created by maintenance will need to be removed and disposed of off-site or in a suitable location such as a designated compost heap or alternatively composted within the allotments on site.

- During site clearance and management, wood (including dead wood) should be used to create refugia in a suitable location (within native scrub, woodland, or pond edges) wherever possible.
- All areas are to be monitored for controlled and/or invasive species and appropriate action taken to remove if found.
- All areas to be monitored for fly-tipping, rubbish and litter annually (both construction and post-construction phases) with appropriate action taken to remove if found.

Neutral Grassland

The created neutral grassland areas within the site will require regular monitoring and annual maintenance to achieve 'moderate' condition, allowing the more desirable species to flourish and to reduce the presence of unwanted species that will attempt to colonise the area. The following sets out the UKHAB criteria as to what is a good condition other neutral grassland.

Aim:

- The appearance and composition of the vegetation closely matches characteristics of UKHAB type definition. Indicator species are easily and clearly visible throughout the sward.
- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds, and small mammals to live and breed.
- Cover of bare ground between 1% and 5% of total habitat area to provide an important resource to insects.
- There is greater than 9 species per meter squared.

Management:

- For the first year of growth, cut to 5cm in May, then cut every 2 months or when sward reaches approximately 15cm. Stop cutting by August to allow wildflowers to seed. Final cut to 5cm will be in October.
- From the second year onwards, cut to 5cm in March or April, then make a second cut to 5cm in October.

- From the second year onwards, designate some areas to receive a cut to 5cm during August in order to produce a more varied habitat that will encourage different species of wildflower.
- Remove all arisings from the area, dispose of in designated areas such as a compost heap.
- Remove encroaching scrub and bracken manually using hand tools.
- Annually create areas of bare ground or 'scrapes' covering 1% to 5% of total habitat area by manually scraping away vegetation with hand tools. These scrapes should be located in sunny areas such as south facing embankments, if possible.

Monitoring:

- Habitat will be monitored for controlled and/or invasive species annually and appropriate action taken to remove if found.
- Monitor for damage, cover of bracken and scrub.
- Monitor bare ground cover.
- Check sward height throughout the first year and cut when it reaches 15cm.

Woodland

The enhanced and retained other woodland areas within the site will require regular monitoring and annual maintenance to achieve moderate condition, allowing the more desirable species to flourish and to reduce the presence of unwanted species that will attempt to colonise the area. The following sets out the UKHAB criteria as to what is a moderate condition other woodland. The woodland must score up to 26 points to be considered moderate condition.

Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)
Age distribution of trees	Three age-classes ¹ present.	Two age-classes ¹ present.	One age-class ¹ present.
Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ² .	Evidence of significant browsing pressure is present in 40% or less of whole woodland ² .	Evidence of significant browsing pressure is present in 40% or more of whole woodland ² .
Invasive plant species	No invasive species ³ present in woodland.	Rhododendron <i>Rhododendron ponticum</i> or cherry laurel <i>Prunus laurocerasus</i> not present, other invasive species ³ <10% cover.	Rhododendron or cherry laurel present, or other invasive species ³ >10% cover.
Number of native tree species	Five or more native tree or shrub species ⁴ found across woodland parcel.	Three to four native tree or shrub species ⁴ found across woodland parcel.	Two or less native tree or shrub species ⁴ across woodland parcel.
Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native ⁵ .	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native ⁵ .	<50% of canopy trees and <50% of understory shrubs are native ⁵ .
Open space within woodland	10 - 20% of woodland has areas of temporary open space ⁶ . Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted ⁷ .	21 - 40% of woodland has areas of temporary open space ⁶ .	<10% or >40% of woodland has areas of temporary open space ⁶ . But if woodland <10ha has <10% temporary open space, please see Good category ⁷ .
Woodland regeneration	All three classes present in woodland ⁸ ; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland ⁸ .	No classes or coppice regrowth present in woodland ⁸ .
Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback ⁹ .	11% to 25% mortality and/or crown dieback or low-risk pest or disease present ⁹ .	Greater than 25% tree mortality and/or any high-risk pest or disease present ⁹ .
Vegetation and ground flora	Recognisable NVC plant community ¹⁰ at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community ¹⁰ at ground layer present.	No recognisable woodland NVC plant community ¹⁰ at ground layer present.
Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland ¹¹ .	Two storeys across all survey plots ¹¹ .	One or less storey across all survey plots ¹¹ .
Veteran trees	Two or more veteran trees ¹² per hectare.	One veteran tree ¹² per hectare.	No veteran trees ¹² present in woodland.
Amount of deadwood	50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities ¹³ .	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities ¹³ .
Woodland disturbance	No nutrient enrichment or damaged ground evident ¹⁴ .	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground ¹⁴ .	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground ¹⁴ .

