Torsion Projects

Land adjacent, 21 Thomas Street, Lindley, Huddersfield

ECOLOGICAL DESIGN STRATEGY (EDS)

Report Reference Number: FE341/EDS01

February 2024

Futures Ecology Ltd
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Company Number: 12125083

REV	Issue Status	Author or Reviewer	Name & Qualifications	Position	Date
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1.0 INTRODUCTION

1.1 The following report has been prepared by Futures Ecology Ltd. on behalf of Torsion Projects to discharge recommended ecology conditions to be attached to any planning consent relating to application 2023/62/91408/W, for land adjacent to 21 Thomas Street, Lindley, Huddersfield, HD3 3JJ (central grid reference: SE 11648 18281) (Kirklees Council). This report details how the biodiversity units stated in the Biodiversity Net Gain Assessment are to be achieved post-development, along with details on the protected species provisions at the site.

SITE LOCATION AND CONTEXT

1.2 The Site is approximately 0.27ha and comprises mainly of bare ground with sparse vegetation. To the western boundary groups of immature trees dominate. The Site is typical of a cleared building site with remnant garden and landscape species, with some waste ground native flora, but is not sufficiently diverse to be classed as a mosaic habitat.

1.3 To inform the planning application, BEK Enviro Limited completed site surveys in 2022 and produced a Preliminary Ecological Appraisal[1] and Biodiversity Net Gain calculations[2] for the site.

PLANNING PERMISSION

1.4 A planning application for the erection of a care home (Class C2) with sub-station, associated car parking, access, servicing, landscaping and other associated works has been submitted to Kirklees Council (Planning Reference: 2023/62/91408/W). Consultee comments by the Ecology Unit, dated 04.07.2023, provided recommended condition wording to ensure the proposed development complies with national and local planning policies.

1.5 The recommended ecology conditions state;

"1. There shall be no commencement of the development hereby permitted until an Ecological Design Strategy (EDS) to ensure that a minimum of 4.86 habitat units and 5.95 hedgerow units post-development, has first been submitted to and agreed in writing by the Local Planning Authority. The submitted EDS shall include the following.

a) Purpose and conservation objectives for the proposed works;

b) Review of site potential and constraints;

c) Detailed design(s) and/or working method(s) to achieve stated objectives;

d) Extent and location/area of proposed works on appropriate scale maps and plans;

e) Details on the protected species provisions at the site;

f) Type and source of materials to be used where appropriate, e.g. native species of local provenance;

[1] BEK Enviro Limited, Preliminary Ecological Appraisal, Report Ref BEK-22034-1 (Rev B), May 2023
[2] BEK Enviro Limited, Amended Biodiversity Net Gain Statement, Report Ref: BEK-23071-1, May 2023

g) Timetable for implementation demonstrating that works are aligned with the proposed phasing of development;

h) Persons responsible for implementing the works;

i) Details of initial aftercare and long-term maintenance;

j) Details for monitoring and (where the results from monitoring show that conservation aims and objectives of the EDS are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers a measurable biodiversity net gain; and

k) Details for disposal of any wastes arising from works.

The EDS shall be implemented in full accordance with the approved details and all features shall be retained in that manner thereafter.

Reason: To provide an enhancement to biodiversity in line with Policy LP30 of the adopted Kirklees Local Plan and the Chapter 15 of the National Planning Policy Framework, particularly Paragraph 174."

1.6 Since this correspondence on the 04.07.2023, an amended Biodiversity Metric has been submitted to Kirklees Council[3]. This metric provides a 10% net gain, as required by The Environment Act 2021 and Kirklees Biodiversity Net Gain Technical Advice Note (June 2021), however the post intervention numbers have changed. The scheme now results in 4.50 Biodiversity Habitat Units (10.80% net gain) and 4.43 Hedgerow Units (no percentage calculated as the baseline was 0). The wording of the above condition should be amended to reflect the new metric on any granted decision notice.

"2. No site clearance works shall take place between 1st March and 31st August inclusive, unless a competent ecologist has undertaken a careful, detailed check of the site for active birds' nests immediately before the site is cleared and provided written confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Any such written confirmation should be submitted to the Local Planning Authority.

Reason: To prevent significant ecological harm in respect of direct impacts to birds, their eggs, nests and young, in accordance with Policy LP30 of the adopted Kirklees Local Plan and Chapter 15 of the National Planning Policy Framework."

