

## Condition + Encroachment Reporting Sheet: RIVERS and STREAMS

River Condition Assessment (RCA) + Encroachment results for: Priority rivers, Other rivers and streams, Canals

|                     |                             |                           |          |
|---------------------|-----------------------------|---------------------------|----------|
| Site name/Location: | Mill Farm, Charlton SG5 2AB | Unique River Section Ref: | Baseline |
| GPS of MoRPh 5:     |                             | River Section Length:     | 50m      |

Rivers and streams form naturally draining networks within the wider landscape.

A long history of channel modification and artificial water body creation has led to widespread loss of naturally formed and functioning habitats.

**The River Condition Assessment (RCA) method requires one or more MoRPh5 sub-reach sample(s) for a longer length of channel, the river(or canal) section, that has consistent condition throughout and is represented by a single line within the Biodiversity Metric tool.**

This sheet provides information about the full river (or canal) section length based on a site walkover plus representative RCA (MoRPh5) results for this section.

### RCA River Type and Habitat Description for full river section (from walkover survey)

The River Hiz occurs on site as well as adjacent to the redline boundary for the site. The River has been classified as a Type K River (Straight Sinuous, coarsest bed material gravel and pebble, average bed material Silt).

Within the redline boundary the bankside habitat RHB (right hand bank) includes tall ruderal habitat with areas of shrub/scrub and scattered trees. LHB (left hand bank) included ruderal habitat, scrub, occasional trees and grazing pasture.

The Right hand bank is higher than the left with more extensive scrub and tree cover within 10m riparian zone, farm buildings, pasture and areas of bareground

The river channel comprises of gravel and pebble bed with sand/silt present and trace amounts of cobble. Aquatic vegetation present includes occasional reed and frequent water starwort and false watercress.

| THE RESULTS OF THE 32 RCA INDICATORS FOR EACH RIVER SECTION SHOULD BE INSERTED BELOW WITH NOTES TO EXPLAIN |                                 |                                                            |                                                                                                                             |
|------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Condition Assessment Criteria                                                                              |                                 | RCA Index Values                                           | Notes/Justification                                                                                                         |
| RCA INDEX ID                                                                                               | RCA INDEX NAME                  | Insert values -4 to 0 OR 0 to 4; Highlight those >2 OR <-2 | Explain where significant, the influence of high/low RCA indices on overall river condition                                 |
| BANK TOP                                                                                                   |                                 |                                                            |                                                                                                                             |
| B1                                                                                                         | Bank top vegetation structure   | 1                                                          | LHB - predominantly pasture with a single farm building. RHB - dominated by farm buildings with pasture at the northern end |
| B2                                                                                                         | Bank top tree feature richness  | 0                                                          | No trees were present within the Riparian Zone                                                                              |
| B3                                                                                                         | Bank top water-related features | 0                                                          | No bank top features such as ponds occur within the 10m riparian zone.                                                      |
| B4                                                                                                         | Bank top NNIPS cover            | 0                                                          | No non-native invasive plant species were recorded on site at the time of survey                                            |
| B5                                                                                                         | Bank top managed ground cover   | -3                                                         | LHB - managed by grazing<br>RHB - predominanmtly short grass, bareground and buildings                                      |
| BANK FACE                                                                                                  |                                 |                                                            |                                                                                                                             |

|                |                                            |   |                                                                                  |
|----------------|--------------------------------------------|---|----------------------------------------------------------------------------------|
| C1             | Bank face riparian vegetation structure    | 2 | bank top riparian vegetation structure was limited                               |
| C2             | Bank face tree feature richness            | 1 | tree feature richness is limited to the occasional fallen tree                   |
| C3             | Bank face natural bank profile extent      | 2 | the bank of the river consists of steep and vertical sections                    |
| C4             | Bank face natural bank profile richness    | 3 |                                                                                  |
| C5             | Bank face natural bank material richness   | 1 | bank material is made up of earth                                                |
| C6             | Bank face bare sediment extent             | 1 | only traces of bare sediment were recorded along the bank face                   |
| C7             | Bank face artificial bank profile extent   | 0 | there was no artificial re-enforcement visible within the redline boundary       |
| C8             | Bank face reinforcement extent             | 0 |                                                                                  |
| C9             | Bank face reinforcement material severity  | 0 |                                                                                  |
| C10            | Bank face NNIPS cover                      | 0 | No non-native invasive plant species were recorded on site at the time of survey |
| CHANNEL MARGIN |                                            |   |                                                                                  |
| D1             | Channel Margin Aquatic vegetation Extent   | 1 | no aquatic vegetation was recorded within the channel margins                    |
| D2             | Channel margin aquatic morphotype richness | 1 |                                                                                  |
| D3             | Channel margin physical feature extent     | 0 | no features such as side bars were recorded                                      |
| D4             | Channel margin physical feature richness   | 0 |                                                                                  |
| D5             | Channel margin artificial features         | 0 | no outflow pipes etc were recorded within the redline                            |

