Biodiversity Net Gain Assessment

Land West of Shoreham Road, Small Dole

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CONTENTS

LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

1.1 The Ecology Partnership was commissioned by Wates Developments Ltd to undertake a Biodiversity Net Gain (BNG) assessment for land west of Shoreham Road, Small Dole, West Sussex BN5 9YH, hereafter referred to as the 'site' (Figure 1).

1.2 The site lies to the west of the village of Small Dole, West Sussex, BN5 9YH (TQ 21331 13112). The site covers approximately 5.45ha and consists of a grassland field with scrub and trees on the north, west and east boundaries and deciduous woodland to the south. The aerial photograph below (Figure 1) shows the site and its immediate surroundings.

Figure 1: Site application boundary (red line).
Satellite imagery obtained from Google Earth Pro 24/03/2024

1.3 The assessment is based on the Illustrated Landscape Strategy Plan produced by OSP (23088/P101/D) (see Figure 2 below).

Figure 2: Site Proposals (OSP, 2025)

2.0 Statutory Biodiversity Metric

2.1 BNG principles are aimed to support both the aspired green infrastructural proposals set to define the created landscape and support biodiversity and habitat enhancement. BNG principles are set within the Environment Bill (2021).

2.2 In order to determine the on-site habitat baseline, habitats were mapped and subject to a condition assessment on 10th September 2024, with a River Condition Assessment (RCA) of the on-site stream following the standard metric and RCA guidelines undertaken on 18th February 2025. This work was undertaken by Ecologists Hayley Gale BSc (Hons), and Ed Simpson BSc (Hons) MSc who is certified to carry out RCA surveys.

2.3 A stream runs along the southern boundary of the site and was subject to a River Condition Assessment (RCA). In order to inform the assessment, a series of MoRPh5 surveys were undertaken along this watercourse to characterise each sub-reach. Each MoRPh5 comprises five contiguous modules. As the width of the watercourse was less than 5m, the

minimum module length of 10m was used, so each MoRPh5 totalled 50m per sub-reach. MoRPh5 surveys are repeated so that a minimum of 20% of the length of the river within the development red line boundary is surveyed, and each sub-reach should be equally spaced and located to best capture variations along the red line boundary. In this instance, the channel measured *c.*260m, and so this was divided into two sub-reaches in order to include two 50m MoRPh5 surveys carried out on the stream, which accounted for c.39% of the watercourse length.

2.4 The MoRPh survey involves a detailed assessment of a number of features on the channel bed, banks, and immediate bank tops (to 10 m from the bank top edge). This includes morphological and hydraulic features, habitats, and presence and extent of non-native invasive plant species, land use pressures on the bank top and human interventions within the river channel. Data is gathered using the Cartographer App, and is automatically uploaded to the Cartographer Website (www.Cartographer.io). A series of positive and negative indicator scores are then generated ranging from -4 to 0 for negative indicators and 0 to +4 for positive indicators. The average of negative indicators are then subtracted from the average of positive indicators to generate the preliminary condition score. A desk study is undertaken within the Cartographer Website to determine the river type. The preliminary condition score is then compared against the river type to determine the river condition for the purposes of the statutory metric.

2.5 The Statutory Biodiversity Metric is used to calculate biodiversity losses and gains for terrestrial habitats within the application area. This metric underpins the Environment Bill's provisions for mandatory biodiversity net-gain in England.

2.6 The Statutory Biodiversity Metric uses habitat as a proxy for wider biodiversity with different habitat types scoring different values according to their relative biodiversity value and dependent on the condition and location of the habitat, to calculate 'biodiversity units'.

On-Site Habitat Baseline

2.7 The habitats currently present on site have been identified and assessed. These are shown in Figure 3 and in Tables 1 and 2, overleaf. A full condition assessment is presented in Appendix 1.

