



29th May 2026

File Note: River Condition Assessment

Site address: Lime Kilns, Watling Street, Hinckley, Leicestershire, LE10 3ED

Ref: River Condition Assessment

Recipients: Admiral Taverns

Proposal: Construction of pergola and bin store, along with some alterations to the site.

Introduction

Arbtech Consulting Ltd was instructed by Admiral Taverns to conduct a River Condition Assessment (RCA) survey for the proposed development at Lime Kilns, Watling Street, Hinckley, Leicestershire, LE10 3ED (hereafter referred to as “the site”). The RCA was undertaken along the watercourse that lies offsite within 10m of the site boundary to the west. The aim of the RCA was to outline ascertain the pre-development condition score of the watercourse 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 January 2024 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 watercourse located within 10m of the site boundary is surveyed.

The watercourse subject to assessment was the Ashby Canal. The extent of this watercourse is shown on the plan at **Appendix 2**. As this watercourse is a canal, the length between each module survey was assigned as 50m. One subreach consist of a total of 5 MoRPh modules, which in this case equated to an overall length of 250m. The length of the watercourse that lies within 10m of the site boundary is approximately 65m. As such, the extent of the subreach equates to 100% of the length of the watercourse located within the site, therefore well in excess of the minimum 20% requirement.

The reach of the watercourse is defined as the section of the river between two notable changes in flow. The upstream location (SP 41118 91766) chosen is where the canal narrows beneath a bridge and downstream location (SP 41064 92984) is situated where the watercourse branches into two channels.

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 during suitable weather conditions, water level was not considered to be abnormally high and the channel bed was visible. The survey was undertaken in spring, which is an optimal time of year for RCAs. While both banks could not be accessed during the survey, visibility of the opposite bank was good and therefore it is considered that a robust assessment has been undertaken.

Results

The site survey was conducted on 26th May 2026, by Modular River Survey Team RCA accredited ecological surveyor, Robbie MacKenzie, in accordance with the guidance (The MoRPh Survey Technical Reference Manual, 2022).

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 post-development scenario is not anticipated to result in any changes to vegetation structure or land use types within 10m of the watercourse subject to RCA.

Potential enhancements were also investigated for the watercourse as part of the assessment, which includes:

- the provision of a pond within the riparian zone within the site;
- new tree, long grass and scrub planting within the riparian zone to the west of the watercourse; and
- the removal of reinforced banks along the canal extent adjacent to the site boundary and creation of berms, with marginal planting and tree planting on banks.

The results of the baseline, proposed and potential enhancement MoRPh survey are shown in Table 1 below. The river shape was calculated as 9.727, therefore it is considered unlikely that this watercourse is overdeep.

Table 1. RCA outputs of Baseline, Post-development and Enhancement Scenario for the adjacent watercourse.

Category	Baseline	Post-development	Potential Enhancement Scenario
Preliminary Condition Score	-0.340	-0.340	0.259
River Shape	9.727	9.727	9.727
Average Width (m)	10.70	10.70	10.70
Positive Index Average	0.737	0.737	1.105
Negative Index Average	-1.077	-1.077	-0.846
River Category	Navigable/Canal	Navigable/Canal	Navigable/Canal
A1: Braiding Index	N/A	N/A	N/A
A2: Sinuosity Index	N/A	N/A	N/A
A3: Anabranching Index	N/A	N/A	N/A
A4: Level of Confinement	N/A	N/A	N/A
A5: Reach Valley Gradient	N/A	N/A	N/A
A6: Bedrock Reach	N/A	N/A	N/A
A7: Coarsest Bed Material	N/A	N/A	N/A
A8: Average Bed Material	N/A	N/A	N/A
Calculated River Type	Navigable/Canal	Navigable/Canal	Navigable/Canal
Overridden River Type	No	No	No

