GEOSPHERE ENVIRONMENTAL

BIODIVERSITY NET GAIN DESIGN STAGE REPORT

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SITE:	Sheringham Recycling Centre, Holt Road, East Beckham, Sheringham, NR26 8TW
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Geosphere Environmental Ltd, Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ.
T: 01603 298 076 / 01473 353 519. W: www.geosphere-environmental.co.uk

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Prepared By:	Reviewed By:	Authorised By:
Eleanor Baker	Alanna Cooper	Katie Linehan
Graduate Ecologist	Principal Ecologist	Technical Director of Ecology
[redacted]	[redacted]	[redacted]

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Executive Summary

Report description		This biodiversity net gain assessment report has been prepared by Geosphere Environmental Limited for Stantec UK Ltd and relates to the proposed commercial development of the site at Sheringham Recycling Centre, Holt Road, East Beckham, Sheringham, NR26 8TW. The purpose of this report is to carry out a biodiversity net gain assessment and provide details of agreed measures for onsite and offsite compensation, where necessary.
Outcome of BNG Assessment		The project includes an assessment of the application boundary referred to as the onsite habitats and also adjacent road and area of scrub and grassland outside of the application boundary that will be affected by realignment of the roadway for safety purposes, referred to as the offsite habitats. The project achieves over the minimum targeted 10% biodiversity net gain and there are no trading rule issues. The baseline sum of biodiversity units onsite considering area-based habitats is 0.74 habitat units. Post-development in the current scenario, the development would provide 0.81 habitat units onsite. The baseline sum of biodiversity units offsite is 0.34 habitat units. Post-development, offsite habitat units are 0.35. Therefore, the total net unit change of area-based units, including both onsite and offsite, is 0.09 habitat units (+11.76%). The baseline sum of biodiversity units onsite considering hedgerow (linear) habitats is 0.23 units. Post-development in the current scenario, considering hedgerows will be retained and new hedgerows will be created, the development would provide 0.46 units, in other words a net gain of 0.23 hedgerow units (+97.22%).
Recommendations		The habitats proposed within the scheme need to be of a sufficient quality to achieve the conditions as assessed within these calculations. Specifications for the creation and management of these features are summarised within this report. A full Landscape and Ecological Management Plan should be produced to provide detail of the creation and management of the habitats. It is considered that this should be requested by the Local Planning Authority as an appropriately worded planning condition. The Landscape and Ecological Management Plan would need to include the area of scrub planting on the old road.

		Final calculations of biodiversity units should be provided at the same time as the Landscape and Ecological Management Plan, to ensure that the proposals provide a biodiversity net gain.
Conclusions		Provided the recommendations within this report are followed and the mitigation hierarchy of avoidance, mitigation, compensation and enhancement is implemented throughout the detailed design process, potential negative effects from development on important ecological features will be negligible, and the scheme will achieve a significant net gain in biodiversity.

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1. INTRODUCTION

1.1 Purpose

This biodiversity net gain assessment report has been prepared by Geosphere Environmental Limited for Stantec UK Ltd and relates to the proposed commercial development of the site at Sheringham Recycling Centre, Holt Road, East Beckham, Sheringham, NR26 8TW for which planning permission will be sought.

The purpose of this report is to carry out a biodiversity net gain assessment using the statutory biodiversity metric (ref. **R.1**) to evaluate the final design for the scheme and include a review of measures to secure compensation and enhancement.

Any limitations and conditions pertaining to the report are stated within Appendix 1, with a full list of technical references provided within Appendix 2.

1.2 Site Description

The site occupies an area of approximately 0.47 ha and is located around National Grid Reference TG 16281 41032. The indicative development boundary is shown on Figure 1, below:

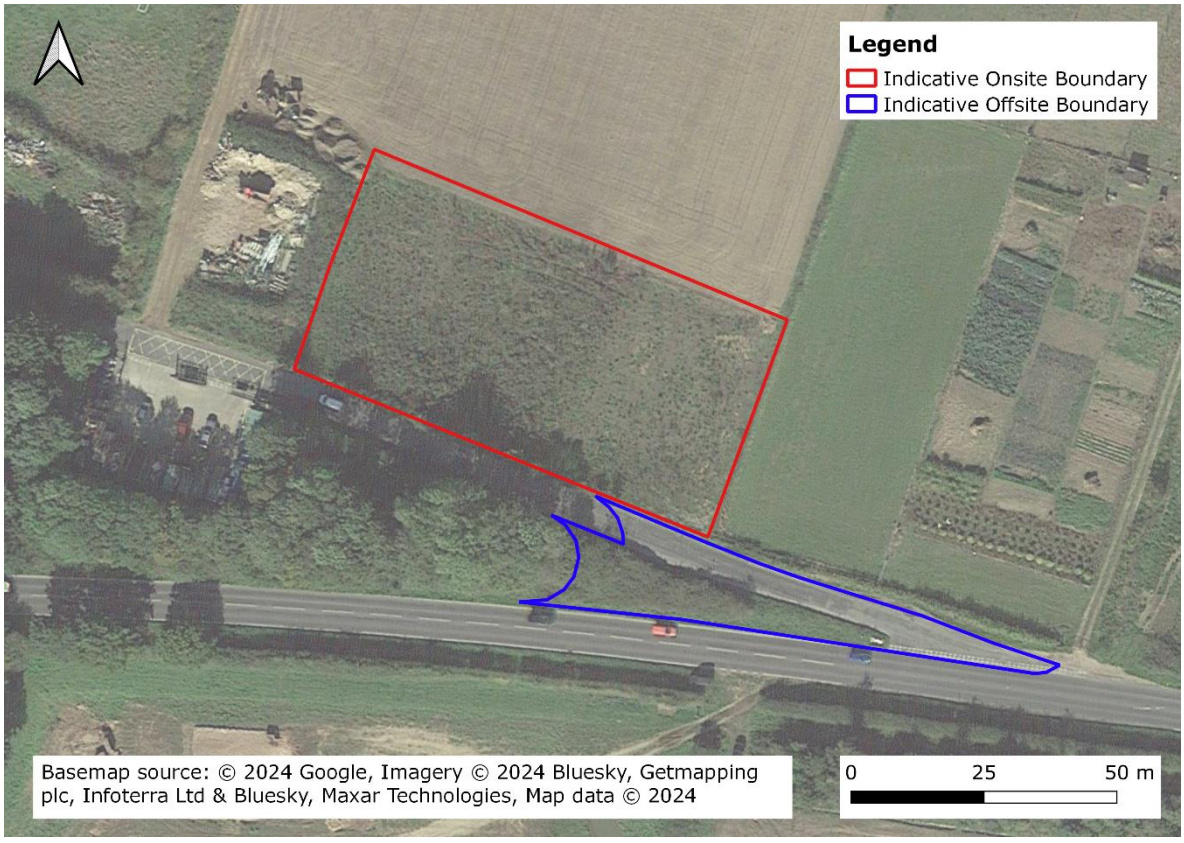

Figure 1 - Indicative Site Boundary

1.3 Proposed Development

The report relates to proposed commercial development of the site as shown in Drawing ref. 2735-00-201-N included within Appendix 3.

