Lower Mole Flood Alleviation Scheme – Questions and Answers

The following questions were asked by members of the public via the Lower Mole FAS engagement website between the dates of 3 February and 1 April 2021. All the questions and answers were published on the website. For publication on this website all names have been redacted.

Q: The latest consultancy is the same as the last one with a slightly different communications approach. As a community we have previously shared option 3 is the only viable option for all parties. In the previous consultation, local residents produced evidence that clearly demonstrated the EA's cost assumptions are incorrect, impact on wildlife assessments neglect biodiversity present in the existing water levels and dramatically lower water levels breach property licenses and create a physically drop hazard for many residents. None of these have changed. Please can you confirm you are taking the previous information into account as part of this consultation?

A: We have recorded all the feedback from the previous conversations with the community and can confirm these have been taken into account as we have reviewed and updated our options. We can also confirm that all feedback we receive during our current conversations with the community will also be taken into account as this project progresses.

Q: Where can we vote for which option we want?

A: In response we've added a new question into the survey which specifically asks about your option preferences. You'll find the survey on the 'Join the Conversation' page.

Q: Is there any possibility for incorporating small-scale run-of-river hydro power schemes in the replacement of existing control gates? Has that possibility ever been investigated, evaluated or considered?

A: Yes, we've discussed the potential use of hydropower along the scheme with residents in the past, however initial workings indicated it would not generate enough electricity to justify the investment. Hydropower generation requires strong river flows all year round, something this stretch of river cannot provide. While the Environment Agency issues the required permits and regulates hydropower schemes, we do not fund or install them. However, if you were keen to find out more about the potential for hydropower here we would recommend making contact with specialists in hydropower installation to find out more. We are supportive of sustainable hydropower schemes and we work closely with scheme developers to make sure their plans do not harm the environment or impact on flood risk.

Q1: There seems to be preoccupation with fish stocks and their migration. Were other species - small mammals, birds (especially herons, kingfishers, cormorants, terns etc.), amphibians, invertebrates considered - they also use the precious green corridor afforded by the Mole and Ember? Q2: Has the EA given up on controlling the spread of floating pennywort unless certain

options are chosen? I cannot understand why the EA "..has no ability to reduce pennywort." It used to. During the last two weeks some local canoeists removed all the pennywort from the Mole using a saw and hard work (as shown on local BBC1 last week).

A: The intention is to improve both aquatic and terrestrial biodiversity as part of the work to update the scheme. As the project progresses we can design habitats and features that support a range of species including mammals, birds, amphibians and invertebrates. We have considered all species by carrying out a range of surveys, including invertebrate, protected species and river corridor surveys. These consider both terrestrial and aquatic species and habitats. The results of these surveys will be used to assess any impacts once the project reaches the stage where it is possible to choose an option to update the scheme. Where possible, we will seek to improve aquatic and terrestrial biodiversity as the scheme is updated. The options we are sharing offer different ranges of opportunities to improve biodiversity. Under Options 3 and 4 aquatic habitats will, for the most part, remain similar to how they currently are. Options 5 and 6 would allow the river to flow more naturally and support the creation of more diverse habitats able to support a range of species, increasing biodiversity. For example, reedy margins could be established to support nesting birds. Aquatic plants could then provide food and shelter for a variety of species, including invertebrates. At the detailed design stage of the project, we will look to see where and how we can enhance or create habitats and features to support a range of species.

Regarding your second question, we can confirm that we still continue to work to control floating pennywort. However a few years ago, we had to take the very difficult decision to concentrate our efforts in controlling this invasive non-native plant. Up until that time, we had tried to keep all channels downstream of Hersham clear, but this was not sustainable following a reduction in resources available to us. We still work to ensure that we can keep the engineered flood alleviation channel clear of pennywort, together with the lower section of the River Mole. We also work to raise awareness with riparian owners along the upper section of the River Mole about the management of pennywort. The pennywort is increasing again above Wilderness Weir in West Molesey, and this is the area that was featured in the local BBC news. We understand that unfortunately, the clearance did not follow Biosecurity guidelines and resulted in mats of pennywort reaching Zenith Weir downstream. Due to high river flows, the pennywort was washed out to the River Thames, increasing the spread of this plant.

Q: Why are the towpaths currently closed off to access? Why is access to recreation like open water swimming and paddle boarding not supported now, they should be, could be?

A: Whilst some sections of the access track adjacent to the river are available for public recreational access, unfortunately it is not currently possible to walk the entire length of the Ember and Mole channel downstream of Hersham. This is due to a number of reasons. Firstly, the Environment Agency does not own all the land alongside the channels. Secondly, the access tracks downstream of Esher Road are

only available to those residents who hold Amenity Licenses. Finally, our land at Spa Meadow is an operational depot, which is also used to store equipment and therefore needs to be locked for public safety and security reasons. As we progress decisions on the future of the scheme we are very open to further discussions on the public accessibility of our land, and exploring options with other landowners. We understand that many residents do swim, kayak and paddleboard on the engineered Ember channel, particularly those with Amenity Licences downstream of Esher Road. Although the river is not classified as a formal navigation, others on the upstream reaches of the Mole and Ember enjoy using small boats, and the British Canoe Union have an agreement in place for their members to use the Ember channel. We do look to try and increase public access at our sites and on land that we own when this would not adversely impact on our ability to operate structures or impact on the management of health and safety. Only a small section of the River Mole is within the Environment Agency's ownership, therefore to give permission to use the river recreationally is not wholly our decision. It's also important to note that the Ember channel does contain a number of structures with large sluice gates that need to be operated. Therefore public safety and our ability to operate these structures would need to be carefully considered alongside making provision for open water swimming for example. However, as the project moves forward and once a decision on the future of the scheme has been agreed, it is still possible that we could explore the expansion of recreational use.

Q: Hi, I am a local resident and a keen fisherman and have spent many times fishing in the area. I read all the survey information you have gathered and would like to see your proposal to create fish passes at the weir sluices, but the real problem is the way that you control the flow and depths in the river. I fished the ember relief channel one day and the flow was good, height was good, the next day flow was slow, depth decreased dramatically, this creates big problems, fish like consistence. I also noticed you have shut the small water gate at the Grove way meadow that feeds the water going into a back water flowing through ember Court and returns into the ember relief channel below island barn sluice, this is now a trickle of water which has caused the fish to go back into the ember relief channel, this is causing problems because the fish spawn in this small part of the river at cow Common, i.e., no water, no fish. The pennyweed at the top end and ember Court is terrible again this is due to you shutting down the water flow supply. The river mole on molesey heath was a very good fishery but now the river is in a disgusting state, pennywort everywhere no flow, this is due to you again not letting enough water into the mole, I also noticed many trees fallen into the river. I'm sure this could be managed much better if the vegetation was controlled. Banks cut properly and the river bed cleaned and the flow increased, coming off this part of the river is the dead river which should be cleaned up to allow for fish habitation. I am very pleased you are planning to update the lower mole River flow and fish passes, and hope the river will return to a premier fishery because at the moment the river flow and weed are a mess. I appreciate when there is a lot of rain the water has to be run off but I'm sure this could be done so it's not run off too quick, thus allowing the fish to adapt to the flow. Also

what would be good so everyone could enjoy the river would be to open a towpath the full length of the relief channel for all to use. Many thanks.

A: Our designs for fish passes at Zenith and Wilderness are on the main citizen space page under supporting documents. We do not currently have a drawing of the proposed fish pass at Viaduct as the design has changed since the drawings were originally produced. We do endeavour to keep water levels within a constant band and to this end we have 'penning levels' set on each of the weirs. We are able to monitor the low/high water levels through telemetry. During the numerous high rainfall events recently we have had to operate the Scheme on many occasions and whilst we do this in a measured controlled way, there will be fluctuations in the levels. Over the past year we have been carrying out significant works at Viaduct, Island Barn and Royal Mills Sluices. To help to facilitate these works it has been necessary to lower levels temporarily to ensure safe access for our contractors. Whenever we do lower levels, we do so with full consultation and the consent of our Biodiversity and Fisheries colleagues, and we ensure water levels are restored as soon as possible. With regard to the Grove Way penstock at the Ember loop off-take, this is left fully open. Occasionally the screen in front of it will collect some weed which may hinder the flow, however when this happens our Field Team do clear this. We have recently been made aware of an issue with another penstock at the lower end of the loop which is not sealing as it should and therefore more flow than usual is getting through. We have met with the owner of the penstock and a repair is in hand. With regards to pennywort for option 6 we have assumed that downstream of Royal Mills and Ember Loop sluices, where river flows and depths would be reduced we have assumed that Pennywort would improve as it would be out competed by other wetland vegetation here. For Options 4 and 5 we are expecting no change in Pennywort unless specific management measures are implemented. Once we have a preferred option we will be able to determine how Penny wort can best be manged.

Q: I live on Molember road with my house backing onto the River Mole (I think this is the side corridor?) and just upstream of zenith I think. Please can you tell me how my water levels will be affected by the various options - I can't find this information. If you can give this by metres that would be great. Thanks.

A: The voiceover presentations on the 'what are the options' page do not include graphs of the River Mole channel upstream of Zenith Weir as we are not intending to change the height of Zenith Weir which is the main factor on controlling water levels in this reach. There will be no change in water levels for all options with the exception of Option 6. There would be reduced flow in the River Mole channel in Option 6 due to the lowering of water levels upstream of Island Barn sluice with removal of the gates at that structure. However, this is not expected to affect water levels upstream of Zenith Weir significantly. Our current river modelling shows a 0.14m drop in water levels upstream of Zenith Weir during typical daily river flows for Option 6.

Update 16.2.21 - Just to let you know we have created a new presentation which contains all of the water levels graphs. It can be accessed via this link

https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/water-levels-along-the-mole-presentation.pdf.

Q: Our house backs onto the River Mole on Pelhams walk. How can I see the impact of the water level at the bottom of my garden for each option? Thanks

A: On the 'what are the options' page, there is a presentation for Options 3-6 which sits alongside the summary pages. Each of these presentations contain a long section diagram, which show the estimated water levels between Hersham and Molember. On the long section diagram, the location of Viaduct Sluice and the A244 are marked, Pelhams Walk is located in the reach of the river between these two points. An estimation of how much the water level could reduce under each option can be seen by comparing the solid green line, which represents the present day water level, against the dashed orange line, which represents the estimated water level for each of the options, on the long section diagram. The difference between these two lines can then be compared against the vertical axis which shows the height above sea level in metres.

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Q: Can you add some sections that would flag what it would mean for the people who live directly backing onto the river and what it would mean for them?

A: The summaries and information sheets included on the options page will give you more details about the potential options and what they mean for the various structures and stretches of the Lower Mole. In addition, on the options page there are voiceover presentations which contain a long section diagram, showing the estimated water levels between Hersham and Molember for Options 3-6.

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Q: Under options 4, 5 and 6 will there even be a river between Albany Bridge and viaduct sluice if the water levels can drop by 2 to 3 m?

A: Information on estimated water level drops (where applicable) are contained in the voiceover presentations for Options 3-6 which sit alongside the summaries on the options page. Each of these presentations contain a long section diagram, which show the estimated water levels between Hersham and Molember. Our surveys have shown us that with Option 4 there is no change in water level at this location. For options 5 and 6 the graphs do show that there will be a depth of water between Albany Bridge and Viaduct Sluice. An important factor in this is that the Railway Viaduct foundations are expected to impound water upstream of them. The depth of

the river varies as a result of the varying level of the river bed, for options 5 and 6 the variability in depth will remain.

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Q: A helpful graph has been created to show the drop in water levels for option 5. Why only this option? Is this the preferred option? Sections of the river where widened as part of the original works which seem to correspond to the largest falls in water levels. Will the natural river banks be restored to their former dimensions and thereby reducing the impact to water levels for all residents living along the river's edge?

A: Information on estimated water level drops (where applicable) are contained in the voiceover presentations for Options 3-6 which sit alongside the summaries on the options page. Each of these presentations contain a long section diagram, which show the estimated water levels between Hersham and Molember. No decisions have been made on the selection of a final option for updating the scheme; and will not be until we have considered all feedback from this round of engagement. None of the options propose to restore the dimensions of the banks to their pre flood alleviation scheme dimensions (i.e. pre 1980s) as the flow capacity of the channel is still required to convey high flows to ensure that flood risk does not increase. The capacity of the channel that is a result of its current dimensions is key to the management of flood risk, and restoring the banks to their former dimensions would involve reducing this capacity by building into the existing flood alleviation channel.

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Q: If an option is chosen that involves removal of sluice gates will this require the Thames Flood Model to be changed and if yes what are the timescales. If no why please?

A: Should an option be chosen that involves the removal of sluice gates at Molember, updating the River Thames model would be investigated and considered, as the two rivers interact around this area. The removal of the sluice gates at Molember would create more space for water from both rivers as water would not be impounded within the River Ember channel. No decisions have been made on which option may be taken forward to update the scheme. We would work with the River Thames modelling team to assess any modifications to the current flood model should there be any indication that a preferred option may include the removal of Molember sluice gates.

Q: The summaries on the early options mention that they will not help with the pennywort. The later options are silent on the matter. What effect will options 4, 5 & 6 have on the management of the pennywort?

A: Floating pennywort thrives in aquatic environments with little or no flow, including ponds and lakes. Under Options 4 we would expect to see little change in the prevalence of floating pennywort unless specific management measures to control pennywort are implemented. Under Options 5 and 6, where depths are reduced and river flows increase we would expect floating pennywort will reduce due to the change in habitat and river flows.

Q: Options 4 through 6 reduce the risk of flooding, which is projected to become more likely to occur due to climate change. However, the flip side of climate change is long hot periods during which the lowered water levels inherent in those options might give rise to the drying up of the rivers, particularly the Ember. Have you assessed this risk and the devastating effect this would have on wildlife and amenity?

A: Climate change is expected to make flood risk worse in the future and we do include the impact of this in our appraisal process. We do this by incorporating percentage increases in river flow and/or rainfall intensity into our flood risk modelling and mapping. These percentage increases are taken from our national guidance which uses the latest climate change projections. We have also considered the impact of low flows as part of our options by considering the Q95 flow. We have used the recorded present day flow records for the gauging station at Esher to summarise the flow characteristics for the river. By summarising the present day flow records at Esher gauging station, it is possible to gain an understanding of how often, or the probability of, a given river flow being exceeded. This is usually expressed as the percentage of time that the flow in a river is greater than the stated probability. Q95 is the flow exceeded 95% of the time and is considered typical of a dry summer flow. The work that has been done to date on fish passes has used the Q95 flow, as this is the lowest flow for which the fish pass would need to work. The graphs on the website show water levels with what we refer to as a Q50 flow which is the average flow from the record, or the flow which is equalled or exceeded 50% of the time.

Q: Option 1 doesn’t sound like it should be an option as it just postpones the problem and could result in bigger problems in the near future. Option 6 seems by far the most sensible but it would be good to understand what the result might look like (the major downside). How bad would it be and couldn't the most ugly/dangerous structures be removed?

A: With regards to Option 1 this is a requirement of the appraisal guidance in order to set a baseline to compare the other options against. Under Option 6, the water depth would be reduced along the reach of the scheme due to the removal of the sluice gates, and the impounding effect on the river the presence of the sluice gates results in. The river would then find its own meandering course within the existing footprint of the channel, with more diverse flow types, creating a mixture of faster flowing shallow gravelly areas known as riffles, and deeper slower-flowing pools. As the engineered river channel is used to convey high river flows, this will remain, and the current options would see the concrete piers at the structures remain within the engineered river channel but elements such as the walkways and control buildings

removed. Reedy margins could be established along the river and aquatic plants would have the opportunity to grow within the river channel. Opportunities to make visual improvements to the way the scheme looks, including ideas such as the potential for the use of timber cladding to screen sheet piling, use of marginal planting and establishment of vegetation will be fully explored with the community as the project moves forward.

Q: How is the time value of money accounted for in these schemes? The summaries mention "approximate whole life cash cost over a period of 100 years". Are these values escalated? Does adjusting the estimating basis reduce the gaps between the different options or provide other insights?

A: Our comparison table on the main citizen space page presents the whole life cash costs which is the costs for design and construction of any changes to the scheme now and future operation and maintenance costs over a 100 year period with no adjustments. In our full options table which is attached as an information sheet on the options page also present the whole life present value costs where costs anticipated in the future such as maintenance, operation and asset replacement are discounted to present day values. We also set out the present value benefits of each option which are also discounted to today's prices. A definition of present value costs and benefits is included in the definition of terms at the end of this table. These two values allow us to fairly compare options using a benefit cost ratio to assess their economic viability. As you can see from the table there is less of a gap between the present value costs of options and the cash cost of options due to the process of discounting, though there are still differences across the range of options.

Q: I live on the northern bank of the River upstream of Albany Bridge. Your option to remove Viaduct sluice will effectively drain the river at the bottom of my garden from your current noted depth of approx. 1.9m, to a depth of approx. 20cms. This will reveal a strip of land of a various width and create a new southern border to my property. Who will own this land, who will manage this land? Will the EA compensate me for the lack of access and amenity and security that I bought with my property some 20 years ago? Also I have the flood defence wall running through my property, plus a Penstock. These have development. Planning and access caveats in my Title Deeds. How do you propose to address those?

A: We don't envisage the ownership of land to change due to the proposed scheme and the status of the flood defence currently situated on your land will not change. If you feel you will suffer a loss due to the proposed scheme then there are provisions within the Water Resource Act 1991 that can compensate land owners for any losses suffered in line with the compensation code.

Q: What are your plans for the flap valve situated alongside Hampton Court Way which protects the ditch from being flooded by the River Mole? Would it become obsolete under those options to reduce water levels or would it be replaced should water levels remain the same? It is part of the existing flood defence scheme and as such is an ageing structure too. It failed in 2014 and

that lead to a severe risk of flooding to properties nearby. I note it is not mentioned anywhere in any of your proposals.

A: We have not considered any of the Mole Scheme flap valves specifically in our options but there is a general assumption that any such assets which form part of the flood defence would continue to be maintained and replaced as required. In fact with regard to this Penstock and flap valve located immediately downstream of Hampton Court Way, we can tell you that we have some improvement works planned for this year. We are exploring options to fit a gearbox or similar to the penstock to allow for easier operation.

Q: On the graphs in the various presentations you show the sluice gates and you mention the graph starts in Hersham. How far is the start before Albany Bridge and where is the starting point? Trying to gauge what the reduction in the levels around Riverside Drive and Pelham's Walk could potentially be.