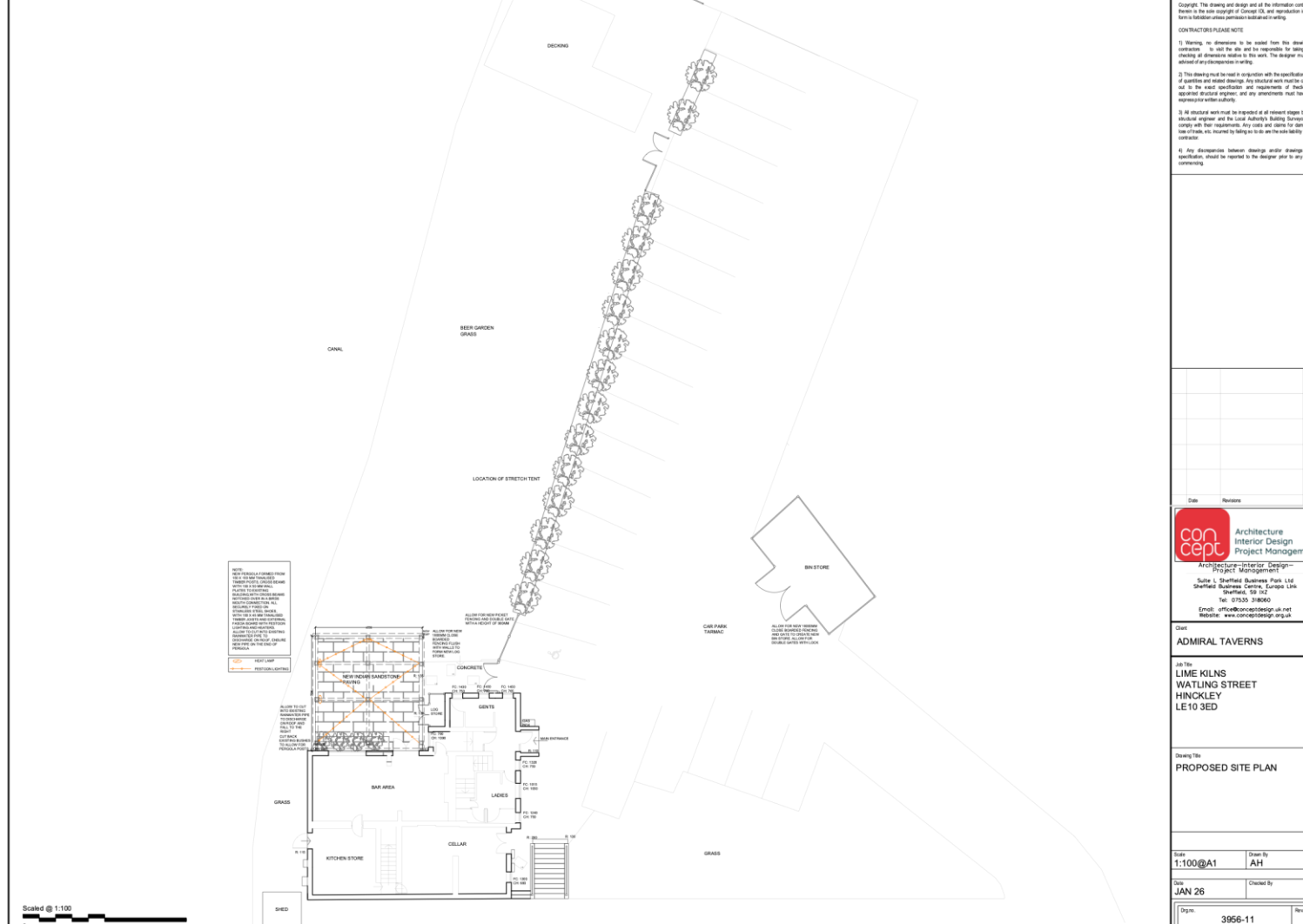
River Condition Output	Fairly Poor	Fairly Poor	Fairly Poor
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As demonstrated above, no change in the preliminary condition score is anticipated as a result of the proposed development. Through the incorporation of the above enhancement measures into the design of the proposals, it can be seen that an increase in the preliminary condition score could be generated. However, such increases are not large enough to result in an overall increase in condition category. The difficulty of enhancement is considered to be largely driven by the fact that the applicant only has influence on one side of the riparian zone of the watercourse and only in relation to 2/5 MoRPH locations.

