Brooks Ecological

Grounded advice

Biodiversity Management Plan

Land South of Halifax Road, Penistone

Barratt and David Wilson Homes Yorkshire West

ER-4578-06

December 2020

Report Reference:	Biodiversity Management Plan Halifax Road, Penistone
Report Reference:	R-4578-06
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Date:	18.12.2020

The information which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report does not constitute legal advice.

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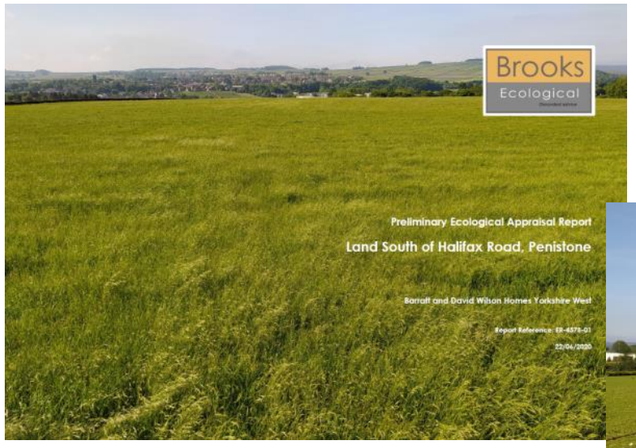
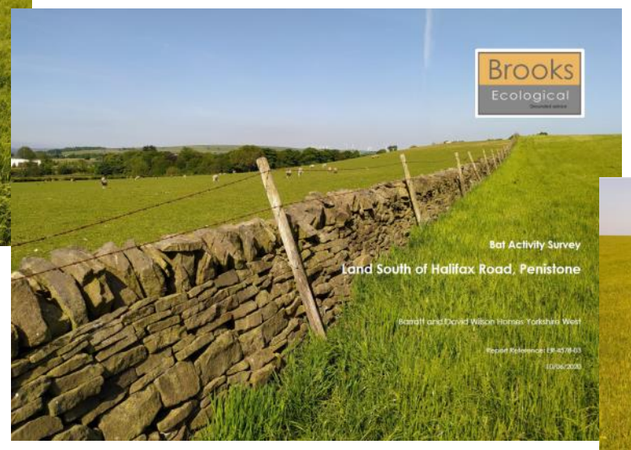
Introduction

The Site has been subject to comprehensive baseline studies which have informed the layout, demonstrating its engagement with the 'mitigation hierarchy'. Input into the design of the landscape proposals has allowed the ecological value of new Public Open Space (POS) to be maximised, generating the greatest possible biodiversity score post-development. The final layout has been Impact Assessed showing the proposed development is policy compliant.

This report is the final delivery document, and shows how retained and created habitats can attain the condition scores that were predicted in the Ecological Impact Assessment and Biodiversity Metric 2.0 Calculation tool.



1 Baseline assessment



2 Detailed Studies

3 Impact Assessment

4 Delivery (BMP)

In addition to meeting habitat condition objectives, this document presents all the measures included to maximise the value of the Site for fauna.

The Plan is produced in accordance with Chapter 11 of British Standard 42020. Reports which set out how wildlife interests will be enhanced, restored and maintained go under a variety of names, generated by the planning case officer or their internal consultant. As these names refer to the same output we standardise the name of our reports regardless of what appears in a planning condition as '**Biodiversity Management Plan**s' (BMPs), a term is referenced in BS42020 Clause D.4.5.

Aims of the Plan

To deliver the Biodiversity Net Gain score predicted in the Ecological Impact Assessment and provide opportunities for a range of garden wildlife.

Scope of Plan

This plan relates to the whole development as contained within the red line illustrated right.

Delivering the Plan

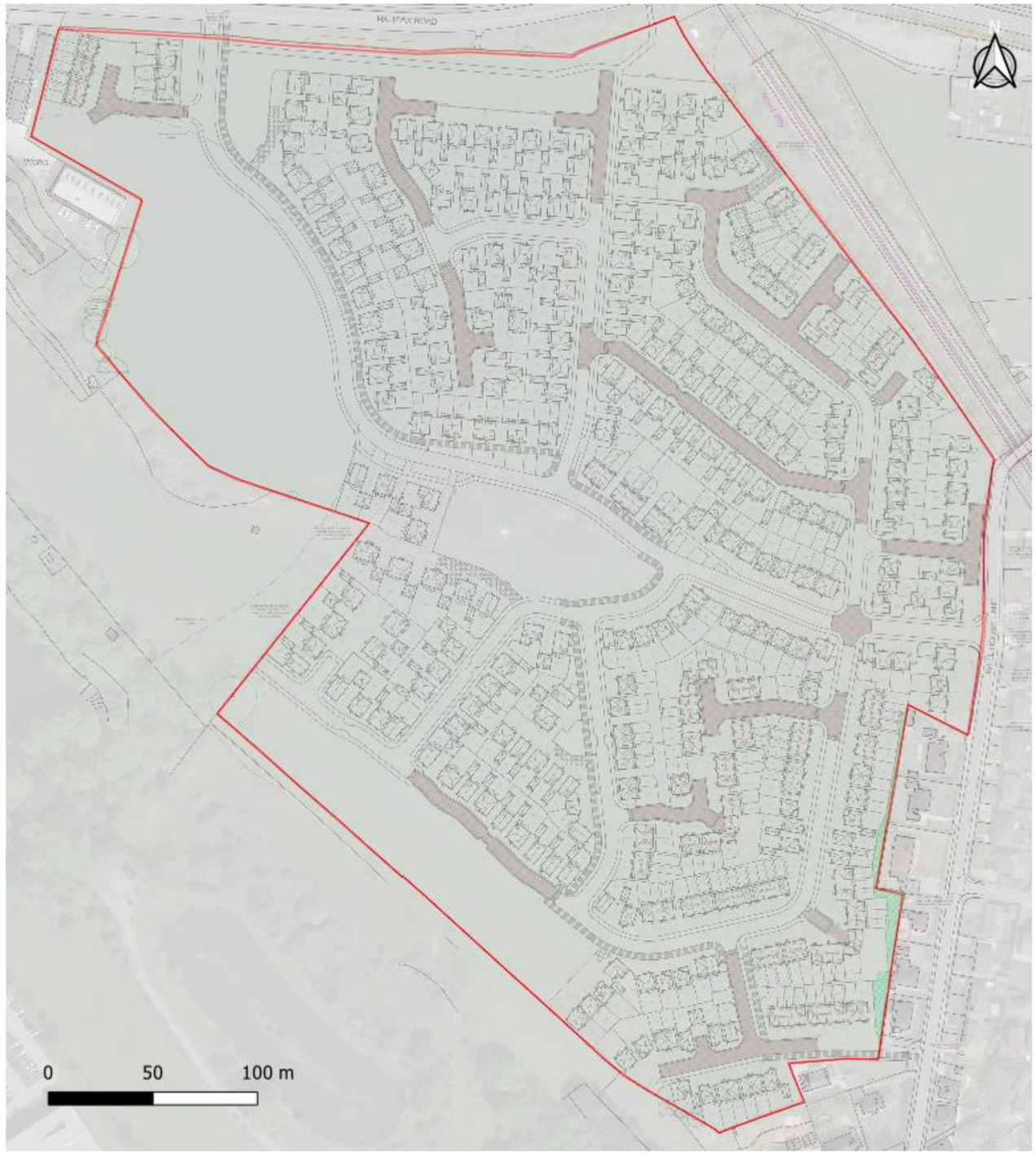
The Developer is responsible for the creation and establishment works for a five-year period.

