Brooks Ecological
An Origin Enterprises Company

Pendle Road, Clitheroe

River Condition Assessment Report

Report Ref. ER-8455-02B

17/12/2025

Richborough Estates

Report reference	**ER-8455-02B – River Condition Assessment Report**	
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Report duration	*In accordance with CIEEM (2019), unless otherwise stated the findings of this report remain valid for a period of 18 months. After this period advice should be sought on the scope of any updating work required.*	

Amendment	Date	Author	QA	Summary of changes
ER-8455-02A	15/12/2025	JAR	BC	Updated site boundary to P25-2353_DE_001-01A
ER-8455-02B	17/12/2025	JAR	RB	Change to date of issue

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Summary

A Modular River Physical (MoRPh) survey has been undertaken at Pendle Road, Clitheroe, to inform a River Condition Assessment of Shaw Brook, Clitheroe.

Shaw Brook has been assessed as being in Fairly Good condition for 219m of its length on-Site, and Fairly Poor condition for a further 239m. This data will be used to inform a BNG Assessment of the Site, reported separately.

General opportunities have been outlined with respect to increasing the condition of the brook. Once a finalised layout has been produced, more accurate post-development forecasting can be undertaken, and river condition results input into the final BNG Calculations for the Site.

Introduction

1. Brooks Ecological was commissioned by Richborough Estates to carry out a River Condition Assessment (RCA) at Pendle Road, Clitheroe, concerning Shaw Brook, which runs east to west through the centre of the Site.
2. This survey is required to provide the baseline condition of the watercourse to inform a Biodiversity Net Gain (BNG) Assessment of the Site through the Defra Statutory Biodiversity Metric Calculator.
3. The scope of this survey has been devised based on guidance presented in *A Guide to Assessing River Condition* (Gurnell *et al.*, 2024) and *The MoRPh Survey Technical Reference Manual 2022 version* (Gurnell & Shuker, 2022).

Figure 1 The Site (red line boundary) and watercourse.

Methodology

4. Survey and assessment was directed by Jon Roberts MSci (Hons) ACIEEM. Jon is trained in use of the Modular River Physical Survey River Condition Assessment for informing Statutory Biodiversity Metric.
5. Methods outlined in the River Condition Assessment training course and technical documents were followed throughout the assessment.

River Type Assessment

6. River Type was assessed following standard Modular River Survey techniques (Appendix A).

Field Survey

7. MoRPh surveys were undertaken in September 2025. The visit was undertaken during suitable weather conditions, with no adverse river conditions or high flow conditions.
8. MoRPh surveys record general physical habitat availability to highly mobile organisms, as well as typical morphological units within the watercourse, contemporary hydromorphological processes, and any pressures acting on the surveyed subreach(es).
9. The Site was subject to an initial walkover survey to determine suitable locations for survey. Locations were chosen based on their degree of degradation and accessibility to survey, and spaced to ensure a range of local river conditions were captured. The field surveyor ensured that the most physically degraded part of the river was surveyed.
10. A minimum of 20% of the brook's length where it flows through the Site was surveyed to capture varying river conditions. Surveys were composed of MoRPh5s, each made up of five MoRPh modules, surveyed contiguously in a downstream direction from a suitable location on the riverbank.
11. Module length was determined by MoRPh river width (Table 1, overleaf), based on data obtained from aerial mapping and visual assessment of the river.
12. MoRPh river width is defined as the water width, plus any areas of emergent vegetation at the channel margin or exposed but frequently inundated sediment.

Table 1 Relation between MoRPh river width and module length.

River width	Module length
<5 m	10m
5 to <10 m	20m
10 to <20 m	30m
20 to <30m	40m
Large rivers and canals	50m

13. Information on the brook's channel dimensions, bank top (extending 10m back from the edge of each bank), bank face, channel margin, and channel bed, were recorded in the field.

River Condition Assessment

14. Data recorded in the Field Survey and River Type Assessment were uploaded to Cartographer, the MoRPh survey software.

15. Cartographer calculates a River Type based on data from the River Type Assessment, which may be overridden by the user based on their professional judgement.

