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## **LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN**

Prickleden Mills, Holmfirth, West Yorkshire

Report Reference: BG20.316.1

**December 2021**





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# 1 Introduction

- 1.1 Brindle & Green Ecological Consultants Ltd were commissioned by Acumen Designers Architects to compile a Landscape and Ecological Management Plan (LEMP) in relation to a full planning application to support the development of three residential apartment buildings and underground car park, with associated soft landscaping, facilitated by partial site clearance. A bridge is also proposed to be constructed across the River Holme to facilitate access to additional parking on the southern bankside. Design plans are presented within Appendix 1 of the report.
- 1.2 This document seeks to assess the impacts and provide management measures to safeguard protected and priority species during development. The content of the LEMP shall include the following:
- a) Description and evaluation of features to be managed.
  - b) Ecological trends and constraints on site that might influence management.
  - c) Aims and objectives of management.
  - d) Appropriate management options for achieving aims and objectives and securing proposed net gain on site.
  - e) Prescriptions for management actions.
  - f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a 30-year period).
  - g) Details of the body or organisation responsible for implementation of the plan.
  - h) Ongoing monitoring and remedial measures
- 1.3 This document refers to the findings of the Ecological Impact Assessment (BG20.316, August 2021) to provide an indicative timescale for implementation of the mitigation and compensation measures to be undertaken prior to the commencement of works onsite (Table 1), during construction and ongoing post construction management relating to habitat management.
- 1.4 This document should inform the management of retained and enhanced habitats within the site ownership particularly along the River Holme and riparian wetland habitats. This LEMP will also inform supplementary planting within the site ownership and the planting plan for the soft landscaping scheme (BG20.316.3, December 2021) within the red line boundary into order to improve connectivity between areas of optimal habitat for native protected species. The planting

proposals onsite should support species-rich and low maintenance grassland, native scrub, and native hedgerow to provide year-round interest and offer a compensatory commuting and foraging pathway for native species.

- 1.5 Deviation from the design plans detailed within Appendix 1 may necessitate amendments to this document at a later stage. If construction has not commenced within one year of the date of this report, the document may require reviewing and/or updating.

## 2 Description and Evaluation of Features to be managed

- 2.1 The site was the subject of an extended phase one habitat survey and further protected species surveys undertaken by Brindle and Green during March – July 2021, the results of which are reported within the Ecological Impact Assessment (BG20.316, August 2021). Whilst no resident populations of protected species were recorded on site, the River Holme which runs centrally through site, offers suitable habitat for the transitional presence of otter (*Lutra lutra*) and water vole (*Arvicola amphibius*), as such, where possible the bankside habitat and wildlife corridor will be enhanced through suitable management practices for the benefit of protected species.
- 2.2 The application site is approximately 1.1ha in extent and was dominated by ephemeral/short perennial vegetation and bare ground. The River Holme runs centrally (east to west) through site which supports steep vegetative banksides interspersed with section of brick retaining walls. Where possible, the bank will be enhanced with ongoing management, including the removal of invasive species including Indian balsam (*Impatiens glandulifera*) and Japanese knotweed (*Fallopia japonica*).
- 2.3 A large pond is present within the western portion of the site, of which the water level will be reduced by 400mm for attenuation purposes. The newly exposed banksides will be enhanced for native flora and fauna, subject to minimal management practices. A steeply elevated bankside defines the southern boundary of the site and supports scattered trees of varying maturity. It is recommended that several of the low value, failing silver birch are felled and underplanted with native scrub species. Given access limitations, this area will be minimally managed.
- 2.4 The site is situated at the southern edge of Holmfirth directly south of the A6024, with residential development present immediately to the north, east and west. The wider environment to the south comprises arable and pastoral farmland interspersed by hedgerows with treelines and small pockets of woodland becoming dominant in the landscape.

2.5 The habitats on site have been evaluated as having District value in relation to the immediate surroundings and a regional context. The area to be cleared to facilitate development is young, colonising short ephemeral/perennial vegetation, with short-term impacts to the River Holme bankside, which will be enhanced with a long-term management strategy which is vital to ensure the overall value of habitats to local protected species in a local context is retained.

2.6 The site was found to support local value for protected species. Key management targets have been identified to enhance and maintain the ecological value of the River Holme and its associated riparian habitats, summarised within Table 1 below

