



28th November 2024

File Note: River Condition Assessment at Land Adj To, Platting Lane, Rochdale, OL11 2JT

Site address: Land Adj To Platting Lane, Rochdale, OL11 2JT

Ref: River Condition Assessment

Recipients: B&L Homes Limited

Proposal: The clearing of the existing site and subsequent erection of 3 residential dwellings with associated garden and parking

Introduction

Arbtech Consulting Ltd was commissioned by B&L Homes Limited to conduct a River Condition Assessment (RCA) survey along the stream (Sudden Brook) that lies within 10m of the site boundary. The aim of the RCA was to outline ascertain the pre-development condition score of the watercourses and estimate the post-development condition scores using proposed site plans (included at **Appendix 1**) to inform a Biodiversity Net Gain (BNG) metric for the site, using Modular River Physical (MoRPh) surveys alongside a desk-based assessment.

Methodology

The methodology utilised for the RCA was: *A Guide To Assessing River Condition: Part of the Rivers and Streams Component of the BioDiversity Net Gain Metric BM3.1 version* as presented within the Cartographer online tools to calculate River Condition Assessment - including the MoRPh Pro surveys. The site survey comprises blocks of five contiguous modules on a river, while the MoRPh River Type Pro survey gathers desk study information in order to help produce the maps on river condition and type, both of which produce the MoRPh Map, the MoRPh5 Map, the River Condition Map and the River Type Map.

The aim of the survey is to collect data relating to sediment, morphological, vegetative and aquatic features for each module from the bank top (10m from the top of each bank in terrestrial habitats), the bank face (between the bank face and the water level, including the marginal zone) and the channel itself including the river bed and water surface features. Subreaches of MoRPh5 surveys are

repeated as necessary to ensure that a minimum of 20% of the length of each watercourse located within 10m of the site boundary is surveyed.

The watercourse subject to the RCA was the Sudden Brook, located adjacent to the eastern site boundary. The average width of this section of the brook was 4m and as such, the length between each module survey was assigned as 10m. One subreach consist of a total of 5 MoRPh modules. With regard to the stream, this equates to an overall length of 50m. The length of the stream that lies adjacent to the site boundary is approximately 40m. As such, the extent of the subreach equates to over 100% of the length of the watercourse, well in excess of the minimum 20% requirement. The MoRPh survey locations are shown at **Appendix 2**.

The reach of the watercourse is defined as the section of the river between two notable changes in flow. The upstream location of the unnamed stream (SD 90381 11698) is situated where the stream emerges from a culvert, while the downstream location of the stream (SD 90339 11806) chosen is where the watercourse enters another culvert.

As part of the assessment the watercourse is assessed for 'overdeepening', using the following formula:

$$\text{River shape} = (\text{Average MoRPh width}) / (\text{Average (water depth+lower bank height)})$$

The guidance states:

"If River shape has a value of < 2 the river is highly likely to be overdeep."

If River shape has a value of < 4 the river is likely to be overdeep, especially if the Average width is greater than 10 m.

Whatever the value of the River shape index, you should use your professional judgement to interpret the River shape value and consider whether this simple numerical estimate of overdeepening seems reasonable at your site. If the presence of an overdeep channel seems to be a reasonable judgement then the RCA for your site should be reduced by one class (e.g. from Good to Fairly Good, or from Moderate to Fairly Poor) when it is entered into the BM3.0 spreadsheet. At the same time, this reduction in the Final Condition Score also becomes an important indicator of how the river environment could be 'improved'."

Limitations

The survey was undertaken in optimal conditions, there are no limitations considered applicable to this assessment.

Results

The site survey was conducted on 25th November 2024, by Modular River Survey Team RCA accredited ecological surveyor, Mel Reid, in accordance with the guidance (The MoRPh Survey Technical Reference Manual, 2022). The weather conditions were suitable, and the water levels were not abnormally high.

The pre-development RCA has been based upon the MoRPH survey, while the post-development RCA is based upon the proposed site plan included at **Appendix 1**.

The results of the baseline and post-development MoRPh survey for the stream are shown in **Table 1** below.

Table 1. Outputs of Baseline and Post-development River Condition Assessment for the unnamed stream

Category	Baseline	Post-development
Preliminary Condition Score	0.555	0.502
River Shape	2.783	2.783
Average Width (m)	6.40	6.40
Positive Index Average	1.632	1.579
Negative Index Average	-1.077	-1.077
River Category	Other	Other
A1: Braiding Index	1	1
A2: Sinuosity Index	1.052	1.052
A3: Anabranching Index	1	1
A4: Level of Confinement	Unconfined	Unconfined
A5: Reach Valley Gradient	0.000	0.000
A6: Bedrock Reach	FALSE	FALSE
A7: Coarsest Bed Material	CO	CO
A8: Average Bed Material	SA	SA
Calculated River Type	H	H
Overridden River Type	No	No
River Condition Output	Moderate	Moderate

The proposals will result in vegetated gardens and residential dwellings dominating the land within 10m of the left bank. It is assumed that the habitat terrestrial vegetation within the gardens (for the purposes of the bank top assessment) will comprise managed lawns (i.e. short grasses) and introduced shrubs (i.e. shrubs). No changes to the bank face or channel bed are anticipated, although it is recommended that all rubbish is cleared from the watercourse which would increase the overall preliminary condition score. In light of the above there is a slight decrease in condition from 0.555 to 0.502 as a result of the proposed development. However, this decrease in condition is not enough to account for an overall change in condition category. If the rubbish is removed from the channel bed then the preliminary condition score would increase to 0.579, and therefore provide an increase on

the baseline condition score of 0.555. This would however still not provide enough of an increase to improve the overall condition category of the watercourse. Further enhancement measures were also explored, however unfortunately this was still not enough to increase the river condition to 'fairly good'.