The Developer will appoint either a Specialist Ecological Management Company (SEMC) or a company working under the direction of an Ecological Clerk of Works (ECoW) to oversee the delivery of this plan prior to any work commencing on site.

The ECoW would be a qualified Ecologist and member of the Chartered Institute of Ecology and Environmental Management, or be otherwise approved by the LPA.

After year five, this plan will be the responsibility of a Site Management Company whence it will be implemented in perpetuity.

On-site baseline	*Habitat units*	30.20
	Hedgerow units	1.40
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	26.36
	Hedgerow units	2.19
	River units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement &	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	-3.84
	Hedgerow units	0.79
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	-12.72%
	Hedgerow units	56.41%
	River units	0.00%



Grassland (Other Neutral)

Rationale

Creating flower-rich grassland on made habitats to attract invertebrates and contribute

Objectives

Delivering 1.96 Habitat units by reaching a DEFRA condition score of **moderate** by year 5.

Specification

Soil should be checked by ECoW for suitability: this to be a friable low nutrient load neutral soil. Spread using back actor spread and firmed. Not driven over and compacted. All soil handling and spreading to be supervised by and sanctioned by ECoW.

Weeds: if the soil is likely to support viable weed seeds it should be allowed to grow to first flush then killed off with translocated non-persistent weedkiller.

Seeding: seed with Emorsgate seeds EM 1 General purpose meadow mixture to supplier's specification.

Planting: N/A

Management

Year 1 Five cuts, collect arisings and remove from site.

Use a weed wipe three times in year 1 to kill off weeds - Spear thistle, creeping thistle, broad-leaved dock, clustered dock, wood dock, curled dock, nettle, ragwort and others according to ECoW recommendations. Operatives must be proven competent in identifying.

Year 2 onwards

Two cuts, once in August and again in October—remove arisings. Continue to spot treat competitive weed species each year until under control according to ECoW.

Illustrative cutting regime from year 2

Monitoring

Ecological Clerk of Works year 2 and 5 monitoring visit to check trajectory to condition requirement.