5. Conclusions

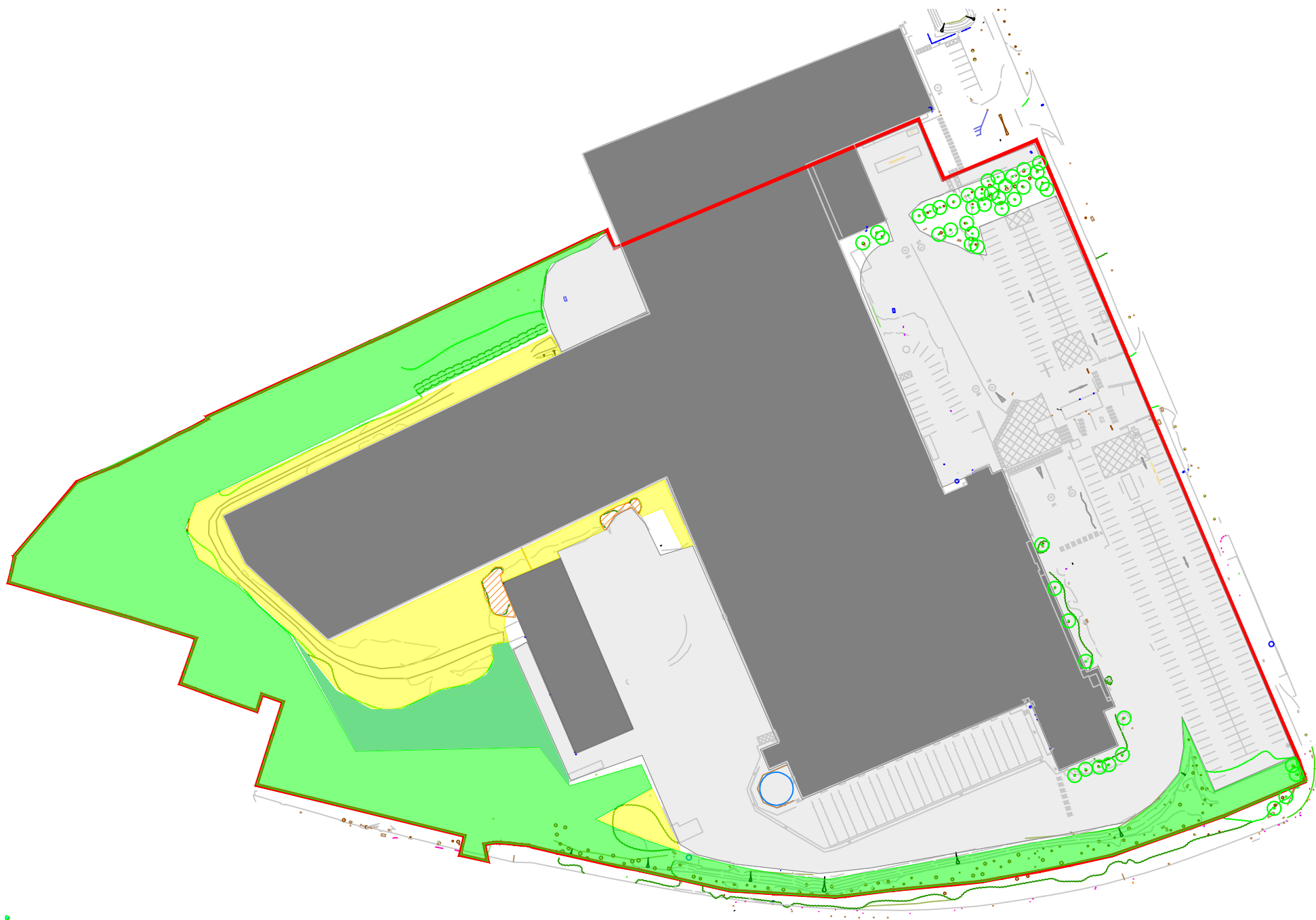
5.1 The results of the BNG calculation are indicated below.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	22.98
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	102.96%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

