

Cirencester Rivers Report: November 2024

By Cirencester Wildlife Group

Based on field surveys in September 2024 by Huw Jones, Melanie Dodd, Peter Newbold and Lyn Newbold

1. INTRODUCTION

Cirencester has several river and stream channels. There are a number of weirs and sluices within these channels and a connected millpond at Barton Mill. Within the Abbey Grounds there is a lake and several small ponds, connected together and also to the Churn in a network that also includes culverted sections (Figure 1).



Figure 1. Topography of Cirencester's ground level watercourses. Culverted sections are not shown

Cirencester's rivers are in generally poor ecological condition. They are mostly canalised and heavily shaded by trees and shrubs along much of their length. This has resulted in extensive 'dead zones' with little or no aquatic or emergent vegetation. There are a few sections in relatively good health, notably at Jack Gardeners just downstream of the Gloucester St sluices and in a branch of the Churn at City Bank. These have aquatic, marginal and bankside vegetation and provide important refuges for wildlife, including rare and protected species such as Water voles.

1. 1 Topography

The Churn reaches Cirencester at the sluices at Gloucester Street. From there, the main channel runs along

Cirencester's northeastern edge (Figure 1) close to and parallel to the dual carriageway, along Jack Gardeners and then Hereward Road. It then enters the Abbey Grounds at the Norman Arches, passing a Thames Water facility where sewage is discharged in periods of high flow. The main branch of the Churn continues along the edge of the Abbey Grounds, under London Road and on past the Barn Theatre at Beeches Road. There is another weir, New Mills, above City Bank from where it continues parallel to the dual carriageway past the roundabout and Tesco supermarket at Kingsmeadow towards Siddington.

A second branch is created at a side weir near Hereward Road which is culverted into the top end of the lake at Abbey Grounds. A weir at the bottom of the lake flows down and under Corinium Gate, past the town side of Beeches Road carpark and on to City Bank Local Nature Reserve, running alongside City Bank allotments and the Old Nursery, rejoining the main channel by the Tesco roundabout.

There are two ponds in a woody area at the southwestern edge of Abbey Grounds which may be fed from the lake and/or groundwater and can drain into a channel which goes underground near Corinium Gate.

A tributary of the Churn, the Daglingworth Stream reaches Cirencester by Barton Mill and is connected to overflows from the Barton Mill pond. From there it continues as the Gumstool Brook past the open air swimming pool where it goes underground, entering one or more culverts. These include a channel which emerges in the Abbey Grounds outside St Johns Churchyard and flows past the Waterloo car park to join the secondary branch of the Churn behind Corinium Gate. A branch off the Gumstool Brook runs past Powells School after which it also enters a culvert, presumably rejoining the main river channel near or above the Abbey Grounds. This channel is generally dry in summer.

The Gumstool Brook can also be fed by a connector channel from a secondary sluice on the Churn at Gloucester Street. There is relatively little gradient on this channel so that much of it is in effect an extension of the Barton Mill pond.

Cirencester and its watercourse have a long and complicated history and there may be other significant culverts connecting Cirencester's waterways in addition to those listed above.

2. OVERVIEW OF OPPORTUNITIES FOR RIVER RESTORATION

2.1 Redevelopment opportunities

Any hard engineering involving changes to canalisation are likely to be prohibitively expensive especially in an urban environment with nearby buildings and roads. An exception may be during redevelopment of the built environment and infrastructure. The potential for improving river condition - in particular by establishing or broadening the green corridor either side of the channel - should be considered at planning stage of any development or redevelopment touching the river corridor. Rivers are significant places which act as a magnet to humans and wildlife and provide important green corridors through urban environments. Any opportunity to restore river quality and natural beauty is likely to richly enhance any open space and the associated development, at relatively little cost. This could result in making the town more attractive to residents and tourists, as well as adding connectivity for walkers.

Cirencester Town Council (CTC) has been consulting over a Neighbourhood Plan (currently in draft) which envisages redevelopment of carparks in the town centre and relocation as multistorey carparks along the perimeter dual carriageways. This suggests that there are likely to be a number of riverside redevelopment opportunities including at Waterloo Carpark, Beeches Road Carpark and any new multistorey sites adjacent to the dual carriageway running alongside the main branch of the Churn, including for example at the Tesco roundabout. These are not considered in detail in this report beyond the general principles below.