2. LEGISLATIVE AND POLICY CONTEXT

2.1 Current UK Legislation

The Environment Act 2021 Act became law on 9 November 2021 and introduces a framework to improve and protect the natural environment, overseen by the newly created Office for Environmental Protection. The Act introduces new statutory requirements, including the duty for Local Authorities to create new local nature recovery strategies. The Act also introduces a new mandatory requirement for developments to achieve measurable biodiversity net gain. A two-year transition period for this requirement is included in the Act, with provision for secondary legislation to set a date for the requirement to come into force. It is likely this will be February 2024. Once in force, all planning permissions in England (subject to exemptions) must be granted subject to a new general pre-commencement condition that requires approval of a biodiversity gain plan. The Planning Authority would only approve the biodiversity gain plan if the biodiversity value attributable to a development exceeds the pre-development biodiversity value of the onsite habitat by 10%.

The reader is referred to the original legislation for definitive interpretation.

2.2 Planning Policy

The recommendations of this report are in line with the key principles of the Ministry of Housing, Communities and Local Government (MHCLG) (2021) National Planning Policy Framework (NPPF) (ref. **R.2**) and Government Circular 05/06: Biodiversity and Geological Conservation (ref. **R.3**).

The North Norfolk District Council Local Plan (ref. **R.4**) confirms that developments within North Norfolk will need to achieve Biodiversity Net Gain (BNG). It is unclear what percentage of biodiversity net gain is required during the transition period, but this will be 10% once the transition is ended, therefore this should be targeted. It is likely if a net gain is achievable onsite and this is less than 10%, if an application is made during the transition period, negotiations with the Council may allow this to be agreed.

The document states in Section 3, Delivering Climate Resilient Sustainable Growth:

*"**3.10.7** An assessment of the existing biodiversity value of the onsite habitat of the development site (the pre-development value) will be required at the point that planning permission is applied for. In order to establish the pre-development value, consideration will be given to whether any deliberate harm to the biodiversity value has taken place in the recent past. Where there is evidence of deliberate neglect and/or damage, or the relevant date has not been subsequently agreed with the Council, the pre-development biodiversity value of the onsite habitat will be taken as that established at January 2020, or as directed in the Act.*

3.10.8 *Applicants will be required to demonstrate how biodiversity net gain can be achieved through the metric, using information taken from habitat surveys of the development site before development and any related habitat clearance or management has taken place, by calculating losses and gains and through assessing habitat distinctiveness, condition, and extent. To achieve biodiversity net gain, a development must have a sufficiently higher biodiversity unit score after development than before development. When demonstrating biodiversity net gain applicants will be required to clarify the predicted biodiversity outcomes both qualitatively and quantitatively, provide evidence on the application of the mitigation hierarchy, describe the outcomes and how these contribute towards local and strategic biodiversity priorities, demonstrate at least equivalent or better levels of ecological functionality, clarify the timescales for delivery, provide costed management and monitoring plans, identify accountabilities (including enforcement) and responsibilities for delivery of the biodiversity net gain. This will be provided through the submission of a Biodiversity Strategy at validation stage. Any evidence and rationale supplied by applicants should be supported by the appropriate ecological expertise and if appropriate local wildlife knowledge and stakeholders."*

In this instance, a 10% biodiversity net gain is being targeted.

3. METHODOLOGY

3.1 Technical Approach

This report is prepared in accordance with the best practice guidelines set out by CIEEM, CIRIA, IEMA and BSi (refs. **R.5** and **R.6**). The conclusions and recommendations for further works are in accordance with current legislation and guidance.

3.2 Personnel

This report was produced by Ecologist Eleanor Baker MSc BSc (Hons), who has practical and shadowing experience in ecological consultancy including surveys and mitigation for a range of protected species and in producing preliminary ecological appraisals and impact assessments. All surveyors used to establish baseline information are suitably qualified and experienced; surveyors' names and qualifications are stated under each survey heading below. This report was reviewed by Principal Ecologist Alanna Cooper BSc (Hons) CEnv CSci C.WEM MCIEEM MCIWEM and approved by Director of Ecology Katie Linehan BSc (Hons) MSc PIEMA MCIEEM, who are experienced in ecological consultancy including the production of Preliminary Ecological Appraisals and Impact Assessments.

3.3 Habitat Survey and Condition Assessment

The Preliminary Ecological Appraisal (ref. **R.7**) identified the habitats present onsite. Habitats were assessed in accordance with the UK Habitats Classification (ref. **R.8**) to be used within the statutory biodiversity metric.

Condition assessments were carried out during the site visit on 2 October 2022 using the methodology outlined within the technical supplement for the Biodiversity Metric 3.1 (ref. **R.9**). The criteria the habitat conditions were assessed by were compared to the guidance outlined in the statutory metric to determine if the conditions assessed are transferable to the statutory metric. This review found the criteria are the same for the habitat types assessed for this site, so it is considered acceptable in this instance to transfer the conclusions made regarding habitat condition to the statutory metric. The completed condition assessment sheets are included in Appendix 4.

3.4 Biodiversity Net Gain Assessment

3.4.1 Baseline Habitats

Classification of area habitats and linear habitats was carried out in accordance with the methodology outlined in the statutory biodiversity metric (ref. **R.1**) for input into the statutory biodiversity metric calculator, based on the UK Habitat Classification descriptions of habitats (ref. **R.8**). The results of this and the habitat mapping using the GIS software were input into the statutory biodiversity metric calculation tool, submitted alongside this report.

3.4.2 Proposed Habitats

The habitats within the proposed development are shown on the Drawing ref. 2735-00-201-N included within Appendix 3. The areas of the habitats were calculated by georeferencing this plan and digitising estimated habitats using QGIS software. Habitat categories were assigned to the most rational category based upon The Biodiversity Metric (ref. **R.1**). Future conditions of habitats were assumed based on professional judgement.

4. BIODIVERSITY NET GAIN ASSESSMENT

4.1 Baseline Habitats

The habitats recorded within the survey area include:

- Cereal crops;
- Bramble scrub;
- Other neutral grassland;
- Developed land; sealed surface;
- Native hedgerow.

Figure 2, below, shows the extent of habitats encountered during the site visit.