16. Cartographer calculates 32 condition indicators based on data from the Field Survey, 19 of which are positive indicators (ranked from 0 to 4), and 13 of which are negative indicators (ranked from 0 to -4). A mean average is calculated for the positive and negative indicators, and these averages are summed to produce a Preliminary Condition score. A summary of these indicators is presented in Appendix A.

17. River Type and Preliminary Condition Score are then combined to produce a Final Condition Class, ranging from Poor to Good. If the surveyor considers the channel to be overdeepened (see Appendix A), the Final Condition may be lowered by one Class.

Field Survey

Limitations

18. Survey was conducted in September 2025, at the very end of the suboptimal (July–September) MoRPh survey season. As such, vegetation features were estimated using remains of plants from the previous growing season, and the surveying ecologist's professional judgement.

19. The downstream section of the brook was, for most of its length, heavily obscured by dense riparian vegetation, and could not be easily observed. For the bank face and channel bed sections, modules 3-5 of this section were assumed to be identical to module 2, unless evidence was visible to support differences.

20. The upstream section of the brook was surveyed prior to alterations to the Site red line boundary which removed the majority of its length from the Site.

Shaw Brook

21. Shaw Brook runs roughly east-west through the centre of the Site from its source on Pendle Hill, c. 2km east, into Mearley Brook c. 780m west.

22. The Site has a long history of agricultural use, and the brook is visible, following roughly its modern course on mapping from the 1840s.

23. The brook was assessed as having a MoRPh river width of <5m. therefore, modules were 10m long, and MoRPh5s 50m long. The brook runs for c. 458m on-Site, and so two 50m MoRPh5s would be needed to achieve survey of 20% of the brook's length. However, as this was surveyed at a time when a greater length was included in the Site boundary, three 50m MoRPh5s were carried out.

24. During the walkover, general differences in watercourse planform, bank shape and bank top habitat were identified, splitting the brook into three sections: upstream, midstream, and downstream.

25. The brook has an average MoRPh river width of 0.82m (1.2m upstream, 0.52m midstream, 0.74m downstream). The bed is generally shallow, averaging 13cm along its lengths (7cm upstream, 19cm midstream, 13cm downstream), and comprises sediment of mainly gravel-pebble and cobble size classes, with sand deposited in slower-flowing areas. The stream bed is largely unvegetated, except for aquatic mosses and liverworts growing on sediment.

26. No reinforcement to either the bank faces or the channel bed was noted in any section. Some large cut stone blocks were noted in the upstream section, and are assessed as washed-out reinforcement from further upstream, rather than boulders native to the watercourse.

27. No evidence of any NNIPS was found in any of the sections.

<u>Upstream</u>

28. The upstream section, which now lies mostly off-Site, is characterised by the woodland growing on both bank tops, leading to much of the watercourse being shaded by vegetation. A mix of coniferous and deciduous tree species grow on both bank tops as an open woodland with minimal understorey, and a dense field layer of grasses and forbs. The left (south) bank top in particular supports abundant large wood in the form of fallen trees and branches.

29. Initially, at the brook's eastern end, both banks are relatively high (1m on both sides) and steeply-sloped, with visible erosion. The bank profile decreases as the brook flows westwards, and by the end of this section has reduced to 10-20cm on both banks. Gravel and cobble side bars have been deposited on the insides of curves in the brook, providing a variety of aquatic habitats.

30. At the downstream end of this section, enough organic matter has accumulated to form a 'large wood dam' spanning the width of the brook and significantly altering its flow. Upstream of this obstruction, the brook deepens dramatically, from c.5cm to c.20cm; the water slows to the point that no flow is detectable; and a layer of sand and silt has been deposited over the underlying gravel and pebbles. Downstream of the obstruction, the brook resumes its former shallow, fast-flowing character.

Typical view of upstream section.

Large wood on bank top.

Midstream

31. The midstream section is characterised by wetland vegetation growing primarily on the left bank top, with abundant hard rush and flag iris. These areas are heavily sheep-grazed, and the surrounding grass swards are very short.

32. Both banks are heavily undercut, to the extent that in some areas, the bed of the brook is wider than the distance between the two bank tops. Both banks are relatively low, averaging 40cm on both sides.