Recommendation: Add river restoration requirement to Cirencester Neighbourhood Plan. Any development at or adjacent to Cirencester's rivers should be required to consider at planning stage the potential for improving river condition. Desirable river restoration might involve removing canalisation and re-establishing a generous green corridor either side of the river with limited shading allowing for aquatic and bankside vegetation. Any artificial lighting needs to avoid disrupting the value of river corridors to nocturnal species, such as otters and bats which may use the river channel for foraging and commuting as well as for refuges during the day.

2.2 Adjusting routine tree maintenance

Mature trees and scrub are important ecological features and provide habitat for a wide range of species and should only be removed where absolutely necessary. But they can also create dense shade with little or no riparian vegetation. Tree management work requires plant and skilled operatives, especially in an urban environment, and will be limited by available budget. Tree management is, however, likely to be required periodically for example at the Abbey Grounds to remove diseased or dangerous trees. This may provide cost-effective opportunities to deshade nearby sections of the river and this should be considered and implemented where possible. Crown-raising (removal of lower branches) may be a cheap and effective alternative to felling where this will help reduce shade.

Tree management works must consider the potential presence of roosting bats and nesting birds, and other wildlife. Standing deadwood should be retained where possible in light of health and safety considerations. The timber generated through the removal of any trees alongside the river should be used to create new habitat piles for associated wildlife rather than burned or chipped and removed from site. Creating habitat piles allows the carbon within the timber to be returned to the soil through decomposition and benefits deadwood invertebrates such as Stag beetles.

2.3 Low cost enhancements

Other ecological enhancements are possible at relatively low cost without the need for specialist contractors. These could include control of scrub or saplings, pollarding, bank repairs or protection with faggots, clearance of rubbish, selective clearance in the river channel to encourage meandering and/or installation of deflectors.

CTC already manages many riverside locations and may be able to take on some tasks. Other sections are the responsibility of Cotswold District Council (CDC). There are active volunteer groups including Friends of Gumstool Brook (FoGB) and Cirencester Wildlife Group (CWG) who already carry out some conservation and maintenance tasks. The Farming and Wildlife Advisory Group (FWAG) is able to attract grant funding and has taken on numerous tasks in or near Cirencester along the river corridor and could be encouraged and/or funded to do so again.

2.4 Control of alien invasive species

Japanese Knotweed has been found in various riverside locations in Cirencester. Its removal is required from along the river corridor by targeted chemical application or other recognised forms of removal under Environment Agency licence. Known locations have been reported by CWG as noted in Section 3 below and control work is in hand by CTC.

3. LOW COST OPPORTUNITIES FOR RESTORATION

Specific opportunities for low cost enhancements are noted below by river section working upstream to downstream. The main branch of the Churn is considered first, then the secondary branch, then the Gumstool Brook.

These enhancements are also summarised in Section 4 which includes a map with location key (Figure 2)

3.1 River Churn Main Channel:

Above sluices at Gloucester St.

The river bank by the Texaco garage was trimmed in Summer 2024 to ground level.

Recommendation: CWG to contact landowner and request that a vegetative barrier is left to grow along the river bank. This will provide additional habitat for a range of wildlife and encourage marginal vegetation to colonise.



Illustration 1. A trimmed river bank by the Texaco garage

Jack Gardeners

Below the Gloucester Street sluices, the river through Jack Gardeners is in relatively good ecological condition with good flow, a gravel bed, a range of light and shade, and bankside and aquatic vegetation. The river is protected by an uncut barrier of vegetation along the public-facing bank which is left uncut in spring and summer. There is a single dog access point just below Goosacre Lane which is in a shaded area where there is little riparian vegetation. This would be difficult to cut off, and can be left as is.



Illustration 2. Riparian and bankside vegetation at Jack Gardeners

Recommendation to maintain vegetative barrier: Maintain a minimum 2 to 3 metre wide vegetative barrier along left (public-facing) river bank, cutting annually in winter to prevent succession to scrub. Leave riparian and bankside vegetation uncut along right bank below barrier in front of housing where possible.