Figure 4: On-Site Habitat Baseline

Table 1. ***On-site habitat breakdown – Pre-Development***

Habitat	Area (ha)	Distinctiveness	Condition	Strategic significance	Total habitat units	Area retained	Area enhanced	Units lost	Comments
Lowland Mixed Deciduous Woodland	0.613	High	Poor	Low	3.68	0	0.56	0.24	Woodland
Mixed Scrub	0.391	Medium	Moderate	Low	3.13	0.326		0.12	Areas of mixed scrub surrounding the site.
Other Neutral Grassland	4.452	Medium	Poor	Low	17.81		1.98	8.64	Area of grassland that dominated the majority of site
Total area	**5.45**			**Total units/area**	**25.00**	***0.36***	**2.9**	**9.00**	

Table 2. ***On-site watercourse habitat breakdown – Pre-Development***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Extent of encroachment		Total units	Length retained	Length enhanced	Units lost	Comments
					Water-course	Riparian					
Other rivers and streams	0.28	High	Moderate	Low	No	Major/ None	2.92	0.28	0	0	
Total length	**0.32**					**Total units/length**	**2.92**	***0.28***	**0.26**	**0**	

On-Site Habitat Creation

2.8 The proposed development includes a residential development in the southern section of site, with areas of other neutral grassland, scrub, 108 individual trees, and swale. The proposal retains and enhances much of the grassland and boundary habitats on site. Wet ditches will be included in swales to provide an increase in watercourse habitats. The proposed habitat areas are detailed in Tables 4, 5 & 6 and Figure 5 below.

