

29th April 2026

File Note: River Condition Assessment at Lambert House, Lambert Bank, Fleet Fen, Gedney Hill, Spalding PE12 0PR

Site address: Lambert House, Lambert Bank, Fleet Fen, Gedney Hill, Spalding PE12 0PR

Ref: River Condition Assessment

Recipients: Richard and Julie Stokes

Proposal: construction of 4 houses.

Introduction

Arbtech Consulting Ltd was commissioned by Richard and Julie Stokes to conduct a River Condition Assessment (RCA) survey along the watercourses that lie 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 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 river located within 10m of the site boundary is surveyed.

The watercourse assessed as part of the River Condition Assessment is an Lambert Drain, which runs along the northwest boundary of the site.

Lambert drain is classified as B - Straight/sinuuous to cascade, coarsest BO/BE, average BE. The average channel width was measured at approximately 15 metres; each MoRPh module was assigned a length of 30 metres in accordance with RCA guidance. A single MoRPh5 subreach, comprising five contiguous modules, was surveyed—resulting in a total assessed length of 150 metres.

The section of the Drain lying within 10 metres of the site boundary extends for approximately 70 metres. Therefore, the subreach survey represents 100% coverage of the tributary within the 10-metre buffer zone—well in excess of the minimum 20% survey coverage required under the RCA methodology.

For the purposes of defining the broader river reach, the tributary segment is bounded upstream and downstream by two major changes in flow associated with urban infrastructure (upstream) and adjoining into South Holland Main Drain, located at TF 32876 12382 and TF 34850 16280.

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

The River Condition Assessment was undertaken during suitable weather conditions, and water levels were not considered to be abnormally high at the time of survey. Nevertheless, visibility of the channel bed was restricted by duckweed cover, submerged vegetation growth, and localised pollution in places, which may have limited full observation of in-channel features.

Results

The site survey was conducted on 22nd May 2026, by Modular River Survey Team RCA accredited ecological surveyor, Millie Holland, 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 results of the baseline and proposed MoRPh surveys for the unnamed tributary are shown in Table 1 below.

Table 1. RCA outputs of Baseline and Post-development Scenario for unnamed tributary

Category	Baseline	Post-development
Preliminary Condition Score	0.223	0.223
River Shape	2.679	2.679

Average Width (m)	15	15
Positive Index Average	0.684	0.684
Negative Index Average	-0.462	-0.462
River Category	Other river	Other river
A1: Braiding Index	1	1
A2: Sinuosity Index	1.002	1.002
A3: Anabranching Index	1	1
A4: Level of Confinement	Unconfined	Unconfined
A5: Reach Valley Gradient	0.00046	0.00046
A6: Bedrock Reach	No	No
A7: Coarsest Bed Material	Bedrock	Bedrock
A8: Average Bed Material	Boulder	Boulder
Calculated River Type	B - Straight/sinuuous to cascade, coarsest BO/BE, average BE	B - Straight/sinuuous to cascade, coarsest BO/BE, average BE
Overridden River Type	No	No
River Condition Output	Moderate	Moderate
Amended Output due to likely 'overdeepening'	N/A	N/A

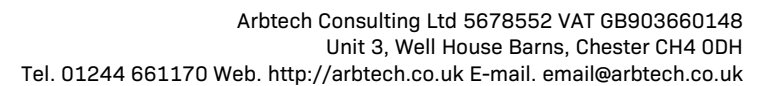
Encroachment

Watercourse encroachment is currently assessed as minor, as there are no in-channel modifications associated with Lambert Drain, and this would remain unchanged post-development. In contrast, riparian encroachment on both banks is assessed as major in the baseline scenario, due to the presence of arable land along the left bank top and a road, residential dwellings, and private driveways along the right bank top. This constitutes major encroachment because these land uses affect more than 25% of the length of the assessed watercourse. Post-development, riparian encroachment would increase further; however, this additional encroachment cannot be reflected within the assessment outputs, as the maximum category of encroachment has already been reached in the input data.