**Table 1: Ecological Receptors, the impact associated to the development and the proposed mitigation / Enhancements.**

Receptor	Source of Impact	Un mitigated Impact	Proposed Working Method	Risk with Mitigation	Timing of proposed works
Habitats & Designated Sites	Impacts to River Holme through impacts to bankside vegetation and silting and leaching during and post construction works.	Likely significant negative impact at the local level	Post construction enhancement of riverbank through management of natural regeneration.	Neutral (Not Significant)	March / April 2022
			Sensitive working practices outlined in CEMP.		Spring 2023
					March 2022
Otter & Watervole	Indirect impacts to River Holme which may affect water quality and downstream populations	Unlikely negative impact at the local level	Sensitive working practices outlined in CEMP.	Neutral (Not Significant)	March 2022
	Loss of suitable bankside habitat.		Post construction enhancement of riverbank through management of natural regeneration.		Spring 2023
Breeding birds	Loss of foraging resources	Certain non-significant negative impact at the site level	Post construction enhancement including planting of native species and artificial habitat creation.	Positive (Not Significant)	March 2022
	Loss of nesting habitat				Spring 2023
Bats	Impacts during and post construction from artificial lighting	Potential not significant negative impact at the local level	Sensitive lighting scheme to be implemented during and post construction	Neutral (Not Significant)	March - Oct 2022
Herptiles (GCN and reptiles)	Direct or indirect harm to individuals during ground clearance phase of development	Unlikely negative impact at the site level	Clearance of habitats under CEMP	Positive (Not Significant)	March - April 2022
			Enhancement of pond edge habitat with planting and seeding of native wetland species.		
Hedgehog	Disturbance and loss of suitable habitat	No significant impact at the local level	RAMS during site clearance, post construction enhancements	Neutral (Not Significant)	March 2022
Invasive Species	Presence of Indian Balsam and Japanese Knotweed which may spread along the watercourse if left unmanaged.	Likely significant negative impact at the local level	Removal of invasive species by certified contractors, with regular checks included within habitat management.	Positive (Not Significant)	March 2022

## 3 Aims and Objectives of Management

3.1 The Landscape Management Plan seeks to secure long term enhancement prescriptions and their long-term management to conserve and enhance the ecological and landscape value of the site and adjacent habitat through safeguarding and enhancing the ecological and physical integrity.

3.2 **Objective 1:** *Maintain and Protect existing conservation value of retained features*

Retain the connective value of the riparian habitat associated with the River Holme through enhancement and management of colonising, successional bankside vegetation, including underplanting and management of the southern boundary buffer. The Mill Pond to the west of the site will be enhanced through planting of wetland species along the bankside to create a species-rich and diverse habitat for the benefit of native species. Control the presence and spread of invasive weeds.

3.3 **Objective 2:** *Creation of new habitats to safeguard local protected species populations.*

Native hedgerows and soft landscaping to increase structural diversity within areas of open space, maintaining a minimal management approach where possible.

3.4 **Objective 3:** *Monitor and review the success of the implemented strategy.*

Maintain a flexible management approach which responds to the changing needs of the landscape and ecology of the site. The success of habitat management and the implementation of woodland management should be monitored annually for 5 years and reviewed at 5 year intervals for the length of the management plan.

3.5 Enhancement and management prescriptions are influenced by the results of the Ecological Impact Assessment and seek pre and post construction planting and management within the wider site ownership to safeguard the ecological function of the wetland habitats for protected species within the zone of influence and downstream of the River Holme. Subsequent recommendations for the site are focused towards creating artificial refugia within the scheme footprint to increase the carrying capacity of the site.

## 4 Appropriate Management options for Achieving Aims and Objectives

**Table 2:** Management Prescriptions for ecological management and Enhancement for the proposed Development.

Management Objective	Target Species	Proposed implementation, Management and Enhancement
<b>Objective 1: Maintain and Protect existing conservation value of retained features</b>		
<p><b>River Holme Bankside</b></p> <p><i>Increase the species-diversity and value of the bankside vegetation for the benefit of native species.</i></p>	<p>Otter, Water Vole, Invertebrates, Herptiles,</p>	<p>The stands of Indian Balsam (<i>Impatiens glandulifera</i>) and Japanese Knotweed (<i>Fallopia japonica</i>) which are present along the northern bankside of the River Holme (Appendix 2) will be removed from site by a suitably certified contractor. The management of these species will be ongoing until the site is clear of re-current stands, with regular checks undertaken alongside the management of the riverbank to look for recolonisation. Any regeneration should be remediated as per an invasive species management plan provided by the approved contractor (Table 3).</p> <p>The northern Bank of the River Holme (Appendix 2) supports a diverse assemblage of colonising vegetation which will be retained during construction works. This area requires minimal enhancement, however, will be subject to ongoing management practices (Table 3) to ensure successional and pernicious species such as bramble, bulrush, bracken, golden rod and nettle do not dominate, aiming to maintain less than 30% of these species along the bank.</p> <p>Regular maintenance of the water course will also be conducted, ensuring any debris or rubbish is cleared annually to ensure it does not build up on the bankside.</p>
<p><b>Southern Tree-lined Buffer</b></p> <p><i>Increase the species-diversity of the southern bankside, aiming to create a low-maintenance scrubby buffer which will provide an additional foraging and commuting habitat for target species.</i></p>	<p>Birds, bats, invertebrates</p>	<p>The bank supports scattered mature trees including occasional oak (<i>Quercus robur</i>), ash (<i>Fraxinus excelsior</i>) and holly (<i>Ilex aquifolium</i>). The understorey is sparse with bare ground accounting for approximately 50% of the area. Given the steep incline and inaccessible nature of the buffer, management will be limited, as such underplanting of native, annually blooming and fruiting scrub species is recommended to enhance the species diversity and structure of the area.</p> <p><i>General Checks</i></p>

