

Scrutiny Panel

Item

28 June 2024

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| Report of | Head of Sustainability | Author | Fiona Shipp |
| Title | Middle Mill Weir Collapse – Update Briefing- including consultation feedback. | | |
| Wards affected | Castle | | |

1. Executive Summary

- 1.1 This briefing sets out the current position at Middle Mill following the collapse of the weir in December 2023.
- 1.2 Middle Mill Weir is a structure that is owned by Colchester City Council (CCC), located on the River Colne next to Castle Park and consists of three flow channels. The northern and southern channels have flow control sluice gates, and the central channel is uncontrolled over the weir. The northern and middle flows, pass under a footbridge and the southern end passes under two brick arch culverts with a replica water mill wheel between the culvert sections.
- 1.3 A collapse of a section of the weir in December also led to the closing of the adjoining bridge over the River Colne. This bridge is owned and managed by Essex Highways (EH). The bridge itself had shown cracking in its abutments and is potentially at risk of being hit by any further collapse of the weir structures.

2. Action Required

- 2.1 For the Scrutiny Panel to be informed of the current situation and to note the work being undertaken to remedy in the short term, and start to consider options for a longer-term solution.
- 2.2 To consider and note the feedback from the consultation.

3. Reason for Scrutiny

- 3.1 The situation has gained on-going media and local interest and the Scrutiny Panel has requested an update.
- 3.2 When all options regarding longer term solutions have been fully researched and costed, they will be presented to cabinet for a decision.

4. Background Information

4.1 The Environment Agency (E.A.) used to operate the sluice, but this operation was handed back in approx. 2015. This was the case with many E.A. operated sluices around this time. Since then, the Castle Park Rangers have taken over operation of the sluices to reduce flood risk upstream at times of high rainfall/high water levels.

4.2 In relation to the bridge at Middle Mill, we believe the ownership, responsibility and maintenance lies with Essex Highways from when they became the Highway Authority (Bridge Asset number 2007).

4.3 Timeline Summary of Key Events/Actions:

July to Nov 2023 – leaks had been noted by the sluice and Officers believed that some debris had got caught in the sluice gate causing a visible bubbling of the water next to the sluice, which needed a clear out. It's common for this to happen at this time of year when the sluice is being operated often.

30th October 2023 – email from Colchester Canoe Club concerned about cracks in abutments of Essex Highways owned bridge next to Middle Mill Weir. Reported to Essex Highways for inspection. They responded that there had been no change since 2017 and did not take any further action.

Week beginning 4th December 2023 – Park Ranger noted on inspection that part of the weir had been undermined by water erosion causing a significant sudden drop in water levels in the river. The Environment Agency were informed. Cracks noted in brickwork.

10th December 2023 – Park Ranger reported collapse of part of the weir structure. Bridge was then closed, initially by CCC staff as a temporary measure, then Essex Highways did this more formally later the same day.

20th December 2023 – 30 x Tonne bags of ballast installed in river around part of the collapsed structure to try and prevent further erosion of the remains of the structure.

8th January 2024 – Middle Mill Weir Working Group established and first meeting held. Meeting now held fortnightly.

February 2024- Consultation responses received from user groups and professional organisations. Requested quote from 1st engineers for further survey works to structures. Lack of response meant a 2nd company was then approached to quote for the works later that month.

March 2024 – Contact made with Cricket Club regarding potential access over Cricket Club bridge and Risk Assessment of this potential diversion route. Met with Canoe Club to discuss concerns and interim options for operation. Riverside residents consulted with. Met with Essex Highways twice re bridge and diversion. Heritage Statement commissioned and received.

April 2024 – Munitions found on riverbank. Controlled explosion carried out in Castle Park.

Timescales given for survey were too long to proceed with second structural engineering company. A third was contacted to request a quote and timescales. Temporary bridge options investigated. Risk Assessment drafted for Cricket Club bridge access. New diversion route and signs agreed with Essex Highways.

May 2024 – 1st quote received for new upgraded security fencing at weir. New diversion signs purchased. Discussion with developer regarding opening up access for residents to access North Station Rd. by avoiding the steps.

June 2024 – New diversion signs installed. Further quotes received for new security fencing and ordered. 1st digital survey undertaken of structures.

Current

The electronic digital land survey has been underway. These surveys will be provided to our structural engineer who will use this to consider where further investigations are then required. This will then trigger quotes being obtained for those further investigations.

4.4 Options

There are further surveys currently being carried out to enable us to provide the specification for removal of the damaged and washed-out sections of the weir, including the last pillar that remains. This will need to happen sooner rather than later. The initial structural report confirmed that some sections should be removed, and that further investigation is required on others. This work needs to happen to make it all safe long term, even if the weir is not replaced.