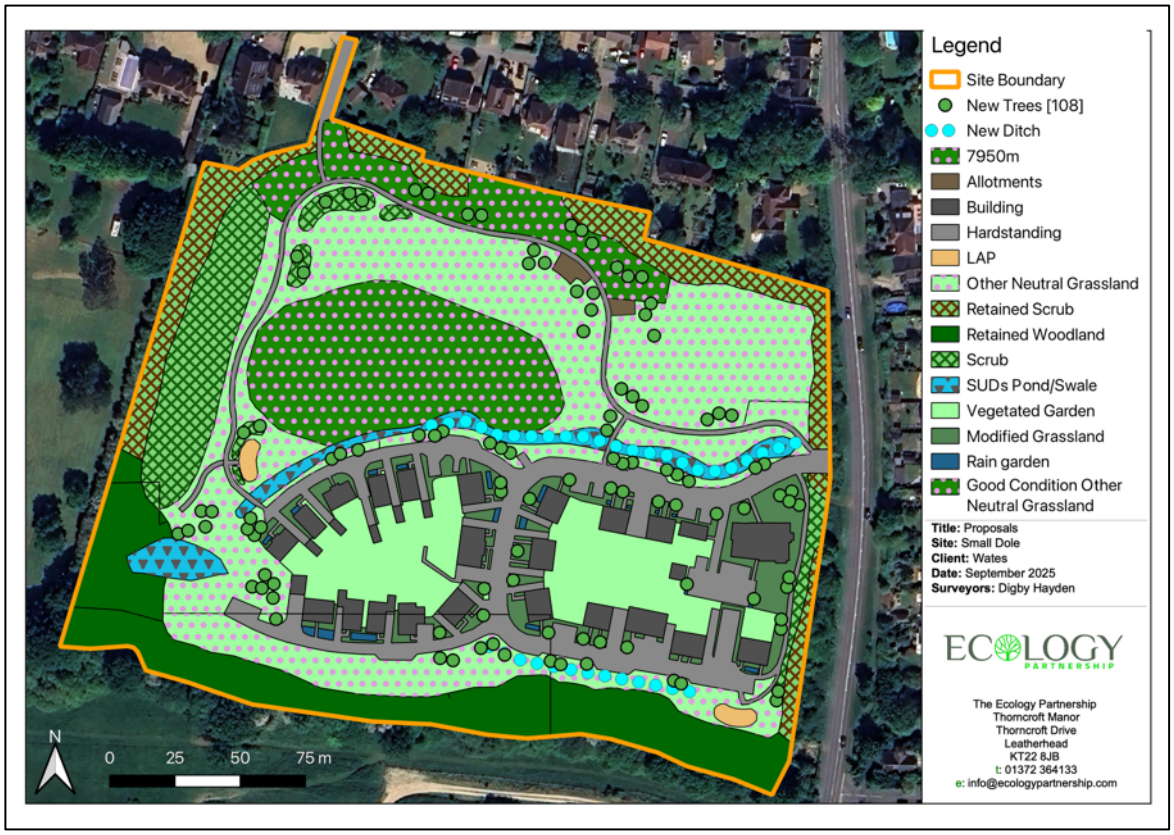

Figure 5. Proposed habitats

Table 3. ***On-site habitat breakdown – Post-Development Creation***

Habitat	Area (ha)	Distinctiveness	Target Condition	Strategic significance	Years to target condition	Difficulty	Total habitat units	Comments
Developed land; sealed surface	0.952	V.Low	N/A - Other	Low	0	Low	0.00	Areas of building and hardstanding
Rain Garden	0.011	Low	Moderate	Low	1	Low	0.83	New rain gardens
Allotments	0.024	Low	Poor	Low	1	Low	0.05	New public allotments
Vegetated garden	0.431	Low	Condition Assessment N/A	Low	1	Low	1.36	Gardens of new proposed properties
Modified grassland	0.227	Low	Poor	Low	1	Low	0.04	Areas of street scene/LAP
Ponds (non-priority habitat)	0.043	Medium	Poor	Low	3	Low	0.17	New SUDs pond
Other neutral grassland	0.111	Medium	Poor	Low	2	Low	0.47	Areas of new wildflower grassland across the majority of the site
Mixed scrub	0.352	Medium	Moderate	Low	5	Low	2.01	New scrub planting to buffer edge habitats
Urban tree	0.4397	Medium	Poor	Low	10	Low	0.80	108 new trees planted across site
Total area	**2.63**	**Total units**					**5.63**	*Excludes Retained Habitats*

Table 4. ***On-site watercourse habitat breakdown – Post-Development Creation***

Habitat	Length (km)	Distinctiveness	Condition	Strategic significance	Extent of encroachment		Total units	Comments
					Water-course	Riparian		
Ditches	0.2	Medium	Moderate	Low	Minor	Major/Major	0.31	New ditch as part of swale

Table 5. ***On-site habitat breakdown – Post-Development Habitat Enhancement***

Habitat	Area (ha)	Distinctiveness	Target Condition	Strategic significance	Years to target condition	Difficulty	Total habitat units	Comments
Lowland Mixed Deciduous woodland	0.595	High	Moderate	Low	0	Low	0.00	Area of enhanced woodland on southern boundary
Other neutral grassland	1.511	Low	Moderate	Low	1	Low	6.94	Enhanced grassland on site
Other neutral grassland	0.795	Low	Good	Low	1	Low	11.35	Enhanced grassland in centre of site
Total area	**2.90**	**Total units**					**22.69**	*Excludes Retained Habitats*

2.9 The final results are shown in table 5 below.

Table 5. Final results

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Area habitat units*	6.21
	Hedgerow units	0.00
	Watercourse units	0.31
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Area habitat units*	24.82%
	Hedgerow units	0.00%
	Watercourse units	10.12%
Trading rules satisfied?	Yes ✓	

2.10 The calculations confirm that the current proposals result in a **+24.82% net gain** in habitat units and a **+10.12% net gain** in watercourse units, and all trading rules have been satisfied.

2.11 A detailed Habitat Management & Maintenance Plan will be developed at the detailed design stage to detail the long-term management of the proposed habitats to achieve the targeted habitat conditions, over a 30 year timespan.

3.0 Conclusions

3.1 The baseline value of the site is **25.01 area units**, and **3.07 watercourse units**.

3.2 Post-development, the proposed value of the site is currently predicted to be **31.22 area units,** and **3.38 watercourse units**, equating to a change of **+24.82%,** and **+10.12%** respectively.

3.3 All trading rules have been satisfied.

3.4 To achieve this net-gain the development will seek to enhance all retained areas of grassland and woodland, as well as create new habitats including ditches, scrub, and grassland.