Management Objective	Target Species	Proposed implementation, Management and Enhancement
		<p>Inspect existing retained trees for structural integrity, making a point to survey for ash die back, remove any standard trees as necessary. Conduct regular checks on retained trees every three to four years and undertake any management necessary for health and safety reasons.</p> <p>Where possible retain standing and lying deadwood to increase habitat types and opportunities for protected species, however this is subject to a health and safety assessment given the close proximity to the proposed car park.</p> <p><i>Supplementary Planting – Enhancement</i></p> <p>The number of whips, planting location and pattern will be decided post felling to reflect the conditions on site, following the accompanying soft landscape scheme (BG20.316.3, December 2021).</p> <p>Native, fruit-bearing shrub species will be planted along the southern embankment (Appendix 2) to encourage ground stabilisation, flood prevention and additional foraging and commuting habitat for target species. Recommended species include coppiced hazel, dog rose, hawthorn, spindle, flowering currant (<i>Ribes Sanguineum</i>) blackberry (<i>Rubus fruticosus</i>), crab apple (<i>Malus sylvestris</i>) and wild cherry (<i>Prunus avium</i>).</p> <p>Planting should be conducted in late autumn or early winter where possible and spaced in same species groups of up to three stands to replicate a naturally regenerating structure, set approximately 1m apart between interspersed trees.</p> <p>Specimens that fail in the first five years will be replaced that planting season.</p> <p>Due to limited accessibility of the area, maintenance will be minimal. Prune annually to prevent woodiness during establishment, remove dead branches and promote a dense bushy structure. Shrubs such as hazel, hawthorn and dogwood are suitable for coppicing which will increase their ecological value over time. Once established, maintenance can be relaxed and cut on a rotation, when necessary, every 3-5 years, to prevent scrub dominance, however it is anticipated foraging badger, fox and small mammal activity will naturally control scrub density, and as such maintenance may not be required.</p>

Management Objective	Target Species	Proposed implementation, Management and Enhancement
<p><b>Mill Pond</b></p> <p><i>Enhance the bankside vegetation associated with the retained pond to the west of the site. The water level has been dropped by 400mm to facilitate attenuation balancing, as such the bankside requires planting and enhancement for native species and aesthetic value.</i></p>	<p>Water vole, invertebrates, herptiles, bats, birds, hedgehog.</p>	<p>The bankside will be seeded with EP1 Wetland Meadow Mix (Wildseed.co.uk), this mix is suitable for seasonally wet soils that transitionally flood but are usually well drained in the summer.</p> <p>Grassland seed mix to be sown according to manufacturer's instructions in the autumn or spring and will be slow to germinate. Mow newly sown grass regularly throughout the first year of establish to a height of 40-60mm to control annual weeds, spot treat perennial weeds as necessary.</p> <p>A series of rocks of varying sizes, graduating from the base of the wetland area, to be constructed on the southern aspect. This area will provide basking opportunities and access points for herptiles.</p> <p>Plug planting of native species will also be incorporated along the southern and western edges of the pond to create a visually appealing bankside incorporating a range of plant sizes, colours and textures. Species to comprise annually flowering and fruit bearing species which would naturally arise within the habitat type on site such as <i>Juncus effusus</i>, <i>Sparganium erectum</i>, <i>Ranunculus aquatilis</i> and <i>Caltha palustris</i>. as outlined within the accompanying soft landscape scheme (BG20.316.3, December 2021).</p> <p>Planting should be conducted in early spring, planting approximately 0.5m apart.</p> <p><i>Management</i></p> <p>Management of wetland areas will aim to create variation with minimum disturbance to animal populations. Once established, cut every 2-3 years in rotation between September and November. Dense stands of single species (e.g. yellow iris) may benefit from selective thinning. management of additional wetland species is outlined within the accompanying Landscape Management Plan (BG20.316.4, December 2021).</p>
<p><b>Objective 2: Creation of new habitat</b></p>		