Some sections of the old structure may be salvageable. If so, a decision would need to be made around any salvageable structures.

Going forward there are 3 main options to be considered:

- i. Replacement of the weir with a smaller weir structure to hold water levels slightly higher upstream. Environment Agency (EA) confirmed this would also need to include a fish pass structure.
- ii. Replacement of the weir structure similar to the original but meeting current laws/guidelines and EA requirements. Would need to include a fish pass.
- iii. Removal of the structure and allow river to re-naturalise.

For the first 2 options, planning permission and EA permitting would be required. (planning 12 weeks from submission and EA permitting 8 weeks)

A potential add-on option if the weir is not replaced, is to enhance the riverbed for wildlife by for example installing gravel bars and adding meanders. However, much of this process will happen naturally within the first few years. This would be a positive project to implement, considering the current climate emergency and residents' concerns regarding the 'look' of the river with less water in it.

4.5 Key Areas of Further Work (identified so far)

- Further survey work to inform specifications for works to remove the damaged structures safely.
- Apply for EA permit for removal works
- Continue to Liaise with Essex Highways representatives regarding the bridge and opportunities/requirements for joint works and sharing of information regarding surveys.
- Tender any works required for removal of damaged structures
- Provide options paper for formal approval of longer-term decision regarding the weir

- Apply for planning permission (depending on option chosen)
- Tender any works required for chosen option
- Ongoing management of Media, weekly updates and Councillor enquiries.

5. Equality, Diversity and Human Rights implications

- 5.1 The diversion that was in place Dec 23 – May 24 caused concern with residents who had to take a long detour, which is not a smooth surface for its full length. This was physically disadvantaging elderly residents, wheelchair users, parents with children and prams and for cyclists. These issues and concerns were highlighted to Essex Highways and working together an alternative diversion route was agreed, while slightly longer uses better surfaces and avoids steps. CCC then implemented this with new signage.
- 5.2 The diversion is the responsibility of the bridge owner Essex Highways, and the route of the new diversion is partly owned and managed by Essex Highways and partly Colchester City Council.

6. Standard References

Shown below in paragraphs 7-13.

7. Strategic Plan References

- 7.1 Moving forward this project will highlight a choice of options which are currently being researched. Consideration will then need to be given to their links to the Strategic Plan regarding the heritage nature of the structure and the opportunities for environmental enhancement of the river. In particular:

Celebrating our Heritage and Culture

- Enhance and promote our heritage by better revealing our assets by supporting projects and initiatives to increase public awareness and access to their heritage in daily life.

Tackling the climate challenge and leading sustainability

- Minimise the environmental impact of our activities.
- Enhance environments to create more space for nature to grow and thrive through natural seeding and greening.

8. Consultation

Contact was made with formal bodies who have an interest in the weir. They were asked for their formal opinion on the 3 broad options we are currently investigating. Those bodies are; The Environment Agency, Natural England, Anglian Water, Essex and Suffolk Rivers Trust, Essex Wildlife Trust, and Historic England.

Local community-based groups who are potentially affected by or who have local interest in the weir were also consulted. These include Colchester Canoe Club, The Civic Society, Colchester Natural History Society, CO1 North Residents

Association, Friends of Castle Park, Riverside Residents Association and Riverside Place (Residents)

Summarised below are the key points from each group, highlighting, where provided their preferred choice and key concerns. Full consultation responses are available in the Confidential Background Document however please note that permission has not been granted to share these publicly.

Formal Bodies

The Environment Agency (EA)

They didn't give a preferred option however pointed out the following:
The benefits ecologically of removing artificial structures that prevent fish passage and cause siltation of riverbeds.

The old weir structure didn't provide any flood risk benefit and there is no increase in flood risk because of the structure failure or its full removal if that option was chosen in future.

If the weir is not rebuilt, aesthetically the river will be very different from previously, with lower levels especially in the summer.

They were happy to consider a rebuild in some format and this would be considered fully by their permitting department as part of the mandatory Flood Risk Environmental Permit that would be needed to demonstrate no increase to flood risk from the proposal and that a fish pass had been incorporated.

They were happy for their responses specifically regarding [flood risk](#) and [environmental effects](#) to be shared publicly.

Natural England

No strong feeling on any one option and felt the Environment Agency were better qualified to comment on this. They noted however that there is land upstream of this area that is priority coastal and flood plain grazing marsh. It is not designated but should be considered regarding the impact of any new schemes.

