14th March 2025

File Note: River Condition Assessment at Land off Bretton Street, Dewsbury, Kirklees WF12 9DB

Site address: Land off Bretton Street, Dewsbury, Kirklees WF12 9DB

Ref: River Condition Assessment

Recipients: Jade3 Architecture Ltd

Proposal: Construction of commercial unit.

Introduction

Arbtech Consulting Ltd was commissioned by Common Lane Developments Ltd to conduct a River Condition Assessment (RCA) survey along the canal that lies within 10m of the site boundary. The aim of the RCA was to outline ascertain the pre-development condition score of the watercourse and estimate the post-development condition score 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 river located within 10m of the site boundary is surveyed.

The watercourse subject to the RCA was the Dewsbury Cut (part of the Calder and Hebble Navigation), located along the eastern site boundary. The average width of this section of the canal was 18m and as such, the length between each module survey was assigned as 30m. This length differs from MoRPh methodology, which usually requires canals to have modules of 50m, however, due to access restrictions, modules were spaced evenly through the stretch of the watercourse adjacent to the site in order to ensure it was fully assessed, and a robust condition assessment was undertaken. One subreach consist of a total of 5 MoRPh modules, which in this case equated to an overall length of 150m. The length of the watercourse that lies adjacent to the site boundary is approximately 200m. As such, the extent of the subreach equates to ~75% 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 watercourse between two notable changes in flow. The upstream location (SE 25063 19859) chosen is where the a lock is present and the watercourse brances off from the main Long Cut of the Calder and Hebble Navigation, while the downstream location (SE 24846 20900) is situated where the watercourse ends in a marina, within Dewsbury.

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

River shape = (Average MoRPh width) / (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

There were no specific limitations to the survey and assessment.

Results

The site survey was conducted on 27th February 2025, by Modular River Survey Team RCA accredited ecological surveyor, Gareth Hey, in accordance with the guidance (The MoRPh Survey Technical Reference Manual, 2022). The weather conditions were suitable, and the water level was not considered to be 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, proposed and potential enhancement MoRPh survey are shown in Table 1 below.

Table 1. Outputs of Baseline and Post-development River Condition Assessment

Category	**Baseline**	**Post-development**
Preliminary Condition Score	-0.725	-0.725
River Shape	9.091	9.091
Average Width (m)	20	20
Positive Index Average	0.737	0.737
Negative Index Average	-1.462	-1.462
River Category	Navigable/Canal	Navigable/Canal
A1: Braiding Index	0	0
A2: Sinuosity Index	1.1	1.1
A3: Anabranching Index	1	1
A4: Level of Confinement	Unconfined	Unconfined
A5: Reach Valley Gradient	0.0005	0.0005
A6: Bedrock Reach	No	No
A7: Coarsest Bed Material	N/A	N/A
A8: Average Bed Material	N/A	N/A
Calculated River Type	Navigable/Canal	Navigable/Canal
Overridden River Type	N/A	N/A
River Condition Output	**Poor**	**Poor**

The proposals will result in no overall change to the rivers calculated condition. The proposals will seek to incorporate an increased landscaping strip further along the bank-top, however, in the absence of detailed landscaping proposals, it is unclear what such changes would occur to the overall value of the river. Given there are no significant impacts to the woodland strip currently present along the left bank of the watercourse, it is anticipated that there will be no impact on the overall post-development score, and that no change in the rivers condition is anticipated.