33. The brook drops through several small cascades in this section, producing relatively deep plunge pools (up to 50cm deep) compared to the generally shallower sections at the tops of the cascades (10-20cm deep). Several marginal backwaters have formed in the vicinity of the cascades, producing a wide variety of flow types suitable for aquatic species. Despite the brook's small size, a mid-channel bar of gravel and pebbles was noted forming in the western part of this section, a feature typical of larger watercourses.

Typical view of midstream section.

Rush-dominated bank top wetland.

Mid-channel bar.

Cascade and marginal backwater.

Downstream

34. The downstream section is characterised by lush, agriculturally improved grassland occupying much of both bank tops, giving way to a strip of rank, herb-rich riparian grassland immediately adjacent the brook. Palatable grasses such as cock's-foot and common bent dominate. Within the riparian grassland, cock's-foot and false oat-grass dominate, alongside abundant red fescue, creeping bent, and hard rush. Forbs are abundant, with nettle and meadowsweet the most frequent, alongside cleavers, common hogweed, willowherbs, red campion, broad-leaved dock and creeping thistle. Overall, these species indicate a regularly wet, nutrient-rich environment.

35. The dense growth of riparian grassland obscures both banks for much of the brook's length, but from the visible sections they are assessed as averaging 75cm each, both with a gentle slope.

36. This section is crossed in one location by a c.4m-wide farm track to allow access between fields, and runs through a pipe culvert beneath this. Water accumulates upstream of this culvert, producing a deep section with slow flow. Downstream of the culvert, water drops down a cascade (possibly artificial, although not obviously so) into a deep, wide plunge pool, before resuming its regular narrow, shallow course.

Typical view of downstream section.

Outfall of culvert.

Figure 2 MoRPh survey sites on Shaw Brook.

Results

37. The brook was assessed as being of **type F**. The rationale supporting this assessment is presented in Appendix B.

38. The length of the brook being assessed was walked by the surveyor to check that the degree of naturalness and processes acting on the watercourse did not significantly differ from the surveyed sections. Apart from the differences noted between the three surveyed sections, no obvious differences were noted.

39. Preliminary condition scores of 1.644, 1.846, and 0.332 were generated for the upstream, midstream, and downstream sections of Shaw Beck. When assessed against the table of threshold values (see Appendix A), for a type F river, this is indicative of **Fairly Good**, **Fairly Good**, and **Fairly Poor** condition, respectively.

40. The brook is not considered to be overdeep, and so these condition classes have not been adjusted. This results in approximately 219m of Shaw Brook assessed as being in **Fairly Good** condition, and 239m in **Fairly Poor** condition.

Table 2 River Condition and length of watercourse.

Condition	River	Length
Fairly Good	Shaw Beck – Upstream	6m
Fairly Good	Shaw Beck – Midstream	213m
Fairly Poor	Shaw Beck – Downstream	239m

41. This data will be used to inform a BNG Assessment of the Site, reported separately.

Figure 3 Condition class/final score of surveyed sections of Shaw Brook.

Post-development Forecasting

42. Once a finalised layout of the Site has been produced, impacts on the brook can be forecast through changes to the condition indicators, either by re-running the modules through Cartographer and altering relevant indicators, or through the Excel spreadsheet of condition indicators.

43. These condition indicators can be used to inform mitigation or recommendations for enhancement of the brook. Below are some examples of enhancements that could be made, following investigation into feasibility by the client. The opportunities listed target condition indicators that will result in the greatest increase in positive indicator scoring, or the greatest reduction in negative indicator scoring.

44. While the lower section of Shaw Brook is mapped as a statutory main river, the section on-site is not. Therefore, any river enhancement works may require an Ordinary Watercourse Consent from the local authority.

Opportunities for enhancement – Major potential impact

45. Channel margin:
    - Investigate measures to enhance aquatic vegetation extent (D1) and morphotype richness (D2). Potential impact may be limited by the river type.

46. Channel:
    - Investigate measures to enhance channel bed aquatic morphotype richness (E1). Potential impact may be limited by the river type.

Opportunities for enhancement – Moderate potential impact

47. Bank top:
    - Enhance bank top tree feature richness (B2) by planting trees and allowing them to occupy a range of growth forms, such as leaning, J-shaped, or fallen.
    - Increase availability of bank top water-related features (B3), including ponds, side channels, and wetlands such as reedbeds and wet woodland.