A: The A244 marked on the graph is also known as Albany Bridge. Riverside Drive and Pelham's Walk are located adjacent to the river between the A244 (Albany Bridge) and Viaduct Sluice. The starting point for the graph is immediately downstream of the A3 which is a distance further upstream on the River Mole.

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Q: Living on Riverside Drive, Esher the bank was replaced by iron pilings with a concrete top in the original scheme. The water level was lowered by at least a metre a few years ago and has remained at that level since. This has never been properly explained. The reduced depth of the water means that we are unable to access the river for recreational activities. Will any option enable the level to be restored to what it was? Many thanks.

A: We would welcome the opportunity to discuss further your observations of the 1 metre reduction in water level that took place a few years ago. This has been mentioned by several other residents along this area of the river in the past, though our records of the river level taken at the sluice structure downstream do not seem to show this level reduction. Some years ago, in order to safeguard backwater river habitats at times of summer low flow, we adjusted the level of the weir downstream of Royal Mills. We installed blocks/spacers under the counterweight of the structure permanently lowering the levels by 200mm. In summary there just isn't enough flow in a warm summer to maintain flow over both Royal Mills and Viaduct weirs downstream. In March 2020 we noticed the wire rope on one side of the gate at Royal Mills was no longer supporting the gate with the water levels upstream reducing as a result. This would have added to the 200mm lowering as explained above by about approximately 400mm depending on the flow. We carried out construction work to address this issue which necessitated lowering the river to reduce risks to our teams working on the structure. Our work at Royal Mills ceased in December 2020, which allowed water levels to return to a higher level. Since then

we have had a number of days of rain resulting in us having to operate the Lower Mole FAS on numerous occasions and this may be why it seems that the levels have reduced to nearer the figures you mention at your address. Whilst our work at Royal Mills has restored the water levels upstream, unfortunately it does not appear these works have returned the weir to full operation.

Since the work in December 2020 was completed we have noticed several times that the weir gate and its fixings shake and rattle in an abnormal way. At present, we are not sure why this is happening. Our contractor will be back on site circa 22 February 2021 to investigate further. As part of this work we will be lowering the river upstream of Viaduct sluice by about 1m to allow access for further repairs. This will in turn lower levels at your address. Based on the current programme it will take approximately 3 weeks to complete the works. Normal levels will be in place for the weekend and overnight at least once during the week to allow flow downstream of Royal Mills during this period. Once the above work is completed then the level will be at what is referred to in the original design drawings from the 1980's as 'penning.' If you would like to discuss this further please email FASProject.LowerMole@environment-agency.gov.uk with your contact number and a member of the project team will get back to you. Our options which retain water levels upstream of Viaduct (Options 3 and 4) aim to retain the existing target water level of 12.1m AOD through retention of Viaduct Sluice and Royal Mills Sluice. Options 5 and 6 lead to a reduction in water level as shown by the water level graphs included in the options.

Q: For each option what is the probability of a one time major flooding event occurring

A: Our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. All the options considered will ensure a standard of protection of 1:100 (flooding once in a hundred years annual probability over the duration of the 100-year appraisal period) allowing for the expected impacts of climate change increasing river flows. For Options 5 and 6, as there is less impoundment and a greater flow capacity within the engineered River Ember channel, there would be a reduction in flood risk compared to the present situation in rare flood events of 1:1000 annual probability.

Q: Does the environment agency have an obligation to consider water levels that may adversely impact residents by the river?

A: Whilst there is no statutory obligation to consider water levels we do have the powers to carry out flood risk management works. It would be helpful if you could provide us with some further context to your question so that we answer it more fully. Please feel free to contact us via FASProject.LowerMole@environment-agency.gov.uk with any additional details.

Q: How will you ensure that everyone adversely impacted by these plans are aware of their impact and have chance to comment? There are very few people who have to date done the survey or subscribed to updates on the project which worries me that people are just unaware. With lockdown, people are

super busy - juggling working from home and home schooling, I am hugely worried that this is not the time to be having a month's window to get the publics opinion. This feels to be me a chance for the EA to push through with minimal local input.

A: We have used a number of ways to reach residents and to let them know about our interactive website. As some of the methods of advertising the project that we would normally use, such as notices in local public buildings, are not available at the current time, we have looked for other methods to reach the community. We have still been able to carry out a large scale mailing of letters to the area around the scheme to set out the details of our website, and the range of different ways that feedback and comments can be sent to us. We have also worked with Elmbridge and Surrey Council to help raise awareness of our website within the community. For example, a link to our website is available through the News section of the Elmbridge Council website. Local groups have kindly posted links to our webpage on their digital platforms, and we have made direct contact with a number of residents groups, landowners and local businesses. We have also put a number of posters along the scheme at access points which advertise our website, and how the community can get in touch with us. Our interactive website is open for 7 weeks, from 3rd February 2021 to 24th March 2021. No decisions have been made on which option may be taken forward to update the scheme. After the 24th March, we will take time to carefully review all of the feedback we receive from the community, and will then share our findings with you. When the website closes, it will not be the end of our conversations with the community about the future of the scheme, we intend to keep the conversation open as the project moves forward.

Q: The graphs that show the reduction in water level are hidden in the long you tube clips so can be easily missed and difficult to compare one with the other. Can you please save them on the website to ensure they are not lost? I note your response that the info is there already. However it is well hidden.

A: We are sorry that you feel the water level graphs are hidden within the overall presentation for each of the options. This was not our intention. Following your feedback we are currently working on putting the water level graphs in one place to make it easier for visitors to the website to access. By doing this it will make it possible to more easily compare one with another.

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Q: Option 6 does seem the most sensible, but what will both the rivers look like at various part in 1) very hot summers, limited rain, 2) very wet summers / winters - I would like to see visuals i.e. for ember farm way residents, summer road residents etc. Will the ember dry up completely in a bad year? Also the spend for option 6 will depend on how much hard landscaping /tree planting/additional rock structures, reed banks and beds/ claddings and other enhancements take place, particularly the hard engineered areas to make

these look aesthetically okay and more natural. Again better visualisations of these are required. These need to be done earlier so people have a better idea of these, let's also see how you would have access to the river achieved, if the water height will vary. The more that is done to enhance and naturalise the higher the initial spend will be but that can only be right.

A: The visualisations of the river for the Molember area can be found on the options presentations which can be accessed via this link https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/option-summaries-and-presentation-video.pdf. We will review these visualisations to understand what else we can provide to help picture what the river could look like for Option 6. In Option 6 the River Ember, which is the engineered flood relief channel, is very unlikely to completely dry up as there will always be a flow from the significant upstream catchment of the River Mole. However as indicated by the long section water level graphs in the options presentations, the depth of water will be lower in options where sluice gates are removed (Options 5 and 6). It is correct that the cost of Option 6 will depend on the details of the mitigation and enhancement measures that are included. The current costs include spend on these measures to be put in place, however these costs will be refined should this option be taken any further.

Q: I previously asked a question about restoring the banks where they were widened for the original project. The reason for this was that the EA had agreed (back in the day) to maintain water levels at a sensible height, which I understand was a compromise for taking land to enable the widening of the river banks. What is the justification now to ignore this and leave residents with near empty river banks for the majority of the year (options 5 & 6). Your graphs are misleading as they assume what you refer to as Q50 flows which is an average of past water levels. This will include those rare events where there large volumes of water flush through. This will far exceed the real annual average which means these graphs are using skewed data points and the rivers will be at minimal levels for the majority of time. In an attempt to pre-empt your response will you publish this data - a raw excel file is fine.

A: The sluice gates were installed during the construction of the scheme for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. The priority for the project is to maintain the current standard of flood protection the scheme currently offers into the future. Should an option be chosen which would see the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do, and provide protection against flooding to the area. Regarding the graphs using the Q50 data, we do not believe using these flows and levels is misleading. This is an average of the historic records at Esher gauging station which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however this does provide a representative average water level.

Q: Under option 5, what do you mean by Flood Channel: repair river banks? Install berms and groynes? And where exactly are you planning to do this any of the 3 items. Why are repairs required under this option? I assume you are aware that there is a major aviation fuel pipe that runs along the mole river bank that will now be more accessible under some of the options.

A: The flood channel refers to the artificially enlarged and engineered River Ember channel that carries the majority of the river flow. Repairing the river banks refers to reinstating the banks in locations where temporary repairs were made using rock filled bags following damage that occurred during the high flow events in the winter of 2013/14. These areas are mainly located downstream of Island Barn and Viaduct Sluices. The intention is to replace these rock filled bags by reinstating the bank of the river channel. Berms and groynes are natural materials which can be placed within a river channel to help with the formation of a low flow channel within a river. The installation of any berms and groynes would be undertaken as required to assist in the formation of a low flow channel in the base of the River Ember. The service and utility searches that we have carried out as part of the project has highlighted to us the presence of the aviation fuel line which run close to Viaduct Sluice. When we have been planning to carry out works at Viaduct in the past, we have made contact with the pipeline owner to understand their requirements for safeguarding this piece of important infrastructure. Once we understand what option is to be taken forward and what any future works may look like, we will again be able to have detailed discussions with the pipeline owners.

Q: Someone asked a question about why is the EA in such a rush if it really wants to engage with the community. It's taken the EA years to assess the situation with a disastrous attempt last summer at engaging with stakeholders with its consultation. One learning point from last year was surely that the EA needs to listen more and provide all stakeholders with ample time to understand the proposals. So why don't you extend the period that this website is open to facilitate this, or is there a reason this is being rushed?

A: No decisions have been made on what option may be taken forward to update the scheme or how the scheme may look in the future. When our interactive website closes, it will not be the end of our conversations with the community about the future of the scheme. After 24 March, we will take time to carefully review all of the feedback we receive from the community, and will then share our findings with you. We will continue to speak with the community and stakeholders as the project looks to move forward, and to carry on sharing information on this project to hear what the feedback is.

Q: I don't pretend to understand all this but 40 years ago when the present scheme was being designed it was obviously considered that the sluice gates were necessary to control the water flow in order to alleviate flooding. This was - I think - seen as an essential part of the overall scheme which has worked well in that there have been no major floods in the area since 1968. Some of the options now involve removal of the sluice gates and it is stated that this would improve flood prevention. This approach seems to be the

opposite of the 40 years ago one. What has changed please? How can removal of the gates improve the flood situation if they were previously considered an essential part of it?

A: The River Ember channel is significantly larger today than it was prior to the works carried out to create the scheme during the 1970's and 1980's. Flood walls and embankments were also added as part of the scheme design. The River Ember channel was designed with sufficient capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes and not to reduce flood risk. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they have to be opened to allow the water to pass. On this basis if the sluice gates failed to operate flood risk would significantly increase. In summary the sluice gates are not required to reduce flood risk and if the sluice gates were to be removed, the flood relief channel would continue to convey flood flows as it was designed to do. If an option were chosen which included the removal of the sluice gates, the capacity of the channel would be increased as water would no longer be stored, or impounded, upstream of the sluice structures.

Q: Please can more time be spent on ensuring the impact on water levels is more clear to residents who live on the river. One neighbour flagged on our road what's app group that they had reviewed the website, listened to the videos and had concluded that options 5 and 6 would have no impact on water levels in Pelhams Walk / Riverside Drive area. This is clearly not true as they would have a devastating impact on water levels of up to 2m. This does flag that even for those that do spend the time visiting your website, people are not understanding the impact of your proposals, which is very concerning.

A: The water level graph on the presentation for Options 5 and 6 shows Viaduct and the A244 which Pelhams walk and Riverside Drive sit between. The information you reference is on the website but it seems not everyone is understanding it. This is useful to know. We have created a new presentation which contain all of the water level graphs, and have also updated these graphs to include street names so there are more reference points to show the water level at different points along the river. This presentation can be accessed via this link: https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/water-levels-along-the-mole-presentation.pdf.

Q: I am against any proposal for significantly lowering the river level for the following reasons: after experiencing an "accidental" rapid drop in level twice over the past few years, I have seen the devastation it caused to the current river banks. The first time it happened we personally lost all our reed beds and about 1.5 metres of garden. The second time it occurred, in June 2016, our neighbours experienced extensive damage to the bottom of their garden and we again lost more reeds and soil. Now the water level is supporting a lot of the river banks. If this support is removed a lot of the banks will collapse over time. Currently the average depth of the river, measured from my garden in Riverside Drive, Esher is around 1.9 metres. With the proposed drop of options

5 and 6 there will be around 5 metres of thick mud at the end of our garden. I and many riparian owners who have a small boat or canoe will be unable to launch it. Also, as a fisherman I have noticed the increasing levels of silt. Twenty years ago, the water depth was over 3 metres and now it is around 1.9 metres. This will drop to only 400mm or less if you go ahead with your changes. This level is not deep enough for the large head of Carp and Bream that live in this section of river. I personally will have to build a barrier between our house and the river to ensure security and stop our dogs from escaping. This will reduce the quality of our outlook and potentially reduce the value of our property. Will the EA compensate us for the loss of value and the build costs? The EA currently own the river bed at the bottom of our garden. If the water levels are dropped and the banks widened who will own the new banks? The public, us or the EA? Over time the new banks will grow over with plants, shrubs and eventually trees. This will make the channel narrower. And over time the channel will be unable to carry the same volume of water. The potential for a flood similar to that which happened in the sixties would arise again. The whole point of making the river wider and controlling it with weirs was to prevent floods. Some of these new proposals will undo all the good work. Again, our house value will drop because of the new flood risk. Regarding fish movements; allowing passage of fish may sound like a good idea and may increase bio-diversity. However, this could have a huge negative impact; the lower Thames now has a large population of non-indigenous species such as the Wels Catfish, Zander and the very destructive Mitten Crab. The Catfish and Zander would wreak havoc with the current fish stocks and the Mitten Crab would cause extensive damage to the river banks. The Mole has suffered large losses of silver fish such as Roach, Gudgeon and Dace over the past decades. The reasons for this are not clear, but I suspect the Crayfish coming down stream (currently at Cobham) have a lot to do with it. Introducing two new large predators is only going to make the situation worse.

A: We apologise for the time it has taken to reply but there were many parts of your question that we wanted to make sure we addressed in our reply. We have broken your question down to address each point. River Banks. With regards to how some of the options may impact the banks, we are aware that should water levels in the channel change we would need to review the effect of this on the banks. At this stage of the project we have not carried out detailed assessments of any impacts but we can say that all options under consideration include works to repair the channel banks, which may involve reinforcing sections along the river bank, improving their integrity and reducing the risk of damage during high flow flood events. Should an option be chosen where such works would be necessary we would work with homeowners to look at alternative ways to access the river.

River levels - thank you for your detailed observations on the water levels near your property. It is difficult for us to comment specifically without knowing exactly where your property is. If you wish to discuss this further with more details please email our inbox FASProject.LowerMole@environment-agency.gov.uk directly.

With regards to our survey we have used the best information available to us at the present time about river depth and channel profile. However, it is always invaluable to gather further information on the river and the profile of the channel, which we will use in the future to further refine our options, especially if an option taken forward for further development is one that would see the removal of the sluice gates at Viaduct.

Recreation - we understand that, although the river is not classified as a formal navigation, residents do enjoy using small boats on the river. As our project progresses, should an option be chosen that would alter present-day water levels, we will carry out further investigations to find out how the reduced depth would affect recreational access, and would work closely with residents in doing this.

Silt - when we carried out a survey to look at the channel depths ('bathymetric' survey), we identified an area of shallower channel by Riverside Drive which we believe to be a result of the slow flows in the river as it is held back by Viaduct Sluice. This has led to a gradual build-up of silt. Your observations echo the results from our bathymetric survey. As we are in the early stages of this project, aspects such as silt removal in any specific locations have not yet been detailed and currently dredging is not planned to be carried out as part of this project. However, should Option 6 be chosen we could assess the possibility of silt removal or see if the river naturally adapts.

Value of property/costs of new fence - we recognise this is a serious issue for many home owners on the channel. As the project is in its early stages with a number of options under consideration, we are unable to outline a comprehensive view on compensation. We can confirm that property owners do have the right to claim compensation for any damage arising from our flood risk management works. Evidence would be required to prove any claim.

Bank ownership and maintenance - we don't expect the options which are under consideration to change land ownership or boundaries, although you are correct that under some of the options more land may be exposed. The river channel at this location is owned by the Environment Agency. Therefore if an option is selected where water levels are reduced, we will put in place a maintenance plan to control vegetation within the river channel to maintain its capacity and ensure flood risk does not increase.

Flood risk - the enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. In fact, if gates are removed the capacity of the channel will be increased as water would no longer be stored upstream of the gates and therefore higher flows can be accommodated within the channel.

Fish movement - when opening up fish passage there is a risk that invasive fish species could enter the Mole from the River Thames. However, the design of the

scheme, is such that the target flow conditions and habitats should be more suitable for native fish species. It is considered unlikely that the presence of invasive fish species would significantly offset the benefits of improving fish passage along the Lower Mole.

Q: I assume that Option 6 is the EA's preferred option as it is the cheapest, apart from the 'Do Nothing' option? The drop in water level is going to be extreme so I can't believe there will be enough fish left to make use of all the nice looking fish passes, and it will look awful during hot summers with low rainfall. Option 4 looks good to me as it maintains a decent water level.

A: No decisions have been made on which option may be taken forward to update the scheme. An option will not be selected just because it is cheaper than another. How we spend public money is an important factor, however, we also review the amount of benefits an option will deliver and over what timescales those benefits occur. We call this our 'economic appraisal' and this assessment is key to selecting a preferred option in line with Government guidance. Once we've completed an economic appraisal, we then review a host of other factors that include but are not limited to environmental and amenity impacts and opportunities, legal obligations, health and safety and carbon implications. This process means we are not bound to just select the option which provides the best economic value for money. One of the proposed options, Option 6: Remove all gates, passive flood relief channel with rock ramps, includes the removal of the gates at the existing sluice structures which would mean fish populations would change. The current river channel offers a series of impounded areas of water, and the fish population reflect this. By removing sluice gates and installing fish passes we would improve the diversity of the fish populations. Fish would be able to move in both directions, into and out of, and between the Thames and the Mole. This is perfectly natural for all sorts of species of fish, many of which will travel for several kilometres in a day to find food, habitat or refuge. The expectation is that with improved habitat and free passage, fish populations in the Thames and Mole would improve. The existing fish populations that prefer those slow, still waters would be able to find suitable places to live. An un-impounded river flowing naturally with pools, riffle and glide features would offer a more diverse habitat for river species and could lead to an increase in fish populations and variety. We carried out fish and invertebrate surveys to understand what the current baseline conditions are and to give us up to date information. The survey findings will be reported in a Preliminary Environmental Information Report (PEIR) which we aim to make available during 2021. We will use the results of the latest fish and invertebrate surveys to help inform the options design. Any fish pass would be carefully designed to ensure it is suitable for different species of fish species.