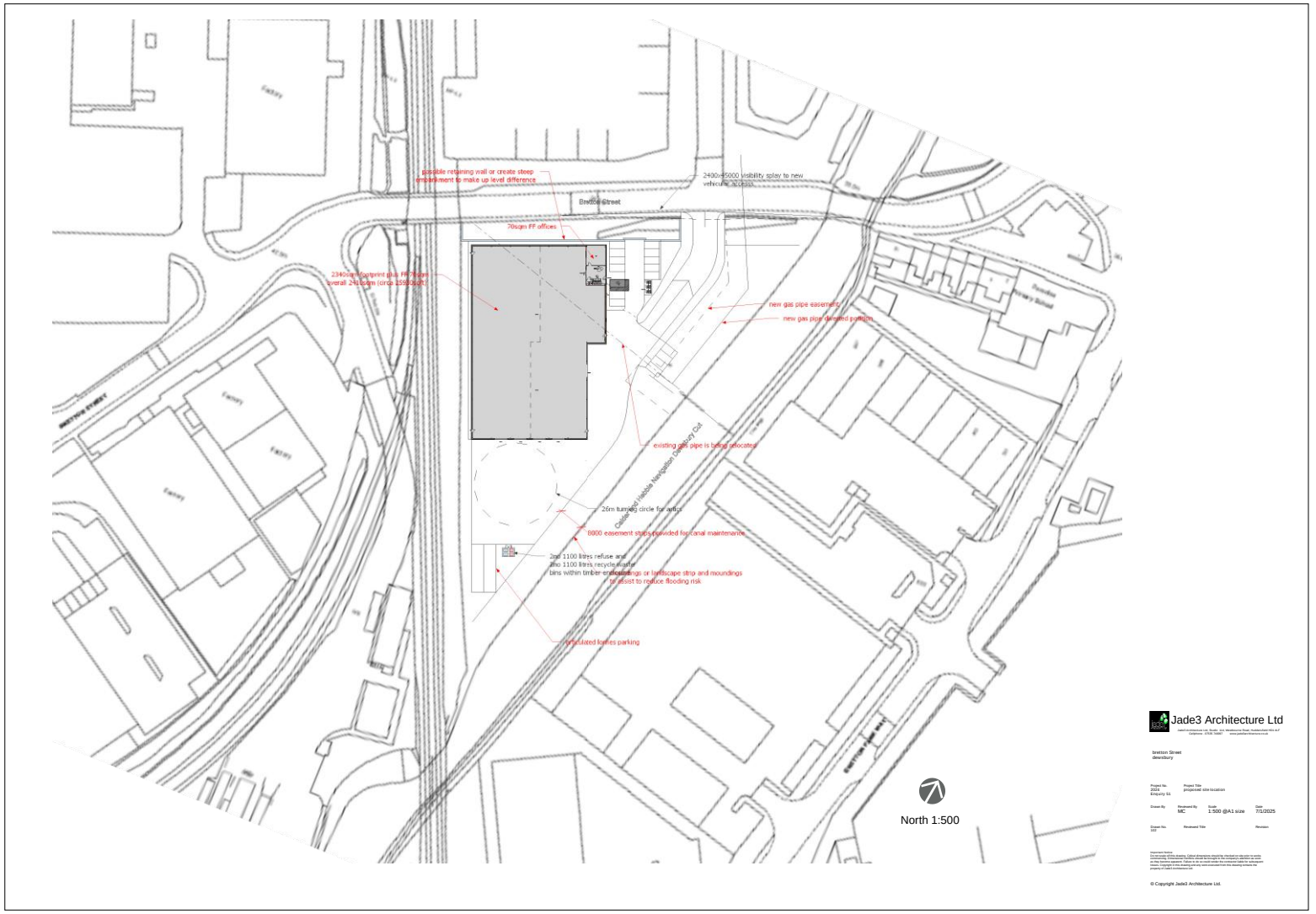
Enhancement options have been pursued, to assess if the proposals could result in an overall uplift in the condition of the watercourse within the site, including the creation of ponds within the northern and southern sections of the bank-top, along with the creation of wetland habitats, throughout the entire bank top, however, this did not result in an overall increase in the condition of the watercourse, as it still remained 'poor'. It is

anticipated that in order to improve the condition of the watercourse, significant changes to the habitats present would be required, which given the scope of the proposals, is considered not to be viable.