Management Objective	Target Species	Proposed implementation, Management and Enhancement
<p><b>Proposed Native Hedgerows</b></p> <p><i>Planting of native hedgerow defining the boundaries of resident gardens to provide an additional foraging and commuting resource for target species.</i></p>	<p>Breeding Birds, Herptiles, Hedgehog, Invertebrates</p>	<p><i>Hedgerow planting</i></p> <p>Native hedgerow shall be planted across site in line with the accompanying soft landscaping scheme (BG20.316.3, December 2021). Where possible, species will be native and annually blooming and fruit bearing for the benefit of target species.</p> <p>A staggered double row of trees will be planted. These shall consist of a feathered whip (circa 1.2m tall) every 2m and whips (circa 0.6-0.9m tall). Interspersed between these feathered whips will be 5-6 containerised (2litre pot) 2-year-old trees (circa 0.6m) high.</p> <p>This general pattern would be subject to local variation to reflect conditions. It has been conceived in order to generate a multi-layered functional hedge to achieve a planting specification that is expected to have a reasonably high survival rate. The smaller containerised trees will provide low level cover and are likely to have a better survival rate and to grow more rapidly following establishment. The larger trees will provide immediate height but will grow more slowly following establishment.</p> <p>The trees will be, as far as is reasonably possible, locally sourced and of appropriate local provenance (as defined by Forestry Commission Practice Note [1999] Using Local Stock for Planting Native Trees and Shrubs) [Local Provenance Regions 304 or 403 - regions ordered by preference, most preferable – least preferable].</p> <p>Tree stakes should be used to support newly planted whips, boarded by biodegradable tree guards to protect during establishment.</p> <p><i>Protection Measures</i></p> <p>Feathered whips will be protected by a mulch mat, e.g. c.1m<sup>2</sup> Hemcore Biomats (or similar). Biomats are fully biodegradable and will reduce the need for post restoration watering and weed control.</p> <p>Tubex (or equivalent) tree shelters will be used to protect trees from rodent and rabbit damage and held in place by a bamboo stake.</p> <p><i>Management</i></p> <p>Sufficient manual watering and tie checks will be conducted at regular intervals to promote establishment until year 3 (Table 3). Newly planted</p>

Management Objective	Target Species	Proposed implementation, Management and Enhancement
		saplings will be pruned annually until establishment to encourage a thick base at which point, they will be managed as existing hedgerows.
<p><b>Drainage Swale</b></p> <p><i>Proposed drainage swales within areas of open space to provide an extension of the wetland habitats for native species whilst offering additional resident engagement with the surrounding habitats.</i></p>	<p>Herptiles, Breeding Birds, Small Mammals, Invertebrates.</p>	<p>The area will be seeded with EM8 Wetland Meadow Mix (Wildseed.co.uk), this mix is suitable for seasonally wet soils that transitionally flood but are usually well drained in periods of drought.</p> <p>Grassland seedmix to be sown according to manufacturer's instructions in the autumn or spring and will be slow to germinate. Mow newly sown grass regularly throughout the first year of establish to a height of 40-60mm to control annual weeds, spot treat perennial weeds as necessary.</p> <p>Specimen wetland marginal planting will be incorporated within this area to increase foraging resources for target species. This will be conducted following the accompanying soft landscape scheme (BG20.316.3, December 2021).</p> <p>Planting should be conducted in early spring, planting according to the soft landscape scheme set in groups of 4 to reflect a naturally regenerating landscape.</p> <p><i>Management</i></p> <p>Management of wetland areas will aim to create variation with minimum disturbance to animal populations. Once established, cut every 2-3 years in rotation between September and November. Dense stands of single species (e.g. yellow iris) may benefit from selective thinning.</p>
<p><b>Species-rich Grassland</b></p> <p><i>To improve floristic diversity on site and provide connectivity, foraging resources and basking opportunities for protected species.</i></p>	<p>Invertebrates, amphibians, reptiles and small mammals</p>	<p><i>EM3 Standard General Purpose Meadow Mixture</i></p> <p>To be sown within areas of open space along resident pathways, principally between the River Holme and Mill Pond to the north-west as outlined within the accompanying soft landscape scheme (BG20.316.3, December 2021) The grassland will be managed as meadow to improve connectivity on site for protected species, while a mown verge will be maintained for aesthetic purposes.</p> <p>Seed should be applied following the manufacturer's guidelines (Wildseed.co.uk) is best sown in the autumn or spring. Spread by hand with</p>

Management Objective	Target Species	Proposed implementation, Management and Enhancement
		<p>an even distribution and tread in. Mow plant growth regularly to 40-60mm throughout the first growing season to prevent dominating weeds.</p> <p>The established grassland should be spot treated for unwanted perennial weeds (docks, thistles etc), and the grassland should be cut annually between September and November combined with an early spring cut to control scrub encroachment. This should be done on a rotational basis so no more than half the area is cut at any one time, leaving part as undisturbed refugia for protected species.</p> <p>Monitoring will be undertaken to prevent the encroachment of pernicious species and to benefit local wildlife. The areas of seeded grassland will be subject to ongoing monitoring for a period of five years to ensure the success of the species.</p>
<p><b>Habitat Creation Areas.</b></p> <p>Placement of artificial refuges to enhance breeding habitat for protected species.</p>	<p>Bats, Birds, Hazel Dormice, Reptiles, Amphibians and Hedgehog</p>	<p><i>Bats:</i> During construction 4 x <i>1FR Schwegler Bat Tubes</i>, or similar approved should be integrated to the southern or eastern elevations of the buildings (grouped in sets of 2). The boxes should be placed as close to the eaves as possible, as per the enhancement plan (Appendix 2)</p> <p>Post construction 6 x <i>Oak Kent boxes</i> or similar approved will be affixed to suitable retained mature trees to the south of the site (Appendix 2). The boxes should be placed in sets of two positioned at least 4m from the ground, with a clear, unobstructed flight path.</p> <p><i>Birds:</i> The following nest boxes 5 x <i>Schwegler 1B</i> or similar approved in the following sizes: 2 x 26mm Hole, 1 x 32mm Hole, 2 x Oval Hole will be installed on suitable retained trees (Appendix 2) facing a north-north easterly direction. The boxes should be positioned at a height 4 metres, ideally grouped around the Mill Pond.</p> <p>6x <i>Manthorpe Swift Brick</i> or similar approved, grouped in sets of three, integrated into the northern or western elevation of the proposed development blocks. These will be positioned at a height 4 metres with an unobstructed flight path.</p> <p><i>Reptiles and Amphibian:</i> A single hibernacula will be constructed within close proximity to the Mill Pond adjacent to the western boundary of the site. (Appendix 2). The exact location will be free from flooding, host a variable sward structure (Following recommendations for additional planting), and</p>