Q: Am I right in thinking that in options 4-6 the river level upstream of Molember (River Ember) would be too low for recreational use such as paddle boarding and kayaking? Under any of the options will there be any routes from the Molember sluice road level or nearby to walk a kayak/board down to the river level for access? Currently this area is all gated off unless you are a resident with direct access.

A: We understand that many residents do swim, kayak and paddleboard on the engineered Ember channel, particularly those with Amenity Licences downstream of Esher Road. Although the river is not classified as a formal navigation, others on the upstream reaches of the Mole and Ember enjoy using small boats, and the British Canoe Union have an agreement in place for their members to use the Ember channel. Information on the estimated water level reductions are contained in the voiceover presentations for Options 3 to 6 which scan be found on the 'what are the options' page of our website. Within these presentations are long section diagrams, which show the level of the bed of the river and the estimated level of the water along the length of the scheme for each of the options. If, as our project progresses, an option is chosen that will change present-day water levels, we will carry out further investigations to find out how the reduced depth would affect recreational access, and would work closely with residents and recreational groups in doing this. Our website also has an interactive map and an ideas board where you can share your ideas on potential opportunities and improvements you would like to see to the area as part of any future updates to the scheme. We do look to try and increase public access at our sites and on land that we own when this would not adversely impact on our ability to operate structures or impact on the management of health and safety. Only a small section of the River Mole is within the Environment Agency's ownership, therefore to give permission to use the river recreationally is not wholly our decision. It's also important to note that the Ember channel does contain a number of structures with large sluice gates that need to be operated. Therefore public safety and our ability to operate these structures would need to be carefully considered alongside making provision for wider recreational use. As the project moves forward and once a decision on the future of the scheme has been agreed, it is still possible that we could explore the expansion of recreational use and to better understand where it may be possible to introduce items such as steps to allow better access to the river.

Q: This may be a very dense question, but if we remove all the gates and let the river run normally why won't it flood as it did in 1968. Also I see that fish passages may be provided. If part of the river is going to be dry, won't fish be stranded even if there are fish passages, or are fish cleverer than I think!

A: The River Ember channel is significantly larger today than it was prior to the works carried out to create the scheme during the 1970s and 1980s. Flood walls and embankments were also added as part of the scheme design. The River Ember channel was designed with sufficient capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes and not to reduce flood risk. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they have to be opened to allow the water to pass. On this basis if the sluice gates failed to operate flood risk would significantly increase. In summary the sluice gates are not required to reduce flood risk and if the sluice gates were to be removed, the flood relief channel would continue to convey flood flows as it was designed to do. If an option were chosen which included the removal of the sluice gates, the capacity of the channel would be increased as water would

no longer be stored, or impounded, upstream of the sluice structures. Regarding your question on fish, we can confirm the flood relief channel would not run dry, therefore fish will be able to move. Some of our options may mean a loss of water in the river channels to the side of the flood relief scheme without any mitigation measures in place to direct flows, however fish will always be able to move around using the main flood relief channels.

Q: With respect to the River Mole alongside Riverside Drive, can you please tell me what depth it was dredged out to when the 1988 scheme was completed. You point out in your consultation document that this section has silted up considerably due to the Viaduct gates. I have not seen in any of the proposals any mention of restoring the river level at this section by dredging, why is this?

A: We do not have details of the level the river was dug to in the 1980s to form the widened flood relief channel alongside Riverside Drive. In the past, dredging was carried out periodically along the Lower Mole. However, regular surveys of the depth of silt in the river, highlighted that the accumulation of silt within the engineered channel was not significant and was not reducing the ability of this channel to convey flood flows. Therefore dredging is not required and not the best use of our resources. Following our conversations with you in 2019 we undertook further surveys, one of which was a river level (Bathymetry) survey to help us better understand the mole and assess the depth of silt in the river. This indicated that there is an area of siltation between the Railway Viaduct and Albany Bridge (A244) which we believe is as a result of the impounded nature of the river due to the gates at Viaduct and the widening of the river downstream of Albany Bridge.

Currently, dredging is not planned to be carried out as part of this project or as part of any ongoing maintenance works. We consider each location carefully and only carry out dredging where we know it will make a difference to the management of flood risk. As part of this assessment it's important to also remember that dredging has many short and long term environmental impacts such as the escape of silt plumes into the water, reducing water quality and we could be removing gravels from the river which are important substrates on which fish spawn. In addition, this substrate helps to reduce channel erosion as it absorbs the energy of the river.

Q: You asked for feedback following the drop-in session in 2019, but this seems to have been totally ignored. Why?

A: In June 2019 local residents and other stakeholders informed us that they wanted us to do more work on our proposals. We listened to this feedback and over the winter of 2019 we carried out environmental and river depth surveys to help us better understand the Lower Mole. We would usually carry out these surveys at a later stage in the project, however we wanted to respond to public concerns over water levels and wildlife by collecting and sharing the information early. We also spent time working on updates to the estimated cost for the options, and to understand aspects such as the carbon impact for each of the options. We are now able to share this information with the community and to ask for feedback on this range of options for updating the scheme.

Q: In response to one of the questions below, you say that the level, just downstream of the A244 will be reduced by about a metre for 3 weeks from 21 February 2021. Why have riparian owners not been informed of this by mail?

A: Please accept our apologies that you did not receive the latest notification that we sent to residents upstream of Viaduct sluice regarding the further works planned to the structure at Royal Mills. We have now contacted you directly, setting out the details of these works.

Q: Our garden runs right to the edge of the river - nothing you have shown demonstrates what could happen to it, how it could be altered and by whom, how we could still access it for recreation etc. Herons hunt easily at present, there is one perched opposite almost every day except when the water level is very high or very low. The 'interactive' map does not work properly, it just shoots about, impossible to identify the various installations referred to in the list of options, and how it could affect our particular position. I am really no wiser. I couldn't get the sound to work on the video. It is very difficult to work out what exactly any of the options means, everything is split up into little bits on different pages, I feel `I am being asked to vote on something that I cannot assess properly because it is presented in such a complete muddle.

A: We are sorry to hear you are having problems accessing the content on the website. We have tested the site today to see if there are any technical issues and we cannot replicate the problems you are experiencing. Paper copies of the information on our website are available and we can send this to you on request if this would make the information more accessible for you. A request for paper copy can be made by calling 03708 506 506.

Q: Please can you make the water level graphs easily accessible as a download for each option? Currently the only place to see them is embedded within the YouTube presentation videos (unless I'm missing something?).

A: We have created a new presentation which contains all of the water levels graphs, this can be accessed via this link: https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/water-levels-along-the-mole-presentation.pdf.

Q: Will any of the 6 options affect the efficient and clean operation of Esher Sewage Works. Particularly cleanliness of outflow from works? Does the works use water to flush and if so will the intake requirements be affected? Some years ago the works often created a stink.

A: You're right that sewage treatment works flows need to be considered as part of this project. Esher sewage treatment works does not abstract water from the river to treat sewage, but it does have a permit to discharge treated effluent. Therefore any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their

current Discharge Permit reviewed and it may then need to be amended to align with change flow/volume regime in the river, in order to avoid water quality issues.

Q: Riparians from each section of the river will have different views depending on the effects on the river in that section. Could you present the options as they affect each section of the river rather than leaving us to do the analysis?

A: In response to feedback we have now made available long sections showing potential water level changes for each option and for each channel section. We also have an interactive map which shows visualisations of how the options may look along the various sections of the river and you can zoom in to see these. If there are particular things you would like to see presented for each section please do email us or use the 'Question' tab to provide us with more information on what you'd like to see.

Q: Your chart shows the river depth around Riverside Drive/Pelhams Walk to be around 3 metres. This may have been true twenty years ago but today it is more like 2 metres or less. I know because I have fished this stretch over twenty years. With your last two proposals you are dropping the level in this area by 2 metres. How is this possible when it is only 2 metres deep?

A: We have answered your question in a previous response but please note it is difficult for us to comment specifically without knowing exactly where your property is. If you wish to discuss this further with more details please email our inbox FASProject.LowerMole@environment-agency.gov.uk directly.

Q: My main concern is the catastrophic effect on the natural level of the River Mole upstream of Viaduct Sluice, if any of your options to remove those gates is implemented. Your repeated use of the phrase 'Restoration of Natural processes' in the Pro's sections of the options is totally misleading in connection with this stretch of impacted river. If you remove Viaduct Sluice you will not be returning the river level to its 'natural process', you will be draining it to the engineered level of the channel downstream. As others have noted, and you have conceded this significant level drop was not exactly highlighted in your original presentation on this site. So going on the data supplied in the infamous Ember Court fact pack, this level drop upstream of Viaduct sluice was estimated at 1.7 mtrs. I have no doubt this was at the lower level of the average and not the median or critically the higher level of the estimation. But even at that, and referencing your recent hydrograph survey adjoining my property of a current level of 1.9mtrs, the 'natural' River Mole as it flows past my garden will be approx. 20cms deep. So it will not be 'returning to 'its natural level'. Never in the lifetime of anyone on this stretch, would the river have been that catastrophically low. There are umpteen photos and maps dating back to the 1900's showing the river at much the same width and depth and contained by the same banks, as it is now. And I'm sure you have access to pre-scheme construction plans and documents, that put accurate figures and dimensions to attest to that too. In Option 6 Cons, you refer to the level drop, and the changes to access arrangements in some areas. And your assistance in allowing residents to continue to access the River, although at

20cms deep I think that it probably classes as a stream? Can I ask what is the section upstream of Albany Bridge included, what these plans and proposals are, and what they consist of? Thank you.

A: A key reason for talking to the community now is to draw on local knowledge and we're interested to hear your observations on maps and photos available from the 1900s. If you could share those with us, or point us in the right direction to view them that would be very helpful. We have no plans to undertake any work upstream of Albany Bridge. This part of the Lower Mole Flood Alleviation Scheme did not include widening of the river channel in the 1980s with flood defences being set back from the river and a significant amount of the floodplain retained. Option 6 would remove the impoundment on this section of river allowing it to have a naturally varying flow and level responding to rainfall in the rest of the upstream catchment. We understand the presence of a mill and structure at Royal Mills, adjacent to Viaduct Sluice, means this section of the River Mole has not been allowed to flow at a natural level for longer than the scheme has been in place.

Although this project is in the early stages we wanted to share as much information as possible so the community can comment and help shape decisions made in the future. However because we are still at an early stage, we have yet to carry out further detailed assessments and cannot as yet fully answer all questions coming in to us about impacts on particular parts of the channel. Whichever option is chosen we would work closely with the community as we carried out further assessments, sharing information and working together on potential mitigation or improvements that can be carried out as part of the updating of the scheme.

Q: The link you provided (in response to feedback on the long sections showing potential water level changes for each option and for each channel section) in response to my request does not work. Please provide a functional link.

A: We are sorry that the link did not work, please see the new link to the water level presentation below https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/water-levels-along-the-mole-presentation.pdf.

Q: The visualisation on the interactive map for Options 5 and 6 at Albany Bridge seems to me to be highly inaccurate. My photo of the level on 4 June 2014 when I estimate the level there was about 1.2m lower than norm (rather than the 2m of options 5 and 6) shows the river to be much narrower. According to the EZ quality managed dataset, the level was 12.307 on that day! Regrettably, this site does not accept photos.

A: As part of our conversations with the community in 2019 we undertook further surveys, one of which was a river depth survey to help us better understand and assess the depth of silt in the river. We also carried out a bathymetric survey in late 2019 which assess the profile of the riverbed. This indicates that downstream of Albany Bridge in Options 5 and 6 the left side of the river would be characterised by visible areas of river bed, with water continuing to flow along the right bank, and

water retained across approximately at least two thirds of the channel width. Please do send over any images of the levels in 2014 over to our project inbox FASProject.LowerMole@environment-agency.gov.uk.

Q: Why does the high level summary use the total cost over 100 years when it has calculated the PV for each option? Under the PV method, options 3-5 virtually cost the same with a PV a ratio that is also virtually the same.

A: The high level summary of the options presents the total costs over the next 100 years without any adjustments, such as converting to present value, as this was felt to be the easiest to understand for the widest range of people. Present value whole life costs are the discounted version of the whole life costs, as explained in the terms section of the full options table. When converted to a present value the cost of Options 3, 4 and 5 are closer in value due to the timing of future expected spend and the discounting process. We need to consider the present value costs to enable us to compare these to the present value benefits and obtain a benefit cost ratio in line with the requirements of the appraisal guidance.

Q: If option 5 is adopted, why are the gates replaced at Island Barn? I had understood from one of the prior questions that none of the gates are required for flood protection purposes. Furthermore, what happens upstream of removed gates? Surely free flowing water after a storming will be fast and cause greater erosion along the river bank potentially causing damage to properties.

A: The reason for retaining gates at Island Barn in Option 5 is to ensure continued flows into the old Mole channel, which runs around Island Barn Reservoir, and Ember Loop channel. Under Option 6, these two channels could experience periods of low flows, leading to the potential of a temporary loss in connectivity between aquatic habitats in the upstream section of the River Mole. However the structures at Wilderness and Zenith would continue to impound water retaining water levels in the sections of the River Mole north of Island Barn Reservoir. There is the possibility of erosion to the banks occurring if there was a rapid change in water level or flow, such as through sudden opening or failure of a sluice gate. As part of the original design of the scheme, large sections of the channel were engineered to include hard materials to cope with higher flows and reduce the risk of erosion to the banks of the river channel, though there are sections where less hard engineering is present. At this stage of the project we have not carried out detailed assessments of potential erosion impacts but we can say that all options under consideration include works to repair the channel banks, which may involve reinforcing sections along the river bank, improving their integrity and reducing the risk of damage during high flow flood events.

Q: As a riparian owner in Riverside Drive, the proposed changes will have a devastating impact on the river. So much so, it can hardly be called a river going forward. It will be a wide mud bank with a stream of water mostly static and occasionally dribbling along. The river banks will collapse and the river/stream will be awful to look at. How can you possibly say this will be beneficial to the environment? How can fish thrive in a muddy stream? How

can swans and ducks swim freely along a muddy stream? Please be honest with us and say you only want to cut costs and stop trying to pretend this has anything to do with the environment. We are not fools.

A: The existing watercourse is a uniform environment, with little diversity in habitat which favours a more limited range of flora and fauna that prefer slower moving water. For Options 5 and 6, the river would still be present at reduced water depths and would be allowed to flow more naturally should impoundments resulting from the presence of the sluice gates be removed. Although the water levels would be lower than existing, the channel would be better able to develop a meandering form within the existing channel footprint characterised by diverse flow types; a mixture of faster-flowing shallow gravel areas, known as riffles and deeper slower flowing pools. Initially exposed banks would vegetate and allow larger marginal areas to become established. These new habitats would likely see the species present to become more diverse, this includes increases in wild fish, a more diverse range of invertebrates, a more established aquatic macrophyte community, a greater range of plant species, additional bird nesting sites and habitat for mammals such as otter and water vole. There may be some localised areas of river bank that would experience adjustments should the water level be reduced which may require works to be carried out. As the options development process progresses, further consideration would be given as any proposals are developed further.

Q: Has the impact of the proposed schemes on the existing environment been formally researched, considered and an environmental value placed on it? If so, how does it compare to the value of the environment that has naturally evolved since the inception of the current flood alleviation scheme?

A: The impact of the proposed options on the environment has been considered through a number of preliminary desk studies, site surveys (Phase 1 habitat survey, Fish and Invertebrate Survey, River Corridor Survey, Bat Survey) and a high level draft Ecosystem Services Assessment. This has informed our understanding of the existing environmental baseline and has identified the potential impact of each option the various ecosystems. We are in the process of undertaking a 'Biodiversity Net Gain Assessment' to further understand the existing habitat and how this may be affected by the options. We will soon be reviewing the need for a more detailed economic valuation of the environment, which would follow the 'Enabling a Natural Capital Approach (ENCA)'. With options 5 and 6 we would expect that there would be an improvement in overall biodiversity, particularly in the main channel.

Q: You mention in your brochure about the benefits your removal of the river will bring, apart from the otters we have all these things already. Your statement is misleading verging on a complete lie. Please explain how removing the river mole will give these benefits back?

A: The existing watercourse is a uniform environment, with little diversity in habitat which favours a more limited range of flora and fauna that prefer slower moving water. For Options 5 and 6, the river would still be present at reduced water depths and would be allowed to flow more naturally should impoundments resulting from the presence of the sluice gates be removed. Although the water levels would be lower

than existing, the channel would be better able to develop a meandering form within the existing channel foot print characterised by diverse flow types; a mixture of faster-flowing shallow gravel areas, known as riffles and deeper slower flowing pools. Initially exposed banks would vegetate and allow larger marginal areas to become established. These new habitats would likely see the species present to become more diverse, this includes increase s in wild fish, a more diverse range of invertebrates, a more established aquatic macrophyte community, a greater range of plant species, additional bird nesting sites and habitat for mammals such as otter and water vole.

Q: You state that you will be returning the river to its natural state? In that case I will presume the mole will be the main channel again as it was historically, as you can see by the way the houses are built along it. As your plan will see the river mole disappear would there need to be some sort of change of use planning application as the ember was an overflow never the main channel? I say application, when building the environmental impact must be considered, have you made the correct bodies aware you will be removing an age old piece of water?

A: There have been no decisions made on which option may be taken forward to update the scheme or how the scheme may look in the future. In regards to your question about returning the river to its natural state, the old Mole will not become the main channel due to its lower capacity to convey flood flows. Should an option be chosen which would see the removal of sluice gates, the River Ember would change from an impounded channel to one which flowed more naturally, with flow continuing in both channels with a diverse range of flow types across a reduced width of the channel. Under certain planning legislation the Environment Agency does have permitted development rights to carry out certain activities in, under or over a watercourse. We will of course, discuss this with Elmbridge Borough Council (as the local planning authority), and if required submit a planning application. An environmental assessment will be carried out whether a planning application is required or not.