On and around Hereward Road

The river channel is in a deep canalised channel with overshadowing but little practical potential for enhancement. No recommendation.

Japanese Knotweed has been found at this and other locations. Treatment is in hand organised by CTC with support from CWG.



Illustration 3. Canalised river near Hereward Road

Abbey Grounds

The main branch of the Churn is heavily shaded along the entire length of the Abbey Grounds with little riparian vegetation. There is also some litter including larger items in the river. The river runs roughly west to east and shading is mainly from the southern bank ie the Abbey Grounds side. The trees along the northern bank adjacent to the dual carriageway do not generally shade the river, apart from some overhanging branches. While shading is mostly from mature trees, there are gaps and areas of reduced cover with scrub and previously pollarded willows, where deshading would be much easier. The greatest potential for cost effective deshading is opposite the lake for about 100 metres east from the playground.



Illustration 4. A 100m length of the Churn opposite the Abbey Grounds lake could be opened up where vegetation on the south bank top consists of scrub, saplings and pollarded willows, book-ended by mature trees.

Recommendation for shade reduction: Identify sections of the river along the southern banktop (as in Illustration 4 above) which could be opened up by a combination of removing saplings and scrub, pollarding willows, crown raising of mature trees (including potentially on northern banktop). Given the requirement for monitoring or removal of diseased or dangerous trees, it might be possible to add this work in a cost-effective way.

Recommendation for clearing debris: The aesthetic benefits of opening up sections of river would be undermined if rubbish and debris was left in the river. Local volunteer groups may be able to clear most of the rubbish but may need help from CTC to remove larger items.



Illustration 5. Debris in shaded lengths of the Churn by Abbey Grounds

London Road/City Bank/Tesco roundabout.

The main branch of the Churn is heavily shaded all the way from London Road (by Barn Theatre) past the weir above City Bank to the Tesco roundabout at Kingsmeadow. There are limited opportunities for shade reduction. Any future tree management to remove diseased or dying trees may however present an opportunity for opening up sections of the river. These should be considered and implemented where possible. This area is thought to be the responsibility of CDC.

Recommendation for shade reduction: Look for opportunities to open up stretches of river when planning any tree management work alongside waterways.

Weir above City Bank

Not considered. Recommendations were made by FWAG in its River Churn Management Plan (2019) which suggests modification or removal to allow fish passage.



Illustration 6. Heavy shading on the Churn between London Road and Tesco roundabout

3.2 River Churn Secondary branch

Abbey Grounds: Lake.

There is a dog access point just below the culverted outflow into the lake at the western end which would be hard to stop-up and is in a shaded area with limited aquatic vegetation, so the ecological impact is limited. A little further downstream on either side of the lake, there are common reeds (*Phragmites australis*) growing on both banks. There is the potential to extend the reedbeds into the lake and along a greater section of bank. This would extend the reedbed habitat used by breeding birds such as warblers, and would also create a filter to help purify flow, by reducing nutrients and sediment.

Recommendation for extending reedbeds: Add faggots along the banks on either side of the lake to help the reedbed extend over a greater area.



Illustration 7. A narrow section near the top of the Abbey Grounds lake with reeds on both banks

Abbey Grounds: Ponds

There are two ponds and some connecting channels in an area of woodland at the SE corner of the Abbey Grounds lake. These should be monitored annually to ensure there is some open water maintained in the middle of the ponds while retaining plenty of emergent vegetation.

Recommendation to maintain ponds: Remove vegetation and silt if necessary from the centre of the ponds to restore open water. No more than 50% of silt and vegetation should be removed in any one year to leave habitat and resources for breeding amphibians and other pond wildlife.