Anglian Water (and Ardleigh Reservoir Committee)

Their preferred choice was a rebuild as close as possible to the original design to ensure that they had a continued water supply with no change in the hydrology of the river, and that fluvial processes return back to a similar state. They had significant concerns over the potential impacts on security of water resources and abstraction assets.

They asked for themselves and the Environment Agency to be consulted on with any new design. This was to be able to assess impacts on water quality, level and any flood risk.

Their main concerns however were around any engineering and construction remediation works that could impact on water flows and quality.

Essex Wildlife Trust

They were keen that no river impoundment was reinstated to allow the river to re-naturalise for the wildlife benefit and enhancement.

The weir is a major blockage to fish passage, and it is a priority for them to try and remove or bypass redundant river structures.

They provided a local example of a mill gate failure in Halstead where they were able to work with local volunteers to successfully create a more natural meandering river.

The collapse in Colchester provides a positive opportunity to enhance the river and consequently the town by improving the ecology, desilting the riverbed, allowing unhindered fish passage and allowing fish to find deeper pools in times of hot weather when oxygen levels can be low.

They provided this [video](#) to help explain some of the benefits.

Essex and Suffolk Rivers Trust

Their favoured option was the removal of the weir and allowing river and banks to naturalise.

They work with Essex Wildlife Trust and the Environment Agency to promote healthier rivers across Essex and this includes rectifying historic issues from past riverside activities such as barrier to fish migration.

They felt that impoundment acts as a barrier to wildlife connectivity for aquatic fauna and disrupts natural processes such as sediment movement, bed formation, and in some instances degradation of water quality.

They did acknowledge however that some structures have historical importance and that there are other benefits of them for other water users.

Historic England

They stated that the weir was not on their 'at risk' register but as a structure of local interest that we should ensure we work with the Planning Conservation Officer and also the County Archaeologist. They are best placed to assess the heritage significance of what is left and offer detailed advice on management.

Community Groups

Colchester Canoe Club

Would like to see the weir replaced and suggested a consultant engineer to work with to ensure that any new weir design holds the water high as previously and has a capacity to create a wave for use for white water/play boat training.

Higher water levels are essential for longevity of paddling year-round on the river for the club whose club house is upstream of the weir. Without this they felt it would be the end of the club and the accessibility they provide to water sports in Colchester.

They also requested some additional access facilities/pontoons either side of any new weir.

They also pointed out the good work they do environmentally through water quality monitoring and litter clearance.

The Civic Society

Their consensus was in favour of a rebuild of the weir and that they would like to see an Archimedes screw incorporated into it as well as a fish ladder.

They would like the weir replaced due to its historical connections to the considerable history of the mills on the site which is relevant to residents and visitors and gives geography of the area, meaning and context.

Colchester Natural History Society

They were keen that the weir was removed to allow the river to re-naturalise for the wildlife benefit and enhancement. They echoed the response from Essex Wildlife Trust.

They also suggested monitoring the ecological changes over time if the river was allowed to re-naturalise.

CO1 North Residents Association

Their favoured option was for the weir to be rebuilt as close to original design as possible and that financial implications should not outweigh other implications such as environmental and cultural/heritage ones. They also noted that although the weir is not a listed monument it is in a conservation area and as such comes with special considerations and stipulations for upkeep and preservation.

They felt that naturalisation of the riverbed was a cheap option rather than environmentally driven. They also had concern over potential further erosion of riverbanks. They also felt this would reduce the picturesque part of the river to an eyesore.

They felt that the decision needs to make financial sense but also needs to be for prosperity and amenity of the area and community that rely on weir and bridge.

They also considered an option of an alternative version of the weir and bridge that could satisfy all requirements of access over it, watersports use and a fish pass.

They emphasised the importance of the long-established right of way via the Middle Mill footbridge.

They would also like all the options to be openly discussed with other consultees and that dialogue between Essex Highways, and CCC regarding the bridge should be full and open and timely.

Friends of Castle Park

They felt that removing the weir was the best of the options presented.

Their caveat was that this should not increase flood risk for residents or adversely affect the function of the river as a wildlife corridor.

They also stressed the importance of the footbridge as a well-used route and also in connection with events in Castle Park.

Riverside Residents Association

Their preferred choice was a rebuild as close as possible to the original design to protect residents from flooding, and to maintain the pre-failure diversity / popularity / enjoyment of the flora and fauna along the length of the river as it passes through the City. They felt the two-weir system for up and downstream from the failed weir has been a proven and tested method for achieving this over some 70+ years. Any new rebuild would have to take into consideration potential increased flooding due to global warming.

