FUTURESECOLOGY

Yorkshire Country Properties

Barnsley Road, Denby Dale

BIODIVERSITY ENHANCEMENT AND MANAGEMENT PLAN

Report Reference Number: FE85/BEMP

May 2022

Futures Ecology Ltd
Carrwood Park, Swillington Common Farm, Selby Rd, Leeds LS15 4LG

Company Number: 12125083

This report is the property of Futures Ecology Limited and is issued on the condition it is not reproduced, retained or disclosed to any unauthorised person, either wholly or in part without the written consent of Futures Ecology Limited.

This report may not be relied upon by any other party without the express written agreement of Futures Ecology Limited. The use of this report by unauthorised third parties is at their own risk and Futures Ecology Limited accepts no duty of care to any such third party.

Futures Ecology Limited assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others. Any recommendation, opinion or finding stated in this report is based on conditions as they existed at the time that Futures Ecology Limited undertook the work. Nothing in this report constitutes legal opinion.

REV	Issue Status	Author or Reviewer	Name & Qualifications	Position	Date
-	Draft 1	Author	R. Hill-Harmsworth ACIEEM BSc (Hons)	Ecology Director	24/05/2022
		Reviewer	K. Haymes ACIEEM BSc (Hons)	Senior Ecologist	25/05/2022

CONTENTS

1.0 INTRODUCTION 1

2.0 BIODIVERISTYY IMPACT ASSESSMENT (BIA) 3

3.0 DESCRIPTION AND EVALUATION OF FEATURES TO BE MANAGED AND ENHANCED 3

4.0 ECOLOGICAL TRENDS AND CONSTRAINTS ON SITE THAT MIGHT INFLUENCE MANAGEMENT 4

5.0 AIMS AND OBJECTIVES OF MANAGEMENT & MONITORING 4

6.0 APPROPRIATE MANAGEMENT ACTIONS FOR ACHIEVING AIMS AND OBJECTIVES ... 5

7.0 PRESCRIPTIONS FOR MANAGEMENT ACTIONS 5

8.0 PREPARATION OF A WORK SCHEDULE (INCLUDING AN ANNUAL WORK PLAN CAPABLE OF BEING ROLLED FORWARD OVER A FIVE-YEAR PERIOD) 12

9.0 IMPLEMENTATION 17

10.0 ONGOING MONITORING AND REMEDIAL MEASURES 17

APPENDICES

Appendix A: Habitat Monitoring Form

Appendix B: Blank Woodland Habitat Monitoring Form

FIGURES

Figure 1 - Post Development Habitats and Enhancements

1.0 INTRODUCTION

1.1 The following Biodiversity Enhancement and Management Plan (BEMP) has been prepared by Futures Ecology Ltd. on behalf of Yorkshire Country Properties to discharge Condition 27 of planning permission 2019/62/91836/E from Kirklees Council for Land Adjacent to Inkerman Court, Barnsley Road, Denby Dale, Huddersfield, HD8 8XA. This document also ties in with Conditions 26 and 28 of the planning permission.

Condition 27 states:

"27. Prior to the commencement of development (including ground works), a Biodiversity Enhancement and Management Plan (BEMP) shall be submitted to and agreed in writing by the Local Planning Authority. The BEMP shall ensure that no less than a 10% biodiversity net gain (i.e., 10% above the baseline biodiversity value of the site as assessed by the Biodiversity Metric 3.0) is achieved post-development, and shall include the following:

- *Description and evaluation of features to be managed and enhanced;*
- *Details of the extent and location/area of proposed enhancement works on appropriate scale maps and plans;*
- *Details corresponding with details to be submitted pursuant to conditions 26 and 28;*
- *Details of ecological trends and constraints on site that might influence management;*
- *Aims and Objectives of management;*
- *Appropriate management actions for achieving the Aims and Objectives;*
- *An annual work programme (to cover an initial five-year period capable of being rolled forward over a period of 30 years);*
- *Details of the management body or organisation responsible for implementation of the BEMP; and*
- *Details of an ongoing monitoring programme and remedial measures.*

The BEMP will be reviewed and updated every five years and implemented for a minimum of 30 years. The BEMP shall include details of the legal and funding mechanisms by which the long-term implementation of the BEMP will be secured by the developer with the management body responsible for its delivery. The BEMP shall also set out (where the results from the monitoring show that the Aims and Objectives of the BEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully-functioning biodiversity objectives of the originally-approved BEMP. The development shall be implemented in accordance with the approved BEMP, and all measures and features shall be retained in that manner thereafter.

