

Biodiversity Metric Assessment, Alfreton Road Rough Grassland Local Wildlife Site (LWS)

As requested by Derbyshire Wildlife Trust (DWT) and Erewash Borough Council (EBC) during a site visit to Alfreton Road Rough Grassland Local Wildlife Site (LWS) on the 22nd January 2020, the information herein concerns a biodiversity metric assessment for the LWS, which is currently being developed as a guide to the biodiversity-related Designated Fund projects being undertaken for Highways England in the vicinity of the A38 in Derby.

Note: it is stressed that this exercise is being carried out outside of the Development Consent Order (DCO) process for the A38 Derby Junctions scheme (referred to herein as “the Scheme”). The information provided herein is based on baseline habitat condition data gathered in 2018 and 2017 (plus survey updates as applicable); and the application of a modified Defra v1.0 Biodiversity Metric calculator tool. All biodiversity values as referenced herein are draft and subject to further review and update.

Measuring Biodiversity Value

Table 1 provides a summary of the baseline habitats identified within Alfreton Road Rough Grassland LWS their condition scores¹ and biodiversity value, in biodiversity units.

Table 1: Baseline Biodiversity value for Alfreton Road Rough Grassland LWS

Habitat	Area (ha)	Distinctiveness	Condition	Biodiversity units
Broad-leaved plantation	0.01	High	Poor	0.06
Semi-improved neutral grassland	3.72	Medium	Poor	14.88
Standing water	0.36	High	Poor	2.16
Total:	4.09		Total:	17.10

Note the condition of the habitats is based on existing data from the Extended Phase 1 Habitat Survey 2017², the Botanical Survey 2018³, and the site visit on January 2020⁴. The rationale for the condition scores assigned to each habitat type is provided in Appendix A.

The total area of the LWS is approximately 4.09 hectares (ha) with a baseline value of 17.10 biodiversity units. Approximately 1.64ha of the LWS lies within the Scheme boundary and approximately 2.45ha outside of the Scheme boundary. The Scheme will affect approximately 1.51ha of LWS habitat within the Scheme boundary - of this approximately 0.44ha will comprise a permanent loss of the semi-improved neutral grassland, where hardstanding (the road) will be created, whilst approximately 1.07ha will be subject to a temporary loss. In addition, approximately 0.13ha of LWS habitat within the Scheme boundary will be retained.

The temporarily lost habitat within the LWS (approximately 1.07ha) will be reinstated as approximately 0.38ha semi-improved neutral grassland, approximately 0.19ha amenity grassland and approximately 0.5ha broad-leaved plantation woodland. It is noted that the area of permanent

¹ Based on methodology presented in Appendix A.

² A38 Derby Junctions TR010022 Volume 6 6.3 Environmental Statement Appendices Appendix 8.3(b): Extended Phase 1 Habitat Survey in 2017 - [link](#)

³ A38 Derby Junctions TR010022 Volume 6 6.3 Environmental Statement Appendices Appendix 8.4a: Botanical Survey in 2018 - [link](#)

⁴ A38 Derby Junctions TR010022 8.61 Ecological Impact Assessment of Alfreton Road Rough Grassland LWS – [link](#)

loss quoted herein is different to the figure reported in the Technical Note concerning the assessment of ecological effects on the LWS as reported in the Scheme Environmental Statement (ES) – this is because the net losses detailed herein take account of new habitats created within the Scheme footprint. Refer to **Supplementary Figure 1** for details. Table 2 provides a summary of habitats lost and retained within the Alfreton Road Rough Grassland LWS due to the Scheme.

Table 2: Habitats lost and retained within Alfreton Road Rough Grassland LWS due to the Scheme

Habitat type	Area lost (ha)	Biodiversity value	Area retained	Biodiversity value
Broadleaved plantation	0	0	0.01	0.06
Semi-improved neutral grassland	1.51 (0.44 permanent; 1.07 temporary)	6.04 (-1.76 relating to permanent loss; - 4.28 relating to temporary loss)	2.21	8.84
Standing water	0	0	0.36	2.16
Total	1.51	6.04	2.58*	11.06

* this figure comprises the approximate 2.45ha of the LWS outside of the Scheme boundary, plus the approximate 0.13ha of habitat within the Scheme boundary that would be retained

The Scheme will result in the creation of approximately 1.51ha of new habitat at the Alfreton Road LWS (this includes landscape planting and areas covered by the Scheme infrastructure and thus equivalent to area lost). The habitats to be created comprise: amenity grassland, broadleaved plantation, semi-improved grassland and buildings/ hardstanding (road). Table 3 provides details of the proposed habitats, their target condition and predicted biodiversity units. The proposed habitat created by the Scheme will generate 3.20 biodiversity units, whilst the habitat to be retained (approximately 2.58ha) will comprise 11.06 biodiversity units, resulting in a total post-Scheme habitat value of 14.26 biodiversity units within the area occupied by the LWS.