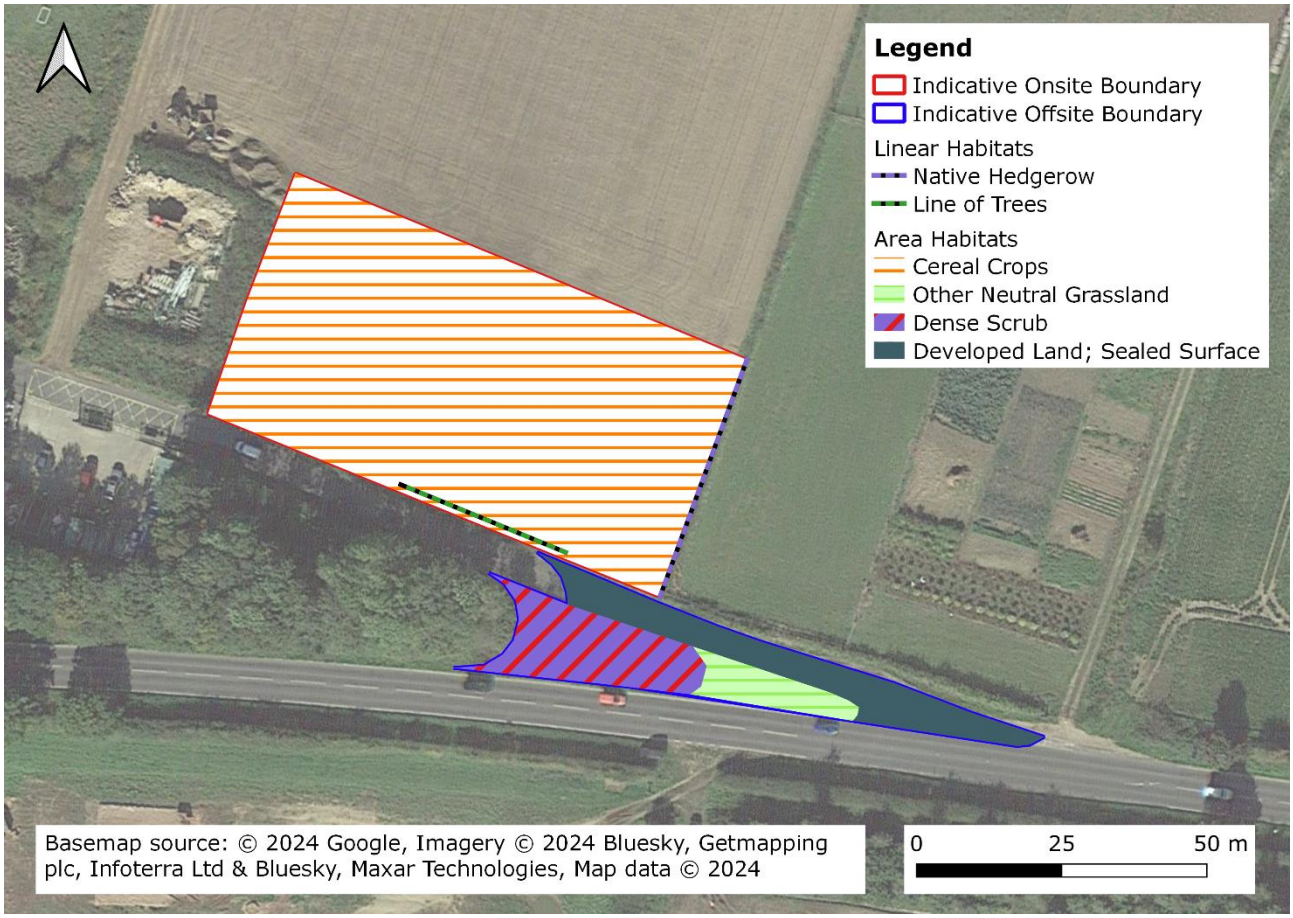

Figure 2 - Baseline Onsite Habitats for Biodiversity Net Gain Assessment

Habitats outside of the boundaries are not affected by this Net Gain assessment, and therefore are not considered further in this report.

4.1.1 Baseline Ecological Value

A summary of the baseline biodiversity units provided by the habitats are provided in Table 1, and Table 2, below:

Table 1 – Baseline Area Biodiversity Units			
Onsite Area-based Habitat	**Area (ha)**	**Condition**	**Biodiversity Units**
Cereal crops.	0.369	N/A	0.74
Total Area-Based Habitats Onsite	**0.37**		**0.74**
Offsite Area-based Habitat	**Area (ha)**	**Condition**	**Biodiversity Units**
Developed land; sealed surface.	0.044	N/A	0.00
Bramble scrub.	0.039	N/A	0.16
Other neutral grassland.	0.014	Good	0.17
Total Area-Based Habitats Offsite	**0.10**		**0.32**
Total Area-based-Habitats	**0.47**		**1.06** (accounting for rounding)

Table 2 – Baseline Linear Biodiversity Units			
Linear-based Habitat	**Length (km)**	**Condition**	**Biodiversity Units**
Native hedgerow.	0.043	Moderate	0.17
Line of trees.	0.031	Poor	0.06
Total Area-based-Habitats	**0.074**		**0.23** (accounting for rounding)

4.2 Proposed Habitats

The habitats within the proposed development are shown on the Landscape Mitigation Plan, Drawing ref. 2735-00-201-N, included within Appendix 3. Figure 3, overleaf, shows the extent of proposed habitats digitised by geopositioning the Landscape Mitigation Plan and assigning habitats to the most rational category based upon The Biodiversity Metric:

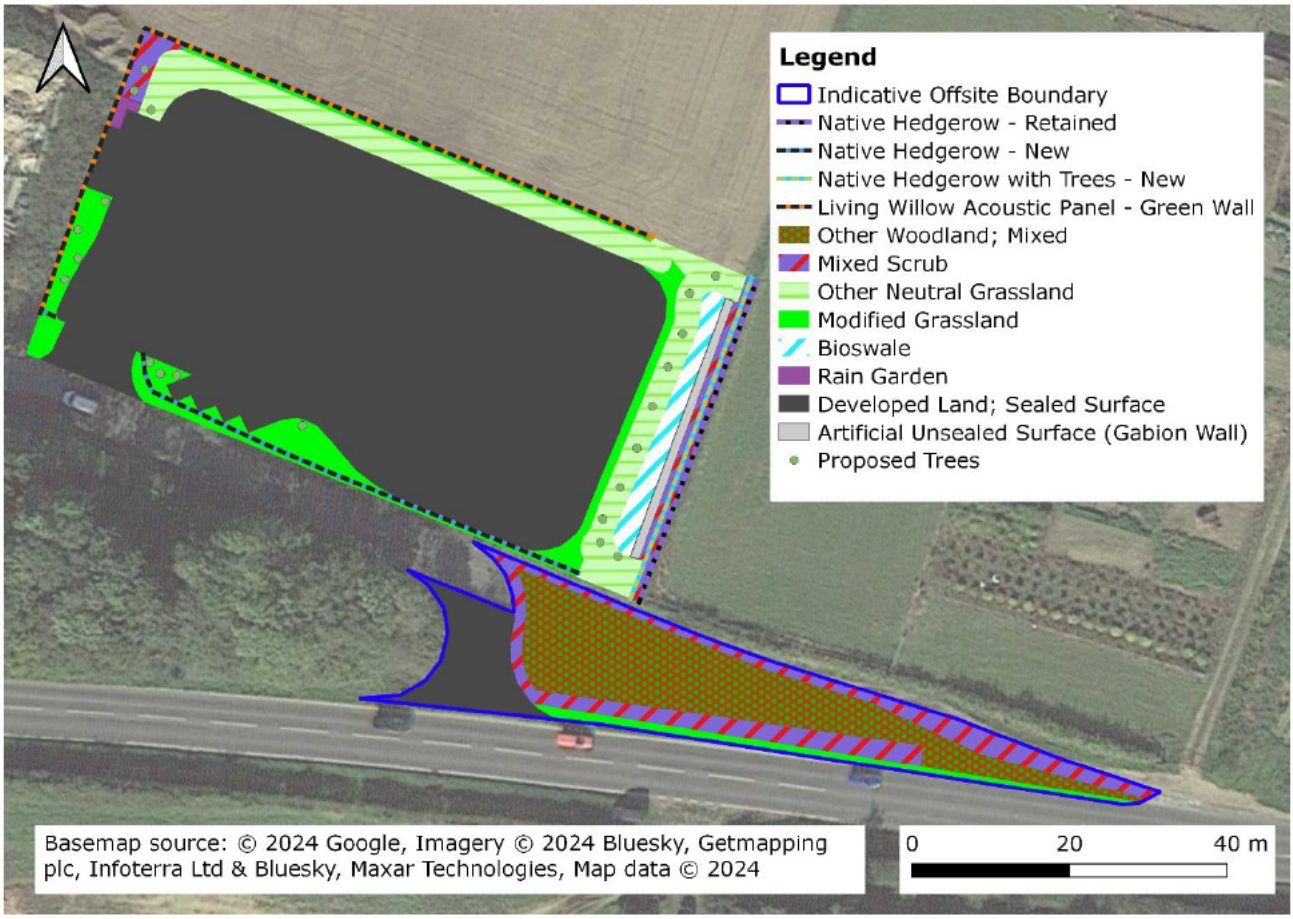

Figure 3 - Proposed Habitats for Biodiversity Net Gain Assessment

4.2.1 Proposed Ecological Value

The statutory biodiversity metric habitats for the proposed development are summarised in Table 3, below, and Table 4, overleaf:

Table 3 – Area-based Habitats Within Proposed Development

Onsite Habitat	Area (ha)	Condition	Biodiversity Units
Created area			
Developed Land; Sealed Surface.	0.270	N/A	0.00
Artificial Unvegetated, Unsealed Surface.	0.004	N/A	0.00
Mixed Scrub.	0.011	Poor	0.04
Rain Garden.	0.001	Moderate	0.01
Modified Grassland.	0.031	Moderate	0.11
Other Neutral Grassland.	0.042	Good	0.35
Bioswale	0.009	Poor	0.01
Ground-based Green Wall	0.027	Poor	0.03
Urban Trees	0.0855	Moderate	0.26

Table 3 – Area-based Habitats Within Proposed Development			
Total Area-Based Habitats Onsite (not counting trees or green wall)	**0.37**		**0.81**
Offsite Habitat	**Area (ha)**	**Condition**	**Biodiversity Units**
Created area			
Other Woodland; Mixed.	0.049	Moderate	0.13
Developed Land; Sealed Surface.	0.016	N/A	0.00
Mixed Scrub.	0.028	Moderate	0.19
Modified Grassland.	0.007	Good	0.02
Total Area-Based Habitats Offsite	**0.10**		**0.35**
Total Area-Based Habitat	**0.47 (excluding urban trees)**		**1.96**

Table 4 – Linear-based Habitats Within Proposed Development			
Habitat	**Length (km)**	**Condition**	**Biodiversity Units**
Retained Linear			
Native Hedgerow.	0.043	Moderate	0.17
Total Linear Habitats	**0.043**		**0.17**
Created Linear			
Native Hedgerow with Trees	0.043	Poor	0.17
Native Hedgerow	0.064	Poor	0.12
Total Created Linear Habitats	**0.11**		**0.29**
Total Linear-Based Habitat	**0.153**		**0.46**

4.3 Biodiversity Net Gain Assessment

The biodiversity metric calculation tool (.xlsm spreadsheet) has been submitted alongside this report and is available upon request for review as required.

Table 5, below, shows the headline results of the biodiversity net gain assessment:

Table 5 – Onsite Biodiversity Net Gain Assessment Summary of Results		
Onsite baseline.	Area-Based Habitat Units.	0.74
	Linear-Based Habitat Units.	0.23
Offsite baseline.	Area-Based Habitat Units.	0.34
Onsite post-intervention.	Area-Based Habitat Units.	0.81
	Linear-Based Habitat Units.	0.46
Offsite post-intervention.	Area-Based Habitat Units	0.35
Total net unit change (Onsite and Offsite).	Area-Based Habitat Units.	0.09
	Linear-Based Habitat Units.	0.23
Total net % change (Onsite and Offsite).	Area-Based Habitat Units.	11.76%
	Linear-Based Habitat Units.	97.22%

4.3.1 Area-based Habitats

The baseline sum of biodiversity units onsite considering area-based habitats is 0.74 habitat units. Post-development in the current scenario, the development would provide 0.81 habitat units onsite. The baseline sum of biodiversity units offsite is 0.34 habitat units. Post-development, offsite habitat units are 0.35. Therefore, the total net unit change of area-based units, including both onsite and offsite, is 0.09 habitat units (+11.76%).

4.3.2 Hedgerow Habitats

The baseline sum of biodiversity units onsite considering hedgerow (linear) habitats is 0.23 units. Post-development in the current scenario, considering hedgerows will be retained, and new hedgerows will be created, the development would provide 0.46 units, in other words a net gain of 0.23 hedgerow units (+97.22%).

5. RECOMMENDATIONS

5.1 Achieving Target Conditions for All Habitats

The habitats proposed within the scheme need to be of a sufficient quality to achieve the conditions as assessed. Specifications for the creation and management of these features are summarised in section 5.3 below. **This section should be carefully reviewed, and if future maintenance/management goals are not consistent with the recommended measures, a reassessment of post-intervention habitats and their conditions will be required.**

A Landscape and Ecological Management Plan (LEMP) should be produced to provide detail of the creation and management of the habitats. It is considered that this should be requested by the Local Planning Authority as an appropriately worded planning condition. Any habitat the developer creates with the purpose of achieving either no net loss of biodiversity or a biodiversity net gain, should be managed for a period of not less than 30 years. A management plan and proof of funding should be provided to the local authority for approval.