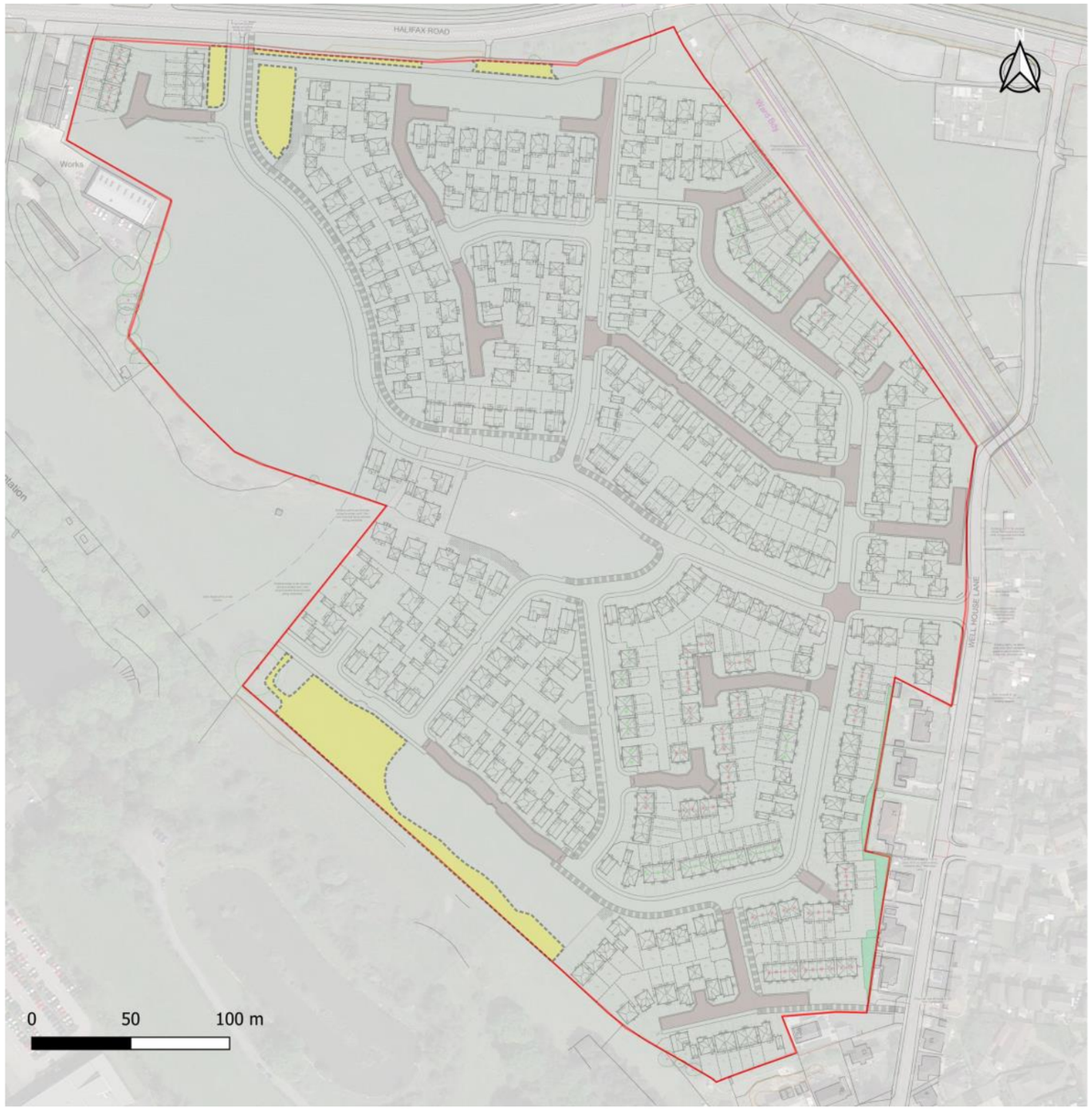
Output

ECoW report year 1, 3 and 5.

Remedial action options

- Increase weed control if undesirable species establish
- Soil scrape to reduce nutrients
- Re-seed and replant locally

	Condition Assessment Criteria: Grassland habitat type	Targeted?
1	Clearly and easily recognizable as a good example of this type of habitat.	**Yes**
2	Appearance and composition very closely matches the characteristics for the specific Priority Habitat	**N/A**
3	Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency.	**N/A**
4	Undesirable species and physical damage is below 5% cover.	**Yes**
5	Cover of bare ground less than 10%	**Yes**
6	Cover of bracken less than 20% & cover of scrub and bramble less than 5%.	**Yes**



Mixed scrub

Rationale

Creating an area of dense mixed native scrub, which will provide shelter, nesting opportunities and nectar/ food resources for a wide range of wildlife.

Objectives

Delivering 1.65 Habitat units by reaching a DEFRA condition score of **moderate** by year 5.

Specification

Soil should be spread using back actor spread and firmed. Not driven over and compacted. All soil handling and spreading to be supervised by and sanctioned by ECoW.

Weeds: if the soil is likely to support viable weed seeds it should be allowed to grow to first flush then killed off with translocated non-persistent weedkiller.

Seeding: seed with Emorsgate seeds EH 1 General hedgerow mixture to supplier's specification.

Planting: from schedule MS1 below.

Management

Year 1-2 Keep a 0.5m diameter area weed free with herbicide. Check shelters are fitted properly, stakes are firm and ties in place. Hand weed grasses and weeds in tree shelters if present.. Replace failures next growing season. Monitor for competitive weed growth away from planting stations. Spray or weed wipe as required to keep cover to less then 10%.

Year 3-5 Monitor for competitive weed growth away from planting stations. Spray or weed wipe as required to keep cover to less then 10%.

Year 10 remove tree guards. Thin if required. Must be ECoW directed. Leave all felled timber in situ to rot down.

Monitoring

Ecological Clerk of Works year 2 and 5 monitoring visit to check trajectory to moderate condition assessment. Output ECoW report year 3, 5 and 10.