Table 3: Habitats created within Alfreton Road Rough Grassland LWS by the Scheme

Habitat type	Distinctiveness and score	Indicative Target condition score	Area (ha)	Temporal multiplier applied	Difficulty multiplier applied	Biodiversity units
Amenity grassland	Low	Poor	0.19	1.20	1.00	0.32
Broadleaved plantation	High	Moderate	0.50	2.80	1.50	1.43
Semi-improved neutral grassland	Medium	Moderate	0.38	1.40	1.50	1.45
Buildings/hardstanding	Zero	Poor	0.44	1.20	1.00	0.00
Total:			1.51	Total:		3.20

Table 4 provides a summary of the biodiversity metric calculation outputs, comparing the baseline and post-Scheme landscape works, which indicates that the proposed works will result in a loss of -2.84 biodiversity units.

Table 4: Summary of biodiversity metric calculation outputs for area-based habitats at Alfreton Road Rough Grassland LWS

Stage	Habitat value	Biodiversity units
Pre works	Baseline habitat value	17.10
Post works	Retained habitat value	11.06
	Proposed habitat creation – landscaping	3.20
	Total post-work habitat value	14.26
	Net change	-2.84

Conclusions

The analysis presented above indicates that the Scheme will result in an estimated net loss of -2.84 biodiversity units at the Alfreton Road Rough Grassland LWS, which represents approximately 17% loss in biodiversity units compared to the baseline value. Although as detailed in the accompanying Technical Note summarising the Scheme ecological effects on the LWS, with the defined mitigation measures and landscape proposals, it is considered the Scheme will have a non-significant (neutral) effect upon the LWS. The Scheme and associated activities are not considered to undermine the conservation objectives of the LWS or negatively affect the conservation status of habitats or species for which the site is designated i.e. the floodplain grassland and/ or its interest in wetland birds. The LWS was assessed in 2018 and 2015 using criteria taken from the Derbyshire Wildlife Trust (DWT) (2003, 2011) Local Wildlife Assessment Guidance⁵. Additionally, the LWS has been assessed for breeding⁶ and wintering birds⁷. The Scheme protects and avoids harm to the core area of biodiversity interest of the LWS, namely the floodplain grassland (i.e. the inundation/ drawdown zone) of most biodiversity interest botanically and for ornithology.

It is important to note that the application of a biodiversity metric considers losses and gains in terms of habitats only and does not consider the conservation objectives of specific habitats or species, for which the LWS is designated i.e. there is no additional weighting applied to these within the metric. When compensating for biodiversity loss, CIEEM (2019)⁸ refers to compensating for the same type of features as those affected and seeking to achieve at least equivalent levels of ecological functionality. Therefore, professional judgement must be applied. The following professional judgements must be considered in addition to the application of a metric calculation:

- **The area to be retained has the core biodiversity value of the LWS**, namely the floodplain semi-improved grassland (i.e. the inundation area/ drawdown zone) of most biodiversity interest botanically and for ornithology. This conclusion is supported by survey work undertaken for botany and birds as referenced and assessed in ES Chapter 8: Biodiversity.
- **The woodland habitat to be created by the Scheme would provide screening for birds utilising the site**, noting that advanced planting of this shelterbelt during Scheme construction is also proposed.
- **Control of non-native invasive plant species in the works area and management of the habitats to be created (for up to 5 years post-construction)** will be an improvement on the existing situation. Managing the invasive species within the Scheme boundary aids in

⁵ Further details of the botanical surveys are within A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.4a: Botanical Survey in 2018 - [link](#) AND A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.4b: Botanical Survey in 2015 - [link](#).

⁶ Further details of the breeding bird surveys are within A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.8b: Breeding Bird Survey in 2017 AND A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.8b: Breeding Bird Survey in 2015

⁷ Further details of the wintering bird surveys are within A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.8d: Wintering Bird Survey in 2017/18 - [link](#) AND A38 Derby Junctions TR010022 Volume 6.6.3 Environmental Statement Appendices Appendix 8.8e: Wintering Bird Survey in 2016/17 - [link](#)

⁸ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial Freshwater, Coastal, and Marine.

maintaining the status of the retained habitats, as possible future spread of the invasive plant species is being halted by the Scheme.