The increase in biodiversity is mainly because the development has little impact on green spaces all of which are enhanced or added to.

- Introduction of urban trees
- Enhancement of woodland in target condition and its overall coverage of 1ha
- Enhancement of modified grassland to neutral grassland
- Enhancement of scrub as per landscape plans

Appendix 2 Extended phase one habitat plan



PHASE ONE HABITAT MAP

KEY

-  A.1.1.1 Semi Natural woodland
-  A.2. Scrub
-  A.3.1 Broadleaf scattered trees
-  J2 Amenity grassland
-  J4 Introduced shrub
-  J5 Building
-  J5 Hard standing urban sealed surface

① Target Notes. Refer to Preliminary Ecological Appraisal

Client:
QUOD

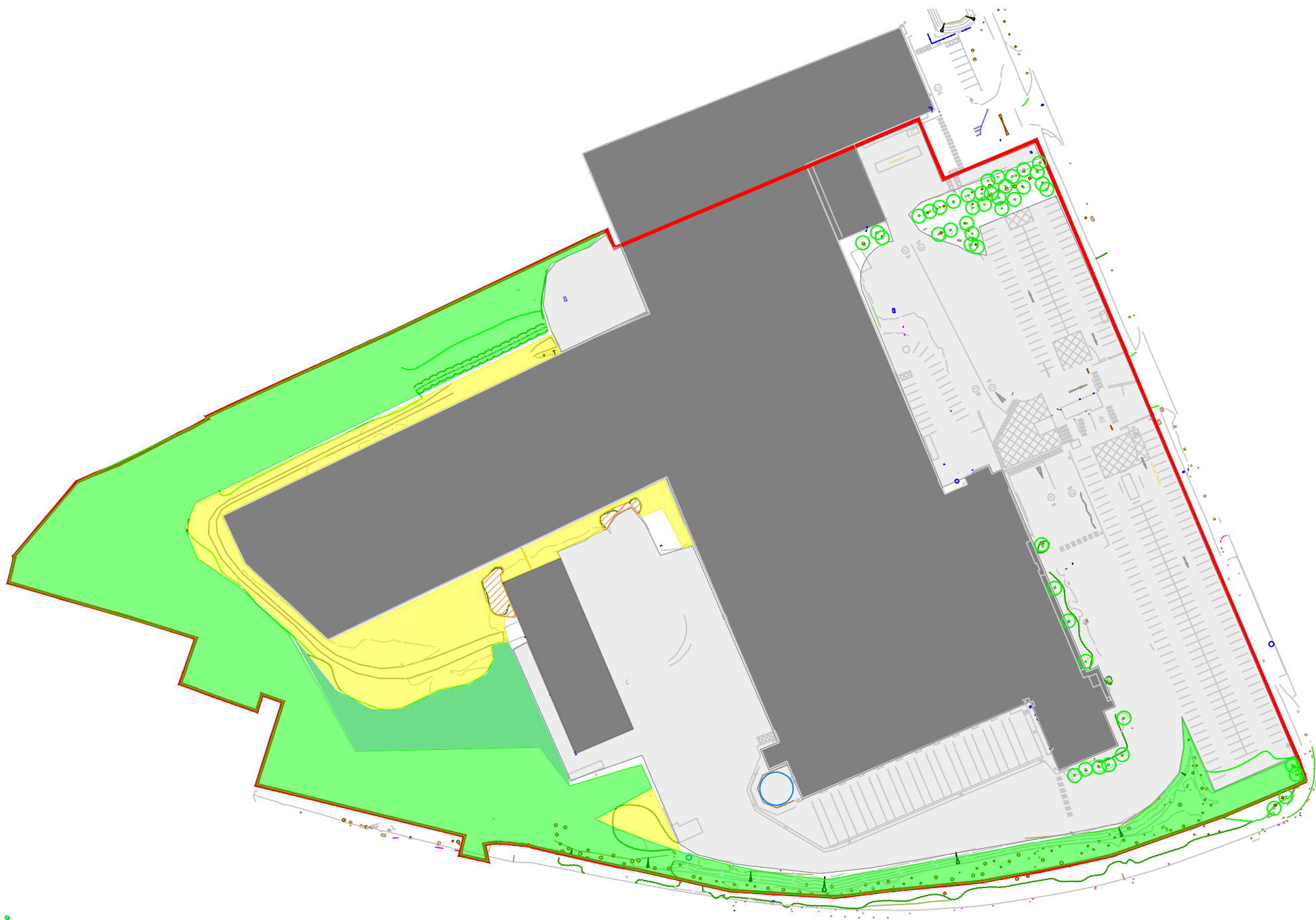
Project:
Sovereign Phs 2

Detail:
Phase One Habitat Map

Drawn By: SB Date: 10.10.2023 Scale: NTS

Drg No: TR-01 Revision: V1

Appendix 3 Habitat mapping based the UK Habitat Classification system



UK HABITAT MAP
KEY

-  Woodland
-  Scrub
-  Urban trees
-  Modified grassland
-  Introduced shrub
-  Building
-  Urban sealed surface

① Target Notes. Refer to Preliminary Ecological Appraisal

Client:
QUOD

Project:
Sovereign Phs 2

Detail:
UK Habitat Map

Drawn By: SB Date: 10.10.2023 Scale: NTS

Drg No: TR-01 Revision: V1

Appendix 4 Proposed development and ecological enhancements plan



PLANTING SCHEDULE

PLANT SCHEDULE

REF.	TYPE	NO.	GIRTH cm	%	HEIGHT cm	TYPE	DENSITY	NOTE
1.0	NATIVE TREE PLANTING							
T1	Acer campestre.	10	16-18	NA	325-375	RB	NA	2 stakes / cross member / tie.
T2	Betula pendula Fastigiata Joes.	18	16-18	NA	350-400	RB	NA	2 stakes / cross member / tie.