| CHANNEL BED |                                          |   |                                                                                                                |
|-------------|------------------------------------------|---|----------------------------------------------------------------------------------------------------------------|
| E1          | Channel aquatic morphotype richness      | 2 | aquatic vegetation limited to water starwort and false watercress                                              |
| E2          | Channel bed tree features richness       | 1 | tree features within the channel bed was limited to occasional large wood                                      |
| E3          | Channel bed hydraulic features richness  | 1 | Hydraulic features included riffles                                                                            |
| E4          | Channel bed natural features extent      | 0 | hudraulic richness was limited to standing unbroken waves, and areas of smooth flow                            |
| E5          | Channel bed natural features richness    | 0 |                                                                                                                |
| E6          | Channel bed material richness            | 0 | channel bed material included, gravel & pebble, silt and occasional cobble of man-made material such as bricks |
| E7          | Channel bed siltation                    | 0 | some silt was recorded within the channel                                                                      |
| E8          | Channel bed reinforcement extent         | 0 | no channel bed reinforcement was noted                                                                         |
| E9          | Channel bed reinforcement severity       | 0 |                                                                                                                |
| E10         | Channel bed artificial features severity | 0 |                                                                                                                |
| E11         | Channel bed NNIPS extent                 | 0 | No non-native invasive plant species were recorded on site at the time of survey                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |                                                                                           |                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| E12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Channel bed filamentous algae extent | 0                                                                                         | No filamentous algae was recorded within the river at the time of survey                                                     |
| Overview of RCA and river section assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                      |                                                                                           |                                                                                                                              |
| River Condition Assessment PRELIMINARY SCORE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.66 (Moderate)                      | River Type and class bands:                                                               | K River (Straight Sinuous, coarsest bed material gravel and pebble, average bed material silt)                               |
| River Shape index:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.45                                 | Is the river channel OVERDEEP? <i>If yes, what supporting evidence is provided?</i>       | The banks of the river are either gentle, steep or vertical and is re-enforced at the north-eastern LHB adjacent to the pub. |
| River Condition Assessment FINAL CLASS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Fairly Poor                          | IS THE RCA FINAL CLASS MODIFIED?<br>If yes, why and what supporting evidence is provided? | Yes, see above                                                                                                               |
| Summary of RCA results (and Encroachment where applicable) with recommendations for improvements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                      |                                                                                           |                                                                                                                              |
| <p>Bankside encroachment is <b>Major/Major</b> with managed habitat ( man-made unsealed surface in the form of buildings, hardstanding and agricultural ground present within 0m to 10m of the top of the bank). Channel encroachment is recorded as <b>No Encroachment</b>. It is recommended that a 10m buffer strip of riparian habitat is created and sown with the equivalent of Emorsgate EP1 or equivalent. Varied bank top and bank face tree features should also be created (saplings/trees/ fallen trees and large wood). Consideration should also be given to the creation of bankside water features such as ponds and wetland areas within 10m of the bank top.</p> |                                      |                                                                                           |                                                                                                                              |
| Suggested enhancement interventions to improve the river condition score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |                                                                                           |                                                                                                                              |
| <p>The final river condition class was downgraded from Moderate to Fairly Poor, given evidence of past straightening works supported by historical maps and the shape index. The initial score was 0.66. To enhance the river condition, a score of</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      |                                                                                           |                                                                                                                              |

>1.5 would be required. This should be achievable on-site. See the enhancement tab for further information.