2.0 PURPOSE AND CONSERVATION OBJECTIVES FOR THE PROPOSED WORKS

2.1 The purpose and conservation objectives of the habitat creation / management is to:

- Manage and create new habitats with ecological value as outlined in the Biodiversity Net Gain Assessment[4]. This includes trees, wildflower seeding and hedgerow planting to help to offset losses within the Site and achieve a 10% net gain overall.
- Monitoring of the habitats to ensure they reach their target conditions (as outlined within the Biodiversity Metric 4.0) and apply appropriate remediation, if required.

[3] BEK Enviro Limited, Amended Biodiversity Net Gain Statement, Report Ref: BEK-23071-21 (Rev A), November 2023
[4] BEK Enviro Limited, Amended Biodiversity Net Gain Statement, Report Ref: BEK-23071-21 (Rev A), November 2023

- Introduce new habitat features to improve the opportunities for foraging bats and birds and to provide shelter for these animals, and other faunal species, within the Site. This relates to the provision of artificial wildlife boxes and integral wildlife features within new buildings.

2.2 Overall, the above will contribute to the aims of net biodiversity gain within the local area.

2.3 Newly created habitats include trees, wildflower / species rich grassland (other neutral grassland) and hedgerow planting, as well as introduced shrub.

Table 1: Retained and Created Habitats Target Condition Summary

Habitat	Target Condition in accordance with the Biodiversity Metric 4.0
Retained	
Urban trees – small (T3, T6, T8-T11, T16, T24, T27, T32, T33[5])	Poor
Urban trees – medium (T4, T5, T7, T14, T15, T17 - T19, T22, T23, T25, T26[5])	Moderate
Created	
Urban – Introduced shrub	Condition Assessment N/A
Grassland – Other neutral grassland	Moderate
Ground based green wall	Moderate
Urban – Urban tree	Moderate
Species-rich native hedgerow	Moderate
Native hedgerow	Moderate

3.0 REVIEW OF SITE POTENTIAL AND CONSTRAINTS

3.1 Clearance of any significant vegetation will take place outside of the bird breeding season (March to the end of August). If this is not possible, then a check for active nests should be carried out immediately before any works to the affected areas begin.

3.2 Vegetation clearance will be undertaken in a precautionary manner to protect any amphibians, reptiles or hedgehogs *Erinaceus europaeus* sheltering within the Site.

3.3 Several species of cotoneaster were identified within the Site, including entire-leaved cotoneaster *Cotoneaster integrifolius* and Himalayan cotoneaster *Cotoneaster simonsii.* These species are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)[6]. This means it is an offense to plant or otherwise cause these species to grow in the wild. These species will be mechanically removed from the Site prior to the construction phase, however ongoing monitoring will be required, with management to control the species, should they return.

[5] Tree numbers taken from the Arboriculture Report; E3P, Arboricultural Impact Assessment and Method Statement Ref 80-761-R1-5, May 2023

[6]

4.0 DETAILED DESIGN(S) AND/OR WORKING METHOD(S) TO ACHIEVE STATED OBJECTIVES

4.1 Within the Biodiversity Net Gain Assessment[7] the Biodiversity Metric 4.0 shows that 4.50 Biodiversity Habitat Units and 4.43 Hedgerow Units can be delivered on Site post development.

4.2 Areas of wildflower seeding, tree planting and native hedgerows will be created and managed for a minimum of 30-years. Monitoring and implementation of remedial measures will ensure that the habitat target conditions are achieved.

4.3 Details of planting have been included in a separate Planting Plan & Schedule (PGLA Ltd Landscape Architects, May 2023, Plan Ref: PP01.00, Revision P5).

4.4 The locations of the habitats can be found in Figure 1: Ecological Enhancement Plan.

INTRODUCED SHRUB

4.5 New planting around the care home will include ornamental shrub planting, including species which produce fruit and nectar supplying a food resource for insects, birds and small mammals. Due to the non-native nature of this habitat type, the habitat condition is automatically set to "Condition Assessment N/A" within the metric.

OTHER NEUTRAL GRASSLAND (WILDFLOWERS)

4.6 Areas of wildflower seeding will be incorporated within scheme and managed to reach moderate condition.

4.7 The open area in the east of Site will be seeded with Naturescape N14 Flowering Lawn Mixture (see species composition in Section 7). This is the area upon Figure 1 known as amenity grassland with wildflower.