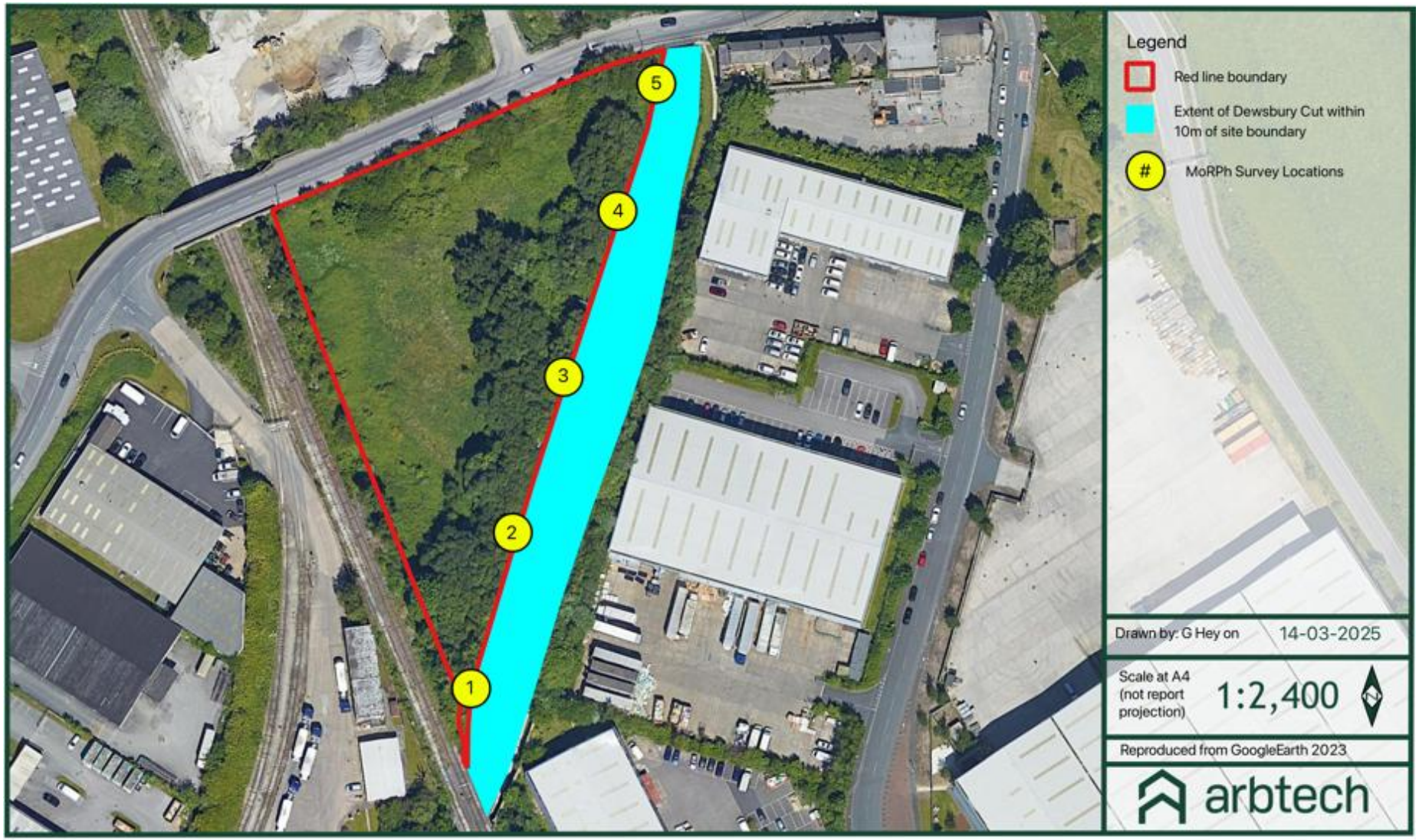
Conclusion

As shown in table 1, under the current proposals no change in river condition is generated as a result of the proposed development and as such, the river should be entered as 'retained' in poor condition within the BNG assessment (subject to any changes in riparian or watercourse encroachment).

Appendix 1: Proposed Development



Appendix 2: MoRPh Survey Locations



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