***Reason:** To secure mitigation and compensation for the ecological effects resulting from loss of habitat and to secure a net biodiversity gain in line with Policy LP30 of the Kirklees Local Plan and chapter 15 of the National Planning Policy Framework. This pre-commencement condition is necessary to ensure that measures to ensure adequate enhancement and a biodiversity net gain (based on biodiversity metric calculations which*

require data relating to the site's predevelopment condition) are agreed at an appropriate stage of the development process"

1.2 This document also ties in with conditions 26 and 28 of the planning permission.

Condition 26 states:

"26. Prior to the commencement of superstructure works, details of all hard and soft landscaping shall be submitted to and approved in writing by the Local Planning Authority. The landscaping scheme shall have regard to the details to be submitted pursuant to conditions 27 and 28 with regard to biodiversity management and enhancement. These shall include:

- *Details of existing and proposed levels, and regrading;*
- *Species schedule and planting plans;*
- *Details of initial aftercare and long-term maintenance;*
- *Details of monitoring and remedial measures, including replacement of any trees, shrubs or planting that fails or becomes diseased within the first five years from completion;*
- *Details (including samples, if requested), of paving and other hard surface materials; and*
- *Details of the on-site open space (including details of its purpose and management) and of any areas for designated, informal, incidental and/or doorstep play.*

No part of the development hereby approved shall be occupied until all hard and soft landscaping has been implemented in accordance with the approved details unless otherwise agreed in writing by the Local Planning Authority. All approved landscaping shall be retained thereafter in accordance with the approved details and approved long-term maintenance, monitoring and remedial arrangements.

***Reason**: In the interests of local ecological value and visual amenity, and to accord with Policies LP24, LP30, LP32, LP33, LP47 and LP63 of the Kirklees Local Plan, and chapters 12 and 15 of the National Planning Policy Framework."*

Condition 28 states:

"28. Prior to the commencement of development (including ground works), a Biodiversity Gain Plan (BGP) shall be submitted to and approved in writing by the Local Planning Authority. The BGP shall demonstrate a measurable biodiversity net gain and shall include:

- *Details of the measures taken or to be taken to minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat; The pre-development biodiversity value of the onsite habitat, measured using the Biodiversity Metric 3.0 (or latest version, if available);*
- *The post-development biodiversity value of the onsite habitat, measured using the Biodiversity Metric 3.0 (or latest version, if available); Details of any offsite habitat*

enhancement required to achieve a biodiversity net gain, including predevelopment and target biodiversity value.

• The BGP shall inform the BEMP referred to under condition 27 and the landscaping scheme referred to under condition 26.

***Reason:** To secure mitigation and compensation for the ecological effects resulting from loss of habitat and to secure a net biodiversity gain in line with Policy LP30 of the Kirklees Local Plan and chapter 15 of the National Planning Policy Framework. This pre-commencement condition is necessary to ensure that measures to ensure adequate enhancement and a biodiversity net gain (based on biodiversity metric calculations which require data relating to the site's predevelopment condition)."*

SITE LOCATION AND CONTEXT

1.3 The site is located to the south of Denby Dale, centred on grid reference: SE 22907 08162. The development boundary comprised c. 1.02ha. Habitats within the site include: broadleaved woodland, bramble scrub, mixed scrub, tall ruderal vegetation, poor semi-improved grassland, a stream and a species poor hedgerow. Tree Preservation Orders (TPO) are present on the site.

1.4 The landscape surrounding the site comprised of broadleaved woodland to the west, farmland to the east, housing to the north and Barnsley Road to the south.

2.0 BIODIVERISTYY IMPACT ASSESSMENT (BIA)

2.1 A Biodiversity Impact Assessment has previously been undertaken; full details are provided within Futures Ecology Biodiversity Impact Assessment Report (FE85/BIA01 REV A May 2022).

2.2 In summary from the completed Natural England Biodiversity Metric 3.1, the value of the existing on-site habitats are 6.71 Biodiversity Habitat Units (BHU), 0.20 Hedgerow Units and River Units 1.59.