48. Bank face:
    - Investigate measures to moderately increase bank face bare sediment extent (C3) to provide a wider range of microhabitats.

49. Channel margin:
    - Investigate measures to enhance channel margin physical feature extent (D3) and richness (D4).

50. Channel:
    - Investigate measures to enhance channel bed hydraulic (E3) and natural (E5) features richness.
    - Remove channel bed artificial features (E10), i.e., culverts.

Opportunities for enhancement – Minor potential impact

51. Bank top:
    - Enhance bank top vegetation structure (B1) by providing a variety of vegetation types, including mosses/lichens, short and tall grasses/herbs, scrub, and trees.
    - Reduce bank top managed ground cover (B5) by reducing management intervention and planting semi-natural vegetation types within the riparian corridor.

52. Bank face:
    - Enhance bank face riparian vegetation structure (C1) by encouraging a variety of vegetation types to grow on bank faces.

53. Channel:
    - Investigate measures to enhance channel bed natural features extent (E4) and material richness (E6).
    - Remove channel bed reinforcement (i.e., culverts) to reduce channel bed reinforcement extent (E8) and severity (E9).

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Appendix A Accompanying Data, Explanatory Notes and Resources Used

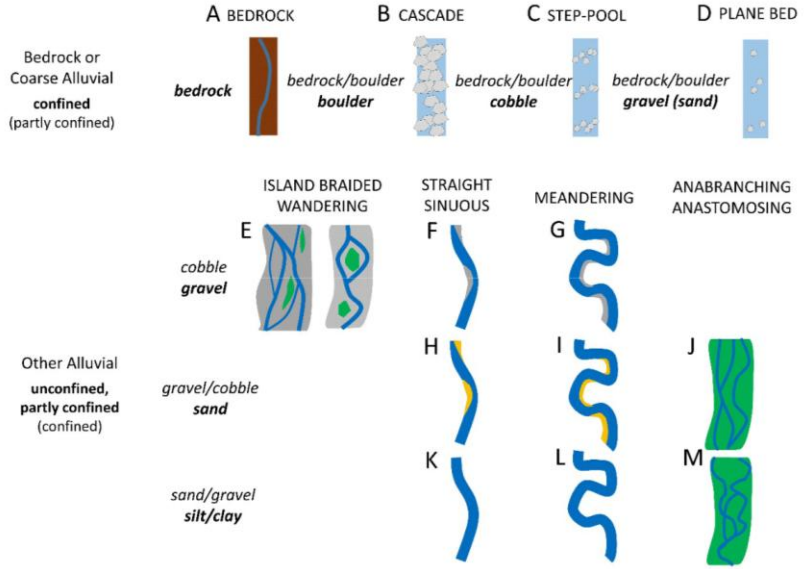
River Type

Aerial mapping software was used to determine reach length and indicators A1–A5, which must be derived from aerial maps or images. Google Earth Pro is the recommended data source; however, constraints include (but are not limited to) the river being obscured by vegetation, changes in the baseline since aerial mapping was taken, and inaccurate topography.

The river reach used to calculate river type was determined by the surveyor. A reach usually covers a 0.5-10km length of river, including the field survey location(s), with similar planform along its length, and no major tributaries or weirs that may drastically impact flow type and sediment deposition.

Twenty-two broad natural and semi-natural river types have been identified across Europe (Rinaldi *et al.*, 2016), based on valley confinement and slope, planform, and bed material size. Fifteen are included in the MoRPh classification system, including canals and navigable rivers, large rivers, and 13 river planform bed material types A-M as shown in Figure 2, below.

Figure A1 River types A-M (thirteen near-natural river types that might be encountered in England). From Gurnell *et al.* (2022).



Eight river type indicators (Table 1, below) are combined to produce an indicative river type. Indicators A1-A5 are calculated in the Desk Study phase, using Google Earth or similar mapping software; indicators A6-A8 are derived from values recorded in the Field Survey stage.

Table A1 River type indicators and their location sources. Based on Gurnell *et al.* (2022).