Recommendation to prevent overshading by banktop scrub

There is banktop scrub which should be maintained at or below current levels to prevent over-shading



Illustration 8. Ponds near the Abbey Grounds lake with extensive emergent vegetation

Abbey Grounds to Corinium Gate

The canalised channel from the weir at the lower end of the Abbey Grounds lake to Corinium Gate has hedgerows and bankside vegetation. While bankside vegetation is welcome, there is a risk of the channel being overgrown and this should be prevented. Japanese Knotweed has been found at this location and treatment is in hand organised by CTC with advice from CWG. Another alien invasive plant, Gunnera is also present.

Recommendation to maintain vegetation. Inspect every few years and cut back any bramble or other growth out over the channel.



Illustration 9. Thick vegetation along a channel below the Abbey Grounds lake

Recommendation to tackle Gunnera: CWG to investigate practicality of treating or containing Gunnera.



Illustration 10. Gunnera in the Abbey Grounds near Corinium Gate

Between Waterloo Car Park and gardens on Corinium Gate

The river is joined by the Gumstool Brook beside Waterloo Car Park and runs behind the gardens of properties on Corinium Gate and below Waterloo car park in a tightly constrained concrete channel. No recommendation.

Potential for river restoration if Waterloo car park is redeveloped.



Illustration 11. Culverted channel between the Waterloo car park and London Road, behind gardens on Corinium Gate

Beeches Road Car Park and Opportunity Group land

The secondary branch of the Churn runs between Beeches Road Car Park and the gardens at the rear of Purley Road and then on between woodland owned by the Cirencester Opportunity Group and scrub along the rear of Victoria Road Meadow. The river is heavily shaded along this length.

Potential for river restoration if Beeches Road Car Park is redeveloped.



Illustration 12. The channel is heavily shaded as it passes between Beeches Road car park and back gardens on Purley Road

City Bank Glade

The river continues along the edge of this small woodland area beside Cirencester Primary School playing field. The woodland has a range of native trees and shrubs as well as a small pond and some wetland. This is a valuable habitat for breeding birds and other species which is enhanced by its connection to City Bank Local Nature Reserve immediately downstream. CWG is active in this area, managing the pond and monitoring wildlife. Any management work should be done in conjunction with their advice.



Illustration 13. Woodland at City Bank Glade with the river running along the edge behind Cirencester Primary School playing field.

City Bank Meadow

This secondary branch of the Churn continues through City Bank Local Nature Reserve. Facing downstream, City Bank Meadow is on the left bank, the Allotments and City Bank Old Nursery on the right bank. This area is the focus of work by CWG volunteers as well as maintenance by CTC.

The downstream part of the river below the footbridge has become very heavily over-shaded in recent years by mature trees growing out over the river from the Old Nursery. This threatens to create another dead zone with little riparian vegetation unless deshading is carried out promptly, by end of February 2025 if possible, before the next bird nesting season. A tree management contractor will be needed given the size and height of branches.

The upstream part of the river above the footbridge is in much better ecological condition with extensive riparian vegetation. There are regular sightings of Grey Wagtail as well as signs of occasional usage by water voles, as found in surveys by CWG.

The right bank has become badly overgrown with scrub, including bramble which is growing over the riparian vegetation. CWG has attempted to cut some of this back but with limited success. Work access is limited to September after the end of bird nesting season and before the river rises to winter levels.

The left bank is supposed to be protected by a minimum 2 metre thick vegetative barrier but this has been ineffective and dogs access the river in numerous places. These are at each end of the meadow beyond the ends of the barrier, either side of the footbridge which is also unprotected, as well as about four points where the vegetative barrier has been breached. Dogs in the river create disturbance which is likely to be a factor in limiting the species present. Water vole surveys by CWG have found only limited signs, which suggests passage only and not occupation and breeding, despite suitable habitat. Another threatened species, Dipper has been recorded regularly within 200m on a secluded section of the main branch of the Churn, but only once in recent years on this branch. A pair of Grey Wagtails, a charismatic river species, are seen regularly, but are also vulnerable to disturbance. Given this is a designated Local Nature Reserve where wildlife should take priority, disturbance by dogs is a serious concern and needs to be addressed.

Recommendation to repair river bank at existing dog entry points

This has been the focus of work by FWAG and Cirencester Wildlife Group and remains a priority. CWG/CTC should consider asking for help from FWAG as they have greater experience and expertise.