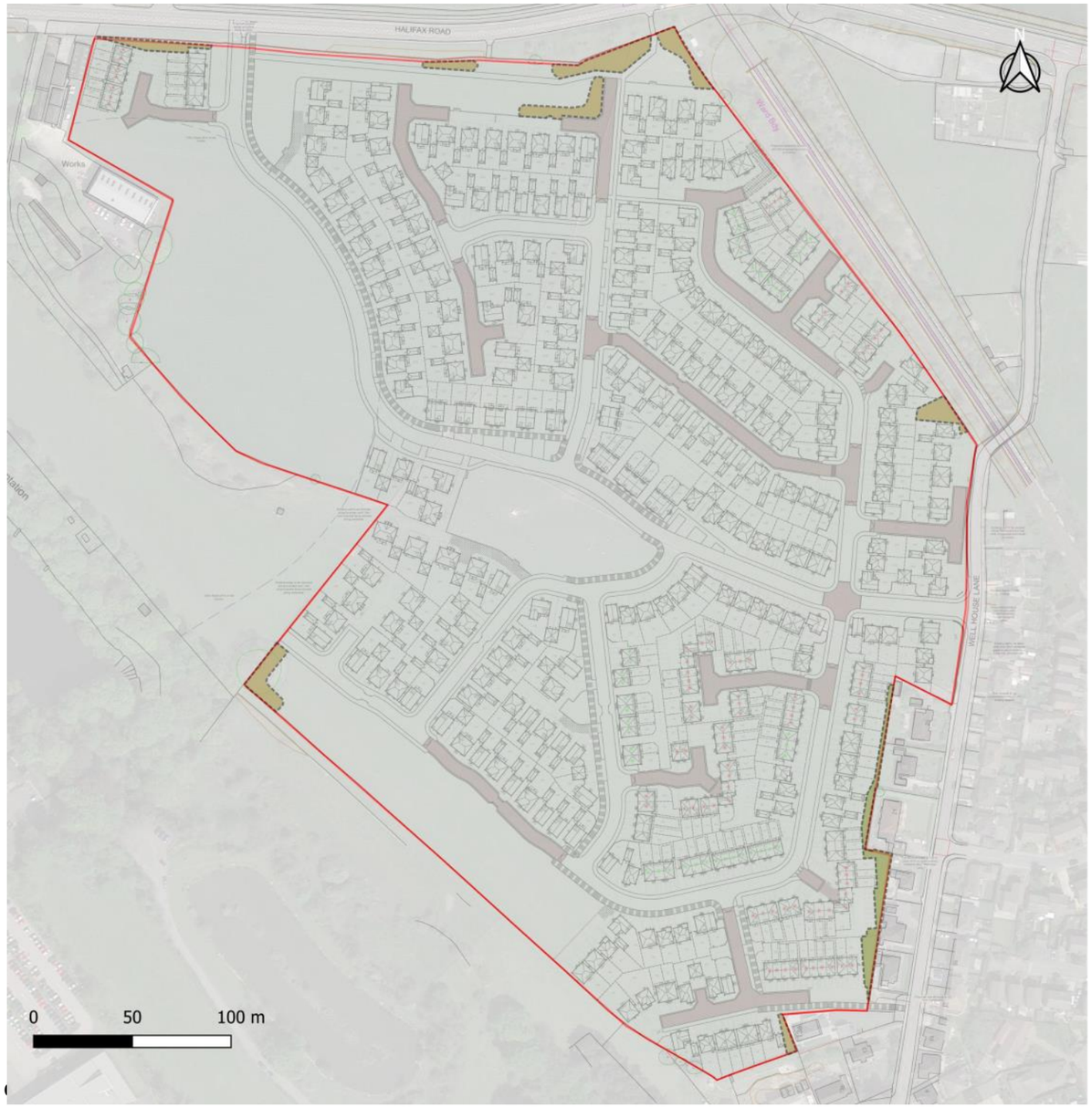
Remedial action options

- Increase weed control if undesirable species establish
- Re-seed and replant locally
- Increase thinning rate

MS1

Scientific	English	%	Stock	Groupings	Centres and style
Crataegus monogyna	Hawthorn	20	1+1 BR	groups 3-5	2m to 4m naturalistic
Prunus spinosa	Blackthorn	20	1+1 BR	groups 3-5	2m to 4m naturalistic
Corylus avellanna	Hazel	10	1+1 BR	groups 1-3	2m to 4m naturalistic
Sorbus aucuparia	Rowan	10	1+1 BR	groups 1-3	2m to 4m naturalistic
Viburnum opulus	Guelder rose	10	1+1 BR	groups 3-5	2m to 4m naturalistic
Malus sylvestris	Crab apple	10	1+1 BR	groups 1-3	2m to 4m naturalistic
Sambucus nigra	Elder	10	1+1 BR	groups 1-3	2m to 4m naturalistic
Rosa arvensis	Field rose	10	1+1 BR	groups 1-3	2m to 4m naturalistic

	Condition Assessment Criteria: Scrub habitat type	Targeted?
1	There are at least three woody species, with no one species comprising more than 75% of the cover	**Yes**
2	There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs	**No**
3	Pernicious weeds and invasive species make up less than 5% of the ground cover.	**Yes**
4	The scrub has a well-developed edge with un-grazed tall herbs.	**Yes**
5	There are many clearings and glades within the scrub.	**No**



Orchard

Rationale

Create a community orchard using locally appropriate heritage fruit and nut trees, with wildflower grassland beneath.

Objectives

Delivering 0.39 Biodiversity units by reaching a DEFRA condition score of **good** by year 5.

Specification

Soil should be checked by ECoW for suitability: this to be a friable low nutrient load neutral soil. Spread using back actor spread and firmed. Not driven over and compacted. All soil handling and spreading to be supervised by and sanctioned by ECoW.

Weeds: if the soil is likely to support viable weed seeds it should be allowed to grow to first flush then killed off with translocated non-persistent weedkiller.

Seeding: seed with Emorsgate seeds EM 1 General purpose meadow mixture to supplier's specification.

Planting: N/A

Management

Trees

Year 1-2 Keep a 0.5m diameter area weed free with herbicide. Check shelters are fitted properly, stakes are firm and ties in place. Hand weed grasses and weeds in tree shelters if present.. Replace failures next growing season. Monitor for competitive weed growth away from planting stations. Spray or weed wipe as required to keep cover to less then 10%.

Year 3-5 Monitor for competitive weed growth away from planting stations. Spray or weed wipe as required to keep cover to less then 10%. Adjust tree guard and tree tie as required.

Year 10 remove tree guards / stakes and tree ties.

Grassland—as per Other neutral grassland.

Monitoring

Ecological Clerk of Works year 2 and 5 monitoring visit to check trajectory to condition requirement.