Appendix 1: Habitat Condition Assessments

Condition Sheet: SCRUB Habitat Type				
UKHab Habitat Type(s): All forms of scrub				
Condition Assessment Criteria		**Scrub 1**	**Scrub 2**	**Scrub 3**
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens*, which can be up to 100% cover).	Pass		
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.	Fail		
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of sub-optimal condition[8] make up less than 5% of ground cover.	Pass		
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Pass		
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail		
	Condition	**Moderate**		
Condition Assessment Result				
Good	Passes 5 of 5 criteria			
Moderate	Passes 3 or 4 of 5 criteria			
Poor	Passes 2 or fewer criteria			

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)				
UKHab Habitat Type(s): All other grassland types and tall ruderal (ie, not amenity/modified)				
Condition Assessment Criteria		**Grassland 1**	**Grassland 2**	**Grassland 3**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). [1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Fail		
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass		
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	**Fail**		
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Fail		
E	Combined cover of species indicative of sub-optimal condition[3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	Pass		
Additional Criterion - must be assessed for all non-acid grassland types				
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	Fail		
	Condition	**Poor**		

Condition Assessment Result	
Good	Passes 5 of 6 criteria, including essential criterion A and F
Moderate	Passes 3 or 4 of 6 criteria, including essential criterion A
Poor	Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion A and F

Condition Sheet: WOODLAND Habitat Type						
UKHab Habitat Type(s): All woodlands (except wood pasture)						
Condition Assessment Criteria						
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**	**Score per indicator**	
					Southern Woodland	**Western Woodland**
A	**Age distribution of trees Footnote 1**	Three age-classes[1] present	Two age-classes[1] present	One age-class[1] present	2	2
B	**Wild, domestic and feral herbivore damage Footnote 2**	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland[2]	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2]	1	1
C	**Invasive plant species Footnote 3**	No invasive species[3] present in woodland	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species[3] < 10% cover	Rhododendron or cherry laurel present, or other invasive species[3] > 10% cover	3	3
D	**Number of native tree species Footnote 4**	Five or more native tree or shrub species[4] found across woodland parcel	Three to four native tree or shrub species[4] found across woodland parcel	None to two native tree or shrub species[4] across woodland parcel	3	2
E	**Cover of native tree and shrub species Footnote 5**	> 80% of canopy trees and > 80% of understory shrubs are native[5]	50-80% of canopy trees and 50-80% of understory shrubs are native[5]	< 50% of canopy trees and < 50% of understory shrubs are native[5]	3	3
F	**Open space within woodland Footnote 6 and 7**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7]	21- 40% of woodland has areas of temporary open space[6]	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	2	1
G	**Woodland regeneration Footnote 8**	All three classes present in woodland[8]: trees 4-7cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland[8]	No classes or coppice regrowth present in woodland[8]	2	1
H	**Tree health Footnote 9**	Tree mortality less than 10%, no pests or diseases and no crown dieback[9]	11% to 25% mortality and/or crown dieback or low risk pest or disease present[9]	Greater than 25% tree mortality and or any high risk pest or disease present[9]	1	1

I	**Vegetation and ground flora Footnote 10**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] present at ground layer present	No recognisable woodland NVC plant community[10] at ground layer present	1	1
J	**Woodland vertical structure Footnote 11**	Three or more storeys across all survey plots or a complex woodland[11]	Two storeys across all survey plots[11]	One or less storey across all survey plots[11]	2	2
K	**Veteran trees Footnote 12**	Two or more veteran trees[12] per hectare	One veteran tree[12] per hectare	No veteran trees[12] present in woodland	1	2
L	**Amount of deadwood Footnote 13**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	2	2
M	**Woodland disturbance Footnote 14**	No nutrient enrichment or damaged ground evident[14]	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground[14]	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground[14]	1	1
				Total score (out of a possible 39)	**24**	**22**

Condition Assessment Score	
Good	Total score >32 (33 to 39)
Moderate	Total score 26 to 32
Poor	Total score <26 (13 to 25)

Appendix 2: River Condition Assessment

Data collected in the field was analysed through the Cartographer App and a condition score applied to each criterion based on the results. Positive criteria are scored between 0 and 4 and negative criteria between 0 and -4. The total positive and negative scores were added together to provide the overall condition score. These are summarised in the Table 1 below

RCA Results – Module 1 (eastern module)