T3	Corylus avellana.	11	16-18	NA	325-375	RB	NA	2 stakes / cross member / tie.
T4	Crataegus monogyna.	7	16-18	NA	300-350	RB	NA	2 stakes / cross member / tie.
T5	Sorbus aucuparia	4	16-18	NA	350-400	RB	NA	2 stakes / cross member / tie.
T6	Pinus nigra Austriaca.	8	16-18	NA	250-300	RB	NA	2 stakes / cross member / tie.
T7	Pyrus chanticleer.	2	16-18	NA	325-375	RB	NA	2 stakes / cross member / tie.
T8	Quercus robur.	3	16-18	NA	325-375	RB	NA	2 stakes / cross member / tie.
T9	Prunus avium.	8	16-18	NA	325-375	RB	NA	2 stakes / cross member / tie.

2.0 NATIVE EDGE MIX

2.1	NEM_01	NO.	GIRTH	HEIGHT	%	TYPE	DENSITY	NOTE
	Amelanchier lamarkcii.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Cornus sanguinea.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Euonymous europaeus.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ligustrum vulgare.	3	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Rosa canina.	6	NA	25cm	10	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Rosa pimpinellifolia.	3	NA	25cm	5	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Salix caprea.	3	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix cinerea.	3	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix repens.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Taxus baccata.	3	NA	75cm	5	BR	1 / m2.	100cm biodegradable grow tube / stake.
	Virburnum latana.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Viurnum opulus.	6	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ulex europaeus.	3	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.