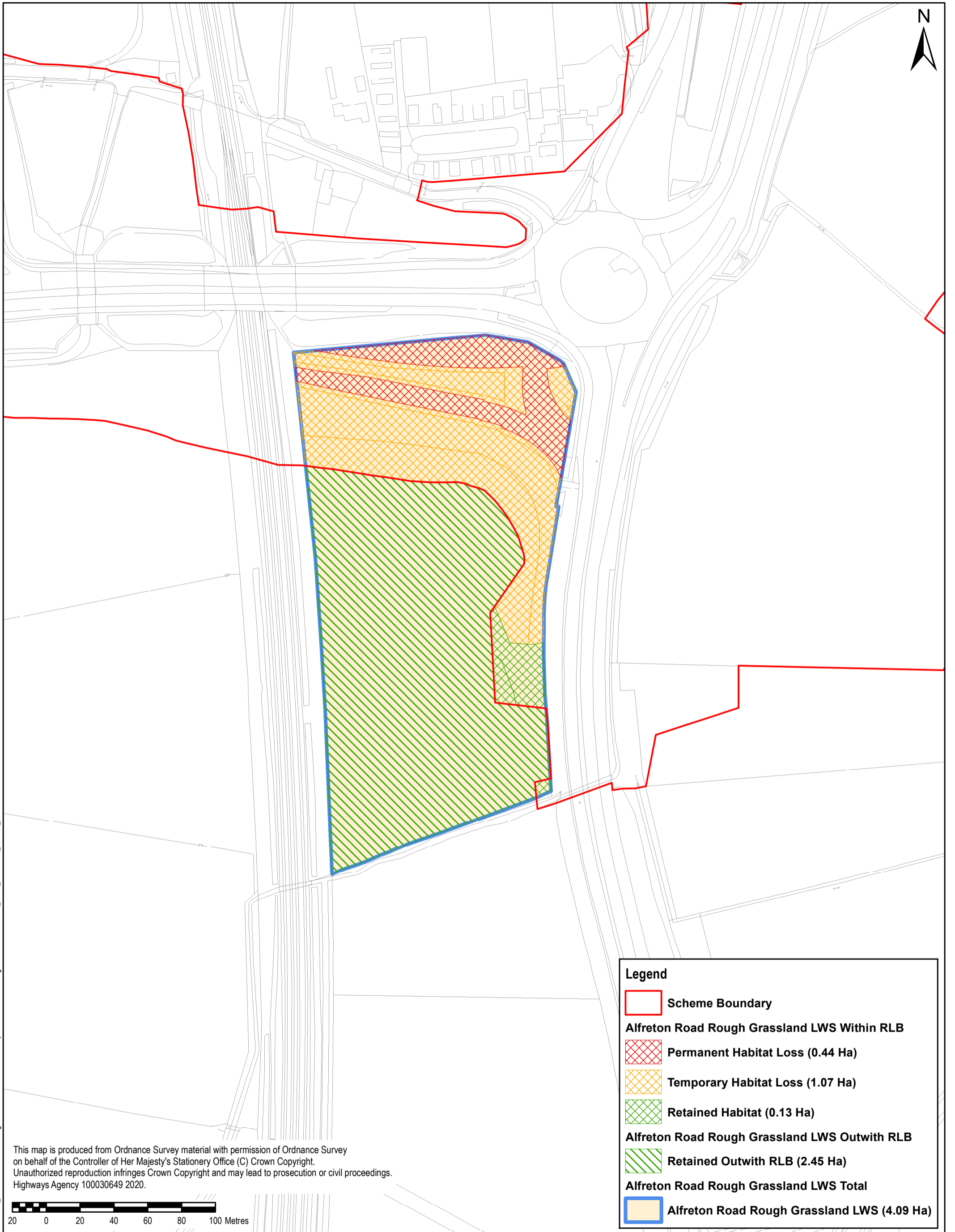
Highways England is exploring opportunities for ecological enhancements in the vicinity of the LWS via a Highways England Environment Designated Fund (EDF) project. In this regard, a feasibility study is being carried out to assess the practicalities and cost/ benefit analysis of potential opportunities to deliver additional biodiversity units through the enhancement of candidate sites (i.e. offset sites) located in the vicinity of the A38 in partnership with local stakeholders. The aim is to deliver biodiversity improvements in line with EDF criteria.

A workshop was held on 30.01.19 with the following stakeholders to discuss the potential candidate sites:







- Derby City Council
- Environment Agency
- DWT
- Derbyshire Mammal Group

Land off Ford Lane was identified by Derby City Council as a potential candidate site for local ecological enhancement proposals. The site is currently overgrown with tall ruderal habitat; however, there is potential for floodplain enhancements, including wet woodland, which would benefit local wildlife, in particular birds. This area is owned by Derby City Council and has been designated as public open space. Such additional biodiversity enhancements would be a significant benefit to local residents and future site users, as well as local ecology.