Recommendation to review protection from dog entry on the left bank. Review the failure of existing protection and how it can be improved or replaced while managing public understanding. Options might include an improved vegetative barrier, fencing, a sacrificial area eg at the bridge where some human disturbance is inevitable. Managing any reduction in access for dogs will want to include public information perhaps in the form of signage about river habitat, species and the threat from disturbance. This is a significant and challenging problem, which will need careful consideration and management by CTC with support from CWG.

Recommendation to increase effort to cut back bramble and scrub growing over right bank.

CWG has had limited impact so far in cutting back the bramble and scrub because of the limited time window. Greater effort is needed and this might require better access or help from others such as CTC or other volunteer groups.



Illustration 14. A CWG work party removing scrub from the right bank of the river to restore Water vole habitat.



Illustration 15. River bank damage from dogs finding a weak point in the vegetation barrier and opening up an access channel.

Recommendation to reduce shade below footbridge

Branches growing over the river from the Old Nursery should be cut back. This has been agreed in discussion between Cirencester Town Council and Cirencester Wildlife Group. Action is pending.



Illustration 16. Heavy shading from low branches growing over the river from City Bank Old Nursery

3.3 Gumstool Brook

Connector from Gloucester St sluices to Barton Mill pond

A connector channel runs between the sluices at Gloucester Street and Barton Mill pond. At the Gloucester Street end, there is very low summer flow which has created a narrow channel meandering close to the centre of the relatively broad canalised channel with shallow river banks either side. At the other end, water backs up from Barton Mill pond so that the full width of the channel is in water with no perceptible flow. Shade is variable with dark sections with very little vegetation and well lit sections with abundant growth eg immediately below the sluices at Gloucester Street. Much of the shade is created by mature trees both along the western edge within the Bathurst Estate and along the eastern edge within private gardens. There is also some growth of saplings on the river banks. This section is subject to maintenance by Friends of the Gumstool Brook.



Illustration 17. Heavily vegetated channel just below Gloucester St sluices

Future enhancements: Deshading. Some reduction in shade is desirable and much might be achieved by crown raising in particular removal of lower growth over the channel. As most of the shade is created by mature trees on private land, improvement would depend on liaison with and cooperation of landowners.

Recommendation for FoGB work parties: Remove saplings from river banks to avoid an increase in shading. Encourage development of the meander at the Gloucester St end by not removing woody debris and limiting any channel clearance to the flow channel and not trampling or clearing vegetation on the river banks either side.

Future enhancement: Enhanced flow and channel diversity.

A 'Low Flow' trial is planned (for late summer 2025) to divert more water from the Gloucester St sluices into the connector channel and Barton Mill pond as well as the Gumstool Brook (Daglingworth Stream). This is currently being discussed by FoGB, CTC, the Bathurst Estate and the Environment Agency. This has the potential to increase summer flow in the Gumstool Brook and to prevent it from drying out in summer with ecological benefits, in particular maintaining habitat for Water voles and aquatic invertebrates. Increased flow could also have a positive impact at the top end of the connector channel immediately below Gloucester Street sluices, by increasing the amount of riparian habitat which is currently very limited due to the very low summer flow. It is understood the water level in Barton Mill pond will stay the same so that the rest of the connector channel will be largely unaffected. There is no plan to lower the water level at Barton Mill pond, although this would reduce the length of the connector which is in stagnant water and increase riparian habitat.

Recommendation: The ecological impact of any flow trials should be monitored by CWG in liaison with FoGB and others.



Illustration 18. Stagnant water backing up from Barton Mill pond along the connector towards Gloucester Street

Gumstool Brook below Barton Millpond

The Gumstool Brook is fed by the Daglingworth stream and any overflow from the Barton Mill pond. The channels converge in a narrow triangle of woodland immediately below the millpond. This section is heavily shaded by mature trees which narrow to become a single treeline just within the boundary of the Bathurst Estate. The shading creates a dead zone with little or no aquatic or bankside vegetation. Shade reduction is desirable but the size and density of mature trees means intervention would be expensive. It might be more practical to suggest a policy of shade reduction over time. Some crown-lifting may be practical.