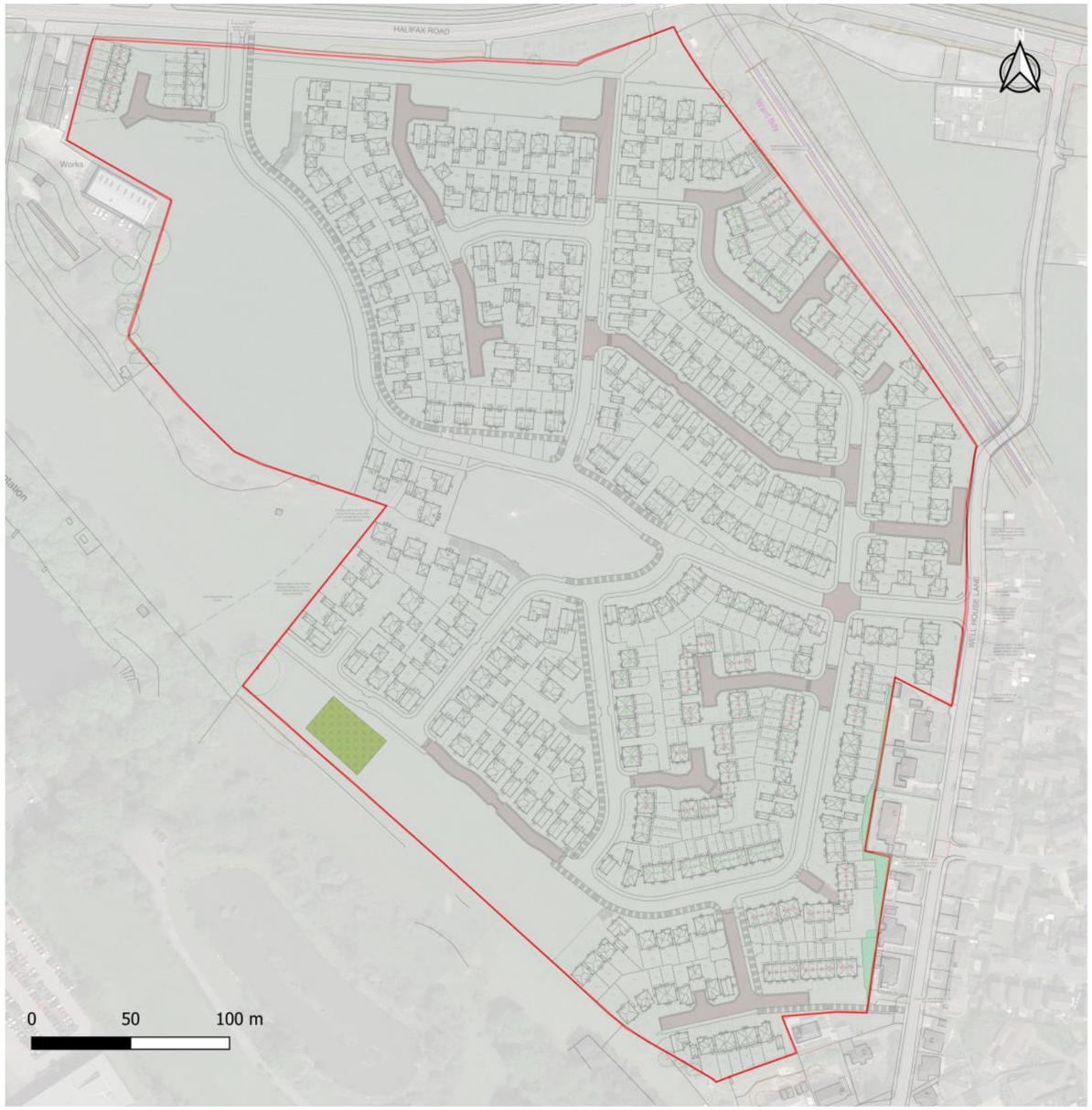
Output

ECoW report year 1, 3 and 10.

Remedial action options

- Replant any failed specimens
- Increase weed control if undesirable species establish
- Remove or adjust tree guards / stakes / tree ties—as required.

	Condition Assessment Criteria: Orchard habitat type	Targeted?
1	Between 50 and 150 fruit or nut trees per hectare	**No**
2	There should be an absence of scrub growing between or up the trees	**Yes**
3	At least 80% of the trees should be free from damage caused by browsing, bark stripping or rubbing on non-adjusted ties.	**Yes**
4	The average height of the grass sward should be between 5 cm and 30 cm.	**Yes**
5	There should be less than 5% cover of bare ground, injurious weeds or scrub.	**Yes**



Enhance Native Hedge

Rationale

Increase species diversity and improve structure.

Objectives

Delivering 2.07 Hedgerow units by enhancing existing 'Native Hedgerow' to 'Species-rich Native Hedgerow' year 5.

Specification

Soil protected in situ.

Weeds: No herbicide to be used. Strim and rake out planting stations in areas to be gapped up immediately prior to planting.

Seeding: N/A

Planting: from schedule NH1: Plant hedge single line of whips along edge of exiting hedgerows. Use double staggered row to fill in any gaps . Plant at rate of 5 per linear metre. Plant in staked tree tubes.

Management

Year 1 keep weed growth around planted whips stimmed back to prevent over topping. Two visits in the growing season. Cut 50% of each identifiable hedge in late winter. Identify any trees that can be left to grow into hedgerow standards. Mark with a flag to prevent cutting. Look to achieve a random scattering of standards averaging at 1 per 40m.

Year 2. Cut the remaining uncut 50% of each identifiable hedge in late winter. Keep flags to prevent cutting until a very obvious standard has developed.

Year 3-25 repeat cutting treatment alternating areas cut between years.