Management Objective	Target Species	Proposed implementation, Management and Enhancement
		<p>provide suitable habitat for thermoregulation. The hibernacula should consist of an excavated hollow at least 2m x 2m x 1m infilled with materials such as building rubble and/or tree roots. Small drainage pipes are placed around the edges of the hollow providing access from the surface into voids and spaces within the building rubble and/or tree roots. The hollow is then covered over with loose turfs of bare soil and scattered with a shaded woodland wildflower and grass mix such as EW3 – Special Purpose Meadow Mix [wildseed.co.uk].</p> <p><i>Hedgehog:</i> A suitable hedgehog hibernaculum, such as a Wooden Hedgehog Nest Box, or similar, should be placed on site as a receptor point for any individuals found during the development and retained on site post development (Appendix 2).</p>
Sensitive lighting Scheme	Foraging and commuting bats	<p>Artificial lighting should be limited on the southern and western elevations of the buildings, and illumination of The River Holme will be prohibited.</p> <p>If security lighting on the buildings is required as part of the scheme, the lighting must be faced in a downward direction away from riparian and boundary features, with light overspill less than 1lux. It would be recommended that these should be set to a timer or on a motion sensor to reduce impacts to local wildlife.</p> <p>Lighting within apartments to be central with the room, away from windows which overlook the river to reduce the effect of lit overspill.</p>
<b>Objective 3: Monitor retained and created habitats. Review management Strategy</b>		
Management Plan Review	N/A	The plan should be reviewed at 5, 10 and 20 years to ensure targets and management are on track for the site with the production of an amended plan, incorporating revisions following the review of the results of the monitoring of created habitats as described below.

Management Objective	Target Species	Proposed implementation, Management and Enhancement
<b>Newly Planted trees and scrub</b>	N/A	<p>Monitored annually until established, approximately Year 5 when a review will be undertaken by an ecologist and arboriculturist to ensure objectives have been met and the management continues to enhance the habitat for wildlife.</p> <p>Maintain at least 60% scrub cover within the southern buffer ensuring a dense understorey which provides suitable connectivity for protected species.</p> <p>Less than 10% scrub encroachment will be tolerated in grassland areas.</p> <p>Less than 30% scrub along the riverbanks.</p> <p>Scrub habitat should be assessed against the predicated target condition (BG21.316.2, December 2021) Assessment criteria for target condition is within Appendix 3.</p>
<b>Grassland</b>	N/A	<p>If the herb to grass ratio is less than 20%, or wildflower seeding has not been successful (less than 50% of expected germination), reseeding with an appropriate 100% flower mixture should be undertaken.</p> <p>Grassland habitat should be assessed against the predicated target condition (BG21.316.2, December 2021) Assessment criteria for target condition is within Appendix 3.</p>
<b>Invasive weeds</b>	N/A	<p>Removal by a contractor, with regular checks. Regeneration should be remediated as per an invasive species management plan provided by the approved contractor.</p>

## 5 Prescriptions for Management Action and Proposed Work schedule

5.1 Management to establish habitats will be undertaken following standard practice and following the manufacturer's instructions. During establishment management should follow the prescriptions described in Table 2, following the approximate schedule detailed below (Table 3).