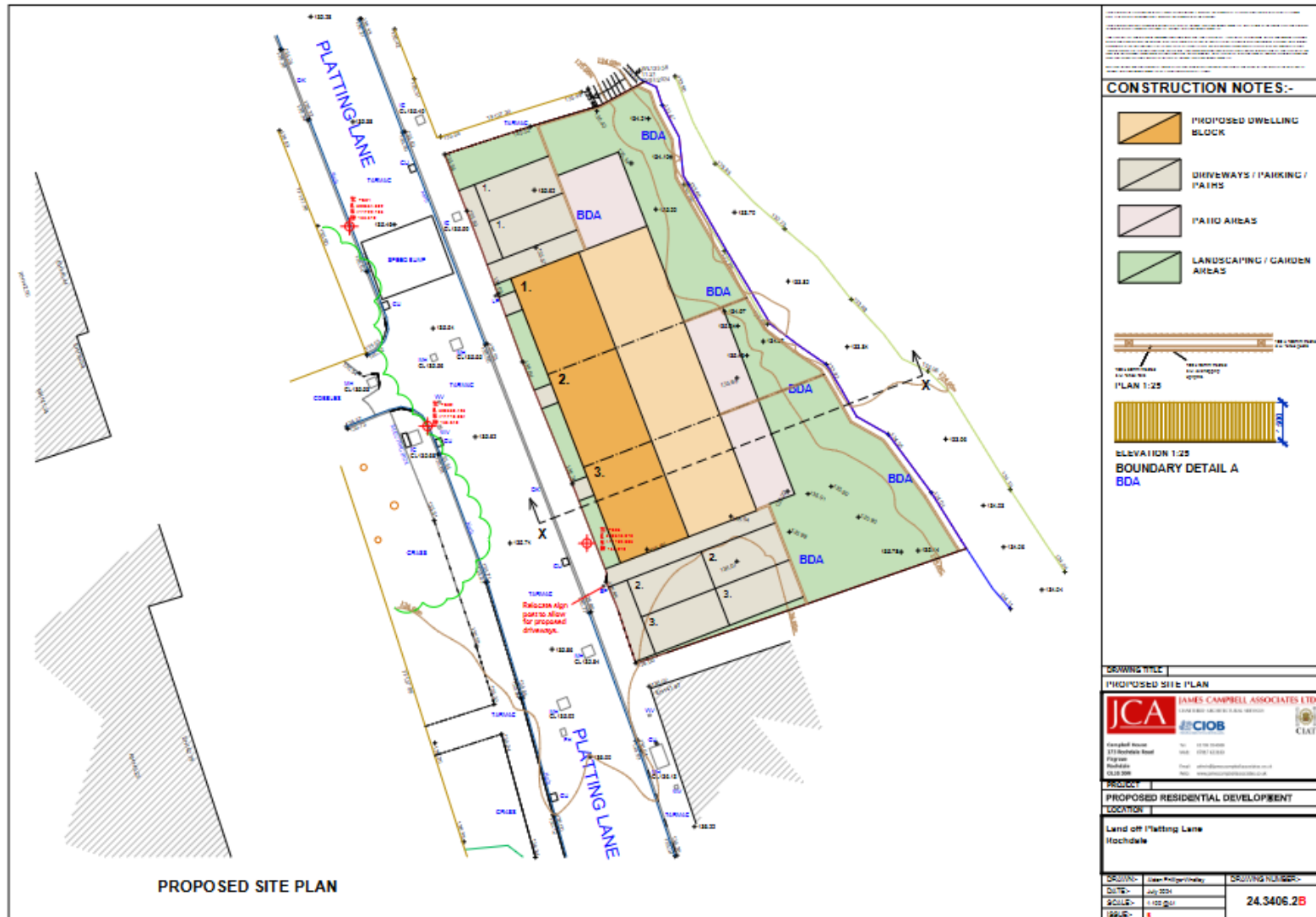
Given that the river shape for the stream was calculated as 2.13, it is considered likely that this river is overdeep. As such, the river condition should be downgraded from 'moderate' to 'fairly poor' within both the baseline and post-development scenarios of the BNG assessment.

Conclusion and Recommendations

As shown in table 1, no changes in condition is generated for the watercourse as a result of the development. As such, the brook be entered as 'retained' in fairly poor condition within the BNG assessment (subject to any changes in riparian or watercourse encroachment).

As an enhancement it is recommended that all rubbish is removed from the watercourse which will provide a slight increase in the preliminary condition score of the watercourse from the baseline value.

Appendix 1: Proposed Development



Appendix 2: MoRPh Survey Locations



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