Code	Name	Source
A1	Braiding index (BI)	Desk Study
A2	Sinuosity index (SI)	Desk Study
A3	Anabranching index (AI)	Desk Study
A4	Level of confinement (U, PC, C)	Desk Study
A5	Valley gradient	Desk Study
A6	Bedrock reach	Field Survey
A7	Coarsest bed material size class	Field Survey
A8	Average bed material size class	Field Survey

Overdeepening

A channel may be considered 'overdeep' when is comparatively deep relative to its width, suggesting that the bed has been incised/dredged and/or that the bank tops have been raised artificially. This results in a channel that is disconnected from its bank tops and floodplain, with flood flows less likely to burst the banks than if the cross-profile were unmodified. As this reduces the channel's value for biodiversity, the Final Condition Class may be lowered by one class if the surveyor considers it to be overdeep.

The River Shape and Average Width indicators generated in Cartographer from river dimensions collected in the field can be used to provide a numerical estimate of the likelihood of overdeepening, although professional judgement should always be applied on a case-by-case basis.

River Condition Scores and Indicators

Table A2 Likely best and worst preliminary condition scores for each river type (from Gurnell *et al.*, 2024).

River Type	Canals and Navigable rivers	Large rivers	A	B	C	D	E	F	G	H	I	J	K	L	M
Likely best Provisional Condition Score	1.8	2.2	2.4	2.7	2.7	2.7	2.7	2.8	3.0	2.9	3.1	2.8	2.4	2.4	2.4
Lower threshold for GOOD	>1.4	>1.8	>1.9	>2.2	>2.2	>2.2	>2.2	>2.3	>2.5	>2.4	>2.5	>2.3	>1.9	>1.9	>1.9
Lower threshold for FAIRLY GOOD	>0.9	>1.3	>1.2	>1.4	>1.4	>1.4	>1.4	>1.5	>1.6	>1.6	>1.7	>1.5	>1.2	>1.2	>1.2
Lower threshold for MODERATE	>0.3	>0.5	>0.2	>0.2	>0.2	>0.2	>0.2	>0.4	>0.5	>0.5	>0.6	>0.4	>0.2	>0.2	>0.2
Lower threshold for FAIRLY POOR	>-0.5	>-0.4	>-1.0	>-0.9	>-0.9	>-0.9	>-0.9	>-0.9	>-0.9	>-0.9	>-0.8	>-0.9	>-1.0	>-1.0	>-1.0
Likely worst Provisional Condition Score	-1.5	-1.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5

Table A3 River condition assessment indicators table (from Gurnell *et al.*, 2024).

(NNIPS = non-native invasive plant species, positive indicators underlined, *negative indicators in italic font*)

Location	Code	Name
Bank top	B1	Bank top vegetation structure
	B2	Bank top tree feature richness
	B3	Bank top water-related features
	B4	*Bank top NNIPS cover*
	B5	*Bank top managed ground cover*
Bank face	C1	Bank face riparian vegetation structure
	C2	Bank face tree feature richness
	C3	Bank face natural bank profile extent
	C4	Bank face natural bank profile richness
	C5	Bank face natural bank material richness
	C6	Bank face bare sediment extent
	C7	*Bank face artificial bank profile extent*
	C8	*Bank face reinforcement extent*
	C9	*Bank face reinforcement material severity*
	C10	*Bank face NNIPS cover*
Channel – water margin	D1	Channel margin aquatic vegetation extent
	D2	Channel margin aquatic morphotype richness
	D3	Channel margin physical feature extent
	D4	Channel margin physical feature richness
	D5	*Channel margin artificial features*
Channel bed	E1	Channel aquatic morphotype richness
	E2	Channel bed tree features richness
	E3	Channel bed hydraulic features richness
	E4	Channel bed natural features extent
	E5	Channel bed natural features richness
	E6	Channel bed material richness
	E7	*Channel bed siltation*
	E8	*Channel bed reinforcement extent*
	E9	*Channel bed reinforcement severity*
	E10	*Channel bed artificial features severity*
	E11	*Channel bed NNIPS extent*
	E12	*Channel bed filamentous algae extent*

Table A4 Condition Indicators and scores obtained for baseline.