2.3 Post development the habitat enhancements and creation with long-term management (for a minimum of 30 years) will achieve a net gain of 0.09 Hedgerow Units (total net change of 43.49%). However, a net gain in Habitat Units will not be achieved with the current proposed development resulting in a total net unit change of -4.28 Habitat Units (total net % change -63.87%).

3.0 DESCRIPTION AND EVALUATION OF FEATURES TO BE MANAGED AND ENHANCED

3.1 Habitats to be retained, enhanced and created on-site include:

- Woodland and forest – other woodland; broadleaved
- Urban – developed land; sealed surface
- Urban – vegetated garden
- Urban – Urban Trees
- Native hedgerow
- Native species rich hedgerow
- River
- Grassland – other neutral grassland
- Grassland – modified grassland
- Heathland and scrub – mixed scrub

4.0 ECOLOGICAL TRENDS AND CONSTRAINTS ON SITE THAT MIGHT INFLUENCE MANAGEMENT

4.1 Limited bird nesting habitat was identified onsite. The removal of significant vegetation should be scheduled to avoid the bird breeding season, which runs from March to the August, inclusive. If this is not possible, then a check for active nests should be carried out by a suitably qualified ecologist immediately before any works to the affected areas begin.

4.2 Management of habitats within gardens and any bat / bird boxes installed upon residential properties will be limited as they will be under the control of householders. This includes: introduced shrub, gardens, native hedgerow, ornamental hedgerows and urban trees.

5.0 AIMS AND OBJECTIVES OF MANAGEMENT & MONITORING

5.1 The aims and objective of the BEMP are:

- Create new habitats to mitigate for habitat losses on site;
- Manage new habitats within the POS to maximise their biodiversity value in the long-term. They must meet the minimum target condition as outlined within the Natural England Biodiversity Metric 3.0;
- Monitoring of the habitats on site to ensure they reach their target conditions and apply appropriate remediation, if required.
- Monitoring to ensure there are no invasive species on-site and apply appropriate measures to remove, if required.
- To provide a foraging and nesting habitat for the local bird population and foraging habitat for other species such as hedgehogs and bats.

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

Table 1: Habitat Target Condition Summary

Habitat	Target Condition in accordance with the Natural England Biodiversity Metric 2.0
Woodland and forest – other woodland; broadleaved	Fairly Good
Heathland and shrub – bramble scrub	Moderate
Grassland – Modified grassland	Moderate
Native species rich hedgerow	Moderate
Grassland – other neutral grassland	Moderate
Heathland and scrub – mixed scrub	Moderate
Urban – Urban Trees	Moderate (within POS)

6.0 APPROPRIATE MANAGEMENT ACTIONS FOR ACHIEVING AIMS AND OBJECTIVES

6.1 In order to achieve the prescribed aims and objectives, woodland will be enhanced and created on site and native tree, scrub, and hedgerow planting will be incorporated within the development.

6.2 With appropriate planting, and care not to bring in invasive species on plant machinery following biosecurity measures will ensure no invasive species can establish.

6.3 Regular monitoring of the habitat within the POS will be required in order to ensure they meet their target conditions. A habitat monitoring form can be found in Appendix A.

7.0 PRESCRIPTIONS FOR MANAGEMENT ACTIONS

7.1 A landscape plan has been completed by FDA. This details the locations of all proposed planting and includes further details on species utilised.

POS Habitats

Mixed Scrub

7.2 Two new areas of mixed scrub habitat will be created in the west of the site. Shrubs should be planted between October and March with biodegradable rabbit protection / tree ties as required. Species which will be planted include:

- Hazel *Corylus avellana*
- Dog wood *Cornus sanguinea*
- Blackthorn *Prunus spinosa*
- Field rose *Rosa arvensis*
- Dog rose *Rosa canina*

- Hawthorn *Crataegus monogyna*

7.3 Some additional tree species will also be planted within the scrub areas, these will include:

- Silver birch *Betula pendula*
- Rowan *Sorbus aucuparia*

7.4 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:

1. Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).
2. There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
3. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species1 make up less than 5% of ground cover.
4. The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
5. There are clearings, glades or rides present within the scrub, providing sheltered edges.