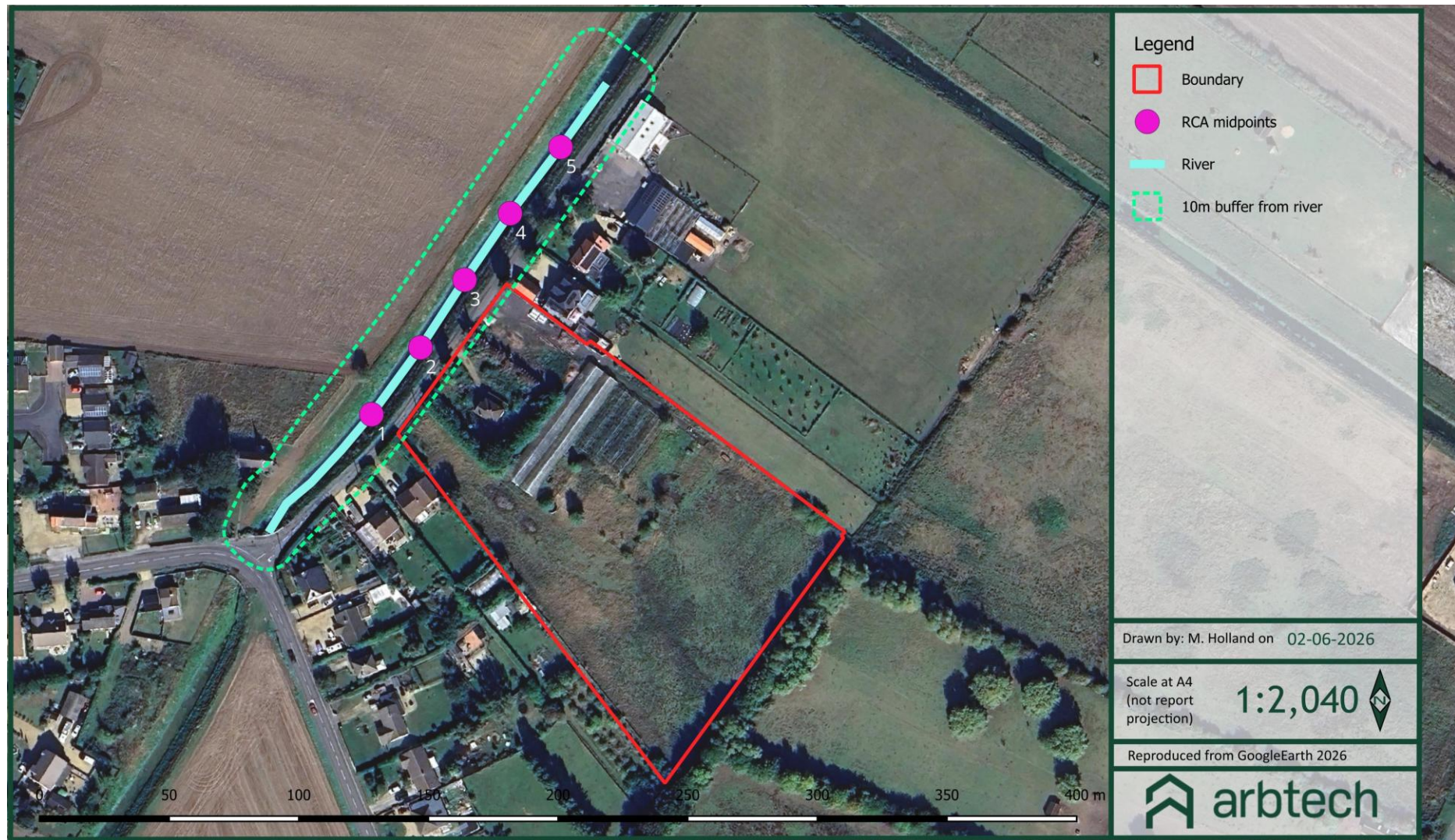
Conclusion

As summarised in Table 1, the proposed works would result in no change to the river condition outputs, with the baseline and post-development River Condition Assessment scores and condition class remaining unchanged. Notwithstanding this, the proposals would involve the removal of shrub, tall grassland and trees within the bank-top zone associated with MoRPh modules 1 and 2. As this vegetation loss extends over a length greater than 5 metres, it is not considered de minimis and must therefore be accounted for within the Biodiversity Net Gain assessment. Accordingly, the loss will need to be offset either through appropriate on-site habitat compensation or, where this cannot be achieved, through the purchase of off-site biodiversity units or statutory biodiversity credits as a last resort.

For the purposes of the Biodiversity Net Gain metric, the watercourse should be retained in moderate condition, with no watercourse encroachment and major riparian encroachment on both banks.



Appendix 2: MoRPh Survey Locations



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Arbtech Consultant's Contact details:

Millie Holland BSc (Hons), MSc

Millieholland@arbtech.co.uk

Arbtech Consulting Ltd

<https://arbtech.co.uk>

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