## Condition + Encroachment Reporting Sheet: RIVERS and STREAM

River Condition Assessment (RCA) + Encroachment results for: Priority rivers, Other rivers and streams

|                     |  |                           |
|---------------------|--|---------------------------|
| Site name/Location: |  | Unique River Section Ref: |
| GPS of MoRPh 5:     |  | River Section Length:     |

Rivers and streams form naturally draining networks within the wider landscape.

### RCA River Type and Habitat Description for full river section (from walkover survey)

The River Hiz occurs on site as well as adjacent to the redline boundary for the site. The River has (Straight Sinuous, coarsest bed material gravel and pebble, average bed material Silt).

Within the redline boundary the bankside habitat RHB (right hand bank) includes tall ruderal habitat scattered trees. LHB (left hand bank) included ruderal habitat, scrub, occasional trees and grazing

THE RESULTS OF THE 32 RCA INDICATORS FOR EACH RIVER SECTION SHOULD BE INSERTED BELOW

| Condition Assessment Criteria |                                         | RCA Index Values                                              |
|-------------------------------|-----------------------------------------|---------------------------------------------------------------|
| RCA INDEX ID                  | RCA INDEX NAME                          | Insert values -4 to 0 OR 0 to 4;<br>Highlight those >2 OR <-2 |
| <b>BANK TOP</b>               |                                         |                                                               |
| B1                            | Bank top vegetation structure           | 2                                                             |
| B2                            | Bank top tree feature richness          | 0                                                             |
| B3                            | Bank top water-related features         | 0                                                             |
| B4                            | Bank top NNIPS cover                    | 0                                                             |
| B5                            | Bank top managed ground cover           | -3                                                            |
| <b>BANK FACE</b>              |                                         |                                                               |
| C1                            | Bank face riparian vegetation structure | 2                                                             |
| C2                            | Bank face tree feature richness         | 1                                                             |
| C3                            | Bank face natural bank profile extent   | 2                                                             |
| C4                            | Bank face natural bank profile richness | 3                                                             |

|                                              |                                            |    |
|----------------------------------------------|--------------------------------------------|----|
| C5                                           | Bank face natural bank material richness   | 1  |
| C6                                           | Bank face bare sediment extent             | 1  |
| C7                                           | Bank face artificial bank profile extent   | 0  |
| C8                                           | Bank face reinforcement extent             | -2 |
| C9                                           | Bank face reinforcement material severity  | -1 |
|                                              |                                            | 0  |
| C10                                          | Bank face NNIPS cover                      |    |
| CHANNEL MARGIN                               |                                            |    |
| D1                                           | Channel Margin Aquatic vegetation Extent   | 0  |
| D2                                           | Channel margin aquatic morphotype richness | 0  |
| D3                                           | Channel margin physical feature extent     | 1  |
| D4                                           | Channel margin physical feature richness   | 1  |
|                                              |                                            | 0  |
| D5                                           | Channel margin artificial features         |    |
| CHANNEL BED                                  |                                            |    |
|                                              |                                            | 2  |
| E1                                           | Channel aquatic morphotype richness        |    |
|                                              |                                            | 1  |
| E2                                           | Channel bed tree features richness         |    |
| E3                                           | Channel bed hydraulic features richness    | 0  |
| E4                                           | Channel bed natural features extent        | 0  |
| E5                                           | Channel bed natural features richness      | 0  |
|                                              |                                            | 3  |
| E6                                           | Channel bed material richness              |    |
| E7                                           | Channel bed siltation                      | -3 |
| E8                                           | Channel bed reinforcement extent           | 0  |
| E9                                           | Channel bed reinforcement severity         | 0  |
| E10                                          | Channel bed artificial features severity   | -1 |
|                                              |                                            | 0  |
| E11                                          | Channel bed NNIPS extent                   |    |
|                                              |                                            | 0  |
| E12                                          | Channel bed filamentous algae extent       |    |
| Overview of RCA and river section assessment |                                            |    |