5.2 Achieving No Net Loss of Biodiversity

The mitigation hierarchy of avoidance, mitigation and compensation must be satisfied before a no net loss of biodiversity can be realised. This includes implementation of any mitigation measures required to ensure there are no significant effects on ecological receptors. Once these key requirements are met, biodiversity net gain can then be considered.

The potential effects identified in the Preliminary Ecological Appraisal report (ref. **R.7**) that may require mitigation include, potential effects on foraging bats and nesting birds in onsite trees and scrub. Recommendations provided in the report include:

- Retention and protection of the trees with roost potential. This should include an appropriate buffer to avoid impacts from vibration and noise during construction;
- A sensitive lighting scheme should be designed in coordination between a qualified lighting engineer and a suitably qualified Ecologist. This should ensure that potential roosting and connective commuting habitat (either retained or created within the development) remains as unlit as possible to allow continued and future use by bats;
- Scrub and tree clearance, if necessary, should be undertaken outside of the bird nesting season. If this is not possible, clearance works should take place with a suitably qualified Ecologist present;
- Vegetation clearance should be undertaken under an Ecological Method Statement, to limit the death or injury of reptiles;
- Vegetation clearance should occur in hedgehog active season, to reduce the impact on hedgehogs.

Once a mitigation strategy is agreed, suitable compensation can be considered.

5.3 Recommendations to Achieve Target Condition of Proposed Onsite Habitats

It is recommended that a Landscape and Ecological Management Plan (LEMP) is produced to ensure the habitats onsite are created, managed to the appropriate condition specified within this report, to achieve the condition assumed. It is recommended that the BNG calculations are updated at the same time as the LEMP.

Recommendations to achieve the target condition for proposed retained and/or enhanced habitats are included below.

5.3.1 Other Neutral Grassland

The other neutral grassland to be created onsite is targeted to reach good condition. To achieve this, the criteria shown in Table 6 below must be met.

Table 6 – Other Neutral Grassland Management Recommendations

Condition Assessment Criteria	How this is Achieved
The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present.	The grassland will be seeded with an appropriate wildflower seed mix, such as Emorsgate EM3. The grassland will be managed as a wildflower meadow, by mowing the grassland once the flowers have set seed in late summer (e.g., August), leaving the cuttings to dry in-situ to allow the seeds to shed from the cuttings. After two weeks the cuttings will be removed.
Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	A diversity of species and a low intensity mowing regime will create a diverse sward height.
Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Bracken and bramble will be treated appropriately (spot treatment, hand pulling or brush cutting) to ensure the cover is less than the required amount.
Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.	Grassland will be managed to ensure that invasive, non-native species are not present. The management plan will ensure that if invasive species colonise the site they are removed by a species-specific appropriate methodology. Damage to the grassland is not anticipated since it is unlikely the grassland will be used by the public.
There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type.	The grassland will be seeded with an appropriate wildflower seed mix, such as Emorsgate EM3. This is considered an appropriate seed mix to ensure there are greater than 10 species present per metre squared. No pesticides or fertilisers will be used when managing the grassland.

5.3.2 Modified Grassland

The modified grassland to be created onsite is targeted to reach moderate condition. To achieve this, the criteria shown in Table 7 below must be met.

Table 7 – Modified Grassland Condition Management Recommendations

Condition Assessment Criteria	How this is Achieved
There are 6-8 vascular plant species per m² present, including at least 2 forbs.	The grassland will be seeded with an appropriate seed mix to ensure there are between 6-8 species present per m². No pesticides or fertilisers will be used when managing the grassland. This will be achieved by seeding the grassland with an EM1 (or similar) seed mix.
Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	The grassland will be managed by regular cutting (cutting regime to be stipulated by a landscape and ecological management plan), and scrub will be removed when necessary.
Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Damage to the grassland is not anticipated since it is unlikely the grassland will be used by the public.
There is an absence of invasive non-native species (as listed on Schedule 9, of WCA, 1981).	Grassland will be managed to ensure that invasive, non-native species are not present. The management plan will ensure that if invasive species colonise the site they are removed by a species-specific appropriate methodology. Grassland will be managed to ensure that invasive, non-native species are not present.

5.3.3 Other Woodland; Mixed

It is possible to create a woodland of moderate condition, by including a management regime for a minimum of 30 years written with reference to the woodland wildlife toolkit (ref. **R.10**) that includes the following:

- Thinning of trees every 5 to 10 years to create space for young seedlings to germinate.
- Protection of woodland using deer fencing to reduce browsing damage.
- Implementation of a monitoring regime to check for invasive species and include measures for the removal of all invasive non-native species including Japanese knotweed (*Reynoutria japonica*), Himalayan balsam (*Impatiens glandulifera*) variegated yellow archangel (*Lamiastrum galeobdolon subsp. argentatum*), rhododendron (*Rhodendron ponticum*), cherry laurel (*Prunus laurocerasus*), American skunk cabbage (*Lysichiton americanus*), shallon (*Gaultheria shallon*) and snowberry (*Symphoricarpos albus*).
- Establishing the woodland by planting a minimum of five species of trees that are native to southern England, as described in the New Flora of the British Isles (ref. **R.11**). Non-native naturalised species should not be included in planting.
- Implementation of a monitoring regime to check for the presence of tree diseases including those listed on the Forest Research website (ref. **R.12**) and thin out trees with diseases as appropriate. The monitoring plan should include a mechanism to report the presence of the tree disease to the Tree Alert

scheme developed by the Forestry Commission (ref. **R.13**).

- Include management activities that creates log piles out of felled wood and retains deadwood onsite to provide opportunities for wildlife.
- Avoid the use of pesticides and herbicides.

5.3.4 Mixed Scrub

The mixed scrub to be created onsite in the off-site habitat is targeted to reach a moderate condition. To achieve this, the criteria shown in Table 8 below must be met.

Table 8 – Mixed Scrub Condition Management Recommendations

Condition Assessment Criteria	How this is achieved
The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. - At least 80% of scrub is native, - There are at least three native woody species, - No single species comprising more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens*, which can be up to 100% cover). The scrub is a good representation of the habitat type it has been identified as, based on its UKHab description (where in its natural range). The appearance and composition of the vegetation closely matches the characteristics of the specific scrub type. At least 80% of scrub is native, and there are at least three native woody species, with no single species comprising more than 75% of the cover.	The scrub will be planted with at least three native woody species with a mixture of cover density. The scrub will be planted with at least three native woody species with a mixture of cover density.
There is an absence of invasive non-native species (as listed on Schedule 9, of WCA, 1981) and undesirable species make up less than 5% of ground cover.	This will be achieved by regular monitoring and remedial actions, where appropriate (such as herbicide spot treatment, hand pulling or other method dependant on the undesirable species present).
The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	The scrub habitats will be adjacent to grassland areas which provides the grassland and herb mosaic. The scrub will likely be regularly cut back as part of the roadside maintenance, which will maintain the edge habitat.