4.8 The areas in the west, beneath the retained, mature trees, will be seeded with a shade tolerant seed mix such as Emorsgate Wildflower for Hedgerows Mixture EH1f (see species composition in Section 6). This is the area upon Figure 1 known as wildflower grassland.

4.9 Ground preparation will be required before the seed is sown. This includes aiming to select ground that is not highly fertile and does not have a problem with perennial weeds. To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

4.10 Seed should be sown in the autumn or spring but can be at other times of the year if there is sufficient warmth and moisture in the soil.

4.11 Once established this should be managed as a meadow and cut late in summer season (July/ August), and arisings removed, like a hay crop, by leaving onsite for around a week to let seed shed. This can be complemented with a cut in spring.

4.12 This habitat must achieve a minimum of moderate condition. This will require management to ensure that it meets a minimum of three of the following criteria including essential criteria A:

[7] BEK Enviro Limited, Amended Biodiversity Net Gain Statement, Report Ref: BEK-23071-21 (Rev A), November 2023

A. 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. *Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.*

B. 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.

C. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens[8].

D. Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus agg*.) is less than 5%.

E. 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. (See Footnotes[9,10,11]).

Additional criterion for all non-acid grassland types:

F. There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 2 and 4 (of the Habitat Condition Assessment form (Appendix A)) cannot contribute towards this count).

Note - this criterion is essential for achieving Good condition for non-acid grassland types only.

4.13 From the above list the management will target A, C, D and E.

GROUND BASED GREEN WALL

4.14 A green wall comprising largely of honeysuckle *Lonicera periclymenum,* to be planting in May – September, ideally.

4.15 This habitat must achieve a minimum of moderate condition. This will require management to ensure that it meets a minimum of two of the following criteria:

[8] For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.
[9] Species indicative of sub-optimal condition for this habitat type include creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.
[10] Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels, accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.
[11] Wildlife and Countryside Act 1981 (as amended).

A. Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.

B. 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.

C. Invasive non-native plant species (listed on Schedule 9 of WCA) and others which are to the detriment of native wildlife (using professional judgement) cover less than 5% of the total vegetated area.

Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).

4.16 From the above list the management will target B and C.

URBAN TREE

4.17 There are 12 small and 11 medium urban trees to be retained within the scheme, as per the Arboriculture Report[12] and Figure 1.

4.18 An additional 12 small trees will be planted as part of the landscaping scheme.

4.19 Trees should be planted between October and March with biodegradable rabbit protection / tree ties as required.

4.20 This habitat must achieve a minimum of moderate condition. This will require management to ensure that it meets a minimum of three of the following:

A. The tree is a native species (or at least 70% within the block are native species).

B. 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).

C. The tree is mature (or more than 50% within the block are mature).

D. There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.

E. Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.

F. More than 20% of the tree canopy area is oversailing vegetation beneath.

4.21 From the above list the management will target B, D and F.

HEDGEROWS

4.22 Native yew *Taxus baccata* hedging will be planted along the Site entrance and a new native species rich hedgerow will be planted along the western boundary of Site. The new

[12] e3p, Arboricultural Impact Assessment and Method Statement, April 2023, Report Ref: Reference: 80-761-R1-5

native species rich hedgerow will be planted with at least five native species per 30m section.

4.23 Hedge species should be planted between October and March with biodegradable rabbit protection / ties as required.

4.24 Once planted the hedgerows will be allowed to establish and develop in height (>1.5m) and depth (>1.5m) within the first few years. After 3 years, the hedgerow will be cut back once per annum between January and February, to avoid the nesting bird season and to provide an overwintering food source (berries / fruit).

4.25 As and when required the native species rich hedgerow will be laid or coppiced to maintain dense cover at the base providing habitat and shelter for nesting birds and cover for foraging small mammals.

4.26 The hedgerows will be managed to reach moderate condition. This will require management to ensure that there are no more than 4 failures in total from the table below and that it does not fail both attributes in more than one functional group.

Table 2: Hedgerow Condition Assessment (HCA)

Attribute	Criteria	Description
A1. Height	>1.5m 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).
A2. Width	>1.5m 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 >0.5m 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).
B1. Gap - hedge base	Gap between ground and base of canopy <0.5m for >90% of length	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[13]).

[13] Defra (2007) Hedgerow Survey Handbook. A standard procedure for local surveys in the UK. Defra, London

Attribute		Criteria	Description
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).
C1.	Undisturbed ground and perennial vegetation	>1m 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 hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow 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.
C2.	Nutrient-enriched 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.
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[14] and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[15], as well as the BSBI website[16] where the 'Online Atlas of the British and Irish Flora'[17] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website[18].
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).