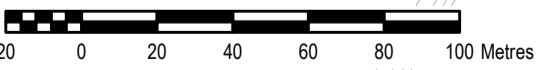
The Ford Lane site covers an area of approximately 1.64ha and is located adjacent to Little Eaton junction to the north-west of the Alfreton Road Rough Grassland LWS. The landscape plan for the Ford Lane site is being developed as part of the Designated Fund commission and aims to provide biodiversity enhancement measures which comprise: (a) creation of scattered scrub habitat; (b) creation of wet woodland habitat; and (c) creation of wetland scrapes, providing shallow areas of open water and inundation vegetation. If Designated Funds are awarded, Highways England would be happy to work with local stakeholders (including DWT and EBC) to further develop these biodiversity proposals to provide additional enhancements for biodiversity local to the Scheme.





Legend

-  **Scheme Boundary**
- Alfretton Road Rough Grassland LWS Within RLB**
-  **Permanent Habitat Loss (0.44 Ha)**
-  **Temporary Habitat Loss (1.07 Ha)**
-  **Retained Habitat (0.13 Ha)**
- Alfretton Road Rough Grassland LWS Outwith RLB**
-  **Retained Outwith RLB (2.45 Ha)**
- Alfretton Road Rough Grassland LWS Total**
-  **Alfretton Road Rough Grassland LWS (4.09 Ha)**

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Project Title/Drawing Title			Highways England Designated Fund Project - Biodiversity Enhancements			Highways England, Floor 5 2 Colmore Square 38 Colmore Circus Birmingham B4 6BN		
ALFRETON ROAD ROUGH GRASSLAND LOCAL WILDLIFE SITE (LWS)			Drawn DG	Checked HP/EM	Approved PB/SW			
			Date 9/03/2020	Scale @ A3 1:2,000	Purpose of issue FINAL			
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Appendix A Habitat Condition Rationale

Table 1: Baseline habitat condition assessment rationale

Habitat type	Area (ha)	Condition	Habitat Condition Criteria	Criteria Failed	Habitat Condition assessment	Survey data reference
Broadleaved Plantation	0.01	Poor	<p>UK native species represent $\geq 90\%$ (estimated) of the habitat (vegetation cover); AND</p> <p>Vegetation of diverse maturity, >1 age class.</p> <p>Vegetation free from physical damage associated with stock or wild animals (estimated in the last five years) across $\geq 90\%$ (estimated) of the habitat.</p> <p>Examples can include: damage from mammals (browsing/ ringbarking), also droughting, or wind damage.</p> <p>$\geq 90\%$ (estimated) of vegetation free from physical damage associated with human activity (excluding habitat management interventions e.g. thinning/ coppicing).</p> <p>Examples of physical damage associated with human activity can include: machinery storage, signage, soil compaction, littering, burning, or other damaging management activities.</p> <p>Examples of physical damage associated with human activity can include: machinery storage, signage, soil compaction, littering, burning, or other damaging management activities.</p>	2	Evidence of fly-tipping and poaching from horses in the eastern boundary of the site noted during the. These factors mean the habitat meets none of the condition criteria resulting in poor condition.	Site visit notes 22-01-2020, Extended Phase 1 Habitat Survey 2017 report, and Botanical survey 2018 report
Semi-improved neutral grassland	1.61		<p>Species typical of the habitat represent $\geq 50\%$ (estimated) of the habitat (vegetation cover); AND</p> <p>≥ 4 indicator species present; OR</p>	2	Evidence of scrub invasion, fly-tipping and invasive plant species noted during the site visit has affected the condition meaning the area only matches	Site visit notes 22-01-2020, Extended Phase 1 habitat survey data

Habitat type	Area (ha)	Condition	Habitat Condition Criteria	Criteria Failed	Habitat Condition assessment	Survey data reference
(within the Scheme boundary)			<p>If 3 indicators present must be present throughout the habitat.</p> <p>Typical species: Cock's-foot, Common Bent, Creeping Bent, Crested Dog's-tail, False Oat-grass, Meadow Fescue, Meadow Foxtail, Red Fescue, Sweet Vernal-grass, Timothy, Tufted Hair-grass and Yorkshire-fog.</p> <p>Indicator species: Autumn Hawkbit, Black Medick, Cuckooflower, Bulbous Buttercup, Common Cat's-ear, Common Sorrel, Field Wood-rush, Germander Speedwell, Lesser Trefoil, Ribwort Plantain, Meadow Buttercup, Red Clover, Selfheal, and Yarrow.</p> <p>Cover of rye-grass <25% (estimated); AND Cover of invasive trees and shrubs <10% (estimated); AND Cover of bare ground (including localised areas, for example, rabbit warrens) <10% (estimated).</p> <p>≥90% (estimated) of vegetation free from physical damage associated with human activity (excluding habitat management interventions e.g. cutting).</p> <p>Examples of physical damage associated with human activity can include: machinery storage, signage, soil compaction, littering, burning, or other damaging management activities.</p>		condition 1 listed in the condition criteria resulting in poor condition.	2017 and Botanical survey report 2018