Monitoring

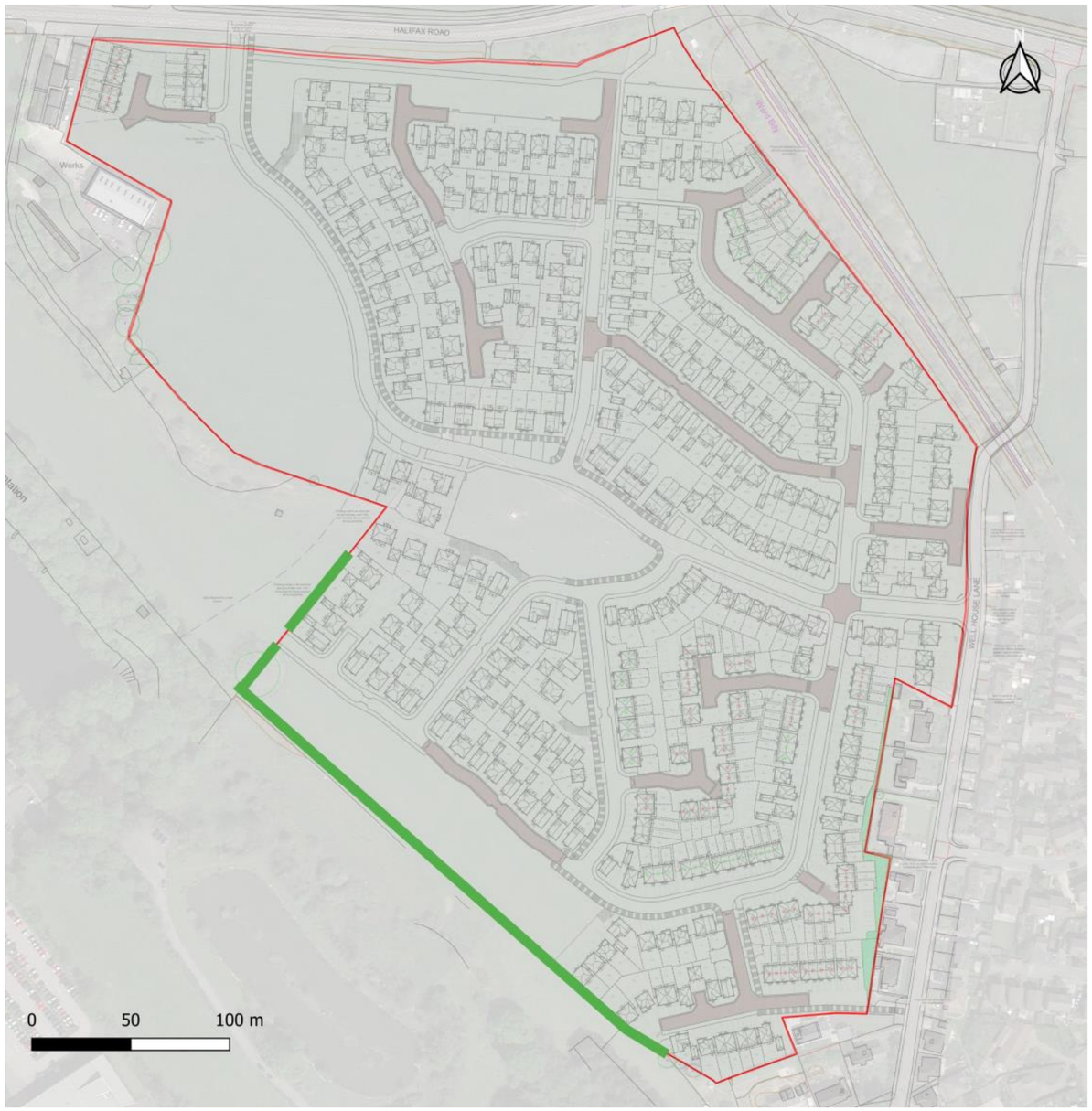
Ecological Clerk of Works year 2 and 4 monitoring visit to check trajectory to moderate condition assessment.

Output ECoW report year 3, and year 5 condition report.

Remedial action options

NH1

Scientific	English	%	Stock	Groupings	Centres and style
Corylus avelanna	Hazel	25	1+1 BR	groups 3-8	Double staggered row
Prunus spinosa	Blackthorn	10	1+1 BR	groups 5-9	Double staggered row
Ilex aquifolium	Holly	5	1ltr Pot	Scattered individuals	Double staggered row
Crataegus monogyna	Hawthorn	25	1+1 BR	groups 3-8	Double staggered row
Rosa canina	Dog Rose	5	1+1 BR	groups 3-8	Double staggered row
Malus sylvestris	Crab apple	5	1+1 BR	groups 3-5	Double staggered row
Viburnum opulus	Guelder Rose	5	1+1 BR	groups 3-5	Double staggered row
Cornus sanguinea	Dogwood	5	1+1 BR	groups 3-8	Double staggered row
Acer campestre	Field Maple	10	1+1 BR	groups 3-8	Double staggered row
Lonicera periclymenum	Honeysuckle	5	1ltr Pot	Individuals	Scattered*



Homes for Wildlife

Birds

Rationale

Ready made roosting boxes can be incorporated into developments to provide shelter and breeding sites for declining garden birds.

Integrated Swift boxes

Specification

Mansthorpe Swift Brick - https://www.nhbs.com/manthorpe-swift-brick

(Or equivalent approved by an Ecologist)

Although designed for swift, these boxes have been shown to be used by other bird species, including House sparrow and blue tit.

Location Notes

Sited as high as possible, directly under the apex of the verge or below the eaves, with clear flight line.

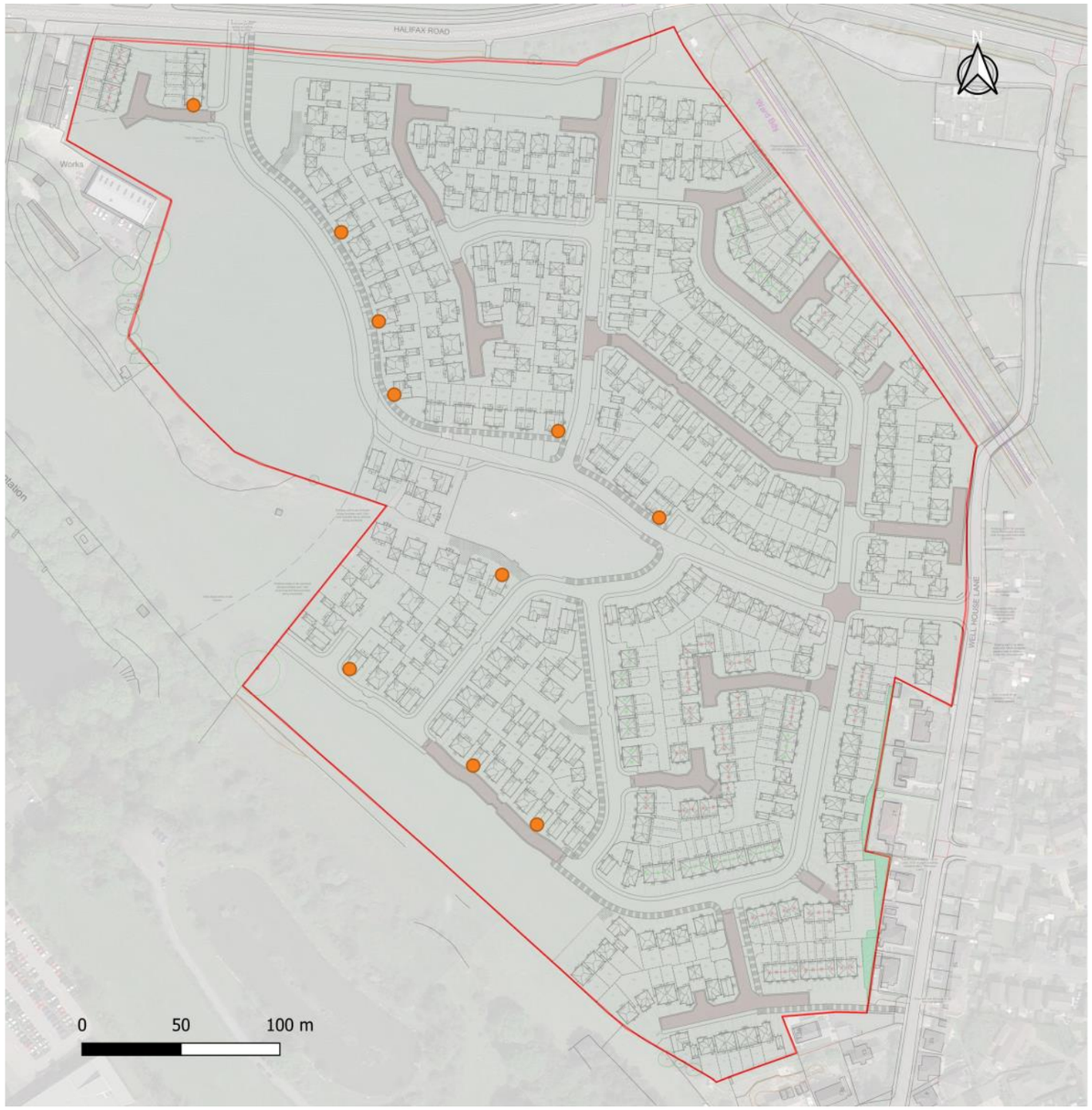
Installed in groups of three.