4.27 From the above list the management will target A1, A2, B1, B2, C2, D1.

[14] Wildlife and Countryside Act 1981 (as amended)
[15] https://jncc.gov.uk/
[16] BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). Definitions: wild, native or alien? [online] Available on: Definitions: wild, native or alien? – Botanical Society of Britain & Ireland (bsbi.org)
[17] BSBI and Biological Records Centre (BRC) (2022) Online Atlas of the British and Irish Flora. [online] Available on: Online Atlas of the British and Irish Flora (brc.ac.uk)
[18] https://www.nonnativespecies.org/

5.0 EXTENT AND LOCATION/AREA OF PROPOSED WORKS ON APPROPRIATE SCALE MAPS AND PLANS

5.1 See Figure 1.

6.0 DETAILS ON THE PROTECTED SPECIES PROVISIONS AT THE SITE

HABITAT FEATURES

6.1 A variety of types of bat and bird boxes will be installed on the new building to increase availability of roosting and nesting sites. A log pile will also be provided within the southwest of Site to provide shelter opportunities for invertebrates / hedgehog / amphibians / reptiles. Specifications of these enhancements are detailed in Table 3 below and the locations of these are shown on Figure 1.

Table 3: Habitat Feature Specifications

Target species	Location	Product	Quantity
General bat species	On buildings facing south / south-west / south-east	Ibstock enclosed bat brick; 	4
Swift *Apus apus*	Cluster of 4x swift bricks within close proximity of each other on the building, positioned high up on gables. Bird boxes facing between north and east, avoiding placement above windows and doors.	Ibstock swift nesting brick; 	4
House sparrow *Passer domesticus*	On new building high up under the eaves. Bird boxes facing between north and east, avoiding placement above windows and doors.	Woodstone sparrow nest box; 	1
General bird species	On new building positioned 2-4 m high. Bird boxes facing between north and east, avoiding placement above windows and doors.	Woodstone open fronted nest box;	1

Target species	Location	Product	Quantity
			
Invertebrates, small mammals (hedgehog), amphibians, reptiles etc.	Log pile in the southwest of Site. Lay a stack of logs laid on their side. To prevent them rolling, drive a stake into the ground either side of the pile.	Log pile; 	1

6.2 The boxes will be sited away from light spill and with a clear flight line leading to them.

6.3 The positioning of the boxes upon Figure 1 is approximate only and must be confirmed by the supervising ecologist when onsite.

6.4 Given current supply chain issues affecting the manufacture and distribution of habitat boxes, the proposed boxes as detailed above may need to be amended to alternate manufacturers. The specifications of the boxes will, however, be similar to those of the proposed boxes.

7.0 TYPE AND SOURCE OF MATERIALS TO BE USED WHERE APPROPRIATE, E.G., NATIVE SPECIES OF LOCAL PROVENANCE

7.1 Full species lists will be provided at the Reserved Matters stage. Indicative tree and shrub mixes are shown in the separate Planting Plan & Schedule (PGLA Landscape Architects, May 2023, Plan Ref: LIN2304_PP01.00, Revision P5).

OTHER NEUTRAL GRASSLAND (WILDFLOWERS)

7.2 The open area in the east of Site will be seeded with Naturescape N14 Flowering Lawn Mixture. The species composition for N14 is listed below, but would be subject to change depending on stock availability:

20% Wild flowers

0.8%	Yarrow	*Achillea millefolium*
0.8%	Kidney vetch	*Anthyllis vulneraria*
2.4%	Lady's bedstraw	*Galium verum*
0.6%	Common catsear	*Hypochaeris radicata*
0.8%	Rough hawkbit	*Leontodon hispidus*

1.6%	Oxeye Daisy	*Leucanthemum vulgare*
2.0%	Bird's-foot Trefoil	*Lotus corniculatus*
1.6%	Ribwort Plantain	*Plantago lanceolata*
1.4%	Cowslip	*Primula veris*
3.2%	Selfheal	*Prunella vulgaris*
2.4%	Meadow Buttercup	*Ranunculus acris*
2.4%	Common sorrel	*Rumex acetosa*