Q: My Question is related to the Drop in River Level of the 'natural' Mole. upstream of the A244 at Albany Bridge, should any of the Options to remove Viaduct Sluice be imposed. Using your new handy PDF guide as my base and accepting that all my calculations can't be exact along your graph lines regarding the horizontal distances, the level differences however are closely tied to your quoted elevations above sea level, and backed up by my GPS. I'm going to refer to level drops and depth as it's easier to visualise than varying Heights above sea level. Our riverside property is on the north bank approx. 1 Km upstream of A244 Albany Bridge, (51 22' 06" N, 0 23' 05" W). According to your graph at that point, the River is 2.5 mtrs deep in the centre of the stream. The level drop at that point will be 1.5 mtrs, over 60%. In real terms with my shorts on I could easily walk across it, newly exposed muddy bank to newly exposed muddy bank. Since phase 1 of this consultation started, I was always led to believe that the level in this section would be set by whatever was the lowest remaining bit of concrete structure left horizontally between the banks

of Viaduct Sluice once the gates were removed. However you eluded in response to a previous question that there is an expectation that the foundations of the Main Line Railway Viaduct, adjacent and upstream would 'bund' some of the level drop. So my questions are, is there a horizontal concrete foundation stretching bank to bank under the length of the Viaduct, or are the foundations you referenced solely under the arches? If there is such a horizontal foundation, is that what is going to set the 'new' level, rather than the de-gated Viaduct Sluice, and if so why is such a pivotal feature not mentioned in the PDF or indeed anywhere in the documents? I'm not an expert in any way, but I'm sure you can understand my query, as a feature spanning a river that has more holes than structure, wouldn't seem to be a very efficient bund? Thank you.

A: A survey of the bed level of the river highlights that beneath the arches of the railway viaduct is slightly higher than the concrete bed beneath the sluice gates at Viaduct Sluice. The structure beneath the railway arches, should an option be chosen that would remove the sluice gates at Viaduct, would act to retain water upstream of that point. The works beneath the railway viaduct were carried out as part of the construction of the Scheme during the 1980's. Information from our survey of the river channel does suggest the concrete bed beneath the railway viaduct does extend from bank to bank, so the concrete bed is present beneath all four of the railway viaduct arches.

Q: When the ember channel was built the bed was made lower than the concrete plinth at the mouth of the original mole river. With a reduction of water levels in the ember what will happen to the mole?

A: It is correct that at the location where the River Mole diverges from the Ember flood relief channel that the bed of the River Mole is slightly higher than the bed of the River Ember. Under the options that consider the removal of the sluice gates at Molember, due to the slight difference in the height of bed level of the two watercourses, a greater proportion of the river flow would be directed along the River Ember channel. Water would still also flow into the River Mole, though during period of very low flows, the volume of water entering the Mole would reduce. This could lead to a loss of connectivity between aquatic habitats in the upstream section of the River Mole, however the structures at Wilderness and Zenith would continue to impound water retaining water levels in the sections of the River Mole north of Island Barn Reservoir. As the project is still in its early stages, there is the opportunity to investigate ways to encourage more water to enter the River Mole should an option be chosen which would see the removal of the sluice gates at Island Barn.

Q: Given it is abundantly clear that the vast majority of residents' queries express concern over the water level (aesthetics and recreation) and not the need to improve fish populations (which cannot be seen & do not have bad reviews from the angling community), will considerations on water level carry increased weight when deciding options? Given your comprehensive answer justifying Options 5 & 6, I assume that these are the current preferred options. Will any consideration be given to the potential financial impact on residents

with properties adjacent to the river (conservative assumption of £1mm average house price, ~200 riverside properties with assumed 20% mark down due to reduced river levels = £40mm loss). Lastly, what are the timeframes once this website closes for deliberation over options and then implementation?

A: There have been no decisions made on which option may be taken forward to update the scheme or how the scheme may look in the future. We are seeking feedback from the community on a range of options that have been proposed for updating the scheme. As a majority of the questions that we have received from the community so far have been asking specifically about Options 5 and 6, there are more frequent references to these two options in our responses. As the project is in its early stages with a number of options under consideration, we are unable to outline a comprehensive view at the present time on the potential financial impact on residents with properties adjacent to the river. Whichever option is chosen, we will continue to share information with all concerned and work with the community to fully understand all possible impacts. We can confirm that property owners do have the right to claim compensation for any damage arising from our flood risk management works. Evidence would be required to prove any claim. Once the website closes on the 24th March we will be taking time to carefully review all the feedback we receive from the community, and will then share our findings. The feedback from the community will also allow us to further review these options, and update them where necessary. We expect our review of the feedback from our interactive website to take a number of months to complete. We will continue to speak with the community, share information and listen to feedback as the project moves forward. There is a lot to work through to move the project forward, including gaining staged approval on funding, in order to get the project to construction and as such it is not possible to provide a detailed timeframe for implementation. Once it has been possible to make a decision on a preferred option to update the scheme, we will seek approval of the Outline Business Case (OBC). Following approval of the OBC we will then progress with the Full Business Case (FBC) and detailed design for the preferred option, which we estimate will take a couple of years. The detailed design process will include stakeholder and community involvement, and during which plans, specifications and construction costs will be refined. Construction will take place after the FBC has been approved but commencement will be subject to the availability of funding. The time frames that have been suggested are our best estimates at this the present time but are subject to change as the project develops.

Q: Thanks for your prior answer on present values (PV) for each option. It sounds like you agree that the PV method is a more accurate way of comparing the costs for each option and will be used by yourselves when deciding which route to proceed with. The use of total costs over 100 years is misleading as it inflates the cost for some of the options, which will clearly influence people's views of the options presented. The high level summary table on the options tab should be adjusted accordingly.

A: We have included the Present Value costs and benefits within the full options table that is available to view on our interactive website. We will add some text to the

options page on our website regarding present value costs, and will also signpost those viewing the website to the full options table which contains both whole life and present value costing information.

Q: The water level document is helpful. How is the average worked out? Would this include flood days? Just thinking that if have a flood and exceptional levels one day, this would massively impact the average. I'm trying to get a feel for what the water level would look like most days of the year? Is it a case of a huge amount for 10 days of flooding and then zero for rest of year?

A: The data that has been used on these graphs is Q50 data, this is data that would be equalled or exceeded at least 50% of the time. This is an average of the historic records at Esher gauging station which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however, this does provide a representative average water level.

Q: Do you publish all comments and questions? The reason I ask is I submitted two posts last week and nothing has shown up.

A: Yes, we do publish the questions publicly on the website. We are sorry for the delay in responding to your questions. There are a large number of questions coming in every day and we want to ensure we are answering each and every one as fully as we can. We are working on your questions and hope to get them back to you as soon as possible.

Q: Regarding my previous post regarding not showing all questions asked. I have now spoken to other people who are saying they have submitted numerous questions and comments and have not seen them published or a reply. Is there a reason for this?

A: We apologise that there are currently some delays in responding to questions. There are a large number of questions coming in every day and we want to ensure we are answering each and every one as fully as we can. Some questions require more detail than others and we need to refer them back to our project team and technical experts for the most up to date information. Please be reassured that all questions submitted will be answered and on this website very soon. You will receive notification from us when the answer to your question has gone on the website.

Q: A follow on question to an earlier one below on recreational use of the water.....Is it the EA belief, that it is a formal canoe / kayak route currently from Albany Bridge to the River Thames - via Ember or Mole with formal portage points as per the Thames. The previous dialogue says the Ember is used but it is unsafe because of sluices, weirs etc.?

A: We understand that many residents do swim, kayak and paddleboard on the engineered Ember channel, particularly those with Amenity Licences downstream of Esher Road. Although the river is not classified as a formal navigation, others on the upstream reaches of the Mole and Ember enjoy using small boats and the British Canoe Union have an agreement in place for their members to use the Ember channel. In addition we own and operate the boat rollers at Molember Weir for small

craft owners and canoeists / kayakers to use. We don't currently have formal portage points in place similar to the Thames. We do look to try and increase public access at our sites and on land that we own when this would not adversely impact on our ability to operate structures or impact on the management of health and safety. It's important to remember that not all of the lower Mole and Ember is within the Environment Agency's ownership, therefore to give permission to use the river recreationally is not wholly our decision. It's also important to note that the Ember channel does contain a number of structures with large sluice gates that need to be operated. Therefore public safety and our ability to operate these structures would need to be carefully considered alongside making provision for open water swimming for example. As the project moves forward and once a decision on the future of the scheme has been agreed, it is still possible that we could explore the expansion of recreational use.

Q: Part of the EA's responsibilities and priorities is to protect and improve water in inland rivers. However the options put forward that include removing the gates at Viaduct sluice, will effectively drain the upstream section of the natural River Mole that has endured for hundreds of years, of up to 60% of its current volume and depth, probably all the way up Cobham. Are there any recent examples where the EA has actively impacted another substantial river or even a tributary to the Thames to such a massive extent? As all riparians on this section know the river can rise dramatically with any sustained rainfall at any time of year, currently contained for the most part within the banks on both sides. However your drainage scheme will reveal gentle sloping muddy banks for the most part, which will be flushed with rising water every time there is a rain swell, sweeping away anything that has temporarily established itself there. I cannot see how fish stocks and biodiversity can be improved by the same substantial ratio, equal to the body of natural river water that will be drained. You can truthfully state that biodiversity has 'improved' if one more kingfisher builds a nest or one more fish species enters, but at what cost? To my uneducated mind, if you have a pond and it supports 20 ducks and 40 fish, and you then drain that pond by 60%, surely it can't support half as many ducks or fish? Am I missing a very obvious point here? Thanking you in anticipation.

A: It is difficult to provide examples on a similar scale. Should Options 5 or 6 be chosen, this would be the largest urban river restoration of its kind in South East England. One recent example on the River Kennet, a tributary of the Thames, is pictured on the Environment Page on our interactive website. Avington Sluice, made up on three very large penstocks, were raised out the water and locked in place. Under normal flows, water levels dropped by almost a metre. The average depth is now 300 mm. It allowed the restoration of a 500 to 600 metre stretch upstream, that was previously impounded. Following the drop in water levels, banks were regraded and works undertaken within the channel. The photos on our website show how the new channel was formed and the timespan over which it became established. The local fisheries team have confirmed the reach now benefits from a large population

of wild fish, a more established aquatic macrophyte population and more diverse invertebrate population.

Under Options 5 and 6, the water depth will be reduced but with the removal of impoundments the river would be allowed to flow more naturally. This will create a range of flow types including faster-flowing shallow gravelly areas and deeper slower-flower pools, with a range of habitat types and depths able to support a wider range of riverine species, including aquatic plants, fish and invertebrates. The existing watercourse is a uniform environment, with little diversity in habitat which favours a more limited range of flora and fauna that prefer slower moving water. The Environment page on our website sets out a number of case studies highlighting these increases in biodiversity. The channel would be better able to develop a meandering form within the existing channel footprint. Initially exposed banks would vegetate and allow larger marginal areas to become established. The current steep banks allow for limited natural habitat, with larger marginal areas, this would likely see the presence of a more diverse range of invertebrate, plant bird and mammal species. There will also be other benefits from reconnecting previously isolated stretches, including the free movement of fish, allowing different species to access a range of habitat types required at different life stages. It will also improve resilience of fish populations by being able to move away from disturbances and also allowing wildlife to recolonise an area in the event of a mortality. Under options 5 and 6, there would be a risk of early establishing vegetation being displaced during higher flow events. If an option is selected where water levels are reduced, we would assess the possibility of reducing the risk of vegetation being displaced during higher flow events and a maintenance plan to control and manage vegetation within the river channel would be put in place.

Q: I have just read the comments from a resident and your reply. The river opposite him is around 30 metres wide. When the level drops with your proposal 5 and 6 the width will reduce. We see this happening this week with works going on the weir downstream. The drop is only around 1 metre and some of the river bed is now exposed both sides. With the proposed 2 metre drop the river will half its width. Question one. The EA currently own the river bed. When it becomes dry land who has ownership? Question two. After a number of years the now exposed riverbed will become covered in new vegetation including trees. Obviously the capacity for the river basin will reduce and it will end up like it was prior to the big flood. So what happens next time it really floods? We will all be under water again? I really believe this plan has not been thought through enough.

A: We don’t expect the options which are under consideration to change land ownership or boundaries, although you are correct that under some of the options more land may be exposed. The river channel at this location is owned by the Environment Agency. Therefore if an option is selected where water levels are reduced, we will put in place a maintenance plan to control vegetation within the river channel to maintain its capacity and ensure flood risk does not increase.

Q: As you are no doubt aware, there is a huge river level drop at the moment at Pelhams Walk due to the work being carried out. Based on the way you measure river level drop, what would you consider the current drop to be? Just trying to see how this compares to that under option 5 and 6. We have very large, ugly mud flats at the end of our garden that looks a complete eyesore. Our concern is that this is only half of the drop you are proposing for option 5 and 6. Many thanks.

A: Last week we lowered the river upstream of the railway by about 1m so our staff could carry out repairs at Royal Mills. The depths mentioned on this website relate to a channel depth survey carried out last year, therefore it would be difficult for us to accurately estimate the depth you are seeing now without using the same technology. We haven't measured the current drop at the location of your property using any other method, but we'd be interested to see any pictures you have of the impact on your garden and any other observations on last week's water drop. Our email is: FASProject.LowerMole@environment-agency.gov.uk

Q: I'm not sure my marker set with my last question. It was at the entrance of the river that runs through the Met police ground. As far as I'm aware they have a fishing club there so I ask again, have you made them aware they will lose their river? Which I must add has lots of groins and rifles further downstream in cow common.

A: We are aware of a fishing club that uses the part of the river that runs through the Metropolitan Police ground. They were contacted to let them know our website would be going live, and asked for any comments or feedback they may have on the options we have shared on our website.

Q: Just wanted to understand if I am reading the water level presentation correctly for the Esher Road bridge section of the river. Am I correct in interpreting this as the river depth will be max 0.5m in Options 5 and 6 and just over 1 m in Option 4 (contrasted with current max depth of just over 2m) at the Esher Road section upstream of Molember Sluice? A river depth of 0.5m is not sufficient for recreational activities and will present aesthetic challenges particularly with the high artificial river boundaries at the raised point under Esher Road Bridge on the Ember. Have any extra considerations been given to this particular sector of the river given the large number of houses immediately adjacent to the river?

A: Yes, the figures you have quoted are correct. There will be some variability in those levels due to the natural depth of the river bed and accumulated silt. We're very aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it would affect recreational activities. We understand that many residents and those from the local area do use the River Ember for activities such as paddleboarding and canoeing. As the project moves forward and once a decision on the future of the scheme has been agreed, it is possible that we could explore the expansion of recreational use and to understand where it may be possible to introduce items such as steps to allow better access to the river. If an option was progressed that meant lower water levels we would work

very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts.

Q: All the answers to your questions every one involves compensation to home owners, repair work and then ongoing maintenance. All these costs are starting to add up. Then there is the part of keeping yourselves in work with the ongoing maintenance. Please provide details of how this maintenance is priced as this is now work that will need to done forever. Labour costs get more expensive every year. The more I read this the less removing the sluice gates makes any sense.

A: We have included potential costs within our options as much as we reasonably can for this early stage of the project. When we are developing the costs, we also assess the risk of costs increasing beyond the scope of works that are currently included within each of the scheme options, and can estimate a cost for each of the risks that are identified. This is then added to our best estimate for the overall cost of each of the options. Ongoing maintenance and anticipated repairs are included in the options costs as best we can value it now, with an additional 30% allowance for risk included in case these future costs are under-estimated. Removing the sluice gates will require additional work to control vegetation within the channel, however this is expected to be less costly than maintaining the gates and the associated electrical equipment at the structures. The cost for ongoing maintenance is considered less in comparison to the cost of replacing the gates, particularly as gates would need replacing every 30 years.

Q: A negative of Option 6 'would lead to the River Mole (amongst other sections) experiencing lower flows and potentially running dry'. Does this refer to the Mole in the section upstream from Zenith? The document showing 'water levels along the lower Mole' doesn't seem to include the Mole between the Offtake and the Zenith Weir. 2. Options 3-5 include installing a new rock ramp fish pass on the existing Zenith structure, and investigating it under option 6. Would this also allow kayak traffic to pass across the weir safely or would it still be considered dangerous? 3. If it is considered safe for kayaks, would the boom that was installed in January then be unnecessary and so removed? Currently the new black boom is creating a build-up of various pieces of rubbish and dead vegetation floating downstream. Most of the time, the flow of the Mole above Zenith is very slow and so rubbish does not easily wash under the boom. 4. With the gates removed from Zenith, would that also allow for pennywort that has been dislodged from further upstream to flow more freely over the weir rather than become lodged there (as it did in early January extending about 50m upstream of the weir across the entire width of the river, until it eventually washed over a few weeks later with heavy rain)? 5. Under options 4 & 5, a negative is that 'funding is unlikely to be fully covered by the FCERM-GIA'. This isn't mentioned under the other options, so do they qualify for this type of funding? Many thanks and apologies if these questions have already been answered in the material.

A: We have answered your questions in order below.
Q1: If an option was chosen which would remove sluice gates, as detailed in 'Option 5: Remove all gates but replace Island Barn Sluice gates' and ‘Option 6: Remove all gates, passive flood relief channel with rock ramps’, water levels would reduce, however, the amount of water level change would vary across the different parts of the river. On the River Ember flood relief channel in the immediate vicinity of Molember sluice the water level would be linked to the levels in the River Thames and water would be retained across the full width of the channel. Further upstream, water depths would reduce and the width of the remaining watercourse may also reduce. On the River Mole channel that flows to the west and north of Island Barn Reservoir, although flows would reduce, water levels upstream of Zenith Sluice would remain unchanged due to the impounding effect of this structure, while upstream of Wilderness Sluice, water would be impounded by this structure. This would prevent the river from running dry but water levels would fall. In our Options Full Table information sheet (found on the Options page of the website) we have said under Option 6 that this option would lead to the River Mole, Ember Loop and Royal Mills channels experiencing lower flows. This option could include channel mitigation measures which would help minimise lower flows.

Q2: We have not yet considered making it safe for kayaks to pass Zenith weir, however we do look to try and increase public access at our sites and on land that we own when this would not adversely impact on our ability to operate structures or impact on the management of health and safety. We would recommend you submit your idea to us on the ‘Ideas’ section where it will be collated and considered alongside other feedback from this website. As a responsible owner of the site, we are concerned about the safety risks to the public following a number of issues in recent years of unauthorised use by the public. This is why the safety booms were installed.