5.3.5 Developed Land; Sealed Surface

There is no habitat requirement for developed land. Further fauna enhancement can be provided in the form of bird/bat boxes within the buildings. Recommendations for integrated bird/bat boxes are included in the Preliminary Ecological Appraisal report (ref. **R.7**).

5.3.6 Rain Garden

The rain garden is targeted to reach a moderate condition. To achieve this, the criteria shown in Table 9 below must be met.

Table 9 – Rain Garden Management Recommendations

Condition Assessment Criteria	How this is Achieved
The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	The area will be seeded with an appropriate seed mix with a diverse range of flowering plants.
Invasive non-native species as listed on Schedule 9 of WCA and any others deemed invasive by professional judgement, including Canadian fleabane (*Conyza canadensis*) are completely absent from the habitat.	This will be achieved by regular monitoring and remedial actions, where appropriate (such as herbicide spot treatment, hand pulling or other method dependant on the undesirable species present).

5.3.7 Individual Trees

Planted trees within the scheme are proposed to achieve a moderate / good condition. To achieve this, the criteria shown in Table 10 below must be met.

Table 10 – Individual Tree Management Recommendations

Condition Assessment Criteria	How this is Achieved
The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	This is likely to be achieved since the trees will be managed to maintain a continuous canopy.
There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide, or detrimental agricultural activity). Management will ensure the trees retain >75% of expected canopy for their age range and height.	The management plan will be implemented to include intervention measures for trees that develop pests and diseases. Trees will not be managed by grafting, pollarding or coppicing.
More than 20% of the tree canopy area is oversailing vegetation beneath.	The tree will be planted in an area of semi-natural habitat / grassland.

5.4 Further Survey and Assessment Required

No further survey and/or assessment is required to finalise the BNG design state assessment.

A full Landscape and Ecological Management Plan should be produced to provide detail of the creation and management of the habitats, including the measures as recommended above. It is considered that this should be requested by the Local Planning Authority as an appropriately worded planning condition.

5.5 Monitoring

A monitoring programme to measure the progress of habitat enhancements selected to take forward should be included in any future habitat management plan.

6. CONCLUSIONS

When assessing the site as shown on the Landscape Mitigation Plan, Drawing ref. 2735-00-201-N, the site achieves above the targeted 10% biodiversity net gain.

The habitats proposed within the scheme need to be of a sufficient quality to achieve the conditions as assessed within these calculations. Specifications for the creation and management of these features are summarised within this report.

A full Landscape and Ecological Management Plan should be produced to provide detail of the creation and management of the habitats. It is considered that this should be requested by the Local Planning Authority as an appropriately worded planning condition. The Landscape and Ecological Management Plan would need to include the area of scrub planting on the old road.

Final calculations of biodiversity units should be provided at the same time as the Landscape and Ecological Management Plan to ensure that the proposals provide a biodiversity net gain.

Provided the recommendations within this report are followed and the mitigation hierarchy of avoidance, mitigation, compensation and enhancement is implemented throughout the detailed design process, potential negative effects from development on important ecological features will be negligible, and the scheme will achieve a significant net gain in biodiversity.

APPENDICES

Appendix 1 – Report Limitations and Conditions

General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered. Third parties should not rely on the facts, matters or opinions set out in this report without the express written permission of Geosphere Environmental Ltd.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered within the context of the whole report.

Interpretations and recommendations contained within the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

Ecology Limitations and Exceptions

Any limitations associated with the report will be stated. The consequences of any limitations, findings and/or recommendations in the report are made clear in line with CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Chartered Institute of Ecology and Environmental Management, Winchester and BSI (2013) BS 42020:2013 Biodiversity – 'Code of practice for planning and development'.

This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context.

The wildlife and habitats present on any site are subject to change over time. Surveys of this kind can have limited validity, with the possibility of behaviour patterns and territory boundaries varying over time, due to the dynamics of adjacent populations.

New information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.
It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no survey or assessment can ensure the complete characterisation of the natural environment.

Unless stated specifically, drawings and plans are indicative only. As such, the position of features marked on the plans or drawings should not be taken as 100% accurate.

If bats or any other European protected species are found to be present onsite and the proposed activities will cause disturbance or destruction of a roost site, then this report will only summarise the potential requirements. For works to continue a detailed mitigation plan with appropriate compensation measures would be required and a development licence would need to be sought from Natural England.

This survey does not constitute an invasive species survey and should not be treated as such.

Owing to seasonal variances and prevailing weather, conditions may sometimes be sub-optimal for surveying and this may delay or disrupt planned survey programmes. If applicable, full details are given in the report.

Geosphere Environmental Ltd may not be aware of information that could be held by other organisations or individuals, and it is always possible for features of nature conservation interest to be unrecorded during surveys.

Scientific survey data will be shared with local biological records centre in accordance with the CIEEM professional code of conduct.

Appendix 2 – References

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R.10. Sylva Foundation and other parties. (2024). Woodland Wildlife Toolkit. https://woodlandwildlifetoolkit.sylva.org.uk/home

R.11. Stace, Clive A. (2019). New Flora of the British Isles, Fourth Edition. C&M Floristics, Middlewood Green, Suffolk.

R.12. Forest Research (2024). Pest and disease resources. https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/

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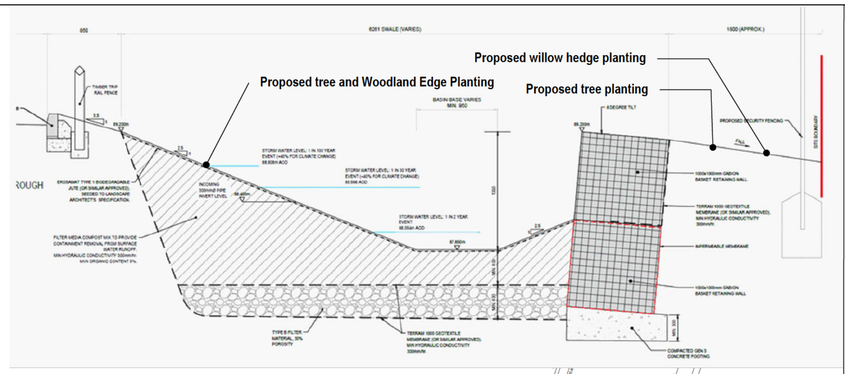
Appendix 3 – Drawings