Recommendation for shade reduction: Suggest to Bathurst Estate a policy of shade reduction over time. This might involve not replacing any trees lost to wind or disease, allowing the tree cover to thin out over time with a resulting reduction in overshading.



Illustration 19. Woodland and heavy shade over the river channels below Barton Mill pond

Gumstool Brook past the open air swimming pool

The Gumstool Brook enters a U-shaped brick-lined channel as it passes the open air swimming pool. There is considerable woody and non-woody growth on the channel walls including saplings. The brook has been forming a narrow watercourse within the channel forming a meander between sidebars where silt has built up. This has added to the diversity in the channel which has a range of bankside, marginal and aquatic vegetation. This section is subject to maintenance by Friends of the Gumstool Brook. Water voles have been seen in this area but sightings appear to have stopped in recent years.

Recommendation for FoGB work parties: Remove woody and other excess growth from channel walls so as to limit and avoid any increase in shading (and damage to structures). Encourage development of the meander by not removing small woody debris and not trampling or clearing vegetation on the side bars, limiting any channel clearance to the flow channel.

Recommendation for Water vole monitoring: CWG should aim to monitor for signs of Water voles, in particular at the time of the 'Low Flow' trial or similar testing.



Illustration 20. Dense vegetation in and beside the Gumstool Brook as it passes the open air swimming pool

Branch of Gumstool Brook past Powells School

This is dry in summer. No recommendation.

Abbey Grounds past St Johns Churchyard

There is a dog access area in an area of deep shade which can be left. Japanese Knotweed has been found at this location and treatment is in hand organised by CTC with advice from CWG.

Below Abbey Grounds and above Waterloo car park

The river bank and channel were strimmed to a couple of inches in Summer 2024 possibly by CDC or by whoever manages the adjacent flats.

Recommendation CWG to investigate who manages this area and suggest leaving a vegetative barrier and not cutting along the river channel bed.



Illustration 21. A strimmed river bed and banks in the grounds of flats by the Abbey Grounds near the Waterloo car park

Behind Waterloo car park

The Gumstool Brook joins the secondary branch of the Churn behind Waterloo car park. See 3.2 above.

4. SUMMARY AND MAP OF OPPORTUNITIES FOR RESTORATION

The recommendations in Section 2 and 3 are summarised in Table 1 below with a map and key (Figure 2).



Figure 2. Key to river restoration opportunities

Table 1. Summary of river restoration opportunities			
River Section	Code and Location	Enhancement	Action
All of Cirencester	Any river location (in particular CS4 and CS5 below)	Add river restoration requirement to CTC Neighbourhood Plan for any development.	CTC
Churn (Main branch)	CM1. Gloucester St sluices	Leave vegetated bank behind Texaco garage	CWG to request
	CM2. Jack Gardeners	Maintain vegetative barrier on left bank. Leave vegetation uncut on right bank.	CTC
	CM3. Abbey Grounds	Shade reduction	CTC using contractors
	" "	Rubbish removal	CWG/FoGB
	CM4. London Rd to Tesco roundabout	Shade reduction alongside routine treeworks	CDC(?) using contractors

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Churn (Secondary branch)	CS1. Abbey Grounds	Placing faggots to extend reed bed	CTC using contractors
	CS2. Abbey Grounds	Pond maintenance	CTC
	" "	Maintain banktop scrub at current levels	CTC
	CS3. Abbey Grounds	Prevent growth over channels	CTC
	" "	Investigate Gunnera control	CWG
	CS4. Waterloo car park	Consider opportunities at redevelopment	CTC/CDC
	CS5. Beeches Rd car park	Consider opportunities at redevelopment	CTC/CDC
	CS6, CS7 City Bank	Review effectiveness of vegetative barrier and consider options for improvement or replacement	CTC/CWG
	" "	Consider use of signage or other means of public communication alongside any measures to control dog access	CTC/CWG
	" "	Repair/prevent dog entry points. Seek help from FWAG.	CTC/CWG/contractors
	CS6	Clear right bank of bramble and scrub. Consider if additional help is needed	CWG
	CS7	Clear low branches growing from right bank to reduce overshadowing	CTC/contractors
Gumstool Brook	G1 Gloucester St to Barton Mill	Remove saplings, encourage meander	FoGB
	" "	Reduce overshadowing	Liaison with landowners
	" "	Trial to increase flow (earliest date late Summer 2025)	This is in discussion between FoGB, CTC, Bathurst Estate
	G2 Below Barton Mill pond	Reduce shade over time	CTC/FoGB/CWG/liaison with Bathurst Estate
	G3 Past open air swimming pool	Remove woody growth, encourage meander	FoGB