Q3: As mentioned in our reply to question 2, following a number of reports of unauthorised activity at Zenith weir, including small craft and canoeists using the weir we carried out an additional risk assessment. The findings from this risk assessment led to the installation of the safety booms and increased signage in the area pointing out the dangers of getting too close to the sluice structure. The boom is also present to safeguard canoeists and boat users from being swept into the sluices as well as preventing large debris from coming into contact with the sluices and either blocking or damaging them, especially during times of higher flows. If, as the project develops, we explore recreational opportunities at Zenith, we would review all aspects of the structure, including the need for the boom. Our field teams visit the weir and clear what they are able to but as Zenith weir is a water level control structure only and is not operated to reduce flood risk our maintenance and operation of this structure is less frequent than those structures located on the River Ember channel.

Q4: Options that remove the gates at Zenith will leave the weir in place on the right-hand side. We believe the removal of the gates and the addition of a fish pass or weir may help the Pennywort move more easily over the structure. It’s important to

point out that Pennywort removal is the responsibility of the riparian owners in most sections of this channel upstream rather than the Environment Agency.

Q5: FCERM-GiA is the main source of funding for flood risk management works. All of the options presented will be eligible for FCERM-GiA funding. The amount of funding is determined through the use of a partnership funding calculator, which prioritises funding for projects which have the greatest benefit to people and the environment. Our economic appraisals produce both a cost-benefit ratio and a Partnership Funding score. The Partnership Funding Score determines the proportion of the costs which could be paid for using FCERM-GiA. Any additional costs above the FCERM-GiA eligibility would need to be covered from other sources, referred to as partnership funding contributions.

As we are at an early stage of the project, we can only use the best available information to us at the present time on the estimated costs and benefits for each of the options. As further work will be carried out to refine the costs and benefits as the project moves forward, this will help determine the amount of partnership funding that may be required. Because of this, we opted to remove funding from the full options table but unfortunately it would appear that the possible funding comparisons for options 4 and 5 were not removed, for which we apologise for any confusion caused. We have now amended this accordingly. Going forward should an option be chosen for delivery that is not the economically preferred option, it is likely that a greater level of partnership funding would be required for that option and in turn that option is unlikely to be fully covered by the FCERM-GIA. Therefore as the scheme progresses we will still look to secure partnership funding no matter what option is chosen.

Q: I will make my question as brief as possible. I'm approaching you on behalf of the Cobham Conservation & Heritage Trust an Organisation which has been in existence for some 15 years. During this time we have taken a great interest in the Mole developing together with Elmbridge Borough Council a very important public area known as Riverhill, creating a public viewing platform and a leisure area on the river bank owned by Elmbridge Council. It is a very popular area with the public. We experience flooding in this area during periods of heavy rain and we remember a few years ago exceptional flooding which effected the St Andrews Church Hall and cottages close by. The concern at that time was the speed the river rose within a very short time. The A245 was closed for some time and of course the Mill was also flooded. We were told that the flood was caused by exceptional rain fall at Gatwick Airport, there are those who said it was due to possible problems further down river at Hersham. Thankfully in recent years there has not been a repeat, although we have had significant rain falls. Speaking on behalf of our Trust and I'm sure others in the Cobham Area the simple question is will the Lower Mole proposals have any affect on the flow of the river in our area? Will it mean less high water levels in our area, or will your proposals create the possibility of the river backing up and creating a problem in our area. I'm sure you will understand me raising this question. Thank you.

A: We believe there will be no impact to Riverhill from any potential future changes to the Lower Mole flood alleviation scheme. There should be no change to river flows or flood risk at Cobham as a result of any works that may be carried out to update the scheme.

Q: I live on Esher Road and having river access was a key reason we bought the house. The thought of this being lowered creates a significant amount of anxiety as this area cannot be re-wilded as it is man made and concrete. Unless this was addressed we will be left with large concrete mini cliffs. With this in mind please could you help me understand the plan to rewild this area and it remain a home for swans; geese and other wildlife. Please can you also help me understand what thought with option 5 and 6 has been considered to prevent a concrete hard drop? I don't understand how any options can be considered that significantly drop the water level with the impact they will have across many areas.

A: Safety is a priority for us and we're aware through our previous discussions that it is a key issue with residents as well. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified. The Lower Mole Flood Alleviation Scheme was primarily designed to protect property from flooding and when it was first built, did not consider ways for biodiversity and wildlife to flourish along the channel. Whilst the rivers now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low. With modern techniques we could create a scheme that still provides protection against flooding, which is the main objective of this project, whilst seeking ways to allow the river to function more naturally and allowing a more diverse habitat for river species and wildlife. We have shared our initial design concepts with a number of wildlife groups as part of the early engagement process for this project. We will continue to work with these groups as the project progresses and will seek their views and feedback. The ecologists and geomorphologists within the project team will use information provided by these wildlife groups, as well as the feedback from residents, as part of any decision making for the updating of the scheme.

Q: I am particularly concerned at the lack of a credible option that retains the river and its habitats on the original Mole channel from Zenith up to the 'Mole inlet' on the Ember. Can you explain why only option 2, which you will undoubtedly present as unaffordable retains this stretch of river? Furthermore can you include a full impact assessment on this stretch of the river for options 3-6? Kind regards.

A: We can reassure you that the only option that leads to a reduction of flow in the Old Mole channel is Option 6. The flow and water level in the Old Mole channel is controlled by the Island Barn sluice and Wilderness sluice, and under Option 6 the

proposal is for gates at Island Barn sluice to be fully removed (the structures at Wilderness will remain). This would lead to a fall in water levels. Option 1 (‘Do nothing’) is a requirement of the appraisal guidance in order to set a baseline with which to compare the other options against, and Options 2-5 will lead to no change in flows along the original River Mole channel as Island Barn sluice gates remain. This project is still in the early stages and we have yet to carry out full impact assessments. We have information sheets available to view that summarise our fish and invertebrate survey results, as well as a survey carried out on channel depth. Please click on the hyperlinks to view. Whichever option is chosen we would work closely with residents as we carried out further assessments, sharing information and working together on potential mitigation or improvements that can be carried out as part of the updating of the scheme.

Q: Financial cost model - please can you direct me to where I can understand the assumptions behind the presented costs? Thanks.

A: You can find information on costs on our Options webpage. Just under the table listing the options there is a section titled ‘Cost’. If you are interested in further detail you can find this in two of the information sheets on the right-hand side of the webpage. The information sheet titled 'Understanding the appraisal process' refers to cost in the ‘Achieving funding’ section. Costs are also presented within the information sheet titled 'Options full table'. This sheet shows the two ways we have calculated costs and if you scroll to the end you will see more information on how whole life cash costs and present value costs are used. We hope this answers your question but if there is something specific you wanted to know please get in touch with us again.

Q: I refer to your answer to my earlier question. "The impact of the proposed options on the environment has been considered through a number of preliminary desk studies, site surveys (Phase 1 habitat survey, Fish and Invertebrate Survey, River Corridor Survey, Bat Survey) and a high level draft Ecosystem Services Assessment." What is an ecosystem services assessment and is it available for review? "We are in the process of undertaking a ‘Biodiversity Net Gain Assessment’ to further understand the existing habitat and how this may be affected by the options." Will this be available to review? "We will soon be reviewing the need for a more detailed economic valuation of the environment, which would follow the ‘Enabling a Natural Capital Approach (ENCA)’." Please can you explain what an "economic valuation of the environment is and how you hope to "enable natural capital". "With options 5 and 6 we would expect that there would be an improvement in overall biodiversity, particularly in the main channel." Can you explain what you mean by an "improvement in overall biodiversity?"

A: To answer your questions in order: An ‘ecosystem services assessment’ looks at different habitat types and the intangible and tangible benefits humans receive from them. Ecosystem services are the benefits people get from nature, from clean air and water to the physical and mental health benefits of interacting with the natural world. For example, we are reviewing how the ecosystem present along the scheme

currently provides opportunities for recreation like fishing and boating and how that can be improved for the future. This will help us see whether there any potential changes to the benefits for each option. We've started this piece of work but at this stage it is very high level and incomplete and the scope of the assessment needs further review by our environment experts. However we will be happy to share the report once it is completed. The Biodiversity Net Gain assessment is still work in progress and will be continually refined as the project moves forward. We will share findings from the work with the community and will publish the assessment once completed. However this may be some time away as the assessment cannot be completed until an option has been selected and further work carried out to reflect the detail of that chosen option. An economic valuation of the environment is a government requirement on projects. It is put in place to consider the value of the natural environment for people and the economy. An example of an approach to economic valuation is contained within the following guidance: Defra's Enabling a Natural Capital Approach. We have not yet started this piece of work but are reviewing what we might need to do to complete this evaluation in the future. By improvement in overall biodiversity we mean outcomes such as bringing new native species into the area and improving the condition and ecological value of existing habitats. The Lower Mole Flood Alleviation Scheme was primarily designed to protect property from flooding and when it was first built, did not consider ways for biodiversity and wildlife to flourish along the channel. Whilst the rivers now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low. A more naturally functioning river channel would vary in depth, width and flow, while still providing protection from flooding, and allowing for a more diverse range of habitat for wildlife.

Q: Our main concern is the potential flooding of the area which is the reason the alleviation scheme was created. By reducing the level and removing the ability to control the river flow and volumes during substantial rain fall, will your proposal ultimately put us all at more risk? Recreational use is also important and if the river level is lower and we are unable to access our boats due to the river level being significantly lower - and as we would be unable to put a jetty on the riverbank - this would be very disappointing. There are many people using the river now for exercise with canoes, rowing boats and paddleboards and access to the water will be very compromised. This would also affect our enjoyment of using the river and as mentioned by others, our property value would reduce. Safety and enjoyment are obviously important factors so we are very concerned that these proposals will affect many people.

A: Our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. If gates are removed

the capacity of the channel will be increased as water would no longer be stored upstream of the gates and therefore higher flows can be accommodated within the channel. We're very aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it could affect recreational activities. We understand that many residents and those from the local area do use the River Ember for activities such as paddleboarding and canoeing.

As the project moves forward and once a decision on the future of the scheme has been agreed, it is possible that we could explore where it may be possible to introduce items such as steps to allow better access to the river. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. Safety is also a priority for us and we know through our previous discussions that it is a key issue with residents as well. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified.

Q: I am writing to you under the Freedom of Information Act 2000 to request the following information from "Lower Mole Flood Alleviation Scheme". Please could you provide this questions thread with: Engineering risk assessment report on the impact to the bank, the ground anchors and the houses over time if the river's water level were to remain low. Ground anchors were installed to retain the bank when the river's level is low however over a prolonged period of low water level, the bank exercise a prolonged pull on the anchors which may destabilise the ground and the foundations of the proximity houses. Please provide the information in the form a risk assessment report. If it is not possible to provide the information requested due to the information exceeding the cost of compliance limits identified in Section 12, please provide advice and assistance, under the Section 16 obligations of the Act, as to how I can refine this request. If you can identify any ways that my request could be refined, I would be grateful for any further advice and assistance. Thank you for your time and I look forward to your response.

A: As you have submitted this as a Freedom of Information request we will have to deal with this question accordingly. We will provide you with a response to your information request under the Environmental Information Regulations (EIR) / Freedom of Information Act (FOIA) within 20 working days. We have sent your request over to our enquiries team who will log and respond to your request through our Enquiries inbox. To be able to formally respond to you we require your email address. Please could you email our project inbox (FASProject.LowerMole@environment-agency.gov.uk) and provide us with contact details and we will then provide you with your reference number. Many thanks.

Q: Thank you for responding to my question now could you answer it. My question was are the owners of the land and fishing club aware that they could possibly be losing their river as yet again there is no mention of this on your

very vague website?? Also as you are being vague with what the possible implications are regarding these rivers should the date you close your consultation be pushed back to give you a chance to let the tax paying residents know what could really happen, not just your make believe version?

A: We have been in contact with a representative of the fishing club who has also shared information on social media about the website. The representative has the individual contact details of a member of our team and can get in touch with her at any point to discuss the proposals in more detail. The landowners were also written to in January. However we will address your concerns by contacting the landowners and fishing club again to offer them the chance to discuss the options in more detail. Like you, we recognise it's important for us to make sure our recreational clubs and landowners are aware of our proposals so thank you for getting in touch. We have stated the impacts of any potential water level changes within our Full Options Table which is in the Information Sheets section on our Options page. We know residents along the river are concerned about how updating the scheme will impact them, and this is why we developed this website to share new information on cost and carbon and showcase visualisations of the options. Although this project is in the early stages we wanted to share as much information as possible so residents can comment and help shape decisions made in the future. Whichever option is chosen we would work closely with residents as we carried out further assessments, sharing information and working together on potential mitigation or improvements that can be carried out as part of the updating of the scheme.

Q: Dropping the water levels, as many residents have already indicated will be unsightly, dangerous where high concrete reinforcements have been built and actually present a health hazard, particularly from mosquitoes, rats and mink. We have attempted in our own way to control these pests but dropping the water level will encourage multiplication. In addition, if the Environment Agency are so concerned about so-called "carbon footprints" why don't they install water turbines at each weir so that they can be operated on a self-sustained energy level with the requisite of taking power from the national grid? As a former (successful) student of environment and pollution (my external examiner was the late David Bellamy) and publisher of over 200 peer-reviewed publications I can assure you that permanently lowering water levels will prevent, not encourage, fish migration and moreover will allow run off, upstream of the Ember Loop, to flood into the Thames and our homes once the critical level in Thames has been exceeded uncontrollably. Quite frankly the options to remove the flood gates, which is let's face it is what they are, is thoughtless, ludicrous and purely a short-term money saving operation. Option 3 is THE only sensible option unless you which history from 1968, to repeat itself so why are other "options" on the table?

A: We will log your thoughts on pests and make the project team aware. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. Hydropower: we've discussed the potential use of hydropower along the scheme with residents in the past, however initial workings indicated it

would not generate enough electricity to justify the investment. Hydropower generation requires strong river flows all year round, something this stretch of river cannot provide. While the Environment Agency issues the required permits and regulates hydropower schemes, we do not fund or install them. We are supportive of sustainable hydropower schemes and we work closely with developers of hydropower schemes to make sure their plans do not harm the environment or impact on flood risk. Fish migration: We have produced an information sheet on fish passage and impoundment and these may be of interest to you. They can be found at the end of this webpage. We would be interested to know more about your view that lower water levels would prevent fish migration. Please get in touch with us through: FASProject.LowerMole@environment-agency.gov.uk.

Flood risk & the River Thames: our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass and if they were to remain shut would increase flood risk. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. The flows from the River Mole and River Ember reaching the River Thames would not change and the combined flood risk from the River Mole and River Thames would not increase. In addition if gates are removed the capacity of the channel would be increased as water would no longer be stored in the channel upstream of the gates and therefore higher flows can be accommodated within the channel. This would reduce flood risk compared to the present day situation.

Q: Removal of Sluice Gates. Here is an extract from Questions and Answers: "Q: Why were the sluice gates installed, surely to alleviate the risk to flooding? Is it not counter intuitive to remove them? A: ……..The sluice gates were installed during the construction of the channel for amenity and recreation purposes…… Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do." Please now refer to the "Pros" for Option 6 which claims that removal of all sluice gates will result in "Reduction in flood risk in severe events and greater resilience against climate change due to minimal impoundment and greater flow capacity in the river channel." Is this "Pro" statement correct? The statement suggests that it was not necessary, indeed an error to install the sluices in the first place as they reduced the flow capacity of the channel and increased risk in severe events. Please now refer to the 1998 paper Flood alleviation scheme for Lower River Mole by W. E. FOSTER, FICE, MIWEM and W. B. HARRIS, FICE, FIWEM, FGS, MConsEt Proc. Instn C iu. Engrs, Part 1,1988.84, Apr., 235-263 ("the Paper"). At paragraph 34, the Paper states "Three new sets of sluices, near Hersham viaduct, Island Barn and Molember, have been installed for the purpose of controlling flows and water levels to maintain amenity and navigation." This suggests that the scheme designers

considered that the sluices made a positive contribution towards flow control and that there would be negative consequences if pre-scheme water levels were not maintained by those sluices. Those negative consequences must have included the risks of the drying up of the Mole from is bifurcation point and the drying up of the Ember Loop. At paragraph 10, the Paper states "By applying the slope area method to the flood path through a reasonably uniform reach near Cobham, the peak flow was estimated to be 241 m3/s and this figure was used for the hydraulic calculations. A high peak run-off coefficient of 0.6 for the entire catchment was deducible." Please consider the effect of very high volumes of water flowing through the engineered channel without any sluices to manage that flow. There would presumably be some warning if "biblical" volumes of water were approaching East and West Molesey. At present, the Island Barn sluice impounds a huge volume of water, including in the wide "lagoon". In high flow events, this water could temporarily be released to provide a buffer, in the manner of a huge balancing pond, reducing both water speed and volume in the engineered channel. The Island Barn sluice also keeps water levels high enough to allow the lower Mole and Ember Loop to function. It appears from the Paper, Fig.4, p242 that the Mole acts as a safety valve capable of carrying at least 43 cumec if unobstructed. Without the Island Barn sluice providing adequate water levels, the Mole may well become obstructed by vegetation, old supermarket trolleys and so on. It is also suggested that a high volume of water, moving at high speed through a sluice-less engineered channel would wash away the new works, habitat and ecology in the bed of the channel, erode the bed and banks and might even overtop the sharp channel bends at East Molesey. The channel passing north east from Viaduct sluice aims directly at the Island Barn Reservoir before veering to the east at almost 90 degrees. In an extreme event, might the banks of a sluice-less channel erode and endanger the reservoir retaining walls?

A: We have answered your questions below in order. Our main priority is to maintain the standard of protection against flooding which the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. If they were to remain shut this would increase flood risk. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. The flows from the River Mole and River Ember reaching the River Thames would not change and the combined flood risk from the River Mole and River Thames would not increase. In addition, if gates are removed the capacity of the channel would be increased as water would no longer be stored in the channel upstream of the gates, therefore higher flows can be accommodated within the channel. This would reduce flood risk compared to the present day situation. There is the possibility of erosion to the banks occurring if there was a rapid change in water level or flow, such as through the sudden opening or failure of a sluice gate. As part of the original design of the scheme, large sections of the channel were

engineered to include hard materials to cope with higher flows and reduce the risk of erosion to the banks of the river channel, though there are sections where less hard engineering is present.