Habitat type	Area (ha)	Condition	Habitat Condition Criteria	Criteria Failed	Habitat Condition assessment	Survey data reference
Standing water	0.36	Poor	<p>Marginal fringe of emergent vegetation is present; AND Range of submerged and floating leaved plants is present; AND Clear water is dominated by plants (and the water is not turbid or green).</p> <p>No evidence of damaging non-native plant or animal species.</p> <p>Damaging plants include: Water Fern, Australian Swamp stonecrop, Parrot's Feather, Floating Pennywort, and Japanese Knotweed (on the bank). Damaging animals include: non- native crayfish, reptiles and amphibians.</p> <p>≥90% (estimated) of vegetation free from physical damage associated with human activity. Examples can include: machinery storage, signage, littering, artificial drainage designed to lower the water level, or other damaging management activities.</p>	2	The survey data shows that the area fails two of the criteria, thus giving it a condition of 'poor'. The survey data notes the presence of a schedule 9 invasive species and the disturbance of horses grazing.	Extended Phase 1 habitat survey data 2017 and Botanical survey report 2018
Semi-improved neutral grassland (outside the Scheme boundary – to be retained)	2.11	Poor	<p>Species typical of the habitat represent ≥50% (estimated) of the habitat (vegetation cover); AND ≥4 indicator species present; OR If 3 indicators present must be present throughout the habitat.</p> <p>Typical species: Cock's-foot, Common Bent, Creeping Bent, Crested Dog's-tail, False Oat-grass, Meadow Fescue, Meadow Foxtail, Red Fescue, Sweet Vernal-grass, Timothy, Tufted Hair-grass and Yorkshire-fog.</p>	2	The habitat was not assessed fully during the January 2020 site visit. The survey data from 2017 and 2018 demonstrates the habitat fails conditions 2 and 3 resulting in poor condition, due to the impact of horse grazing and the presence of a schedule 9 invasive species.	Extended Pahse 1 habitat survey data 2017 and Botanical survey report 2018

Habitat type	Area (ha)	Condition	Habitat Condition Criteria	Criteria Failed	Habitat Condition assessment	Survey data reference
			<p>Indicator species: Autumn Hawkbit, Black Medick, Cuckooflower, Bulbous Buttercup, Common Cat's-ear, Common Sorrel, Field Wood-rush, Germander Speedwell, Lesser Trefoil, Ribwort Plantain, Meadow Buttercup, Red Clover, Selfheal, and Yarrow.</p> <p>Cover of rye-grass <25% (estimated); AND Cover of invasive trees and shrubs <10% (estimated); AND Cover of bare ground (including localised areas, for example, rabbit warrens) <10% (estimated).</p> <p>≥90% (estimated) of vegetation free from physical damage associated with human activity (excluding habitat management interventions e.g. cutting).</p> <p>Examples of physical damage associated with human activity can include: machinery storage, signage, soil compaction, littering, burning, or other damaging management activities.</p>			
Total:	4.09					

Table 2: Post-development habitat - condition assessment rationale

Habitat type	Area (ha)	Distinctiveness	Condition	Condition Rationale	Biodiversity units
Amenity grassland	0.19	Low	Poor	The condition of this habitat has been assigned as poor that the management methods are unfavourable for biodiversity colonisation, and favourable for recreational activities.	0.32
Broad-leaved plantation woodland	0.50	High	Moderate	The condition of this habitat has been assigned as moderate condition taking account the time to target condition. The time to target condition for this habitat is 30 years for moderate condition, and the management prescriptions will be for 30 yrs. of management.	1.43
Semi-improved neutral grassland	0.38	Medium	Moderate	The condition of this habitat has been assigned as Moderate as the baseline condition is "poor", and enhancements are prescribed to enhance habitat by one grade.	1.45
Buildings/Hard standing	0.44	Low	Poor	N/A - Condition Assessment is not applicable for this habitat.	0.00
Total:	1.51				3.20