They felt that a large number of their residents were vulnerable to flooding and required more data from the Environment Agency (EA) on flood risk. (*This has since been provided and is linked to this document*) EA's document includes some technical-speak and the residents subsequently would like to meet with EA Officers in order to have it explained. They feel that removal of the weir is gambling with the lives of their residents and could have financial impacts of their insurance.

They also had concerns about the aesthetic effects of the raised water level downstream from the failed weir, and the disappearing water flow upstream from it, the lower water level upstream has exposed rubbish, and resulted in drying out and cracking and loss of riverbank and erosion, evidence the number of mature trees falling into the river as their roots in the riverbank are undermined. They also felt that there had been a loss in birdlife in the area already. They are of the opinion that the stretch of the river pre-failure of the weir between it and the bridge in North Station Rd was a jewel-in-the-crown of what is an area of the City which is sorely in need of a: "Jewel".

They emphasised that the River Colne along this stretch – most importantly featuring North Bridge – forms an important visual aspect within this Planning Conservation Area.

Riverside Place (Residents)

They agree with the comments and concerns as laid out above by the Riverside Residents Association.

Summary of Key Points Raised

- There should be no increased flooding risk of the local area as a result of the option that was chosen.
- A more naturalised riverbed and enhanced ecological value was preferred by some groups and opportunities for this should be explored.
- Impact on upstream habitats should be considered.
- Consideration should be made of the old weir structure as a local heritage feature.
- Removal of the weir would potentially close the Colchester Canoe Club due to lack of water in the river for paddling year-round. Any new weir should also incorporate a facility to create a wave for training purposes. Additional potage points would also be helpful either side of the weir.
- A water supply should be maintained for the Anglian Water abstraction to Ardleigh Reservoir.

- Concerns had also been raised regarding the potential drying out of riverbanks and impact on local properties directly adjacent to the river.
- Consideration should be given to the fact the river itself had been changed and reengineered over time since the weir was built.
- The bridge next to the weir was an important structure for access in this area and needed to be retained.
- Consideration to the Planning Conservation Area should be made.

Work has already been undertaken to consider some of these issues.

A [Heritage Statement](#) has been commissioned and produced by ECC Place Services to look at the Heritage value of the old weir structure. In this it was described as a non-designated heritage asset, with regard to the National Planning Policy Framework (NPPF). The significance of the weir predominantly derives from its archaeological and historic interest. The feature also enhances our understanding of this historic route over the River Colne and its long association with the settlement of Colchester. The weirs formal statement of significance was graded as low for all areas (Archaeological Interest, Architectural and Artistic Interest and Historic Interest).

In its summary it was recommended that a desk based archaeological assessment (DBA) is carried out for any future proposed works to the weir. This will outline any significant impact that the engineering works might have on potential archaeological deposits.

If any rebuild is undertaken it was recommended to retain;

- All historic iron fixtures, gates and the wheel. Even if only retained in situ;
- Any historic watercourses below the weir; and
- The east elevation with brick arches, although this will be subject to the wider design.

Any new weir structure would be subject to a strict Environment Agency permitting process. This would involve a fresh flood risk assessment.

Any new structure would require Planning Permission and Historic England have asked to be a consultee on this.

Structural Engineers have been contracted to look into whether there are any risks to adjacent properties as a result of the lower water levels.

The possibility of the incorporation of an Archimedes screw into any new weir design has been investigated and discounted as a possibility as this would not be financially viable.

9. Publicity Considerations

- 9.1 A site meeting took place to address concerns from local community groups and Councillors.

- 9.2 As a result of that meeting, a weekly update was introduced to keep these specific groups up to date with progress. This group is limited to those specific groups with a direct interest in the works.
- 9.3 Any significant actions are being published via a press release from the CCC Communications team who are being kept up to date on progress.
- 9.4 The portfolio holder is being kept up to date on progress
- 9.5 This paper forms the 2nd update paper to the Scrutiny Committee.

10. Financial implications

Initial high levels costs for removal of the structure and installation of the new weir structure have been received. These are included in the Confidential Background Document. The company were not able to formally quote for the replacement option at this stage, until they know what work we planned to do around removal first. This will determine the required work and the price. Currently we are awaiting the results of the surveys which will start to enable designs to be drawn up, from which we hope to be able to draw up specifications for works to be able to tender.

On discussion with the EA, it has been advised that a fish pass would be required for any new structure, and this could cost up to £100k potentially (dependant on design) on top of costs already quoted.