At this stage of the project we have not carried out detailed assessments of potential erosion impacts. We can say that all options under consideration include works to repair the channel banks, which may involve reinforcing sections along the river bank, improving their integrity and reducing the risk of damage during high flow flood events. Initially, exposed banks would vegetate and allow larger marginal areas to become established. There may be some localised areas of river bank that would experience adjustments should the water level be reduced which may require works to be carried out. As the options development process progresses, further consideration would be given as any proposals are developed further. The costs of all options include a risk allowance to cover unforeseen increases in cost that may occur. One such risk is impacts on channel bank stability as a result of water level change. If an option that includes water level change is selected these risks will be assessed further through development of the detailed design to minimise the chance of them occurring.

Q: Can you provide a closer CGI impression of where the water levels would be just upstream of Molember (i.e. for residents of Summer Rd, Gardens and Avenue, and Molember Rd) for Options 4 and options 5&6. The water level drops of c. 0.5m for the former and 1.5m for the latter would be severe and the images shown in the presentations seem misrepresentative. The CGI boats are huge, the ladders different to existing make the drop look less severe than reality, whilst the abundant imaginary vegetation will not be anything like the vast display of concrete and metal piling which will be visible.

A: The project is in its early stages and it is not economically viable for us to compile more visualisations for each option at the present time. We will not be creating any more visualisations until the project has reached the stage where it is possible to make a decision on a preferred option to update the scheme. Whichever option is chosen we would work closely with residents to keep the conversation open as we carried out further assessments and shared information as part of the updating of the scheme.

Q: Please could you explain why you have chosen to only allow this website to be live until 24 March 2021, as stated in your letter of 27 January to residents. After this date will you be shutting down the website from public view and therefore removing free and easy access to all the data, information, details, options, questions etc. that are showing here, including many questions and answers on this 'Join the Conversation' section? Is it not useful and helpful to every party involved that as much information is available on the site and for viewing ad-infinitum? It doesn't feel very transparent of the EA to close this website (as it says you will on this Join the Conversation page). It also means that you will likely be unable to post your answer in time to my question under the freedom of information act as posted here on 4 March at 14:41pm - which in itself means the information in your response will not be freely available for

viewing on the site. If it is your intension to close and remove this site from view then please could you advise where I will be able to find all the data that is currently showing here. And how you will notify all parties and residents involved where they can find (quickly and easily) and refer back to all the data on this website if it is closed down. Thank you in advance, I look forward to hearing from you and in the hope that this website and the information displayed will be here for viewing after 24 March 2021.

A: Due to the pandemic we have had to think differently about how we can engage with the community and provide a way that we can not only share information but also invite questions and feedback. This website is just one part of an ongoing engagement process going forward as part of the Lower Mole Flood Alleviation Scheme. The aim of this website is to provide details of our findings from various surveys and ongoing work early in order to respond to public concerns over water levels and wildlife. Once this website closes on 24 March 2021, we will carefully review your feedback and suggestions incorporating them where possible into our options going forward. Once we have done this we will come back to the community to share our findings and give more information on our next steps. Please rest assured that when this website does close that will not be the end of our conversation with you. Our intention is that when we reach 24 March 2021 the information will not disappear, it will still be available on this site for 5 more weeks and all questions that we have received until that point will still be accessible to all. The only difference being that as the site will no longer be live you will not be able to submit any further questions, ideas or complete the survey. The project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available however for any further questions the community may have. This will still be monitored by our project team. Following this all information will be transferred to our citizen's space page which can be accessed via https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/ where it will remain for you to access at all times. This page will then be updated on a regular basis as the scheme progresses. With regards to your question posted under the Freedom of Information Act this is being dealt with by our Enquiries team who are required to respond to your request within 20 working days. Due to this being a Freedom of information request they will email you directly.

Q: Is the sole reason for removal of sluice gates financial and are claimed advantages for sluice gates removal just rationalisations? If the sluice gates were in a good state of repair and did not require attention, would you seek to remove them at great expense, with the risk of collateral damage, in the face of major public opposition in order to obtain a higher capacity channel, diverse habitats, "river restoration" and unobstructed fish migration routes? In your response below to Dr Barry Alexander you state "In addition if gates are removed the capacity of the channel would be increased as water would no longer be stored in the channel upstream of the gates and therefore higher flows can be accommodated within the channel. This would reduce flood risk compared to the present day situation." This sounds like a great advantage,

doesn’t it? Where is the evidence that the capacity of the channel is at present inadequate and requires to be increased by removal of sluices?

A: I hope the information below is of help. If you would like to discuss this further please do email our project inbox FASProject.LowerMole@environment-agency.gov.uk so we can understand if there is any further information that may be helpful to you. In your first question you ask ‘Is the sole reason for removal of sluice gates financial and are claimed advantages for sluice gates removal just rationalisations’, our answer is no. The scheme is now reaching the end of its design life and needs to be updated to maintain the current standard of protection it offers to homes and businesses. The sluice gates and their associated mechanical/electrical equipment are in need of significant work to ensure their ability to operate in the future. We are currently still working at Royal Mills sluice to make repairs to the structure after it failed in 2020, to ensure this structure is able to function. In the introductory video on our website, we mentioned that when repairs and maintenance to just keep the structures operable becomes more of the norm, we need to review if this is the best way forward or should another alternative option be progressed instead.

Regarding the channel capacity, the scheme was designed so the channel has a sufficient capacity to reduce the risk to flooding in most events. We are not seeking to reduce the standard of protection against flooding under any of the options, the main aim of this project is to ensure that the standard of protection the scheme currently offers against flooding is maintained. The sluice gates act to retain a water level and have to be opened at times of high flow to allow more water to pass through them, otherwise the risk to flooding would increase. Should the sluice gates be removed, a risk of these structures not operating and increasing the risk to flooding would also be removed. Finally, if the sluice gates were not in place then the impounded water stored behind them would not be present when higher flows reached that part of the river, providing more capacity for flood waters.

Q: I'm not sure where on the website you're supposed to express a preference for an option. I think option 3 seems the best bet.

A: Thank you for your feedback, we have logged your comment. You can also find our survey here.

Q: Is there an explanation for the use solely of Q50 flow data? Surely it would be easy enough to present the data showing Q50 broken down by month, periods of drought etc. Why not show the data as multiple lines for Q10, Q25, Q50, Q75, Q90?

A: The data that has been used on these graphs is Q50 data, this is data that would be equalled or exceeded at least 50% of the time. This is an average of the historic records at Esher gauging station which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however, this does provide a representative average water level. We believe that using this data gives us the best representation of the day to day water

levels which could be expected rather than multiple water levels which may be confusing.

Q: Reading through some of the Q&As here, I was struck by the amount of uncertainty, items that were answered along the lines of "not yet studied", or "we could explore where it might be possible". Taken with the possibility of the need for additional bank protection work (as mentioned in answers), my question is, has a realistic amount been included in the cost estimates for these items?

A: As we are in the early appraisal stages of this project, the amount of detail available on each of the options is limited. We have used our knowledge and experience gained from other projects, as well as that of our consultant and contractor to assess the estimated costs of each of the options. We acknowledge that without the full design and detail for each of the options, this could have an impact on the accuracy of the costs which are currently presented. We have incorporated additional costs for risk and uncertainty into each of the options. Whilst this process enables us to develop reasonable costs based on our current understanding, the costs may change during the detailed design process.

Q: I have a concern about bats. The Ember Loop is a great place for bat spotting as they swoop over the water to feed on insects. A friend who knows about bats has suggested that they may be Daubenton's bats. As this breed depends on availability of water I would like to know how you can ensure that there is sufficient water flow in the Ember Loop to maintain the Bat population.

A: We undertook a bat survey in 2020 and found evidence of bats than can be grouped into the Myotis species of bats, which includes the Daubenston's bat (Myotis daubentoniii). In terms of potential impacts from the options we are sharing on our website, it is considered likely that options which lower the water level may benefit the population of bats utilising the area. This would likely occur through the creation of more low-lying wet habitats (such as reed beds or mud flats) that would benefit invertebrate life, in turn increasing the foraging opportunities for bats along the scheme.

Q: Thank you for giving us a concise view of the problems and possible pros and cons of the solutions. My question is in regards to the cost and carbon footprint. Has the conversion of river flow force into useful electricity and consequently revenue, been a consideration in the solutions offered? Or has it been ruled out due to concerns of the impact of the environmental impact? We have some great minds here that could potentially solve mechanical, material science or environmental niche problems if the ideals holding this method back, were aired and given up in a competition format to solve.

A: Over the past 15 years we have held high level discussions with residents and commercial developers regarding the potential use of hydropower. We have provided a summary of our conversations with them below. The previous discussions considered all the sites along the River Ember. It was highlighted that the best option for a potential hydropower scheme would most likely be Viaduct / Royal Mills as

these structures have the greatest change in height from upstream to down (head difference), in the region of 3.3m. The higher the difference in levels the greater potential for power generation. Both of these sites were not taken forward due to one or more of the following: Royal Mills is not under the ownership of the Environment Agency and would involve an additional party in the scheme as well as the structure owners consent. The structure at Royal Mills is considerably older (built in the 1950's) than Viaduct so it would be expensive to construct and/or modify it for hydropower. The River Mole has a considerable range of flows along its length and does not provide strong flows all year round, in the warm summer months the flows are often around the 2 m3/sec which is low compared to the winter. As the water flows over both Viaduct and Royal Mills, the overall flow would be distributed across both of these structures instead of being focused through one. - In order to safeguard backwater river habitats at times of summer low flow, the level of the weir downstream of Royal Mills was adjusted a number of years ago. During low flows, a majority of the flow passes over Royal Mills, we adjusted the level of the weir downstream of Royal Mills, rather than Viaduct. During the summer months, very little flow would be available to pass over Viaduct in order to generate power. Any turbine or Archimedes screws could lead to a reduction in the flood discharge. Maintaining the current standard of protection the scheme currently offers against flooding is the main priority for this project. Should one of the sluice gates need to be removed at Viaduct for example and replaced with a hydropower option, any impacts on the ability to manage flooding would need to be fully studied. For example, the equipment may need to be able to be lifted from the flow completely in times of higher rainfall to allow the passage of flood waters. This may require the structure to be made slightly wider to compensate for this loss of capacity due to the hydropower equipment. We hope the above is helpful in terms of some of the aspects that have been highlighted previously and would need to be fully considered should any hydropower scheme be considered in the future. It seems from these previous investigations that a hydropower scheme would be challenging and may be expensive when compared to any return on investment.

Q: Please provide details of the budget for the Lower Mole FAS for each of the last 10 years? What is the current 2020-21 budget for the Lower Mole FAS and what are the details for the next 5 years? Repairs - please provide details of what repairs and when have been carried out on the six sluice systems that form part of the Lower Moles FAS since completion of the FAS in the 1980s? What has been the costs of each of these repairs? Consultation - given that normal consultation usually involves public meetings and discussions, what is the justification for carrying out consultation where many people would have not been aware of your options, nor would they have had the opportunity to meet together to discuss the options during a pandemic? You mention that your timescales are looking for a 100 year system programme - for a consultation that is so far-reaching why is this consultation so short and restricted in format? What is the likely or proposed timetable following this consultation?

A: Finance - please see below for a table of yearly operational (including managing high flows on the scheme) and maintenance costs over the past 5 years. We do not hold records of this data that dates back 10 years. These costs also include work relating to penstock operational checks, sluice maintenance checks, public safety risk assessment, deformation surveys, mechanical/electrical/instrumentation maintenance, general maintenance, specialist tree works, breakdown call-outs, utility costs and removal of pennywort. It is not possible to provide accurate details on elements such as people time, as the team managing the Lower Mole also work across other projects and in other areas. Also, repairs required to the scheme vary depending on the scale of flooding in a year and how we schedule the works, for example we cannot work during fish spawning season.

Maintenance and operational costs	
Year	Costs (£)
2016/17	£97k
2017/18	£104k
2018/19	£123k
2019/20	£138k
2020/21	£176k

The frequency of breakdowns has increased significantly since the high flows of the winter 2013/14 and during subsequent winters. For the next 5 years, the current estimated future costs for the Lower Mole Flood Alleviation Scheme are circa £23,000,000 to implement an option to update the scheme. This figure is subject to change once the full nature and scale of any future works are available in greater detail. Repairs - our records on sluice gate repairs and more major work begin in 2014 so while we cannot provide a comprehensive overview of our total costs since the 1980s, we can tell you the following.

Year	Repair Description	Cost (£)
2010	Bank repairs downstream of Island Barn sluice	£100k
2014 to present	Repairs to operating machinery on sluice structures, telemetry repairs and temporary works to Ember channel banks	£500k
2014	Asset Recovery Programme following the 2013/14 flooding	£400k

2015	Sluice structure walkway reinstatement	£50k
2016/17	Safety/debris boom installation, construction of access ramps to river channel	£1,200k
2017/18	Mechanical, electrical and instrumentation breakdown repairs	£50k
2018	Health and Safety works	£400k
2018/19	Mechanical, electrical and instrumentation breakdown repairs	£30k
2020/21	Repair works (Royal Mills, Viaduct, gate repairs)	£500k

Consultation - due to COVID we have not been able to engage with the public in ways we would have done previously. We were still able to carry out a large scale mailing of letters to the area around the scheme to set out the details of our website, and the range of different ways that feedback and comments can be sent to us. We also worked with Elmbridge and Surrey Council to help raise awareness of our website within the community. For example, a link to our website was made available through the News section of the Elmbridge Council website. Local groups kindly posted links to our web page on their digital platforms, and we made direct contact with a number of residents groups, landowners and local businesses. We also put a number of posters along the scheme at access points which advertise our website, and how the community can get in touch with us. We also extended the length our interactive website was open in order to ensure more time for the community to view the details and to feedback to us. Now that the website is closed the information will not disappear, it will still be available on this site for three more weeks and all questions that we have received until that point will still be available to view. We will now take time to carefully review all of the feedback we receive from the community, and use this to help us update our options. This will not be the end of our conversations with the community about the future of the scheme, we intend to keep the conversation open as the project moves forward. We will continue to speak with the community and stakeholders as the project looks to move forward, and to carry on sharing information on this project to hear what the feedback is.

Q: What are the impacts on the stretch of the old Mole running along Bridge Road/Molember Road to Zenith? All the models and presentations show impacts to the Ember sections i.e. the lower stretch running along between Molember and Summer Road, but it is not clear what will happen to river levels, vegetation, access etc... on the lowest section of the parallel old Mole under the 6 options under consideration.

A: For Options 2-5, the typical water levels would not change on the Old Mole as Island Barn sluice gates remain in place and ensure that flows along the channel towards the area in quest ion remain unchanged. For information, Option 1 (‘Do

nothing') is a requirement of the appraisal guidance in order to set a baseline with which to compare the other options against. For option 6, between Wilderness and Zenith our modelling suggests that the water levels may drop by up to 0.28m due to reduced flows but the presence of Zenith sluice would act to retain the water level at this reduced height. For the section of the Old Mole between the Esher Road Bridge and Zenith sluice our modelling suggests the water level will drop by 0.14m. A 0.14m drop in water level under Option 6 would not be expected to lead to changes in access. A reduction in water level and flow to the Old Mole channel is unlikely to significantly increase Pennywort growth as flow conditions are already preferable for this plant. Shading provided by the large trees along the banks is likely to be keeping the Pennywort more at bay in the downstream sections of Old Mole at the present time – which will remain unchanged.

Q: Your response to my initial question was:- ""Hydropower: We've discussed the potential use of hydro power along the scheme with residents in the past, however initial workings indicated it would not generate enough electricity to justify the investment. Hydropower generation requires strong river flows all year round, something this stretch of river cannot provide. While the Environment Agency issues the required permits and regulates hydropower schemes, we do not fund or install them. We are supportive of sustainable hydropower schemes and we work closely with developers of hydropower schemes to make sure their plans do not harm the environment or impact on flood risk." This does not answer the question at all and at best, is pure rhetoric and at worst, sheer bunkum. You clearly do not have a basic grasp of O level physics and the concept of gearing. I can assure you that wind farms and hydroelectric tide turbines operate under conditions of much less turbulence and water flow that we have in the rivers Mole and Ember. Wind turbines in particular, are not placed in regions of permanent gale force winds and do not operate 365 days a year at full power. Moreover, hydroelectric sea turbines that operate on tidal movement of water, work under much lower flows that the rivers Mole and Ember. Moreover, the time when power will be required, is when the rivers will be in flood in order to regulate the sluices not during periods of low flow such as the summer when they can almost remain permanently in one position. In addition, the excess power produced, particularly during the summer, can either be stored in batteries or indeed, sold back to the National Grid. This could also be supplemented, if desired, with solar panels and the power again stored in batteries. The Environment Agency (EA) are the ones who have raised the issue of the construction of new gates having a so-called high "carbon footprint" and yet here are several ways in which this can be obviated as another contributor has proved. This gentleman is connected to a company that specialises in hydro-electric turbines on weirs and has kindly provided a photograph of the one on Reading weir in operation that is working very successfully (see questions). He also suggested that the expenditure on such an item would be repaid in 20 years and would have then cost the EA nothing. Please can you explain to us how you can justify the comment that there is insufficient flow in the rivers for the

addition of water turbines on the weirs, when clearly several experts on the subject and indeed, common sense, suggest there is?

A: Over the past 15 years we have held high level discussions with residents and commercial developers regarding the potential use of hydropower. We have provided a summary of our conversations with them below. The previous discussions considered all the sites along the River Ember. It was highlighted that the best option for a potential hydropower scheme would most likely be Viaduct / Royal Mills as these structures have the greatest change in height from upstream to down (head difference), in the region of 3.3m. The higher the difference in levels the greater potential for power generation. Both of these sites were not taken forward due to one or more of the following: - Royal Mills is not under the ownership of the Environment Agency and would involve an additional party in the scheme as well as the structure owners consent. The structure at Royal Mills is considerably older (built in the 1950's) than Viaduct so it would be expensive to construct and/or modify it for hydropower. - The River Mole has a considerable range of flows along its length and does not provide strong flows all year round, in the warm summer months the flows are often around the 2 m3/sec which is low compared to the winter. As the water flows over both Viaduct and Royal Mills, the overall flow would be distributed across both of these structures instead of being focused through one. - In order to safeguard backwater river habitats at times of summer low flow, the level of the weir downstream of Royal Mills was adjusted a number of years ago. During low flows, a majority of the flow passes over Royal Mills, we adjusted the level of the weir downstream of Royal Mills, rather than Viaduct. During the summer months, very little flow would be available to pass over Viaduct in order to generate power. Any turbine or Archimedes screws could lead to a reduction in the flood discharge. Maintaining the current standard of protection the scheme currently offers against flooding is the main priority for this project. Should one of the sluice gates need to be removed at Viaduct for example and replaced with a hydropower option, any impacts on the ability to manage flooding would need to be fully studied. For example, the equipment may need to be able to be lifted from the flow completely in times of higher rainfall to allow the passage of flood waters. This may require the structure to be made slightly wider to compensate for this loss of capacity due to the hydropower equipment. We hope the above is helpful in terms of some of the aspects that have been highlighted previously and would need to be fully considered should any hydropower scheme be considered in the future.