80% Grasses

4.0%	Common Bent	*Agriostis capillaris*
12.0%	Crested Dog's tail	*Cynosurus cristatus*
16.0%	Hard Fescue	*Festuca Trachyphylla*
16.0%	Slender Creeping Red Fescue	*Festuca Rubra ssp. litoralis*
16.0%	Strong Creeping Red Fescue	*Festuca rubra ssp. rubra*
16.0%	Smooth-stalked Meadow-grass	*Poa pratensis*

7.3 The areas in the west, beneath the retained, mature trees, will be seeded with a shade tolerant seed mix such as Emorsgate Wildflower for Hedgerows Mixture EH1f. The species composition for EH1f is listed below, but would be subject to change depending on stock availability:

100% Wild flowers

0.5%	Yarrow	*Achillea millefolium*
5.0%	Garlic Mustard	*Alliaria petiolata*
2.5%	Cow Parsley	*Anthriscus sylvestris*
7.5%	Grey Sedge	*Carex divulsa ssp divulsa*
10.0%	Common Knapweed	*Centurea nigra*
15.0%	Rough Chervil	*Chaerophyllum temulum*
10.0%	Crosswort	*Cruciata laevipes*
1.0%	Wild Teasel	*Dipsacus fullonum*
2.5%	Hedge Bedstraw	*Galium album*
0.5%	Meadow Crane's-bill	*Geranium pratense*
5.0%	Hedge Crane's-bill	*Geranium pyreniacum*
1.5%	Wood Avens	*Geum urbanum*
1.0%	Field Scabious	*Knautia arvensis*

5.0%	Moon Daisy	*Leucanthemum vulgare*
5.0%	Musk Mallow	*Malva moschata*
10.0%	Ribwort Plantain	*Plantago lanceolata*
15.0%	Red Campion	*Silene dioica*
2.5%	Ragged Robin	*Silene flos-cuculi*
0.5%	Upright Hedge-parsley	*Torilis japonica*

8.0 TIMETABLE FOR IMPLEMENTATION DEMONSTRATING THAT WORKS ARE ALIGNED WITH THE PROPOSED PHASING OF DEVELOPMENT

8.1 The annual work program is outlined within the table below. This will cover an initial five-year period and is of capable of being rolled forward over a period of 30 years.

Table 4: Timetable of Implementation

Description of works	Years to be undertaken					Aftercare Period
	1	2	3	4	5	5- 30
Native Species Rich Hedgerow						
Planting October and March with biodegradable rabbit protection / tree ties as required. Planting will be avoided when the ground is particularly wet, to avoid waterlogging, or when the ground is frozen.	✓					
Like for like replacement of failed specimens as required. If gaps arise replant.	✓	✓	✓	✓	✓	✓
During the first five years of establishment of young saplings selective 'spot' spraying or strimming of weeds. Ensure plant species indicative of nutrient enrichment of soils dominate <20% cover of the ground.	✓	✓	✓	✓	✓	✓
Ensure there are no Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) invasive plant species and neophyte species. Remove invasives in accordance with biosecurity measures under a specialist contractor if present.	✓	✓	✓	✓	✓	✓
Relax management on hedgerows once established to increase height (2-3m), width >1.5m and gaps between the ground and the base of the canopy <0.5m for >90% the length.						✓
After 3 years, the hedgerow will be cut back once per annum between January and February, to avoid the nesting bird season and to provide an overwintering food source (berries / fruit). 4.25As and when required the native species rich hedgerow will be laid or coppiced to maintain dense cover at the base providing habitat and shelter for nesting birds and cover for foraging small mammals.				✓	✓	✓

Description of works	Years to be undertaken					Aftercare Period
	1	2	3	4	5	5- 30
Allow grassland along the hedgerow base to grow to provide a graduated sward height and habitat. Ideally at least 1m from the hedgerow.	✓	✓	✓	✓	✓	✓
Native Yew Hedging						
Planting October and March with biodegradable rabbit protection / tree ties as required. Planting will be avoided when the ground is particularly wet, to avoid waterlogging, or when the ground is frozen.	✓					
Like for like replacement of failed specimens as required. If gaps arise replant.	✓	✓	✓	✓	✓	✓
During the first five years of establishment of young saplings selective 'spot' spraying or strimming of weeds.	✓	✓	✓	✓	✓	
Management on hedgerows once established.			✓	✓	✓	✓
Urban Trees						
Planting October and March with biodegradable rabbit protection / tree ties / stakes as required. Planting will be avoided when the ground is particularly wet, to avoid waterlogging, or when the ground is frozen.	✓					
Allow species to mature i.e. minimal and no regular pruning .	✓	✓	✓	✓	✓	✓
Selective 'spot' spraying or strimming of weeds around the base. Not required if weed suppression matting used.	✓	✓	✓	✓	✓	
Like for like replacement of failed specimens as required with the same planting mix.	✓	✓	✓	✓	✓	✓
Examine stakes and ties for their effectiveness and requirement. If the specimen has yet to establish, replace or adjust ties, spacers and tubes as appropriate. If the specimen has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed, filling any holes with suitable topsoil.	✓	✓	✓	✓	✓	
Protect from human activities such as vandalism, herbicide treatment.	✓	✓	✓	✓	✓	✓
Other Neutral Grassland (Amenity grassland with wildflower and Wildflower grassland (shade tolerant)						
Prepare ground and sow seed in spring or autumn ideally or can be sown at other times of the year if there is sufficient warmth and moisture.	✓					