Boxes will not be positioned above windows, to prevent potential conflict with new homeowners.

Number 30

When erected? During construction.

Note all locations and specifications may be varied under agreement with ECoW



Homes for Wildlife

Bats

Rationale

Ready made roosting boxes can be incorporated into developments to provide shelter and roosting sites for crevice dwelling bats.

Integrated Bat boxes

Specification

Ibstock Enclosed Bat Box - https://www.nhbs.com/ibstock-enclosed-bat-box-c

(Or equivalent approved by an Ecologist).

Location Notes

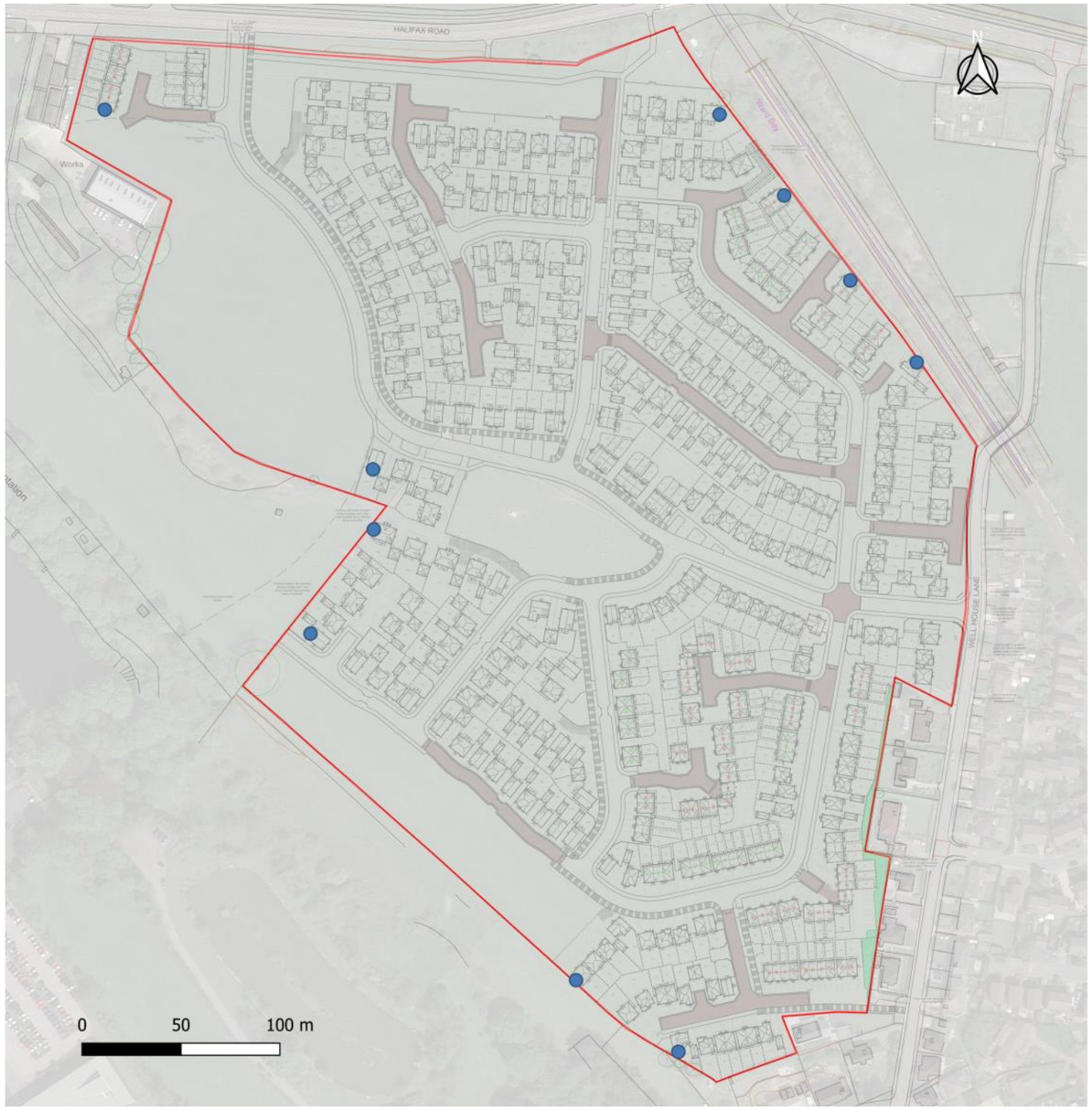
Sited as high as possible under the eaves with good access to unlit vegetated corridors.