7.5 Due to the minimal size of this habitat, from the above list the management should target 1, 2 and 3.

Woodland

7.6 Woodland habitat within the site will be retained, enhanced and recreated along the western boundary. The current habitat condition is moderate. This habitat must achieve a minimum of fairly good condition. This will require management to ensure that it meets a minimum of eight of the following:

1. This should be an area of trees with complete canopy cover.

2. Native species are dominant. Non-native and invasive species account for less than 10% of the vegetation cover.

3. A diverse age and height structure of the trees.

4. Free from damage [Bark stripping; Browse line; Damage shoot tips] (in the last five years) from stock or wild mammals with less than 20% of vegetation being browsed.

5. There should be evidence of successful (i.e., not browsed off before it gets well established) tree regeneration such as seedlings, saplings and young trees.

6. Standing and fallen dead wood of over 20 cm diameter are present including fallen large dead branches/stems and stumps.

7. Wetland habitat if they exist within the wood has little sign of drainage or channel straightening.

8. The area is protected from damage by agricultural and other adjacent operations.

9. There should be no evidence of inappropriate management (e.g., deep ruts, animal poaching or compaction).

10. Invasive non-native plants are below 5% (see list below).

11. No signs of significant nutrient enrichment present.

12. More than 3 different native trees and 3 shrub species in an average 10 m radius

7.7 From the above list the management should target 3, 5, 9, 12.

7.8 Some of the woodland areas are to be replanted following works. Species will be planted as detailed in the FDA soft landscaping plan.

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

7.10 Furthermore, the area will be seeded with a suitable woodland wildflower/ grass mix such as EW1 Woodland Mixture.

Stream

7.11 A stream is located within the woodland area on site and will be retained within the scheme. No managing and monitoring will be needed.

Native Hedgerow

7.12 A native species rich hedgerow will be planted in the north-western corner of the site. A minimum of five native species will be planted. The species mix will include:

Field maple	*Acer campestre*
Blackthorn	*Prunus spinosa*
Common dogwood	*Cornus sanguinea*
Hazel	*Corylus avellana*
Hawthorn	*Crataegus monogyna*
Elder	*Sambucus nigra*
Guelder rose	*Viburnum opulus*

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

7.14 This habitat must achieve a minimum of moderate condition. This will require management to ensure that there is no more than 5 failures in total from the table below and that it does not fail both attributes in more than one functional group (e.g., fails attributes A1, A2, B1, C2 & E1 = Moderate condition). Standard trees will be allowed to mature within the hedgerow.

Table 2: Hedgerow Condition Assessment[1]

[1] Stephen Panks *et al* 2021. Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England

Attribute	Criteria	Description
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).
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]).
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).
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	>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 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).

Attribute		Criteria	Description
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.
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.
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).

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

Grassland – Other Neutral \ Grassland

7.16 An appropriate species rich seed mix will be used in public open space areas. This will be Emorsgate Seeds EM3 General Purpose Meadow Mixture (or similar).

7.17 Seed is best sown in the autumn or spring. The seed must be surface sown and can be applied by machine or broadcast by hand. The seed does not need covering but should be rolled or treaded to ensure good soil to seed contact.

7.18 Within the first year this area should be mown regularly to a height of 40-60mm, removing cuttings if dense.

7.19 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 on site for around a week to let seed shed. This can be complemented with a cut in spring.

7.20 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:

1. The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
2. 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.
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species1 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.

7.21 From the above list the management should target 2, 3, 4 and 5. A mown public footpath will be provided through this grassland to discourage damage to the remaining grassland areas.

Urban Trees

7.22 A number of scattered trees are to be planted throughout the development. The species to be planted are shown upon the species listed in the FDA Landscape plan. Those located within the POS must achieve a moderate condition. This will require management to ensure that it meets a minimum of three of the following:

1. The tree is a native species.
2. 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).
3. The tree is mature or veteran.
4. There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.
5. Micro-habitats for birds, mammals and insects are present e.g., presence of deadwood, cavities, ivy or loose bark.
6. More than 20% of the tree canopy area is oversailing vegetation beneath.

7.23 From the above list the urban trees will pass condition 1 and 2. Management must target 3,4, 5 and 6. Those urban trees located within residential properties will not be subject to the same management and at most will be expected to achieve a poor condition.

7.24 Trees should be planted between October and March with biodegradable tree ties as required.

Habitats within Properties

Amenity Grasslands (Vegetated Gardens)

7.25 Amenity grassland will be established within the gardens of residential properties. These will either be turfed or seeded with seed mix such as Emorsgate EG22 though preference should be given to a flowering lawn mix such as Emorsgate EL1.