Indicator (positive indicators shaded)	Code	Upst.	Midst.	Downst.
Bank top vegetation structure	B1	4	3	2
Bank top tree feature richness	B2	3	2	0
Bank top water-related features	B3	0	4	0
Bank top NNIPS cover	B4	0	0	0
Bank top managed ground cover	B5	0	-2	-2
Bank face riparian vegetation structure	C1	4	2	1
Bank face tree feature richness	C2	2	0	1
Bank face natural bank profile extent	C3	3	3	3
Bank face natural bank profile richness	C4	2	3	1
Bank face natural bank material richness	C5	1	1	1
Bank face bare (unvegetated) sediment extent	C6	1	4	0
Bank face artificial bank profile extent	C7	0	0	0
Bank face reinforcement extent	C8	0	0	0
Bank face reinforcement material severity	C9	0	0	0
Bank face NNIPS cover	C10	0	0	0
Channel margin aquatic vegetation extent	D1	0	0	0
Channel margin aquatic morphotype richness	D2	0	0	0
Channel margin physical feature extent	D3	3	1	0
Channel margin physical feature richness	D4	3	2	0
Channel margin artificial features	D5	0	0	0
Channel aquatic morphotype richness	E1	1	1	1
Channel bed tree features richness	E2	3	1	1
Channel bed hydraulic features richness	E3	2	2	2
Channel bed natural features extent	E4	3	3	2
Channel bed natural features richness	E5	2	3	1
Channel bed material richness	E6	3	3	2
Channel bed siltation	E7	0	0	0
Channel bed reinforcement extent	E8	-2	0	-1
Channel bed reinforcement severity	E9	-2	0	-1
Channel bed artificial features severity	E10	-2	0	-4
Channel bed NNIPS extent	E11	0	0	0
Channel bed filamentous algae extent	E12	0	0	0

Table A5 Baseline indicator score averages and overall score/condition

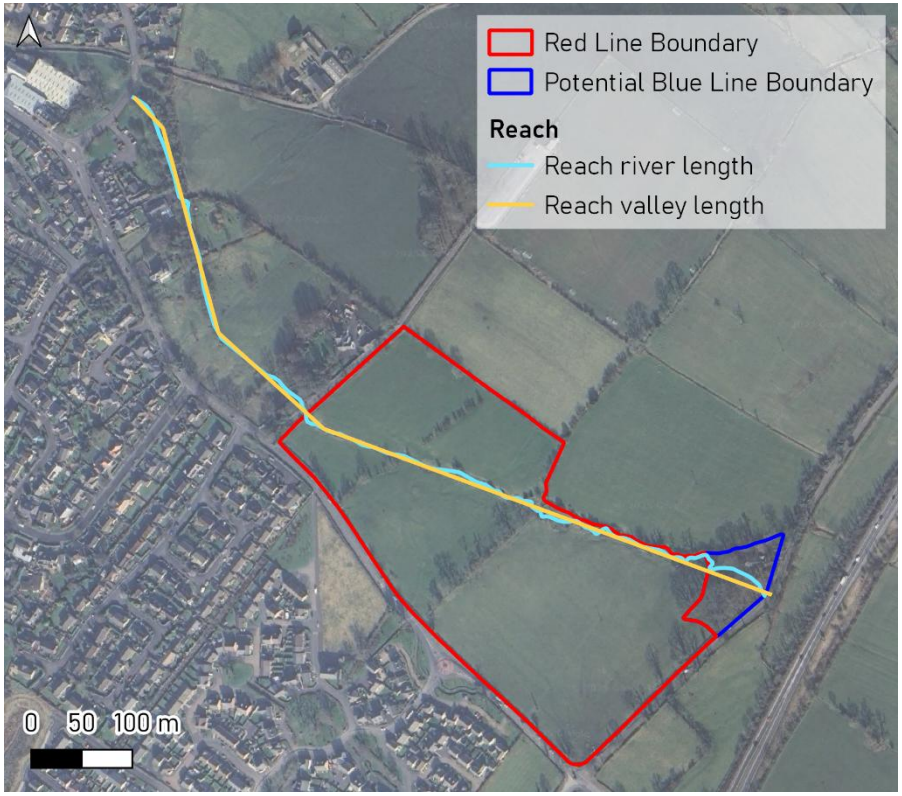
	Baseline		
	Upstream	Midstream	Downstream
Average positive indicators	2.1052632	2	0.94736844
Average negative indicators	-0.46153846	-0.15384616	-0.61538464
Overall score	1.6437247	1.8461539	0.3319838
Preliminary condition	Fairly Good	Fairly Good	Fairly Poor
Overdeep?	No	No	No
Final condition	Fairly Good	Fairly Good	Fairly Poor