**Table 3: Work Schedule**

Management Prescriptions	Timing of works	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 25-30
<b>Newly planted trees and hedgerow</b>														
Check guards and tree supports until established	Unrestricted	✓	✓	✓										
Remove stakes and tree guards once establishment is deemed complete.	Unrestricted				✓									
Weed by hand around plant base	Apr/May	✓	✓	✓	✓									
Formative prune where necessary to establish a strong central leader on trees. Trees will be assessed, removing and reducing side shoots. This work will be on going until the tree is considered to be established.	Prior to growing		✓	✓	✓	✓								
Safety checks and tree condition assessment undertaken on a 4-year rotation from establishment.	Unrestricted				✓				✓		✓	✓	✓	
Coppice supplementary scrub planting (up to 50%) on a rotation basis. Management may need increasing should the scrub start to spread vigorously.	Jan- Mar		✓		✓		✓		✓		✓	✓	✓	
Cut new hedgerows annually once established (approx. 45-60cm), to encourage base thickening.	Nov -Feb	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Hedgerows cut to A shaped profile on three-year rotational system. (Flailing and laying can be introduced to new hedgerows at approx. 10 years once fully established).	Nov -Feb										✓	✓	✓	





## 6 Details of the Organisation responsible for the implementation of the plan.

### 6.1 *Implementation:*

6.1.1 The Developer (Acumen Designers and Architects) will be responsible for implementing the management associated with this condition up to the point of site occupation and thereafter the Landlord/Tenant will be responsible for administering the Plan. Details of the obligations will be included with Operations & Maintenance Manuals for the building.

6.1.2 Any transference of responsibility of this plan should be undertaken with the appropriate appointment of a competent organisation capable of delivering the detailed measures within this document. The organisation implementing this plan will be undertaken by a management company with the necessary certificates of competence to implement landscape management operation on site. The management organisation will ensure that management complies with best practice standards and all relevant health and safety procedures, protection of the environment, avoidance of pollution and protection of protected species and habitats.

### 6.2 *Management period:*

The management period of this plan is thirty years. In order to ensure that the plan continues to remain appropriate, applicable and effective, a review will be undertaken by both the landowner, and the controlling authority, to ensure that all information contained within the document remains relevant. This review will be undertaken once every 5 years. Should it be determined that the conservation aims of the management plan are not being met, remedial action will then be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme.

### 6.3 *Controlling Authority*

The controlling authority are Holmfirth District Council, who should be consulted on any matters relating to the existing trees and the approved proposals for the scheme.

# Appendix 1: Design plan



100% of the site is to be developed.  
 100% of the site is to be developed with the following:  
 100% of the site is to be developed with the following:  
 100% of the site is to be developed with the following:



**ACUMEN**  
 DESIGNERS & ARCHITECTS

ELSTON HOMES  
 PRICKLEDEN MILLS  
 HOLMFIRTH

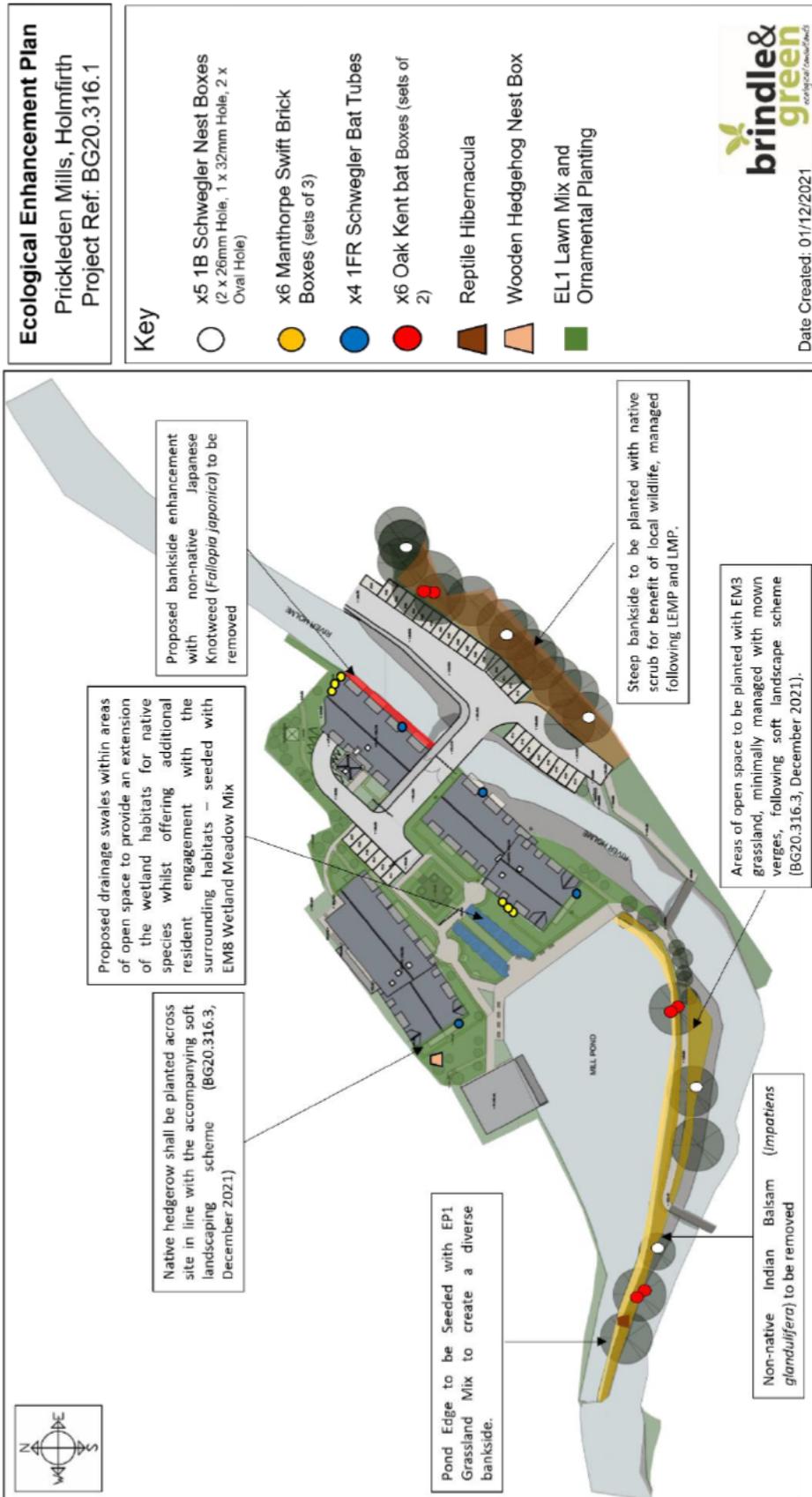
2659 (100)10 /

**PROPOSED SITE PLAN**

1:10000 AS 1:10000  
 1:10000 AS 1:10000  
 1:10000 AS 1:10000

PROPOSED SITE PLAN

# Appendix 2: Enhancement / Management Plan



## Appendix 3: Assessment Criteria

Extracts from:

STEPHEN PANKS A , NICK WHITE A , AMANDA NEWSOME A , JACK POTTER A , MATT HEYDON A , EDWARD MAYHEW A , MARIA ALVAREZ A , TRUDY RUSSELL A , SARAH J. SCOTT B , MAX HEAVER C , SARAH H. SCOTT C , JO TREWEEK D , BILL BUTCHER E and DAVE STONE A (2021) Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England.

### 6 Grassland – Medium, High & Very High Distinctiveness

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)	
UKHab Habitat Type(s)	
Grassland - Lowland calcareous grassland Grassland - Lowland dry acid grassland Grassland - Lowland meadows Grassland - Other lowland acid grassland Grassland - Other neutral grassland Grassland - Tall herb communities* Grassland - Upland acid grassland Grassland - Upland calcareous grassland Grassland - Upland hay meadows Sparsely vegetated land - Calaminarian grassland	
Habitat Description	
<a href="#">See UKHab</a>	
* Note Tall herb habitat that does not meet the definition of Annex 1 habitat 'Tall herb communities (H6430)' should be recorded as "Other neutral grassland"	
Condition Assessment Criteria	
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 species <sup>1</sup> 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.
Condition Assessment Result	
Passes 5 of 5 criteria	Condition Assessment Score
Passes 3 or 4 of 5 criteria	Good (3)
Passes 0, 1 or 2 of 5 criteria	Moderate (2)
	Poor (1)
Notes	
<b>Footnote 1</b> - Species considered undesirable for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , creeping buttercup <i>Ranunculus repens</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .	

## 17 Pond

Condition Sheet: POND Habitat Type	
UKHab Habitat Type(s)	
<p><b>Lakes - Ponds (priority habitat)</b>  <b>Lakes - Ponds (non-priority habitat)</b>  <b>Lakes - Temporary lakes, ponds and pools</b> [Use this condition sheet for Temporary ponds and pools, use Lake condition sheet for Temporary lakes ]  <b>Lakes - Ornamental lake or pond</b> [Use this condition sheet for Ornamental ponds, use Lake condition sheet for Ornamental lakes]</p>	
Habitat Description	
<p><a href="#">See UKHab</a></p> <p>other than for non-priority ponds, which are those which do not meet either the definition of (i) priority habitat ponds or (ii) ornamental ponds</p>	
Condition Assessment Criteria	
<b>CORE CRITERIA - applicable to all ponds (woodland<sup>1</sup> and non-woodland):</b>	
1	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.
2	There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge.
3	Less than 10% of the pond is covered with duckweed or filamentous algae.
4	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.
5	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.
6	There is an absence of non-native plant and animal species <sup>2</sup> .
7	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.
<b>ADDITIONAL CRITERIA - only applicable to non-woodland ponds:</b>	
8	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds) <sup>3</sup> , should cover at least 50% of the pond area that is less than 3 m deep.