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

Introduced scrub / Ornamental Hedge

7.27 Areas of introduced shrubs and ornamental hedgerows will be planted within a number of residential gardens across the site. Species will be selected from the list provided upon the FDA landscape plan.

7.28 This habitat within the metric has been classified as Urban – Vegetated Garden for ease of the calculation as it has the same value as Urban – Introduced Shrubs and can only achieve a poor condition. Management aims will be to provide fruiting / nectar bearing species as a food source over winter for the local bird population.

Other

Species Boxes

7.29 Integral habitat boxes are to be included throughout the development (see Figure 1). A combination of house sparrow, swift, starling, and bat boxes are incorporated.

7.30 Installation of the bird boxes should be so that they front is angled slightly downward facing to reduce the effects of wind and rain and above a minimum height of 2m preferably higher.

7.31 Integrated bat boxes must be Vivara Pro Build-in WoodStone Bat Box or similar. Three bat boxes are to be installed upon a retained tree in the southwest of the site. These must be installed at varying heights and aspects upon the same tree trunk to provide a variety of roosting opportunities. These bat boxes must be a Vivara Pro WoodStone Bat Box or similar.

Hedgehog Corridor Gaps

7.32 130mm x 130mm holes will be cut into base of fences to allow for movement of hedgehogs between gardens. Locations of these can be found upon Figure 1.

7.33 As these will be located with gardens the following sign or similar should be installed above the gaps on either side of the fence.



https://shop.britishhedgehogs.org.uk/product/hedgehog-highway-sign/

8.0 PREPARATION OF A WORK SCHEDULE (INCLUDING AN ANNUAL WORK PLAN CAPABLE OF BEING ROLLED FORWARD OVER A FIVE-YEAR PERIOD)

8.1 Clearance of any significant vegetation will take place outside of bird breeding season (mid-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.

Table 3: Work Schedule

Description of Works	Years to be undertaken				
	1	2	3	4	5
Mixed Native Scrub					
1. 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. Planting should include mature, semi-mature and seedlings top create an age range.	✓				
2. Allow species to mature.		✓	✓	✓	✓
3. Following planting, water trees in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓
4. All planting will be inspected a minimum of 2 times annually.	✓	✓	✓	✓	✓
5. Selective 'spot' spraying or strimming of weeds. Not required if weed suppression matting used.	✓	✓	✓	✓	✓
6. Like for like replacement of failed specimens as required.	✓	✓	✓	✓	✓

Description of Works	Years to be undertaken				
7. Top up mulch levels to a minimum of 50mm.	✓	✓	✓	✓	✓
8. Examine tree stakes and ties for their effectiveness and requirement. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed, filling any holes with suitable topsoil.	✓	✓	✓	✓	✓
9. Allow grassland along the base of the scrub to grow to provide a graduated sward height and habitat. Do not cut to a uniform shaped edge, create a wavy edge.	✓	✓	✓	✓	✓
10. Arisings should be used to top up log piles. Do not site burn.	✓	✓	✓	✓	✓
11. Ensure that no one woody species is dominating more than 75% of the area. Remove to a maximum of 75% if this is occurring.		✓	✓	✓	✓
12. Allow self-seeding to occur, a range of seedlings, young and mature shrubs is required. Additional planting or gaps may be required to be created to encourage this.		✓	✓	✓	✓
13. Ensure the cover of undesirable species[2] is below 5%.	✓	✓	✓	✓	✓
14. Ensure there are no Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) invasive plant species. Remove in accordance with biosecurity measures under a specialist contractor if present.	✓	✓	✓	✓	✓
Woodland					
1. 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.	✓				
2. Seeding of the Other woodland: mixed with an appropriate woodland mix such as Emorsgate EW1 – Woodland mixture[3], as per the manufacturer's instructions in autumn or early spring.	✓				
3. Remove all stems and limbs which are unsafe or are in danger of falling or breaking during gales. However, retain dead wood, cavities and loose bark where it is safe to do so to create micro habitats. Allow dead wood to remain.		✓	✓	✓	✓
4. Following planting, water trees in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓
5. All planting will be inspected a minimum of 2 times annually.	✓	✓	✓	✓	✓
6. Like for like replacement of failed specimens as required.	✓	✓	✓	✓	✓
7. Examine tree stakes and ties for their effectiveness and requirement. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed, filling any holes with suitable topsoil.		✓	✓	✓	✓