Appendix B River Type Assessment

Shaw Brook

The reach used for the River Type Assessment was defined as lying between grid reference SD 75633 41043, upstream, and SD 75009 41535, downstream. Above the upstream limit, the brook becomes highly channelised into a series of drainage ditches in association with the A59 road, the construction of which (based on Lidar mapping) has significantly altered its original course. The downstream limit was set at the entrance to a 130m-long culvert beneath Highmoor Park road and a furniture warehouse, beyond which the brook becomes highly constrained by built development on both banks.

Figure B1 The reach of Shaw Brook, showing river and valley length.



This encompasses a river length of 0.91km, with a valley length (ignoring meanders but including valley side spurs) of 0.86km. River length is divided by valley length to calculate sinuosity.

The elevation of the reach starts at 117m and ends at 95m, resulting in a valley gradient of 0.02558.

The brook occupies a single wetted channel, with no braiding or anabranching, and has bank faces distinctly unconfined by the valley sides.

Table B1 River Type values.

Indicator	Score
A1: Braiding index	1
A2: Sinuosity	1.058
A3: Anabranching index	1
A4: Level of confinement	Unconfined
A5: Reach valley gradient	0.02558
A6: Bedrock reach?	No
A7: Coarsest bed material class size	Cobble
A8: Average bed material class size	Sand

Values A6 to A8 are determined by observations in the Field.

This data resulted in a calculated **river type of F** – straight-sinuous, gravel-dominated, largest sediment cobbles. This aligned with what the surveyor observed during the field survey, and therefore has not been overridden.

Appendix C Opportunities for enhancement of full survey length according to condition indicators

Condition indicators (see Table A3) calculated from field survey data and extracted from Cartographer, can be used to inform opportunities for enhancement. The opportunities listed are identified colour coded by their impact potential, based on the potential for increase in score. It should be noted that these are listed for transparency, regardless of their feasibility, and not all may be applicable to this Site, or in this context. It should be noted that a license from the Environment Agency may be required before significant changes are made to rivers, and any plans may need to be informed by further study to prevent unintended geological or ecological impacts.

Table C1 Enhancement opportunities, based on score alone, and their potential opportunity to impact overall condition score. Rows are colour-coded to indicate interventions with **major**, **moderate**, **minor**, and **no potential impact** on the watercourse's condition score.

Indicator (+positive or -negative)		Enhancement strategy	Potential Impact		
			U.	M.	D.
Bank top vegetation structure (+)	B1	Enhance bank top vegetation structure by planting a range of riparian vegetation types on the bank tops	None	Minor	Minor
Bank top tree feature richness (+)	B2	Enhance bank top tree feature richness by planting riparian trees such as willow and alder, and allowing for the retention of fallen and leaning trees, large wood, and branches trailing into the channel	Minor	Minor	Major
Bank top water-related features (+)	B3	Introduce bank top water-related features such as ponds, side channels, and wetlands	Major	None	Major
Bank top NNIPS cover (-)	B4	No bank top NNIPS were recorded; no enhancement possible	None	None	None
Bank top managed ground cover (-)	B5	Minimise encroachment of managed ground cover into the bank top areas post-development	None	Minor	Minor
Bank face riparian vegetation structure (+)	C1	Enhance bank face riparian vegetation structure by planting a range of riparian vegetation types on the bank face	None	Minor	Mod.
Bank face tree feature richness (+)	C2	Enhance bank face tree feature richness by planting riparian trees such as willow and alder, and allowing for the retention of fallen and leaning trees, large wood, and branches trailing into the channel	Minor	Major	Mod.
Bank face natural bank profile extent (+)	C3	Enhance bank face natural profile extent by allowing natural geomorphic processes to take place to increase the extent of natural bank profiles	Minor	Minor	Minor
Bank face natural bank profile richness (+)	C4	Enhance bank face natural profile richness by allowing natural geomorphic processes to take place to increase variation in the types of natural bank profiles present	Minor	Minor	Mod.
Bank face natural bank material richness (+)	C5	Enhance bank face natural bank face material richness by allowing natural geomorphic processes to take place to expose a variety of natural sediments	Mod.	Mod.	Mod.
Bank face bare sediment extent (+)	C6	Enhance bank face bare sediment extent by controlling dominating plants to allow natural geomorphic processes to take place	Mod.	None	Major
Bank face artificial bank profile extent (-)	C7	Bank profiles were found to be completely natural; no enhancement possible	None	None	None