2.2	NEM_02	NO.	GIRTH	HEIGHT	%	TYPE	DENSITY	NOTE
	Amelanchier lamarkcii.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Cornus sanguinea.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Euonymous europaeus.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ligustrum vulgare.	41	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Rosa canina.	82	NA	25cm	10	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Rosa pimpinellifolia.	41	NA	25cm	5	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Salix caprea.	41	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix cinerea.	41	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix repens.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Taxus baccata.	41	NA	75cm	5	BR	1 / m2.	100cm biodegradable grow tube / stake.
	Virburnum latana.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Viurnum opulus.	82	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ulex europaeus.	41	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.

2.3	NEM_03	NO.	GIRTH	HEIGHT	%	TYPE	DENSITY	NOTE
	Amelanchier lamarkcii.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Cornus sanguinea.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Euonymous europaeus.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ligustrum vulgare.	8	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Rosa canina.	17	NA	25cm	10	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Rosa pimpinellifolia.	8	NA	25cm	5	BR	1 / m2.	50cm biodegradable grow tube / stake.
	Salix caprea.	8	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix cinerea.	8	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Salix repens.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Taxus baccata.	8	NA	75cm	5	BR	1 / m2.	100cm biodegradable grow tube / stake.
	Virburnum latana.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Viurnum opulus.	17	NA	50cm	10	BR	1 / m2.	75cm biodegradable grow tube / stake.
	Ulex europaeus.	8	NA	50cm	5	BR	1 / m2.	75cm biodegradable grow tube / stake.

Planting Notes:

- a) The above to be planted at a rate of 1no. Plants per m2, in groups of between 3 and 7.
b) All to be planted in biodegradable black growing tubes, 25cm taller than planting height with support.

3.0	NATIVE HEDGE PLANTING	NO.	GIRTH	HEIGHT cm	%	TYPE	DENSITY	NOTE
3.1	NH_01							
	Ainus glutinosa.	20	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	10	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	10	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	20	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	30	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	10	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	10	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	10	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	10	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	10	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	20	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	20	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	10	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.2	NH_02							
	Ainus glutinosa.	26	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	13	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	13	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	26	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	39	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	13	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	13	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	13	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	13	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	13	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	26	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	39	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	13	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.3	NH_03							
	Ainus glutinosa.	15	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	8	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	8	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	15	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	23	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	8	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	8	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	8	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	8	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	8	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	15	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	23	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	8	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.4	NH_04							
	Ainus glutinosa.	4	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	4	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	6	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	3	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	3	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	4	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	6	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.5	NH_05							
	Ainus glutinosa.	14	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	7	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	7	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	14	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	21	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	7	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	7	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	7	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	7	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	7	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	14	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	21	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	7	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.6	NH_06							
	Ainus glutinosa.	7	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	7	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	10	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	4	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	4	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	7	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	10	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.7	NH_07							
	Ainus glutinosa.	4	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	2	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	2	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylys avellana.	4	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	6	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	2	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	2	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	2	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	4	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	6	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viurnum opulus.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

3.8	NH_08							
	Alnus glutinosa.	7	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Acer campestre.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Betula pubescens.	3	NA	150-175	5	BR	NA	100cm biodegradable grow tube / stake.
	Corylis avellana.	7	NA	75	10	BR	NA	100cm biodegradable grow tube / stake.
	Crataegus monogyna..	10	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Eunonymous europaeus.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Illex aquifolium.	4	NA	30-45	5	2L	NA	50cm biodegradable grow tube / stake.
	Malus sylvestris.	4	NA	75	5	BR	NA	100cm biodegradable grow tube / stake.
	Prunus spinosa.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Rosa canina.	4	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.
	Sambucus nigra.	7	NA	30-45	10	BR	NA	50cm biodegradable grow tube / stake.
	Sorbus aucuparia.	10	NA	75	15	BR	NA	100cm biodegradable grow tube / stake.
	Viburnum opulus.	3	NA	30-45	5	BR	NA	50cm biodegradable grow tube / stake.

Appendix 5 BNG Metric