[2] Undesirable species are: 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*, cow parsley *Anthriscus sylvestris.*

[3] https://wildseed.co.uk/mixtures/view/11

Description of Works	Years to be undertaken				
8. Allow grassland at the base of the trunk to grow to provide a graduated sward height and habitat.	✓	✓	✓	✓	✓
9. Arisings should be used to top up log piles. Do not site burn.	✓	✓	✓	✓	✓
10. Open space areas should be reduced/ maintained to 10% or less.		✓	✓	✓	✓
11. Ensure tree mortality is less than 10%, no pests or diseases and no crown die back.	✓	✓	✓	✓	✓
12. Ensure there are no Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) invasive plant species. Remove in accordance with biosecurity measures under a specialist contractor if present.	✓	✓	✓	✓	✓
13. Protect woodland from damage	✓	✓	✓	✓	✓
Native Species Rich Hedgerow					
1. 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.	✓				
2. Like for like replacement of failed specimens as required. If gaps arise replant.	✓	✓	✓	✓	✓
3. During the first five years of establishment of young saplings selective 'spot' spraying or strimming of weeds. Ensure plan species indicative of nutrient enrichment of soils dominate <20% cover of the ground.	✓	✓	✓	✓	✓
4. 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.	✓	✓	✓	✓	✓
5. Allow grassland along the hedgerow base to grow to provide a graduated sward height and habitat. Ideally at least 1m from the hedgerow.	✓	✓	✓	✓	✓
6. Arisings should be used to top up log piles. Do not site burn.	✓	✓	✓	✓	✓
7. All planting will be inspected a minimum of 2 times annually.	✓	✓	✓	✓	✓
8. Ensure the cover of undesirable species[4] is below 20%.	✓	✓	✓	✓	✓
9. Gap between ground and base of canopy to be maintained at less than 0.5m for greater than 90% of the length.		✓	✓	✓	✓
10. Gaps to make up less than 10% of the total length and no canopy gap greater than 5m. Additional planting to be undertaken if this is not achieved.		✓	✓	✓	✓
11. Maintain the hedgerow height greater than 1.5m and 1.5m width.		✓	✓	✓	✓
Amenity Grasslands (Vegetated Gardens)					
1. To be turfed or seeded with seed mix such as Emorsgate EG22. Sown or laid in the autumn or spring.	✓				
Introduced Shrub / Ornamental Hedge					

[4] Undesirable species are: 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*, cow parsley *Anthriscus sylvestris.*

Description of Works	Years to be undertaken				
1. 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.	✓				
2. Allow species to mature.		✓	✓	✓	✓
3. Following planting, water trees in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓
4. All planting will be inspected a minimum of 2 times annually.	✓	✓	✓	✓	✓
5. Selective 'spot' spraying or strimming of weeds. Not required if weed suppression matting used.	✓	✓	✓	✓	✓
6. Like for like replacement of failed specimens as required.	✓	✓	✓	✓	✓
7. Top up mulch levels to a minimum of 50mm.	✓	✓	✓	✓	✓
8. Any cutting to be undertaken should be in later February to avoid the nesting bird season and allow fruit/ nectar sources to be provided for the local bird population over winter.		✓	✓	✓	✓
Other Regular Maintenance					
1. Litter Removal	✓	✓	✓	✓	✓
2. Undertake the habitat monitoring assessment (Appendix A) every 3 years as a minimum and implement remedial actions if required. An ecologist will be required to undertake this assessment.			✓		
Neutral Grassland					
1. Clear unwanted vegetation, surface sow as per the manufacture instructions. Do not add topsoil; stripping of topsoil for use elsewhere is permitted (to lower nutrient levels).	✓				
2. In the first-year mow regularly 40-60mm to control annual weeds avoiding spring and early summer. Remove arisings.	✓				
3. Dig out, hang pull or spot treat residual perennial weeds. If required increase cut and remove cycle to biannual for 2 years if weeds persist. In the worst-case scenario, strip topsoil and re-sow.	✓	✓	✓	✓	✓
4. Once established cut in July / August after flowering no less than 7cm. Leave the arisings on site for 1-7 days to allow seed to be shed, before removal. If possible, create a compost heap in a suitable location for cut grass arisings. If further cuts are needed one in autumn / winter and spring. Maintain a varied sward height (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm).		✓	✓	✓	✓
5. Water with a fine spray during prolonged periods of drought.	✓	✓	✓	✓	✓
6. Ensure the bare ground cover is no more than 1-5%. If this % is greater reseed the areas.		✓	✓	✓	✓