Number 10

When erected? During construction.

Verification ECoW Certificate.

Note all locations and specifications may be varied under agreement with ECoW



Homes for Wildlife

Hedgehog

Gardens can provide very good habitat for hedgehogs and other small mammals but modern fencing often excludes them.

Specification

Accessible gaps, measuring at least 13m x 13cm, under garden fences - to the approval of the Ecological Clerk of Work.

At least one gap to be created in each boundary fence line, for all gardens following the blue line in the plan opposite.

Holes labelled with 'Hedgehog Highway' signs—to avoid conflict with occupants.

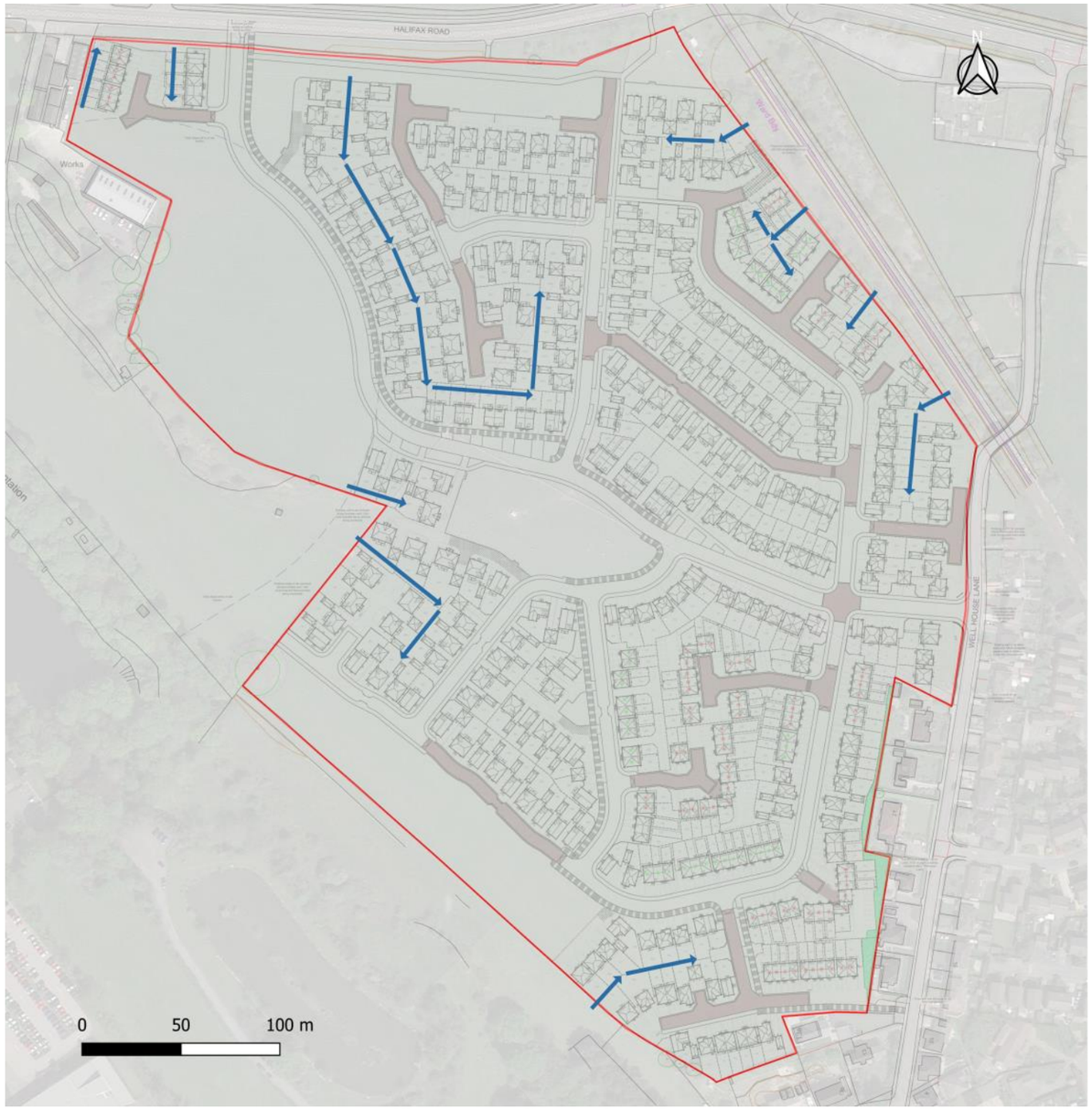
Location Notes

Encourage access to gardens, but discourage access onto roads or built up 'dead ends'.

Number As figure.

When installed? Prior to occupation.

Verification ECoW Certificate .



ECoW Activities Years 1 to 5

Activity	1	2	3	4	5
Check tree management and planting and seeding					
Check soiling and seeding of scrub hedge, orchard and grassland					
Scrub, hedge, orchard and grassland weed control and monitoring					
Check Faunal boxes installed into new builds					
Check hedgehog access as built					
Habitat monitoring					
Habitat Condition assessment report grassland, orchard and scrub					

Task	ECoW to direct	ECoW to carry out	Year 1	Year 2	Year 3	Year 4	Year 5	6+
Retained habitat management (hedgerow)	Yes	Yes	October-February	October-February				
Soiling of new habitats	Yes		To construction programme	To construction programme				
Seeding and planting of new habitats			October-February	October-February				
Manage wildflower grassland	Yes (in year 1-2)			April-Sept	April-Sept	April-Sept	April-Sept	April-Sept
ECoW Monitoring		Yes	Yes		Yes		Yes	
Faunal boxes erect			As built	As built				
ECoW verification Faunal boxes			As built	As built				