Description of works	Years to be undertaken					Aftercare Period
	1	2	3	4	5	5- 30
Meadow grassland is not cut from spring through to late July/August to give the sown species an opportunity to flower. After flowering in July or August take a 'hay cut': cut back with a strimmer to c. 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from Site / create a compost heap. Mow the re-growth through to late autumn/winter to c 50mm and again in spring if needed.		✓	✓	✓	✓	✓
Ensure cover of undesirable species[19] and physical damage (from excessive poaching, damage from machinery use or storage, or any other damaging management activities) is below 5%.		✓	✓	✓	✓	✓
Cover of bracken less than 20% and cover of scrub and bramble less than 5%.		✓	✓	✓	✓	✓
Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.		✓	✓	✓	✓	✓
Ground Based Green Wall						
Planting of climbing plants in May to September ideally.	✓					
Like for like replacement of failed specimens as required with the same planting mix.	✓	✓	✓	✓	✓	✓
Once established, prune *Lonicera periclymenum* after flowering, cutting back by up to a third, to maintain a good shape.		✓	✓	✓	✓	✓
Ensure absence of invasive non-native plant species (listed on Schedule 9 of WCA) and others which are to the detriment of native wildlife (using professional judgement) cover less than 5% of the total vegetated area.		✓	✓	✓	✓	✓
Habitat Features						
Installation of habitat boxes within / on new building.	✓					
Check boxes, replace any missing / damages boxes if required, clean out nest boxes if required, (bat boxes self-cleaning).		✓		✓		✓
Top up log piles with material from tree/scrub/shrub management practices.		✓	✓	✓	✓	✓
Other Regular Maintenance						
Litter Removal	✓	✓	✓	✓	✓	✓
Undertake the monitoring of the habitats using the habitat condition assessment (Appendix A) every 3 years as a minimum and implement remedial actions if required. An ecologist will be required to undertake this assessment.			✓			✓

[19] creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex otusifolius*, common ragwort *Senecio jacobea*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, white clover *Trifolium repens*, cow parsley *Anthriscus sylvestris,* marsh thistle *Cirsium palustre* and marsh ragwort *Senecio aquaticus*.

9.0 PERSONS RESPONSIBLE FOR IMPLEMENTING THE WORKS

9.1 The creation and ongoing management of habitats within the Site will be the responsibility of Torsion Projects, until such time that the Site is passed to a management company. The responsibility to carry out the detailed management within this document will be included within future sale agreements, if applicable.

10.0 DETAILS OF INITIAL AFTERCARE AND LONG-TERM MAINTENANCE

10.1 See Sections 4 and 8.

11.0 DETAILS FOR MONITORING AND CONTINGENCIES AND/OR REMEDIAL ACTION

11.1 The success of measures outlined in this document will be monitored and recorded in Aftercare Reports every 3 years (as a minimum). Habitat Monitoring Forms can be found in Appendix A. The Aftercare Report will be sent to the Local Panning Authority reporting on progress of the work programme and confirmation of required actions for the next management period. The plan will be reviewed and updated every 3 years and implemented for perpetuity.

11.2 The Ecological Design Strategy will be amended, where necessary, and with agreement with the LPA, if management objectives are not being met and contingencies and/or remedial action are required.

12.0 DETAILS FOR DISPOSAL OF ANY WASTES ARISING FROM WORKS

12.1 Arisings from grassland cutting will be composted within a designated area within the Site, or else taken away.

12.2 Any branches from necessary tree pruning works within the Site, will be used to top up the log pile in the southwest of Site.