Description of Works	Years to be undertaken				
7. Ensure the cover of bracken less than 20% and cover of scrub (including bramble) less than 5%. If the % is greater remove the bracken / scrub selectively to achieve the correct %.		✓	✓	✓	✓
8. Ensure physical damage and cover of undesirable species[5] is below 5%.	✓	✓	✓	✓	✓
9. Ensure there are no Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) invasive plant species. Remove in accordance with biosecurity measures under a specialist contractor if present.	✓	✓	✓	✓	✓
Urban Tree					
1. 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.	✓				
2. Remove all stems and limbs which are unsafe or are in danger of falling or breaking during gales. However, retain dead wood, cavities and loose bark where it is safe to do so to create micro habitats.		✓	✓	✓	✓
3. Following planting, water trees in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓
4. All planting will be inspected a minimum of 2 times annually.	✓	✓	✓	✓	✓
5. Like for like replacement of failed specimens as required.					
6. Top up mulch levels to a minimum of 50mm.	✓	✓	✓	✓	✓
7. Examine tree stakes and ties for their effectiveness and requirement. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed, filling any holes with suitable topsoil.		✓	✓	✓	✓
8. Allow grassland at the base of the trunk to grow to provide a graduated sward height and habitat.	✓	✓	✓	✓	✓
9. Arisings should be used to top up log piles. Do not site burn.	✓	✓	✓	✓	✓
10. Allow the canopies of the shrub to overhang adjacent grassland or hedgerow habitats		✓	✓	✓	✓
Species Boxes					
1. Check to ensure the boxes remain in place and are in a good condition. Replace if damaged or have lost functionality.	✓	✓	✓	✓	✓
2. Management of vegetation to ensure that entrance holes to the boxes have clear flightlines	✓	✓	✓	✓	✓

8.2 Please note that no monitoring and or maintenance is proposed to the bird boxes as they are contained within residential properties.

[5] Undesirable species are: 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*, cow parsley *Anthriscus sylvestris.*

9.0 IMPLEMENTATION

9.1 The long-term implementation of the plan will be secured by the developer Yorkshire Country Properties until the responsibility of delivery is transferred to the Management Company, Abbey Road Management Company Ltd.

9.2 This LEMP will cover a 5-year rolling management period. However, habitat management and maintenance must be undertaken for a minimum period of 30 years and reach the target conditions as outlined within the BIA.

9.3 It will be the Management Company's responsibility to deliver and monitor the habitat management prescriptions that ensure a biodiversity net gain.

9.4 It will be made clear to the Management Company that any management prescription not carried out or changed that significantly alters the net gain objectives will need to be agreed with the Local Authority with any subsequent compensation implemented (where necessary).

10.0 ONGOING MONITORING AND REMEDIAL MEASURES

10.1 In order to ensure that the habitats created within the site reach and maintain their maximum value for nature conservation, all habitats will be monitored on a regular basis during continued management / maintenance prescriptions for the five-year rolling management period.

10.2 In addition, the work programme will be reviewed after three years by a suitably qualified and experienced ecologist, arboriculturist and landscape architect (where necessary). The results of monitoring will be used to inform possible revisions to this BEMP if the aims and objectives are not being met.

10.3 The Yorkshire Country Properties or the Management Company will be responsible for implementing the changes / any remedial actions required to ensure that the development delivers the biodiversity objectives (and thus the net gain targeted habitat conditions). Therefore, flexibility is essential, and the management regime should be altered in order to respond promptly to changing circumstances.

10.4 Following the five years plan period covered under this management plan, subsequent reviews will be completed by the Yorkshire Country Properties, or the Management Company and the monitoring and management completed in perpetuity in accordance with the revised LEMP.

10.5 The above measures will ensure that the development will result in the habitats on site reaching their targets conditions in line with the BIA.