|                                                                                                 |                 |                                                                                           |
|-------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------|
| River Condition Assessment<br>PRELIMINARY SCORE:                                                | 0.28 (Moderate) | River Type and class bands:                                                               |
| River Shape index:                                                                              | 3.09            | Is the river channel OVERDEEP? <i>If yes, what supporting evidence is provided?</i>       |
| River Condition Assessment<br>FINAL CLASS:                                                      | Fairly Poor     | IS THE RCA FINAL CLASS MODIFIED?<br>If yes, why and what supporting evidence is provided? |
| Summary of RCA results (and Encroachment where applicable) with recommendations for improvement |                 |                                                                                           |
|                                                                                                 |                 |                                                                                           |
| Suggested enhancement interventions to improve the river condition score                        |                 |                                                                                           |
|                                                                                                 |                 |                                                                                           |

|                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                         |
| reams, Canals                                                                                                                                                                                                                                           |
| control                                                                                                                                                                                                                                                 |
| 50m                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                         |
| been classified as a Type K River                                                                                                                                                                                                                       |
| tat with areas of shrub/scrub and<br>g pasture.                                                                                                                                                                                                         |
| V WITH NOTES TO EXPLAIN                                                                                                                                                                                                                                 |
| Notes/Justification                                                                                                                                                                                                                                     |
| <b>Explain where significant, the<br/>influence of high/low RCA<br/>indices on overall river condition</b>                                                                                                                                              |
| banktop vegetation was limited<br>along the left-hand bank, being<br>dominated by hardstanding in<br>the form of hardstanding and<br>footpaths. On the right hand<br>bank, the riparian zone was<br>dominated by trees and shrub<br>with pasture beyond |
| banktop tree features such as<br>fallen trees, large wood etc was<br>not present                                                                                                                                                                        |
| banktop water-related features<br>were non-existent                                                                                                                                                                                                     |
| No non-native invasive plant<br>species were recorded on site at<br>the time of survey                                                                                                                                                                  |
| managed ground cover was<br>extensive see B1                                                                                                                                                                                                            |
| bank top riparian vegetation<br>structure was limited                                                                                                                                                                                                   |
| tree structure was limited                                                                                                                                                                                                                              |
| vegetated side bars were present<br>with the subreach                                                                                                                                                                                                   |
| bank face was steep, vertical or                                                                                                                                                                                                                        |

bank face was steep, vertical or gently sloped. Part of the left-hand bank was canalised and consisted of concrete around the pub patio

No non-native invasive plant species were recorded on site at the time of survey

No aquatic vegetation was present in the river. Vegetation

no vegetated and unvegetated sidebars were recorded within

no outfall pipe was present within the reach

aquatic vegetation within the channel was limited to a small clump of reed, water starwort and false water-cress

tree features within the channel bed was limited to a single fallen tree

Hydraulic features were limited to slow flow

channel bed features were limited

channel bed material included silt, gravel and occasional cobble in the form of bricks

some siltation was present within the river

no channel bed reinforcement was noted

bed material was limited

No non-native invasive plant species were recorded on site at the time of survey

No filamentous algae was recorded within the river at the time of survey

K River (Straight Sinuous, coarsest bed material gravel and pebble, average bed material silt)

The banks of the river are either gentle, steep or vertical and is reinforced at the north-eastern LHB adjacent to the pub.