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APPENDIX A: HABITAT MONITORING FORMS BIODIVERSITY METRIC 4.0

Date Assessment Undertaken: **Assessor:**		
Habitat & Condition Assessment Criteria	**Does the habitat meet the criteria?**	**Notes on Improvements Required**
Wildflower and Amenity Grassland - Other Neutral Grassland (Medium to High Distinctiveness Grasslands)		
A. 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. Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.		
B. 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.		
C. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.		
D. Cover of bracken is less than 20% and cover of scrub (including bramble is less than 5%.		
E. 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.		

F. There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote[20,21] cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**		
Does the Amenity grassland with wildflower meet Moderate Condition? **Does the Wildflower grassland (shade tolerant) meet Moderate Condition?** **(Passes 3 - 5 criteria, including essential criterion A to meet Moderate condition)**		
Native Species Rich Hedgerow / Native Yew Hedging		
A1. Height >1.5 m average along length.		
A2. Width >1.5 m average along length.		
B1. Gap – hedge base - Gap between ground and base of canopy <0.5 m for >90% of length.		
B2. Gap - hedge canopy continuity - Gaps make up <10% of total length; and No canopy gaps >5 m.		
C1. Undisturbed ground and perennial vegetation. >1m 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).		
C2. Nutrient-enriched perennial vegetation. Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.		
D1. Invasive and neophyte species. >90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA and recently introduced species.		
D2. Current damage. >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.		
Does the Species Rich Native Hedgerow meet Moderate Condition? **Does the Native Yew Hedgerow meet Moderate Condition?**		

[20] Species indicative of sub-optimal condition for this habitat type include creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.

[21] Wildlife and Countryside Act 1981 (as amended).

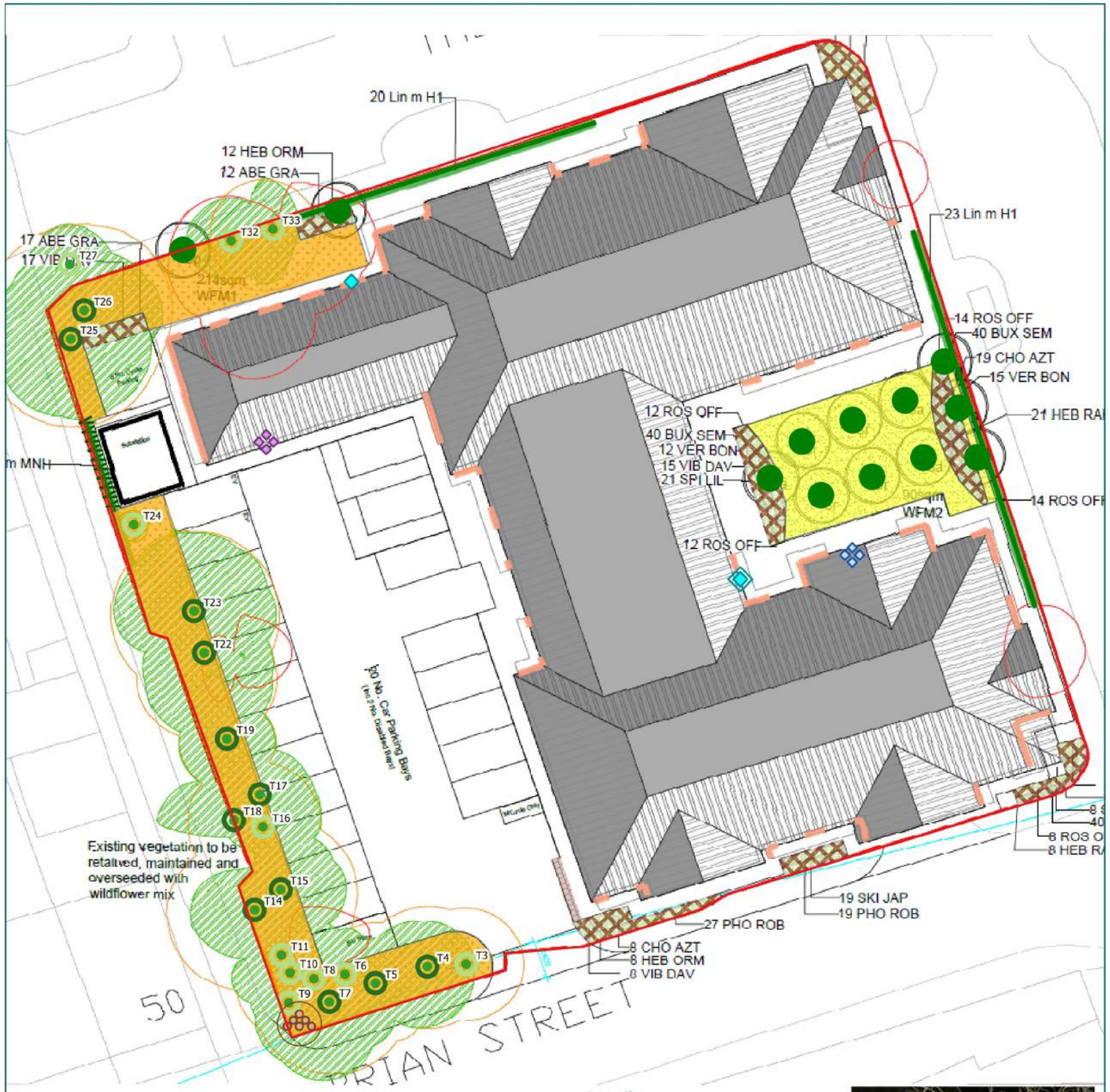
(No more than 4 failures in total; AND does not fail both attributes in more than one functional group required to reach a Moderate condition)		
Urban Trees		
A. The tree is a native species (or at least 70% within the block are native species).		
B. The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).		
C. The tree is mature (or more than 50% within the block are mature).		
D. There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.		
E. Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.		
F. More than 20% of the tree canopy area is oversailing vegetation beneath.		
Does the Habitat meet Moderate Condition? **(Passes 3 or 4 of 6 criteria to reach a Moderate condition)**		
Ground Based Green Wall		
A. Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.		
B. 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.		