Landscape Mitigation Plan – Drawing ref. 2735-00-201-N



Agricultural Fields

3no. Betula pendula

2.5m high living willow acoustic panels

2.5m high living willow acoustic panels

3no. Corylus avellana

1no. Betula pendula

3no. Corylus avel ana

1no. Malus sylvestris

1no Quercus ilex

3no Pinus sylvestris

GABION WALL

BASIN

3no Ilex aquifolium

2.5m High Willow Hedge

3no Quercus ilex

3no Ilex aquifolium

Existing Hedgerow to be Retained

3no Pinus sylvestris

Assumed visibility splay and access to farm gate

Holt Road

Holt Road

RIDGELINE

RIDGELINE

5 0 10 20 30m

1:250

PLANTING SCHEDULE

Proposed Tree Planting - Total : 12

No.	Code	Species	Common name	Form	Girth (cm)	Height (cm)	Root
4	Bp	Betula pendula	Silver birch	Standard	8-10	250-300	RB
1	Ms	Malus sylvestris	Crab apple	Light Standard	6-8	200-250	RB
6	Ila	Ilex aquifolium	Holly	Standard	8-10	250-300	RB
6	Ps	Pinus sylvestris	Scots Pine	Standard	8-10	250-300	RB
4	Qi	Quercus ilex	Holm Oak	Standard	8-10	250-300	RB

Proposed Specimen Shrub - Total : 6

No.	Code	Species	Common name	Form	Height (cm)	Root
6	Ca	Corylus avellana	Hazel	Bushy/ Feathered	125-150	RB

Proposed Native Hedgerow Mix - Total Length: 74m planted at 5 per l/m, double staggered row

No.	%	Code	Species	Common name	Age	Form	Height (cm)	Root
166	45	Cm	Crategus monogyna	Hawthorn	2X	Feathered	40-60	BR
166	45	Ps	Prunus spinosa	Blackthorn	2X	Feathered	40-60	BR
38	10	Rc	Rosa canina	Dog Rose	1+1	Transplant	40-60	BR

Proposed Willow Hedgerow - Total Length: 40m planted at 3 per l/m

No.	%	Code	Species	Common name	Age	Form	Height (cm)	Root
120	100	Sa	Salix alba	White willow	1+2	Transplant	125-150	BR

Proposed Native Species Woodland Mix - Total Area: 82m² planted at maximum 1 plant per m²
To be planted informally in random groups of 3,5 and 7.

No.	%	Code	Species	Common name	Age	Form	Girth (cm)	Height (cm)	Root	Container (L)
4	3	Ac	Acer campestre	Field Maple	1+1	Transplant	-	40-60	BR	-
3	2	Ap	Acer pseudoplatanus	Sycamore	1+1	Transplant	-	60-80	BR	
6	5	Bp	Betula pendula	Silver birch	1+1	Transplant	-	80-100	BR	
4	3	Cs	Cytisus scoparius	Common broom	-	Bushy	-	40-60	C	3L
6	5	Ila	Ilex aquifolium	Holly	-	Standard	8-10	250-300	RB	-
50	40	Ps	Pinus Sylvestris	Scots Pine	-	Standard	8-10	250-300	RB	
50	40	Qi	Quercus ilex	Holm Oak	-	Standard	8-10	250-300	RB	
3	2	Ue	Ulex europeaus	Common gorse	-	Bushy	-	20-30	C	2L

Proposed Woodland Edge Mix - Total Area: 406m² planted at maximum 1plant per m²
To be planted informally in random groups of 3,5 and 7.

No.	%	Code	Species	Common name	Age	Form	Girth (cm)	Height (cm)	Root	Container (L)
61	15	Ac	Acer campestre	Field Maple	1+1	Transplant	-	40-60	BR	-
41	10	Ap	Acer pseudoplatanus	Sycamore	1+1	Transplant	-	60-80	BR	
61	15	Bp	Betula pendula	Silver birch	1+1	Transplant	-	80-100	BR	
81	20	Cs	Cytisus scoparius	Common broom	-	Bushy	-	40-60	C	3L
162	40	Ue	Ulex europeaus	Common gorse	-	Bushy	-	20-30	C	2L

Proposed Shrub Mix - Total Area: 286m² planted at maximum 1 plant per m²
To be planted informally in random groups of 3,5 and 7.

No.	Code	Species	Common name	Form	Height (cm)	Root	Container (L)
112	35	Cm	Crategus monogyna	Hawthorn	Whip	40-60	BR
48	15	Cs	Cytisus scoparius	Common broom	Bushy	40-60	C 3L
85	30	Ps	Prunus spinosa	Blackthorn	Whip	40-60	BR
17	5	Rc	Rosa canina	Dog Rose	Whip	40-60	BR
48	15	Ue	Ulex europeaus	Common gorse	Bushy	40-60	C 3L

Proposed Rain Garden Seeding
Emorsgate Seeds EM8 - Meadow Mixture for Wetlands (or equivalent). Sown at rate of 4g per m². Total area: 6m²

Proposed Meadow Mix
Emorsgate Seeds EM3 - Special General Purpose Meadow Mixture (or equivalent). Sown at rate of 4g per m². Total area: 465m²

Proposed Grass Verge
Emorsgate Seeds EM1 - Basic General Purpose Meadow Mixture (or equivalent). Sown at rate of 4g per m². Total area: 399m²

NOTES

Do not scale from this drawing electronically or manually, use written dimensions only.
All dimensions are in mil imeters unless stated otherwise.
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CDM 2015

The Construction (Design and Management) Regulations 2015 (CDM 2015) makes a distinction between domestic and commercial clients and out lines the duties you, as client, have under Health and Safety Law (HSE).

These duties can be found at.
http://www.hse.gov.uk/construction/cdm/2015/responsibilities.htm

It is your responsibility as client to make yourself aware of your new within CDM 2015 and act accordingly.

KEY:

Site Boundary

Existing Landscape

Existing Vegetation to be Removed

Uncategorized Vegetation

Proposed Landscape

Proposed Native Hedgerow (74 lm)

Proposed Willow Hedge (40 lm) - to grow as screening hedge 2.5m high.

Proposed Shrub Mix(286m²)

Proposed Native Species Woodland Mix (82m²)

Proposed Woodland Edge Mix (406m²):

Proposed Rain Garden (6m²)

Proposed Wetland Grass Mix (465m²)

Proposed Grass Verge (399m²)

Proposed Tree Planting

Proposed Specimen shrub

Proposed Gabion Wall: For details refer to Engineer's drawings.

Proposed Perimeter Chain Link & Barbed Wire Fence -to engineers specification.