Q: I refer again to your handy updated PDF regarding the catastrophic effect on water level of the 'natural' Mole upstream of Viaduct sluice, should it be removed under options 5+6. I've mentioned at my location approx. 0.5km upstream of Albany Bridge (51 22' 06" N, 0 23' 05" W), the level drop shown in your graph will be 1.5mtrs. With your quoted survey depth of 1.9m, this will leave 40cms of river depth. At the bottom of my garden where once was a beautiful meandering river, there will be exposed muddy banks that will be overcome every high rainfall event and when there is average flow, leaving a stream of sorts. Currently I can slip any of my three boats easily off my decking, your works will effectively drain the river at this point, making

launching anything practically impossible. One small tragic personal loss in the great scheme of things I appreciate, but it was the reason we bought our house some 20 years ago, and it means a lot to us. You keep quoting in response to me and others that as the project moves forward you want to help and facilitate owners of riverbank properties affected. The following are two examples. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. There may be some localised areas of river bank that would experience adjustments should the water level be reduced which may require works to be carried out. Planned opportunities for recreation like fishing and boating and how that can be improved for the future.' However in response to my previous concerns about the draining of the 'natural' Mole at this point because of your works, and what help we may be afforded, one of your colleagues replied: 'We have no plans to undertake any work upstream of Albany Bridge.' According to your graph the sheer volume of water that will be lost upstream of Viaduct seems massive, stretching over 9km of bank length. Compared to the far lesser by comparison, level drop downstream over the 4km stretch of Viaduct to Molember. So my question, given the far greater impact of the works upstream of Viaduct should the gates be removed, which of your statements is correct? Are you going to help all of the householders and landowners who care for the river on this stretch, or are you not? Thank you.

A: Upstream of Albany Bridge we have not included any specific works to the flood defences as part of the scheme that have been costed to date. In this location, the flood defences are set back from the river and have been assessed as being in adequate condition. We regard to the potential need for works to river banks and river access should an option be chosen that would result in a change to water level, this potential need has been considered within a risk allowance in the current costings. Should an option that changes water levels be taken forward further assessment would be carried out to understand any areas where any works to the banks or access points may be required.

Q: I live on the River Mole and am concerned that with the removal of the gates we will see a variety in the water levels that causes disturbance to wildlife and habitat we have come to enjoy and preserve through our own independent maintenance. TODAY 12/3/21 the River mole is at its lowest level we have ever seen (having lived here for 4 years) and the muddy banks are completely exposed. Is this a sign of what is to come? Do not tell me you will be replanting the banks as there is no doubt that there will be no money for this and moreover it will take away the habitat for the swans nesting and other of wildlife. Moreover the financial implications for residents is unprecedented as we have all paid a premium to live on this river and have felt safe in the knowledge that we were not at a flood risk - this will all change as the river becomes unsightly, our house values plummet and our insurance premiums skyrocket due to the fact we will now live in a high-risk flood zone. OPTION 3 IS THE ONLY WAY FORWARD.

A: The main aim of the project is to ensure the standard of protection the scheme currently offers against flooding is maintained. The sluice gates act to retain a water level under normal conditions and have to be opened at times of high flow to allow more water to pass through them. If the sluice gates were to remain closed the risk to flooding would increase. Through the feedback we have been receiving, we are aware how much local resident's value and enjoy the river wildlife. The Lower Mole Flood Alleviation Scheme was primarily designed to protect property from flooding and when it was first built, did not consider ways for biodiversity and wildlife to flourish along the channel. Whilst the rivers now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low. With modern techniques we could create a scheme that still provides protection against flooding, which is the main objective of this project, whilst seeking ways to allow the river to function more naturally and allowing a more diverse habitat for river species and wildlife. For Options 5 and 6, the river would still be present within the channel at reduced water depths. Under these options, there may be some localised areas of river bank that would experience adjustments should the water level be reduced which may require works to be carried out. Should an option be progressed which would see the reduction of water levels, opportunities to make visual improvements to the way the scheme looks would be fully explored with the community.

Q: Safety concerns, and fear of drowning or harm need to be addressed because householders on the Ember have access to the river via a ramp to water and waste pumps, a boat slip and a walkway. If the river level is reduced it would be a major safety concern for parents of small children, non-swimmers or family pets, because if they should fall in either in normal times or when the river is fast flowing. How will the EA mitigate this risk?

A: We hear your concerns. Safety is a priority for us and we're aware through our previous discussions that it is a key issue with residents as well. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified. Currently, we don't have specific details about potential mitigation measures as these are to be developed as the project progresses.

Q: We have riparian rights to the River Ember. A contract made with the Thames Water Authority, now Environment Agency, is this recognised as a legal contract by the EA?

A: We'd like to look into this in more detail so please could you email our inbox (FASProject.LowerMole@environment-agency.gov.uk) with your address, or if possible a copy of your agreement and we will get back to you. Many thanks.

Q: My questions relate to reduction in water level and flow in the Mole flowing west and North of Island Barn Reservoir. Am I right in thinking that the water

level and flow in this section will only be reduced in Option 6? I am concerned that comparatively little analysis seems to have gone into the impact of this. It seems to me that a reduced water level (and running dry at some times of year) is likely to have a negative impact on wildlife and amenity. It will also have a detrimental effect on the Dead River, the lower reaches of which seem to follow the Mole water level. I am also concerned that this reduction in flow and water level might increase the possibility of flooding along that section: because there will be more variability in flow in the main channel, and the lower water levels will perhaps encourage silting up, vegetation growth and other obstructions, so that the channel ends up more restricted when volumes increase.

A: Yes you are correct, the level and flow at that point will only be reduced in Option 6. We are in the early stages of this project but as it progresses, and should an option be selected that involves the reduction of water levels, we will make more detailed assessments about potential impacts to the Dead River. Your observation about the potential silting up and growth of vegetation in this stretch of river is a very interesting one and the project team will log this. The Dead River channel is not owned by the Environment Agency and third parties are currently responsible for its upkeep. Whether this would be subject to change should an option be progressed which lowered water levels in this area, we would investigate this aspect further in the future.

Q: If we move forward with the options that reduce the water level I am concerned that the water treatment works will be pumping water into a very shallow stream, so they water that flows down the river will have a very high ratio of discharge from the water treatment works. Please could you provide accurate figures? Currently Thames water pump 0.7 m^3 per second into the river that is 3/4 of a ton per second! If the same amount of discharge is pumped into a shallow stream, I can only imagine it will smell disgusting. Thames water have confirmed that at peak flow times when there is a storm they pump in as much as 1.7 m^3 per second, much of this is untreated, not quite raw sewage but sewage that has been through a simple sieve to filter out the big bit. This is not acceptable and I am sure creates an unliveable and dangerous environment.

A: Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river.

Q: Please can you confirm what consideration you have given to the house anchors and the impacts of reducing the water level will have on these.

A: At this early stage of the project we have included provisional cost estimates within our options to cover costs that may be incurred to ensure these structures

remain stable. We have not yet begun structural and geotechnical surveys and analysis. This work would be carried out during the detailed design stage of the project should any option be selected which could lead to a change of water level along the Mole. This will allow us to better understand if work is required to ensure the walls and piling are not destabilised.

Q: I'm very concerned about the drop in water levels due to the amount of sewage that is pumped into the river. At the moment the high water levels mean this is not too much of a problem but with much reduced levels we could have not only have an eyesore at the bottom of our gardens but a health and safety and environmental issue as well! What conversations have been had about this?

A: We have met with Thames Water and discussed our scheme with them. Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river.

Q: Canoe access points - have you considered the level of impact on rubbish tipping by putting this in. If you recall when the river was dropped down one winter that area where you are proposing a canoe access was full of rubbish - disused breaks - as it's an easy access point for dumping. WILL THE E.A MONITOR AND CLEAR ALL RUBBISH?

A: Once an option is selected we will then review potential impacts in greater detail. We will log your comment on rubbish tipping and make sure this is considered as part of any future management plan for the channel.

Q: In response to my earlier question, for which I thank you, you responded as follows: "In your first question you ask 'Is the sole reason for removal of sluice gates financial and are claimed advantages for sluice gates removal just rationalisations', our answer is no…etc." If the sluice gates were in a good state of repair, would you remove them to obtain claimed advantages such a greater bio-diversity? If your answer is "no" then the sole reason for removal of sluice gates must be financial.

A: We would not consider replacing the sluice gates if they were in a good state of repair. This would not be cost effective as sluice gates have a working life of about thirty years and we have a responsibility as a public-funded body to spend public money wisely. The reason for proposing the removal of gates in some of our options now is due to the condition of the current scheme, which is now reaching the end of its design life and needs to be updated to maintain the current standard of protection against flooding it offers to homes and businesses. The sluice gates and their associated mechanical/electrical equipment would require significant work to ensure their ability to operate in the future. We also have to consider legislation such as the

Salmon and Freshwater Fisheries Act. Under this Act we need to consider how fish can travel along the channel. Therefore now is the right time to review the whole scheme, and that includes all potential cost and environmental impacts/benefits

Q: You talk of wilding in the areas where river levels are reduced. It sounds comforting but along the reach of the Ember upstream of Molember Sluice which is canalised in concrete and sheet piling it is hardly practical. The current water levels hide the sheet piling and mud and result in an acceptable level of amenity which enables boating and fishing on the river. At the bottom of my garden the water level is normally 150mm below the top of the concrete pile cap, the distance between top of pile cap to solid bottom is 3000mm and to top of silt is 2500mm. If the level is dropped it will expose sheet piling and mud with a small stream meandering through the mud in the summer and a high flow and level washing away any emergent vegetation in the winter. It will become unusable to boats and fishermen. The river will become a canal and an eyesore. Your suggestion that some form of access to this lower level could be provided appears strange as introducing structures at this lower level would by definition restrict the flow and thus increase the risk of flood. The amenity value of the river would be destroyed and the value of my house would plummet. Please provide the results of your multi criteria analysis which shows both the reduced value of the local amenity as well as your reduced cost for those schemes which lower the level upstream of Molember Sluice.

A: In the section of river you reference in your question, there is an interaction with the River Thames and our information on Option 6 suggests there would be a water level of around 1m remaining within the channel. No decisions have been made about what option may be taken forward to update the scheme or what the scheme may look like in the future. Should an option be selected that reduces water levels, opportunities to make visual improvements to the way the scheme look and to mitigate against any impacts would be fully explored with the community. Please see our 'Options Full Table' document here. This outlines the pros and cons of each option and you may find it useful as it sets out potential environmental and water level outcomes. At this stage of the project we are preparing a Full Options Appraisal Assessment. This is not yet completed as we will incorporate all of the feedback from the community we are receiving through our interactive website, the post and by email. Once we have completed the Full Options Appraisal Assessment, we will share this with the community.

Q: The reach of the Ember upstream of Molember Sluice is canalised in concrete and sheet piling. The pile caps are restrained against movement into the river by many hundreds of ground anchors which go underneath the adjoining gardens and houses. As the river level is reduced the tension in the ground anchors rises. The concrete, sheet piling, ground anchor system will have been designed for a certain life at the designed normal operating water level. Please advise both this design life and the reduction in design life when the normal level of water is reduced as you propose.

A: We are aware of the presence of ground anchors and concerns around their functionality if an option is selected that impacts water levels. We have not yet begun structural and geotechnical surveys and analysis but this work would be carried out during the detailed design stage of the project should an option be selected which could lead to a change of water level. In response to your query our technical team reviewed documents about the anchors from the construction of the scheme, however no design life was specified or recorded within those documents. They do state the contractor “was required to design the anchorage according to service load and soil conditions at the site”. The document also details the “considerable” monitoring and testing undertaken on the ground anchors when they were installed. The impact of lower water levels on design life is something we would look at in more detail at a later stage of the project, should an option that impacts lower water levels be selected.

Q: In a previous question it has been noted, 'Currently Thames water pump 0.7 m³ per second into the river that is 3/4 of a ton per second'. Is the quality of the water discharged from the water treatment plant tested and monitored for quality and whose responsibility is it, the treatment works or the EA?

A: The Esher Sewage Treatment Works carry out their own effluent quality sampling as part of the requirements of their Environmental Permit issued by the Environment Agency. This sampling is known as Operator Self-Monitoring (OSM). Water companies are responsible for monitoring their own discharges by collecting and analysing their own samples and submitting the data to us. This gives them a greater awareness of their performance and the environmental impact of their operations. We check on Thames Water’s reporting by carrying out audits using the Operator Monitoring Assessment (OMA) procedures, this covers aspects such as their performance, sampling, reporting and compliance. The frequency of OSM sampling is dictated by the size of the treatment works, this is measured in terms of the population the treatment works serves. We take enforcement action using the water companies own OSM samples when and where appropriate. We have set out sampling rules for the monitoring which water companies are responsible for, and have defined the analytical standards. We carry out site inspections on a risk basis or following compliance failures and we have the capacity to take our own samples at any time if we have any particular concerns.

Q: I refer to my earlier question and your response ‘Is there an explanation for the use solely of Q50 flow data? Surely it would be easy enough to present the data showing Q50 broken down by month, periods of drought etc. Why not show the data as multiple lines for Q10, Q25, Q50, Q75, Q90? Hello and thank you for your question. The data that has been used on these graphs is Q50 data, this is data that would be equalled or exceeded at least 50% of the time. This is an average of the historic records at Esher gauging station which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however, this does provide a representative average water level. We believe that using this data gives us the best representation of the day to day water levels which could be expected rather than multiple water levels which may be confusing.’

Question 1) is it not rather patronising to suggest that the consultees are unable to understand multiple water levels? Question 2) please explain why you consider Q50 to "gives us the best representation of the day to day water levels". Question 3) Given that levels tend to be lower in summer, which is when more people are likely to be using the amenities of the Mole for boating, walking or picknicking, please explain why you believe that a 12-month average is the best representation. Question 4) Given that the channel has more of a V than a rectangular cross-section, and thus a small reduction in depth when the level is already low will have a much more noticeable visual impact on the amount of river bottom exposed, than a corresponding small increase in level when the level is already high, please provide more representative data on expected river heights over the summer months.

A: We've worked hard to make sure the information we put on our interactive website is accessible to all and we felt providing multiple layers of data would not be the best approach. We are however, happy to provide this information to you separately if you would like to let us know which section of the river you are interested in. Q50 gives us the best representation of the day to day water levels because it is an average of the historic records at Esher gauging station - which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however this does provide a representative average water level. Q50 takes into account high and low flows to provide an overall average, not a 12-month average. We are at the early stages of our project. As the project moves forward, and should an option be selected that may lead to lower water levels, we will carry out further investigations on impacts to the river levels in summer months.

Q: Under each of the options cited, will there still be river access to the Thames via the Molember Sluice?

A: Following on from previous feedback from the community, we understand that many residents do use the engineered Ember channel for recreational purposes. Information on the estimated water levels for Options 3 to 6 are contained in the voiceover presentations which can be found on the 'What are the Options' page of our interactive website. Within these presentations are long section diagrams, which show the level of the bed of the river and the estimated level of the water along the length of the scheme for each of the options. Molember Sluice is labelled on these diagrams to enable you to see the estimated level of the water at this point for each of the options. If, as our project progresses, an option is chosen that will change present-day water levels, we will carry out further investigations to find out how the reduced depth would affect recreational access, and would work closely with residents and recreational groups in doing this.

Q: This is appalling and the water level must not be changed. To claim it will benefit biodiversity is treating us like we are utter morons. Option 3 is the only viable.

A: We're very aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it could affect

recreational activities. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. By improvement in overall biodiversity we mean outcomes such as bringing new native species into the area and improving the condition and ecological value of existing habitats. The Lower Mole Flood Alleviation Scheme is designed primarily to protect property from flooding and when it was first built, did not consider ways for biodiversity and wildlife to flourish along the channel. Whilst the rivers now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low. A more naturally functioning river channel would vary in depth, width and flow, while still providing protection from flooding, and allowing for a more diverse range of habitat for wildlife. There have been no decisions made on which option may be taken forward to update the scheme or how the scheme may look in the future. We will continue to speak with the community, share information and listen to feedback as the project moves forward.

Q: Unbelievably you have DELETED my concerns raised in this "Questions" board previously. This is disgraceful and undemocratic. ***OPTION 3 IS THE ONLY OPTION*. When will we know that we have been listened to and Option 3 will be confirmed?**

A: We have just checked our website and please be assured your comment that ‘option 3 is the only option’ is on our ideas board. We have also made a note of your comments. Once our website closes on 24 March, we will carefully review all of the comments and feedback that have been made using the interactive tools (i.e. the survey, questions, ideas board and interactive map). We will then come back to the community to share our findings with you later this year. All of the information from our website will also feed into the options development and assessment process. There have been no decisions made on which option may be taken forward to update the scheme or how the scheme may look in the future. We will continue to speak with the community, share information and listen to feedback as the project moves forward.

Q: I have a follow up question to one of your previous questions... (which would have been useful to number!) It is the question related to sewage discharge into the Ember, and your answer was "Hello, thanks for your question. We have met with Thames Water and discussed our scheme with them. Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held." If no Environmental Impact Assessments have been done to date, how can you justify the Option Comparison Table where you clearly lay out the options in terms of ‘whole life cash cost, water levels, carbon and environmental benefits for each option’. From this comparison table (which most people will be using), you put two (the most) green ticks for Water Quality under Options 5 & 6. If we have established that the water levels will drop for Options 5 & 6, then surely any discharge at all will be more concentrated. How can that improve the water

quality, and how can you justify the two 'Water Quality' green ticks for Options 5 & 6? Many thanks.