Historically the River has been straightened to power what was once a corn Mill

Yes, see above

movements

|                  |                                         | Recorded | Enhancement | Expected | Notes for enhancement                                                                                                                     |
|------------------|-----------------------------------------|----------|-------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BANK TOP</b>  |                                         |          |             |          |                                                                                                                                           |
| B1               | Bank top vegetation structure           | 1        | 4           | 4        | Complex bank top vegetation structure should be achievable on all rivers (shrub/scrub, short vegetation, tall vegetation and bare ground) |
| B2               | Bank top tree feature richness          | 0        | 4           | 4        | Varied tree features should be achievable on all (Sapling/shrub, trees large wood, fallen trees)                                          |
| B3               | Bank top water-related features         | 0        | 1           | 3        | Water related features such as such ponds, marginal back waters or wetland areas should be created within the riparian zone               |
| B4               | Bank top NNIPS cover                    | 0        | 0           | 0        | Non-native invasive species should be removed/controlled if they become present                                                           |
| B5               | Bank top managed ground cover           | -3       | 0           | 0        | creation of a 10m riparian buffer strip (measured from the top of the bank), and reducing the extent of shading from the trees to 30%     |
| <b>BANK FACE</b> |                                         |          |             |          |                                                                                                                                           |
| C1               | Bank face riparian vegetation structure | 2        | 3           | 4        | Complex face vegetation structure should be achievable on all rivers (shrub/scrub, short vegetation, and tall vegetation)                 |
| C2               | Bank face tree feature richness         | 1        | 4           | 4        | Varied tree features should be achievable on all (Sapling/shrub, trees large wood, fallen trees)                                          |
| C3               | Bank face natural bank profile extent   | 2        | 3           | 4        | Re-profiling works should not be undertaken with consulting a specialist geomorphologist or the EA                                        |
| C4               | Bank face natural                       | 3        | 3           | 3        |                                                                                                                                           |
| C5               | Bank face natural bank material         | 1        | 1           | 1        |                                                                                                                                           |
| C6               | Bank face bare sediment extent          | 1        | 0           | 0        |                                                                                                                                           |
| C7               | Bank face artificial                    | 0        | 0           | 0        |                                                                                                                                           |
| C8               | Bank face                               | 0        | 0           | 0        |                                                                                                                                           |
| C9               | Bank face                               | 0        | 0           | 0        |                                                                                                                                           |

|                       |                                            |   |   |   |                                                                                                                                                   |
|-----------------------|--------------------------------------------|---|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| C10                   | Bank face NNIPS cover                      | 0 | 0 | 0 | Non-native invasive species should be removed/controlled if they become present                                                                   |
| <b>CHANNEL MARGIN</b> |                                            |   |   |   |                                                                                                                                                   |
| D1                    | Channel margin aquatic vegetation extent   | 1 | 2 | 4 |                                                                                                                                                   |
| D2                    | Channel margin aquatic morphotype richness | 1 | 3 | 3 |                                                                                                                                                   |
| D3                    | Channel margin physical feature extent     | 0 | 0 | 1 |                                                                                                                                                   |
| D4                    | Channel margin physical feature richness   | 0 | 0 | 1 |                                                                                                                                                   |
| D5                    | Channel margin artificial features         | 0 | 0 | 0 |                                                                                                                                                   |
| <b>CHANNEL BED</b>    |                                            |   |   |   |                                                                                                                                                   |
| E1                    | Channel aquatic morphotype richness        | 2 | 2 | 4 |                                                                                                                                                   |
| E2                    | Channel bed tree features richness         | 1 | 2 | 3 | The river would benefit from the creating of in channel wood features in the form of wooded deflectors, brash berms, hinged trees (willow, alder) |
| E3                    | Channel bed hydraulic features             | 1 | 1 | 1 |                                                                                                                                                   |
| E4                    | Channel bed natural features extent        | 0 | 0 | 0 |                                                                                                                                                   |
| E5                    | Channel bed natural features richness      | 0 | 0 | 0 |                                                                                                                                                   |
| E6                    | Channel bed material richness              | 0 | 0 | 1 |                                                                                                                                                   |
| E7                    | Channel bed siltation                      | 0 | 0 | 0 |                                                                                                                                                   |
| E8                    | Channel bed reinforcement extent           | 0 | 0 | 0 |                                                                                                                                                   |
| E9                    | Channel bed reinforcement severity         | 0 | 0 | 0 |                                                                                                                                                   |

|         |                                                 |     |     |     |                                                                                  |
|---------|-------------------------------------------------|-----|-----|-----|----------------------------------------------------------------------------------|
| E10     | <i>Channel bed artificial features severity</i> | 0   | 0   | 0   |                                                                                  |
| E11     | <i>Channel bed NNIPS extent</i>                 | 0   | 0   | 0   | Non-native inavasive species should be removed/controlled if they become present |
| E12     | <i>Channel bed</i>                              | 0   | 0   | 0   |                                                                                  |
| Average |                                                 | 0.6 | 1.7 | 2.4 |                                                                                  |