	G4 Between Abbey Grounds and Waterloo Carpark	Vegetative barrier, no strimming	CWG/CTC to contact CDC or relevant landowner /manager.
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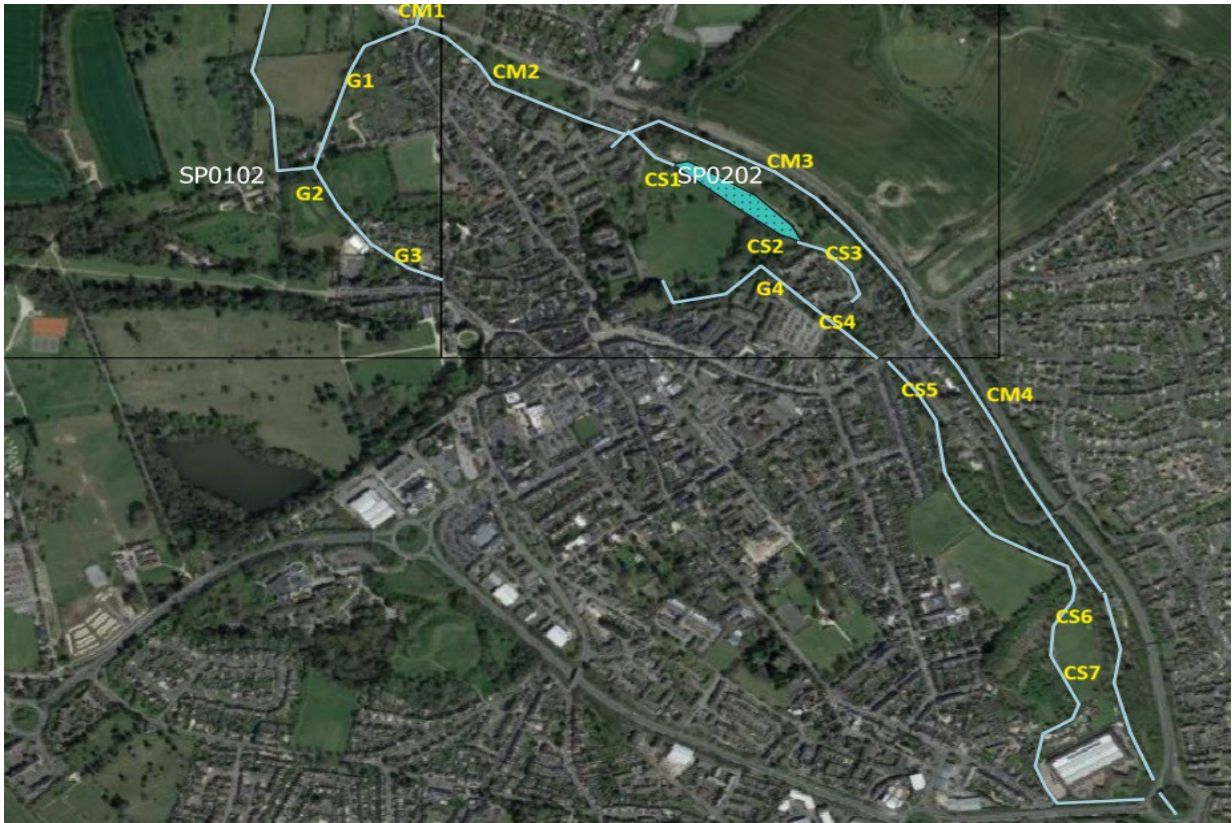


Figure 2. Key to river restoration opportunities