Funds have already been spent or committed on the following items;

- Structural engineer initial surveys
- Contractor works to place protective bags of ballast
- Structural Engineer to advise on required survey works and to tender for contractors to carry out subsequent surveys. They will also produce the required reports to make recommendations and help us understand the results.
- Purchase and installation of new security fencing.
- Design and production of new diversion route signs.

11. Health, Wellbeing and Community Safety Implications

- 11.1 The lower water levels have exposed the riverbanks and this has led to 'mudlarking' activities. This resulted in finding unexploded munitions and the exposure of rubbish.
- 11.2 Park Staff have written a risk assessment to allow them to continue to remove rubbish where accessible and are awaiting UXO training and will be carrying out a thorough survey of the riverbanks with help from the MOD.
- 11.3 Concerns have been raised regarding the new 'look' of the river with the lower water levels that are currently considered to be visually unappealing. If left, the river will naturally regenerate and the banks will quickly revegetate so this is a temporary situation, however it will look different to previously if the weir is not replaced or in the short term while a decision is made and implemented.

12. Health and Safety Implications

- 12.1 The current health and safety issue for the public lies around the bridge closure which the public are regularly trying to breach rather than take the longer diversion route. The responsibility of this closure and diversion ultimately lies with Essex Highways however we are working together on this due to the integrated nature of the structures.
- 12.2 CCC Park Rangers are doing a daily check on the fencing to help with monitoring this and reporting of any issues. They are also monitoring the remains of the weir structure for any further deterioration of which there has been some since the initial collapse.
- 12.3 The safety herras fencing that was installed to stop access to the bridge and the weir structure has been heavily abused over the last few months and is near the end of its serviceable life. Quotes have been received for a more substantial and taller fence which has now been ordered and this is due to be installed over the coming weeks. This will also improve the temporary look of the area which there have been concerns about.
- 12.4 CCC Health & Safety Officer is fully informed of the situation and forms part of the Working Group to ensure this is considered in all aspects of the work.
- 12.5 Essex County Fire and Rescue Service were informed after the initial collapse.

13. Risk Management Implications

Corporate Risk

There is a financial risk of further collapse causing damage to the Essex Highways owned bridge immediately downstream and integral to the structure. This risk is lessened during the summer months with lower water flows.

Any change in river flow raises concerns from the public regarding potential flooding.

Concerns have been raised regarding longer term structural effects of lower water levels on the riverbanks and questions have been asked about the knock-on effect for structures next to the river.

With lower water levels we will not be able to refill the boating lake at Castle Park during the summer months or after any clearing out. We are considering the immediate and longer-term implications of this with the current lease holders.

Community Aspect

In approx. 1993 Colchester Canoe Club started use of the weir for white water practice, training thousands of canoeists over the years. For the last 3 years it has particularly benefitted their freestyle team with a member becoming junior European champion. The junior section of freestyle is very successful with 3 members undertaking initial training with the British junior team. The canoe club are keen to have the weir replaced with a wave creation facility and to have improved canoe access (portage) either side of the weir (effectively platforms for getting in and out of a boat).

There are concerns about the exposed riverbed mud looking unsightly and being smelly with frequently exposed rubbish.

There are concerns regarding loss of access over the Middle Mill bridge and the effects of this for locals and visitors to the area.

Property

The estates team have checked ownership. The weir is owned by Colchester City Council and the bridge is owned and maintained by Essex Highways.

Flood Risk Aspect

An initial meeting was held with Environment Agency representatives on 22 Jan 2024 and they confirmed that there is no increased flood risk resulting from the loss of the weir. A formal response has also since been provided in writing and shared with the weekly updates.

Heritage Aspect

The structure is old and had good aesthetic value. It had some repairs particularly to the water wheel which was removed and repaired in approx. 2000/2001 along with brickwork repairs in the chamber. Historic England have been asked for their opinion and confirm that the asset is not designated, and as it is not on their 'At Risk' Register, it would likely not be eligible for their grant assistance programmes unless the weir serves a purpose in protecting other nearby designated heritage assets from river water damage.

Water Quality

Anglian Water have been consulted and there is the need to continue to inform them of any works causing disturbance which may cause siltation of the water or add any other debris to it. This directly effects their abstraction point upstream of East Bay Weir. (downstream of Middle Mill).

14. Environmental and Sustainability Implications

14.1 Opinion has been sought from the following key bodies:

Environment Agency, Natural England, Essex and Suffolk Rivers Trust, and Essex Wildlife Trust. Consultation feedback suggests that the complete removal of the weir structure could have positive longer term environmental benefits.

14.2 There are other examples of where weirs have been removed successfully for the benefit of wildlife such as at Halstead.

15. Background documents

Confidential background document: full consultation results, and cost details.