9	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.
Condition Assessment Result	Condition Assessment Score
If 8 criteria assessed (woodland ponds):	
Passes 7 of 7 criteria	Good (3)
Passes 5 or 6 of 7 criteria	Moderate (2)
Passes 0, 1, 2, 3 or 4 of 7 criteria	Poor (1)
If 10 criteria assessed (non-woodland ponds):	
Passes 9 of 9 criteria	Good (3)
Passes 6, 7 or 8 of 9	Moderate (2)
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)
<p><b>Footnote 1</b> - A woodland pond will be surrounded on all sides by woodland habitat.</p> <p><b>Footnote 2</b> - Any species included on the <a href="#">Water Framework Directive UKTAG GB High Impact Species List</a> should be absent.</p> <ul style="list-style-type: none"> <li>• Frequently occurring non-native plant species include water fern <i>Azolla spp.</i>, Australian swamp stonecrop <i>Crassula helmsii</i>, parrot's feather <i>Myriophyllum aquaticum</i>, floating pennywort <i>Hydrocotyle ranunculoides</i> and Japanese knotweed <i>Fallopia japonica</i>, giant hogweed <i>Heracleum mantegazzianum</i> (on the bank).</li> <li>• Frequently occurring non-native animals include signal crayfish <i>Pacifastacus leniusculus</i>, zebra mussels <i>Dreissena polymorpha</i>, killer shrimp <i>Dikerogammarus villosus</i>, demon shrimp <i>Dikerogammarus haemobaphes</i>, carp <i>Cyprinus carpio</i>.</li> </ul> <p><b>Footnote 3</b> - If the pond is seasonal (i.e. dries out in most summers) then emergent species alone are likely to be found.</p>	

## 19 Scrub

Condition Sheet: SCRUB Habitat Type	
UKHab Habitat Type	
Heathland and shrub - Blackthorn scrub Heathland and shrub - Bramble scrub Heathland and shrub - Gorse scrub Heathland and shrub - Hawthorn scrub Heathland and shrub - Hazel scrub Heathland and shrub - Mixed scrub Heathland and shrub - Sea buckthorn scrub (Annex 1)	
Habitat Description	
<a href="#">See UKHab</a>  <a href="#">For sea buckthorn scrub use Habitats Directive Annex 1 definition</a>	
Condition Assessment Criteria	
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 <sup>1</sup> 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.
Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Notes	
<b>Footnote 1</b> - Species considered undesirable for this habitat type include: creeping thistle <i>Cirsium arvense</i> , common nettle <i>Urtica dioica</i> , cherry laurel <i>Prunus laurocerasus</i> , snowberry <i>Symphoricarpos</i> spp., buddleia <i>Buddleja</i> spp., cotoneaster <i>Cotoneaster</i> spp., Spanish bluebell <i>Hyacinthoides hispanica</i> (or hybrids).	

## 8 Hedgerow

UKHab Habitat Type		
<p>Native hedgerow            Native hedgerow - associated with bank or ditch            Native hedgerow with trees            Native hedgerow with trees - associated with bank or ditch            Native species rich hedgerow            Native species rich hedgerow - associated with bank or ditch            Native species rich hedgerow with trees            Native species rich hedgerow with trees - associated with bank or ditch</p>		
Habitat Description		
<p>See Chapter 8 of User Guide</p>		
Condition Assessment Criteria		
<p>A series of ten attributes, representing key physical characteristics, are used for this assessment. The attributes, and the minimum criteria for achieving a favourable condition in each, are defined. The attributes use similar favourable condition criteria to the Hedgerow Survey Handbook and the handbook is the recommended source of reference for assessing individual hedgerow attributes.</p>		
Hedgerow favourable condition attributes		
Attributes and functional groupings (A, B, C, D & E)	Criteria (the minimum requirements for 'favourable condition')	Description
Core groups - applicable to all hedgerow types		
A1. Height	>1.5 m average along length	<p>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.</p> <p>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).</p> <p>A newly planted hedgerow does not pass this criterion (unless it is &gt; 1.5 m height).</p>
A2. Width	>1.5 m average along length	<p>The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees.</p> <p>Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they &gt;0.5 m in height.</p> <p>Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion</p>

		for up to a maximum of four years (if undertaken according to good practice <sup>4</sup> ).
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	<ul style="list-style-type: none"> <li>· Gaps make up &lt;10% of total length and</li> <li>· No canopy gaps &gt;5 m</li> </ul>	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	<ul style="list-style-type: none"> <li>&gt;1 m width of undisturbed ground with perennial herbaceous vegetation for &gt;90% of length:</li> <li>· measured from outer edge of hedgerow, and</li> <li>· is present on one side of the hedge (at least)</li> </ul>	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).
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 ( <i>Urtica</i> spp.), cleavers ( <i>Galium aparine</i> ) and docks ( <i>Rumex</i> 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).
<b>Additional group - applicable to hedgerows with trees only</b>		
E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.
E2. Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.

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

The hedgerow condition assessment generates a score ranging from 1-3, which is used within the biodiversity metric 3.0. The scores for each are set out in tables TS1-3 and TS1-4 below.

Condition categories for hedgerows without trees		
Category	Maximum number of attributes that can fail to meet ‘favourable condition’ criteria in Table TS1-2	Metric Score
Good	No more than 2 failures in total; AND No more than 1 in any functional group.	3
Moderate	No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1
Condition categories for hedgerows with trees		
Category	Maximum number of attributes that can fail to meet ‘favourable condition’ criteria in Table TS1-2	Metric score
Good	No more than 2 failures in total; AND No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1