C. Invasive non-native plant species (listed on Schedule 9 of WCA[22]) and others which are to the detriment of native wildlife (using professional judgement)[23] cover less than 5% of the total vegetated area[24]. **Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).**		
Does the Habitat meet Moderate Condition? **(Passes 2 of 3 criteria to reach a Moderate condition)**		

[22] Wildlife and Countryside Act 1981 (as amended).

[23] Sources of information about detrimental non-native species can be found on the GB Non-native Species Secretariat (GBNNSS) website

[24] Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.



Assorted bird boxes:
Fixed 2-4m up the wall facing between north and east. Avoid doorways or windows.

Quantity:
1 x open nest boxes
1 x house sparrow nest boxes
4 x integrated swift boxes

Total: 6

Ibstock Integrated Swift Brick

Cluster of 4 integrated swift boxes on apartment building.

Woodstone Open Nest Box

Woodstone House Sparrow Nest Box

Bat boxes:
Placed at least 4m above the ground, on south, south-eastern or south-western aspects, located away from artificial light sources.

Total: 4

Ibstock Integrated Bat Box

Cluster of 4 integrated bat boxes on apartment building.

Log pile:
Placed within existing habitats in the south-west of Site, ideally using vegetation cleared from the Site.

More information available from the RSPB and Buglife.

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Key

- Site Boundary

Habitats

- Shrub beds [Introduced shrub]
- Amenity grassland with wildflower [Other neutral grassland]
- Wildflower grassland (shade tolerant) [Other neutral grassland]
- Mixed native hedge [Native species-rich hedgerow]
- Yew hedging [Native hedgerow]
- Broadleaved tree [Urban tree - small]
- Retained tree - with Arboriculture Report Reference [Urban tree - moderate]
- Retained tree - with Arboriculture Report Reference [Urban tree - small]
- Climbing plants [Ground based green wall]

Ecological enhancement measures

- 4 x integrated swift bricks
- Bird box - open nest box
- Bird box - house sparrow nest box
- 4 x integrated bat boxes
- Log pile

Please note that should the design of the bat box / bird box be unavailable at the time of installation, a suitable similar alternative should be utilised.

Client:	Torsion Projects	Plan Reference:	FE341_01	Author:	KEH
Project:	Land adj, 21 Thomas Street, Lindley, Huddersfield	Project Reference:	FE341	Date:	2/1/2024
Title:	Figure 1 - Ecological Enhancement Plan	Report Reference:	FE341/EDS01	Scale:	NTS@A3

C:\Users\kate.haymes\OneDrive - Futures Ecology Ltd\Projects\FE341 Land adj, 21, Thomas Street, Lindley, Huddersfield\QGIS\1_Plans\FE341_Project Plan.qgs