Proposed 2.5m high living willow acoustic panels - to engineers specificaiton

Proposed Root Barrier: Root Barrier 325, 1m depth x 0.72mm thickness, by Green-Tech or similar and approved.

N	Revised to accommodate Ecologist comments.				
	REVISED BY: BJ	DATE: 11.04.2024	CHECKED BY: AJ	DATE: 11.04.2024	
M	Revised following internal review Proposed Rain Garden added.				
	REVISED BY: BJ	DATE: 11.04.2024	CHECKED BY: AJ	DATE: 11.04.2024	
L	Amended to accommodate Client's comments. Displayed planting in vicinity to spicy axes removed.				
	REVISED BY: LC	DATE: 05.04.2024	CHECKED BY: AJ	DATE: 05.04.2024	
K	Amended to accommodate Client's comments.				
	REVISED BY: BJ	DATE: 04.04.2024	CHECKED BY: AJ	DATE: 04.04.2024	
J	Amended to accommodate LPA's and Client's comments.				
	REVISED BY: BJ	DATE: 04.04.2024	CHECKED BY: AJ	DATE: 04.04.2024	

PURPOSE OF ISSUE: For Planning — RIBA STAGE: 3

DRAWING STATUS: Fit For Information

PROJECT TITLE: Sheringham Recycling Centre

CLIENT: Stantec UK Ltd

DRAWING TITLE: Landscape Miligation Plan — SCALE: 1:250 @A1

DATE	DRAWN BY	CHECKED BY	APPROVED BY
04/11/22	RB	CJ	AJ

DRAWING NUMBER

PROJECT NO.	TYPE	UNIQUE NO.	REVISION
2735	00	201	N

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Architecture | Masterplanning & Urban Design | Landscape Architecture
Norwich Office: Brettingham House, 35 Pottergate, Norwich, NR2 1EQ
Tel: 01603 631 319
www.lanproservices.co.uk

Appendix 4 – Condition Assessments

Survey cover sheet			
Date	02/10/2022	**Site name or location**	Sheringham Recycling Centre
Weather conditions	Dry, overcast and windy	**Project/development name**	
Surveyor name(s)	EB/RF	**Onsite/offsite**	
Metric 3.1 survey reference		**Reason for assessment (if not baseline condition survey)**	
Notes			

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)

UKHab Habitat Type(s)

Grassland - Modified grassland

Site name/location		**Onsite/offsite**	
Central grid reference of habitat		**Unique polygon reference**	
Limitations (if applicable)		**Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)**	

Habitat Description

See UKHab

	Condition Assessment Criteria	Condition Achieved (Y/N)	Notes/Justification
1	There must be 6-8 species per m2. If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type. **NB - this criterion is essential for achieving moderate condition.**	Y	
2	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.	Y	
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y	
5	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	N	
6	Cover of bracken less than 20%.	Y	
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Y	
	Essential criterion 1 achieved (Y/N)		Y
	Number of criteria passed		6

Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 6 or 7 of 7 criteria including passing essential criterion 1	Good (3)	Y
Passes 4 or 5 of 7 criteria; OR Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate (2)	
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1	Poor (1)	

Suggested enhancement interventions to improve condition score

Notes

Condition sheet: HEDGEROW Habitat Types

UKHab Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Native species rich hedgerow
Native species rich hedgerow - associated with bank or ditch
Native species rich hedgerow with trees
Native species rich hedgerow with trees - associated with bank or ditch

Site name/Location		**Onsite/offsite**	
Habitat's central grid reference		**Unique polygon reference(s)**	
Limitations (if applicable)		**Metric 3.1 survey reference (if condition assessment of this polygon relates to a wider habitat survey)**	

Habitat Description

See Table TS1-3 of the Technical Supplement.

Condition Assessment Criteria

A series of ten attributes, representing key physical characteristics, are used for this assessment. The attributes, and the minimum criteria for achieving a favourable condition in each, are defined. The attributes use similar favourable condition criteria to the Hedgerow Survey Handbook and the handbook is the recommended source of reference for assessing individual hedgerow attributes.

Hedgerow favourable condition attributes

Attributes and functional groupings (A, B, C, D & E)	Criteria (the minimum requirements for 'favourable condition'	Description	Condition Achieved (Y/N)	Notes/Justification
Core groups - applicable to all hedgerow types				
A1. Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).	N	
A2. Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice[4]).	N	
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	N	
B2. Gap - hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y	
C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	Y	
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (Urtica spp.), cleavers (Galium aparine) and docks (Rumex spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.	Y	
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	Y	
D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).	Y	
Additional group - applicable to hedgerows with trees only				

E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.		
E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.		

Each attribute is assigned to one of five functional groups (A – E), as indicated in Table TS1-2 and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria according to the approach set out in Table TS1-3.

The hedgerow condition assessment generates a weighting (score) ranging from 1-3, which is used within the biodiversity metric 3.1. The scores for each are set out in tables TS1-3 and TS1-4 below.

TABLE TS1-3: Hedgerow condition assessment and weighting

Condition categories for hedgerows without trees		
Category	**Maximum number of attributes that can fail to meet 'favourable condition' criteria in Table TS1-2**	**Weighting (score)**
Good	No more than 2 failures in total; **AND** No more than 1 in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1
Score achieved:	Moderate	

Condition categories for hedgerows with trees		
Category	**Maximum number of attributes that can fail to meet 'favourable condition' criteria in Table TS1-2**	**Weighting (score)**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1
Score achieved:		

Suggested enhancement interventions to improve condition score

Condition Sheet: LINE OF TREES Habitat Type

UKHab Habitat Type(s)

Line of trees
Line of trees – associated with bank or ditch
Line of trees (ecologically valuable)
Line of trees (ecologically valuable) – associated with bank or ditch

Site name/location		**Onsite/offsite**	
Central grid reference of habitat		**Unique polygon reference**	
Limitations (if applicable)		**Metric 3.0 survey reference (if condition assessment of this polygon relates to a wider habitat survey)**	

Habitat Description

See Chapter 8 of User Guide for definition.

	Condition Assessment Criteria	Condition Achieved (Y/N)	Notes/Justification
1	More than 70% of trees are native species.	Y	
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	N	
3	Includes one or more mature[1] or veteran[2] tree.	N	
4	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.	N	
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Y	
		Number of criteria passed	2

Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 of 5 criteria	Good (3)	

Passes 3 or 4 of 5 criteria	Moderate (2)		
Passes 0, 1 or 2 of 5 criteria	Poor (1)	Y	

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - A mature tree in this context is one that is at least 2/3 expected fully mature height for the species.

Footnote 2 - All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay

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Kw Knotweed.

GEOSPHERE ENVIRONMENTAL LTD

Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ

T: 01603 298076 | 01473 353519 | **E**: info@geosphere-environmental.co.uk | **W**: geosphere-environmental.co.uk