Indicator (+positive or -negative)		Enhancement strategy	Potential Impact		
			U.	M.	D.
Bank face reinforcement extent (-)	C8	No bank face reinforcement was recorded; no enhancement possible. Any bank face reinforcement needed post-development should preferentially use low-impact options such as coir or willow spiling	None	None	None
Bank face reinforcement material severity (-)	C9	As above	None	None	None
Bank face NNIPS cover (-)	C10	No bank face NNIPS were recorded; no enhancement possible	None	None	None
Channel margin aquatic vegetation extent (+)	D1	Enhance channel margin aquatic vegetation extent by planting a range of native aquatic species at the water's edge	Major	Major	Major
Channel margin aquatic morphotype richness (+)	D2	Enhance channel margin aquatic morphotype richness by planting a range of native aquatic species at the water's edge	Major	Major	Major
Channel margin physical feature extent (+)	D3	Enhance channel margin physical feature extent by investigating measures to generate side bars and marginal backwaters	Minor	Mod.	Major
Channel margin physical feature richness (+)	D4	Enhance channel margin physical feature richness by investigating measures to generate side bars and marginal backwaters	Minor	Minor	Major
Channel margin artificial features (-)	D5	No channel margin artificial features were present; no enhancement possible. Post-development, artificial features such as pipe outfalls should be avoided (for instance, drainage pipes should spill into reedbeds, allowing water to slowly enter the stream)	None	None	None
Channel aquatic morphotype richness (+)	E1	Investigate measures to enhance channel aquatic morphotype richness	Mod.	Mod.	Mod.
Channel bed tree feature richness (+)	E2	Investigate measures to enhance channel bed tree feature richness such as planting trees within the channel	Minor	Mod.	Mod.
Channel bed hydraulic features richness (+)	E3	Investigate measures to enhance channel bed hydraulic feature richness	Minor	Minor	Minor
Channel bed natural features extent (+)	E4	Retain channel bed natural features to enhance extent by removing artificial channel bed features and allowing natural hydraulic processes to take place	Minor	Minor	Minor
Channel bed natural features richness (+)	E5	Retain channel bed natural features to enhance richness by removing artificial channel bed features and allowing natural hydraulic processes to take place	Minor	Minor	Mod.
Channel bed material richness (+)	E6	Enhance channel bed material richness by removing artificial channel reinforcement and allowing natural hydraulic processes to take place	Minor	Minor	Minor
Channel bed siltation (-)	E7	Channel bed siltation was not detected; no enhancement possible. Post-development, measures should be taken to minimise silt runoff from the development during construction and operation	None	None	None
Channel bed reinforcement extent (-)	E8	Reduce channel bed reinforcement extent by removing artificial in-channel reinforcement, including washed-out reinforcement	Minor	None	Minor
Channel bed reinforcement severity (-)	E9	Reduce channel bed reinforcement severity by replacing artificial in-channel reinforcement with materials of lesser severity	Minor	None	Minor

Indicator (+positive or -negative)		Enhancement strategy	Potential Impact		
			U.	M.	D.
Channel bed artificial features severity (-)	E10	Reduce channel bed artificial features by removing large trash, and investigating measures to open existing culverts	Minor	None	Major
Channel bed NNIPS extent (-)	E11	No channel bed NNIPS were recorded; no enhancement possible	None	None	None
Channel bed filamentous algae extent (-)	E12	No channel bed filamentous algae was recorded; no enhancement possible. Post-development, measures should be taken to minimise nutrient runoff from the development into the stream	None	None	None