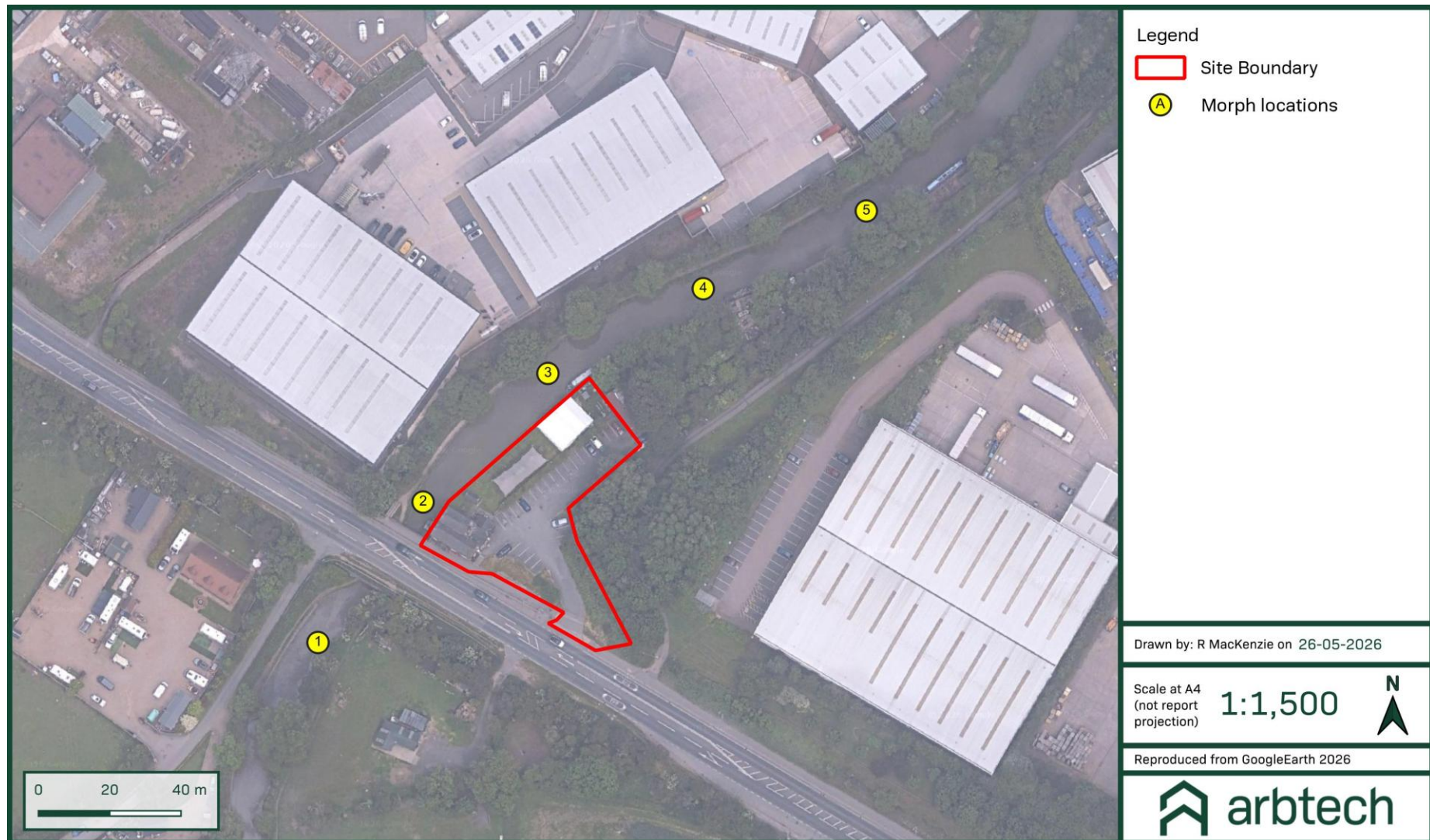
Conclusion

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 watercourse should be entered as 'retained' in fairly poor condition within the BNG assessment (subject to any changes in riparian or watercourse encroachment).

It is recommended that enhancements are explored for example through the removal of bank reinforcements, creation of a pond and new tree and scrub planting within the riparian zone. However, it should be noted that such enhancements will not be significant enough to generate an overall increase in the condition of the watercourse within a BNG calculation.



Appendix 2: MoRPh Survey Mid-point Locations



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