Code	Name	Baseline Score	Post development score	Change
B1	Bank top vegetation structure	3	3	0
B2	Bank top tree feature richness	2	2	0
B3	Bank top water related features	0	0	0
B4	Bank top non-native invasive species	0	0	0
B5	Bank top managed ground cover	0	0	0
C1	Bank face riparian vegetation structure	3	3	0
C2	Bank face tree feature richness	2	2	0
C3	Bank face natural bank profile extent	2	2	0
C4	Bank face natural bank profile richness	4	4	0
C5	Bank face natural bank material richness	1	1	0
C6	Bank face bare sediment extent	4	4	0
C7	Bank face artificial bank profile extent	0	0	0
C8	Bank face reinforcement extent	0	0	0
C9	Bank face reinforcement material severity	0	0	0
C10	Bank face non-native invasive species cover	0	0	0
D1	Channel margin aquatic vegetation extent	0	0	0
D2	Channel margin aquatic morphotype richness	0	0	0
D3	Channel margin physical feature extent	2	2	0
D4	Channel margin physical feature richness	1	1	0
D5	Channel margin artificial features	0	0	0
E1	Channel aquatic morphotype richness	0	0	0
E2	Channel bed tree feature richness	2	2	0
E3	Channel bed hydraulic features richness	1	1	0
E4	Channel bed natural features extent	1	1	0
E5	Channel bed natural features richness	1	1	0
E6	Channel bed materials richness	3	3	0
E7	Channel bed siltation	-2	-2	0
E8	Channel bed reinforcement extent	0	0	0
E9	Channel bed reinforcement severity	0	0	0
E10	Channel bed artificial features severity	-3	-3	0
E11	Channel bed non-native invasive species extent	0	0	0
E12	Channel bed filamentous algae extent	0	0	0
Positive Index Average		1.68	1.68	**0**
Negative Index Average		-0.38	-1.5	**0**
Condition Score		**1.30** *Moderate*	**1.53** *Moderate*	

RCA Results – Module 2 (western module)

Code	Name	Baseline Score	Post development score	Change
B1	Bank top vegetation structure	4	4	0
B2	Bank top tree feature richness	2	2	0
B3	Bank top water related features	0	0	0
B4	Bank top non-native invasive species	0	0	0
B5	Bank top managed ground cover	-2	-2	0
C1	Bank face riparian vegetation structure	3	3	0
C2	Bank face tree feature richness	3	3	0
C3	Bank face natural bank profile extent	3	3	0
C4	Bank face natural bank profile richness	4	4	0
C5	Bank face natural bank material richness	2	2	0
C6	Bank face bare sediment extent	1	1	0
C7	Bank face artificial bank profile extent	0	0	0
C8	Bank face reinforcement extent	0	-2	-2
C9	Bank face reinforcement material severity	0	0	0
C10	Bank face non-native invasive species cover	0	0	0
D1	Channel margin aquatic vegetation extent	0	0	0
D2	Channel margin aquatic morphotype richness	0	0	0
D3	Channel margin physical feature extent	2	2	0
D4	Channel margin physical feature richness	2	2	0
D5	Channel margin artificial features	-1	-1	0
E1	Channel aquatic morphotype richness	0	0	0
E2	Channel bed tree feature richness	2	2	0
E3	Channel bed hydraulic features richness	2	2	0
E4	Channel bed natural features extent	2	2	0
E5	Channel bed natural features richness	1	1	0
E6	Channel bed materials richness	3	3	0
E7	Channel bed siltation	0	0	0
E8	Channel bed reinforcement extent	0	0	0
E9	Channel bed reinforcement severity	0	0	0
E10	Channel bed artificial features severity	-4	-4	0
E11	Channel bed non-native invasive species extent	0	0	0
E12	Channel bed filamentous algae extent	0	0	0
Positive Index Average		1.89	1.89	**0**
Negative Index Average		-0.62	-0.69	**0**
Condition Score		**1.28 Moderate**	**1.20 Moderate**	

For the eastern module, the average positive indicator score was **+1.68** and average negative indicator score **-0.38,** with an overall preliminary condition score of **1.30**. For the western module, the average positive indicator score was **+1.89** and average negative indicator score **-0.62,** with an overall preliminary condition score of **+1.28**. Based on the proposals, these two areas will maintain their value post development, as the introduction of a short headwall and outflow, constructed of geotextile make negligible changes with regards to the condition of the river. Based on the river type, the final condition score is determined to be '**Moderate'** for the entirety of the stream, as shown in the table below.

River Type H Conditions scores

Preliminary Condition Score	Final Condition
>2.4	Good
>1.6	Fairly good
>0.5	Moderate
>-0.9	Fairly poor
<-2.5	Poor

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