10.6 A habitat monitoring form is provided within Appendix A.

APPENDIX A: HABITAT MONITORING FORM

Date Assessment Undertaken: **Assessor:**		
Habitat & Condition Assessment Criteria	**Does the habitat meet the criteria?**	**Notes on Improvements Required**
Mixed / Bramble Scrub		
1. Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).		
2. There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.		
3. 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.		
4. The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).		
5. There are clearings, glades or rides present within the scrub, providing sheltered edges.		
Does the Habitat meet Moderate Condition?		
Native Species Rich Hedgerow		
A1. Height >1.5m average along length.		
A2. Width > 1.5m average along length.		
B1. Gap – hedge base. Gap between ground and base of canopy <0.5m for >90% of length (unless 'line of trees').		

Date Assessment Undertaken: **Assessor:**		
Habitat & Condition Assessment Criteria	**Does the habitat meet the criteria?**	**Notes on Improvements Required**
B2. Gap – hedge canopy continuity. Gaps make up <10% of total length and no canopy gaps >5m.		
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. Undesirable 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 and neophyte species.		
D2. Current damage. >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.		
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.		
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.		
Does the Habitat meet Moderate Condition?		
Grassland – Neutral Grassland		
1. The appearance and composition of the vegetated closely matches characteristics of the specific grassland habitat type (see UKHab definition).		

Date Assessment Undertaken: **Assessor:**		
Habitat & Condition Assessment Criteria	**Does the habitat meet the criteria?**	**Notes on Improvements Required**
Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.		
2. Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.		
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.		
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.		
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species 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.		
Does the Habitat meet Moderate Condition in the northwest and fairly poor in the northeast corner?		
Urban Tree		
1. More than 70% of trees are native species.		
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.		
3. More than 50% of trees are mature or veteran.		

Date Assessment Undertaken: **Assessor:**		
Habitat & Condition Assessment Criteria	**Does the habitat meet the criteria?**	**Notes on Improvements Required**
4. There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.		
5. Management regime has encouraged micro habitat sites for birds, mammals and insects e.g., presence of deadwood, cavities or loose bark etc.		
6. Trees are immediately adjacent to other vegetation, and tree canopies are oversailing vegetation beneath.		
Does the Habitat meet Moderate Condition?		

APPENDIX B: BLANK WOODLAND HABITAT MONITORING FORM

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	On-site	Off-site
1	**Age distribution of trees**[1]	Three age classes present	Two age classes present	One age class present		
2	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland		
3	**Invasive plant species**[3]	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover		
4	**Number of native tree species**	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel		
5	**Cover of native tree and shrub species**	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native		
6	**Open space within woodland**[4]	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space		
7	**Woodland regeneration**[5]	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland		

8	**Tree health**	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high-risk pest or disease present		
9	**Vegetation and ground flora**	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community		
10	**Woodland vertical structure**[6]	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots		
11	**Veteran trees**[7]	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland		
12	**Amount of deadwood**	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps		
13	**Woodland disturbance**[8]	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground		
				Total score (out of a possible 39)		
				Does the Woodland reach a fairly good condition?		



Client:	Yorkshire Country Properties	Plan Reference:	FE85_01	Author:	MB
Project:	Barnsley Road, Denby Dale	Project Reference:	FE85	Date:	24/5/2022
Title:	FE01 Post Development Habitats and Enhancements	Report Reference:	BEMP01	Scale:	1:500 @A3

FUTURESECOLOGY

Leigh House, 28-32 St Paul's Street, Leeds, LS1 2JT

Telephone: 07731993413 or 07730774476

Key

OnSite

Post Development_Biodiversity Habitats-Onsite

- Developed land;sealed surface
- Mixed Scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Vegetated garden
- New Hedgerows
- Intact hedge - species-poor
- Running water

Urban Trees Post Development

- Retained
- Urban Tree Small

Bat Box

- 3 x Vivara Pro WoodStone Bat Box
- Intergrated - Vivara Pro Build-in WoodStone Bat Box

Bird Boxes

- Sparrow
- Starling
- Swift
- Hedgehog Gaps

Futures Ecology Ltd\Projects\FE85 Barnsdale Road, Denby Dale\QGIS\Figure 1: On-Site Baeline Map

Copyright © Futures Ecology
No dimensions are to be scaled from this drawing. All dimensions must be checked on site. Any measurements are for indicative pusposes.