A: You're right that sewage treatment works flows need to be considered as part of this project. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with change flow/volume regime in the river. To clarify, Option 5 has no change at the sewage treatment works outfalls in terms of river flow or level, only Option 6 leads to the change in water level. The amount of water flowing past the outfalls in Option 6 will not change, just the level of the water in the river. Nevertheless, should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended in order to avoid water quality issues. We believe that removing the impoundments (structures) under this option would mean faster flowing water which is generally likely to be better quality due to greater oxygenation, hence the information provided on the website comparison tables. The options appraisal process is one of the first stages in the environmental assessment and considers many different environment all aspects at a high level, including fish passage, aquatic and terrestrial biodiversity, landscape and visual, population and human health, water resources, flooding, carbon and climate and heritage. These high level assessments identify the key issues for consideration in the stages of the project in the run up to the selection of a preferred option. Once a preferred option is selected, further more detailed assessments are undertaken as part of the Environmental Impact Assessment (EIA) process.

Q: The document presenting the effect on the river levels of each option indicates that under options 6 and 5 there will be a very material drop in the river level to the extent that in some places water will barely cover the river bed. The river is currently used by residents for recreational use, particularly with canoes and rowing boats. What is your honest assessment of the impact of options 6 and 5 on this during the height of summer when the level of the river can be expected to be at its lowest, not just for the main channel but for the Old Mole? In particular, what will be the minimum depth of the river? I note your answer to the excellent question raised 6 days ago, which to my great disappointment appeared to be completely missing from the presentations and arguments presented by the EA on the website. The residents of Bridge Road East Molesey, which backs onto the Old Mole, remain extremely concerned about the potential negative impacts on the visual and recreational environment of any if all in the level of this river.

A: Out of the six options shown on our website, only Option 6 would affect flows and water levels within the Old Mole channel, while Option 5 will not lead to any change. However the presence of the structures at Zenith and Wilderness would act to retain water levels in these areas under Option 6, and flows would also come in from the Dead River and surface water drains. Therefore, under summer conditions, we do not believe there will be any significant changes to water levels in the Old Mole between Wilderness and Zenith Sluice. We believe the structures at Zenith will retain water levels at their existing levels. We made a decision not to include this

information on the website because of the very little change in the areas adjacent to most properties on Bridge Road. On reading your questions we recognise we should have included it - so thank you for your feedback. We will provide more tailored information to Bridge Road residents in the future. On your wider points, we are aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it could affect recreational activities. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts.

Q: We would like to inform you that our preferred option for the Lower Mole Flood Alleviation Scheme is Option 3, and we are strongly opposed to schemes which result in the reduction of the water level on the Ember or Mole. Lowering the water level significantly would negatively affect the human and wildlife communities that live around the river in the following ways:

• Negative impact on resident's physical health and mental well-being from removal of recreational use of the river.

• Potential health issues as sewage discharges pumped into the river by Thames Water become more concentrated, even with some areas running dry in some periods. The river will be transformed into an open sewer in times of storm where there are large discharges.

• Health and safety issues for families with children due to the drop by the bank.

• Detraction in aesthetic due to exposure of engineered structures in river.

• Negative impact on wildlife as river will be too shallow to support mature fish and water plants.

• Ability to control flow into the Thames via the gates helps mitigate flood risk on the Thames. It is not the point that taking away the sluice gates may increase capacity on the Mole or Ember, though this in itself seems debatable also.

• Resident house prices will be negatively affected. Will residents be compensated for this if evidence can be provided of a decline in value?

• Anchors would be exposed to increased pressure pulling on the flood walls leading possibly to collapse which would increase flood risk. As per the National Planning Policy Framework published by the government: "Access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities", and it is also noted that "the loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality". Despite the schemes not needing planning permission, we believe that any developments impacting the communities should follow the same framework thus taking into account the enormous impact that no compensating facilities are described in the options that result in the loss of navigability. Will the

Ministry of Housing, Communities & Local Government be consulted? Additionally, as resident with riparian rights (whom hold an amenity licence with the EA), we would have expected to have been contacted at least via post. But once again we find out about this possible changes which could potentially impact our health, and well-being through a local community chat.

A: We have logged them and we will consider them along with all other community feedback being received. We know there is local concern over the updating of the scheme, and we hope by providing the community with as much information as possible on our interactive website, we can work together to find the best solution for the future of the scheme. Below we have responded to the concerns you have outlined.

Recreational use of the river: We're very aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it would affect recreational activities. We understand that many residents and those from the local area do use the River Ember for activities such as paddleboarding and canoeing. As the project moves forward and once a decision on the future of the scheme has been agreed, it is possible that we could explore the expansion of recreational use and to understand where it may be possible to introduce items such as steps to allow better access to the river. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts.

Sewage discharges: Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river bank drops: Safety is a priority for us and we're aware through our previous discussions that it is a key issue with residents as well. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified.

Aesthetics: We know residents are concerned about how the channel may look if water levels are reduced. If an option is selected that reduces water levels we will work very closely with residents to explore opportunities to make visual improvements to the way the scheme looks and to mitigate this issues.

River Thames flood risk: Our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river

during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass, if they were to remain shut the risk to flooding would increase. Should an option be chosen which proposed the removal of the sluice gates, the flood relief channel would continue to convey flood flows as it was designed to do. The flows from the River Mole and River Ember reaching the River Thames would not change and the combined flood risk from the River Mole and River Thames would not increase. In addition, if gates were removed the capacity of the channel would be increased as water would no longer be stored in the channel upstream of the gates and therefore higher flows could be accommodated within the channel. This would reduce flood risk compared to the present day situation.

Wildlife: In terms of the environment, the Lower Mole Flood Alleviation Scheme was primarily designed to protect property from flooding when it was first built, and did not consider ways for biodiversity and wildlife to flourish along the channel. Whilst the river now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low. With modern techniques we could create a scheme that still provides protection against flooding, which is the main objective of this project, whilst seeking ways to allow the river to function more naturally and allowing a more diverse habitat for river species and wildlife. We have shared our initial design concepts with a number of wildlife groups as part of the early engagement process for this project. We will continue to work with these groups as the project progresses and will seek their views and feedback. The ecologists and geomorphologists within the project team will use information provided by these wildlife groups, as well as the feedback from residents, as part of any decision making for the updating of the scheme.

House prices: We recognise this is a serious issue for many homeowners on the channel. As the project is in its early stages with a number of options under consideration, we are unable to outline a comprehensive view on compensation. We can confirm that property owners do have the right to claim compensation for any damage arising from our flood risk management works. Evidence would be required to prove any claim.

Anchors: We are aware of the presence of ground anchors and concerns around their functionality if an option is selected that impacts water levels. We have not yet begun structural and geotechnical surveys and analysis but this work would be carried out during the detailed design stage of the project should an option be selected which could lead to a change of water level.

Mailing: We’re sorry to hear you didn’t receive a letter about the launch of our website. We’ve cross checked with our mailing company and your address was listed as receiving one of the 6,000 letters we sent out to the community in February. If you hear of any neighbours who also didn’t receive a letter we would be grateful if you could let us know so we can follow this up with the mailing company.

Q: Could I ask why you will close this website 5 weeks after the 24 March and transfer the information elsewhere? Why not keep this site transparent and accessible to all? If the data and information here is to be transferred to another website, can you confirm that ALL the questions from the public in this section will also still be available to view? You have provided informative answers to many concerns and if this is information is no longer available for residents and the public to view then it is not helpful for any future reference, questions, consultations, ongoing knowledge etc.

A: We produced this interactive website because pandemic restrictions prevented us meeting with the community face to face. We've used an external provider and the website service expires shortly, which is why the information will be moved back to our original website (https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/). Although the new website has been a temporary measure because of Covid-19, we're keen to hear your thoughts on its performance so we can consider what online tools we use in the future. Please be assured that when the website does close all of the information including all of the questions and answers will not disappear and you will be able to access them at all times.

Q: May I ask why you have only given residents 7 weeks (7 Feb - 24 March) to view the data on this website and ask questions? Could I ask you to detail all the routes of communication you have taken to alert the general public of this website and the opportunity to give their thoughts and ask questions. I would like to request an extension to this consultation period due to the fact that it was launched in mid-winter (7 Feb), the country has been dealing with a global pandemic and unprecedented circumstances, and therefore not really conducive to a complete and thorough engagement process on such an important project.

A: As you quite rightly state the pandemic has led to unprecedented circumstances and as a result we have had to think differently about how we can engage with the community. In June 2019 local residents and other stakeholders informed us that they wanted us to do more work on our proposals. We listened to this feedback and over the winter of 2019 we carried out environmental and river depth surveys to help us better understand the Lower Mole. We would usually carry out these surveys at a later stage in the project, however we wanted to respond to public concerns over water levels and wildlife by collecting and sharing the information early. As it became evident last year that the pandemic was going to be prolonged it was clear that our usual method of face to face engagement was not going to be possible. We therefore had to think about how we could not only share this new information with you but also provide a way that we could invite you to ask questions and give feedback.

To publicise the website we carried out a large scale mailing of letters to the area around the scheme. We have also worked with Elmbridge and Surrey Council to help raise awareness of the website within the community. For example, a link to our website is available through the News section of the Elmbridge Council web site. Local groups have kindly posted links to our webpage on their digital platforms, and

we have made direct contact with a number of residents groups, landowners and local businesses. We have also put a number of posters along the scheme at access points which advertise our website, and how the community can get in touch with us. As a result we have been able to reach a far larger number of people than in previous engagement exercises. We have also found that by having the website open for a number of weeks members of the public have had more time to read all of the information given which isn't always the case with other engagement methods. We are also sending out on request hard copies of all the information contained on the website to those with accessibility issues. This is however just one part of an ongoing engagement process going forward as part of the Lower Mole Flood Alleviation Scheme.

Once this website closes on 01 April 2021, we will carefully review your feedback and suggestions incorporating them where possible into our options going forward. Once we have done this we will come back to the community to share our findings and give more information on our next steps. When the website does close we can assure you that the information including all of the questions and answers will not disappear, it will still be available to view for a limited time on this website but will then be transferred to our Citizens Space page which can be accessed via https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/ where it will remain for you to access at all times. This page will then be updated on a regular basis as the scheme progresses. In addition the project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available for any further questions the community may have. This will still be monitored by our project team.

Q: Option 3 involves the removal of Zenith & Wilderness sluice gates. Is this a cost saving measure only? What is the impact on the water levels at the Zenith basin?

A: The proposals at Zenith and Wilderness Sluices for Option 3 are to remove the existing gates and replace them with rock ramp fish passes. This is not a cost saving measure. These gates are not currently operated for flood risk management purposes and act as weirs. The fish passes suggested for Wilderness and Zenith are required under the Salmon and Freshwater Fisheries Act (1975), as in order to enable us to replace the gates at the sluice structures on the River Ember, a fish passage solution for the Scheme must be provided. The suggested solution for this is to encourage fish to migrate along the Old River Mole channel over Zenith and Wilderness Sluices. These fish passes have been designed to ensure that there is no change in water levels upstream of these structures compared to the present day. Option 3 also includes replacement of gates at Island Barn Sluice that will ensure that flows continue to be directed along the Old River Mole as at present.

Q: I shall keep posting this until we receive a satisfactory answer and explanation. You are clearly undermining the intelligence of people that are taking the time to post here! Thank you for being politeness in not answering and boycotting my previous submission in answer to your comments: dropping the water levels, as many residents have already indicated will be

unsightly, dangerous where high concrete reinforcements have been built and actually present a health hazard, particularly from mosquitoes, rats and mink. We have attempted in our own way to control these pests but dropping the water level will encourage multiplication. In addition, if the Environment Agency are so concerned about so-called "carbon footprints" why don't they install water turbines at each weir so that they can be operated on a self-sustained energy level with the requisite of taking power from the national grid? As a former (successful) student of environment and pollution (my external examiner was the late David Bellamy) and publisher of over 200 peer-reviewed publications I can assure you that permanently lowering water levels will prevent, not encourage, fish migration and moreover will allow run off, upstream of the Ember Loop, to flood into the Thames and our homes once the critical level in Thames has been exceeded uncontrollably. Quite frankly the options to remove the flood gates, which is let's face it is what they are, is thoughtless, ludicrous and purely a short-term money saving operation. Option 3 is THE only sensible option unless you which history from 1968, to repeat itself. @ Jacobs:- Your response to my initial question was:- "'"Hydropower: We've discussed the potential use of hydropower along the scheme with residents in the past, however initial workings indicated it would not generate enough electricity to justify the investment. Hydropower generation requires strong river flows all year round, something this stretch of river cannot provide. While the Environment Agency issues the required permits and regulates hydropower schemes, we do not fund or install them. We are supportive of sustainable hydropower schemes and we work closely with developers of hydropower schemes to make sure their plans do not harm the environment or impact on flood risk." This does not answer the question at all and at best, is pure rhetoric and at worst, utter bunkum. You clearly do not have a basic grasp of O level physics and the concept of gearing. I can assure you that wind farms and hydroelectric tide turbines operate under conditions of much less turbulence and water flow that we have in the rivers Mole and Ember. Wind turbines in particular, are not placed in regions of permanent gale force winds and do not operate 365 days a year at full power. Moreover, hydroelectric sea turbines that operate on tidal movement of water, work under much lower flows that the rivers Mole and Ember. Moreover, the time when power will be required, is when the rivers will be in flood in order to regulate the sluices not during periods of low flow such as the summer when they can almost remain permanently ion one position. In addition, the excess power produced, particularly during the summer, can either be stored in batteries or indeed, sold back to the National Grid. This could also be supplemented, if desired, with solar panels and the power again stored in batteries. The Environment Agency (EA) are the ones who have raised the issue of the construction of new gates having a so-called high "carbon footprint" and yet here are several ways in which this can be obviated as another contributor has proved. This gentleman is connected to a company that specialises in hydro-electric turbines on weirs and has kindly provided a photograph of the one on Reading weir in operation that is working very

successfully (see questions). He also suggested that the expenditure on such an item would be repaid in 20 years and would have then cost the EA nothing. Please can you explain to us how you can justify the comment that there is insufficient flow in the rivers for the addition of water turbines on the weirs, when clearly several experts on the subject and indeed, common sense, suggest there is?

A: We're sorry if you feel we haven't effectively responded to you. We can confirm we have logged your comments on pests. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. The main aim of the project is to ensure the standard of protection the scheme currently offers against flooding is maintained. For options that include the removal of sluice gates along the River Ember, there would be a reduction in flood risk compared to the present day situation in rare flood events (1:1000 year or 0.1% annual probability). The engineered river channel would continue to convey flows as it was designed to do and due to no water being impounded, the engineered channel would have greater capacity to accept increased flows. Options that involve the removal of gates very much consider the long-term. Sluice gates have a working life of about thirty years and we have a responsibility as a public-funded body to spend public money wisely. The reason for proposing the removal of gates in some of our options now is due to the condition of the current scheme, which is now reaching the end of its design life. The sluice gates and their associated mechanical/electrical equipment would require significant work to ensure their ability to operate in the future. We also have to consider legislation such as the Salmon and Freshwater Fisheries Act. Under this Act we need to consider how fish can travel along the channel. Therefore now is the right time to review the scheme as a whole, and to understand what options there could be for updating the system as well as all potential future costs and benefits. Regarding hydropower, as we set out in a previous response while the Environment Agency issues the required permits and regulates hydropower schemes, we do not fund or install them. We have also set out in a previous response details of past discussions around considerations of hydropower along the Lower Mole. We are supportive of sustainable hydropower schemes and we work closely with developers of hydropower schemes to make sure their plans do not harm the environment or impact on flood risk. If the Lower Mole community wanted to explore using hydropower on the scheme we would be very happy to work with you on this and we have specialist teams who can help community groups and private companies through the licensing process. However as we have stated previously, we do not fund or install them.

Q: 1. Option 6 - Under option 6, all the river levels will be dropped by between 1.5m and 3.0m which will expose the concrete infrastructure and destroy much of the habitats for animals and birds, including herons, egrets and kingfishers. The area is also renowned for its bat colonies. The Ember loop would no longer exist as a river, as the levels would dry up or only exist as a trickle. The water level at the dam by Imber Court Cottage and the old Mill site at the end of Orchard Lane is just over 1.0m. The fauna and flora will be destroyed and the

trees along the banks will be starved of water and die. There are a large number of beautiful trees including weeping willows which require water. How can this be justified? Option 6 does seem the worst of all the options as, in addition, it would replace the current system with one that exposes concrete infrastructure, destroys recreational facilities for residents, and removes the pleasure of the public to enjoy the existing walkways and open spaces along the network of rivers. It would be particularly hard on those living close to the river banks as the change could affect the foundations of properties in addition to destroying the aesthetic nature of the area. Molesey is characterised by its rivers and far from being of environmental benefit, as claimed, Option 6 would destroy the environment for very little gain. Option 6 may save some money over the 100 year life of the proposed scheme, but the cost to the environment is the destruction of habitats, the destruction of wetland upstream from Emberside Recreation Ground and the degradation of recreational facilities for residents and public. Is this really a price worth paying?

2. Option 1 - you mention in the introduction that this option is in only as it is included as a requirement of the appraisal guidance. It appears to be dismissed out of hand as "the costs of repairing any damage caused if the assets were to fail in the future would be very high". What are the assumptions behind this statement and what are the cost breakdowns of this statement? Under this option it is possible that repairs may not be needed for a longer period than modelled or that they may not be required for each of the sluice gates for a longer period of time. It is therefore possible that this could be a much cheaper option than any of the other options?

3. Costs - Have any of the sluice gates been repaired since installation and at what cost? What is the evidence for the 30 year life cycle for the sluice gates? As techniques improve and materials change and improve this is likely to extend life cycles of equipment- how has this been included in your costings? Based on the latest annual inspections how long are each of the sluice gates expected to last, before needing to be replaced?

4. Consultation - You apparently issued a letter to residents on 27 January. How many? What was the distribution? Why were none sent to the Cala Homes Estate off Orchard Lane in East Molesey? Many residents only found out about the proposals by chance at a very late stage. I would also suggest that the middle of lockdown is the wrong time for consultation as public meetings are impossible. Please explain why some areas affected were excluded from the consultation.

A: Option 6: We're very aware that the community is concerned about how the river channel may look if water levels were reduced, and how it could affect the environment and recreational activities. While Option 6 will have some negative environmental impacts in certain areas of the scheme due to water level lowering it is expected that overall Option 6 will also provide significant habitat gains, including for fish, aquatic invertebrates, bats, birds and small mammals. The project is aiming to

achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Should Option 6 be selected as the preferred option, we would work with local residents and wildlife groups to ensure that any habitat losses are minimised as far as possible through mitigation measures and are also compensated for elsewhere. It is expected that through time, the effect of the exposed concrete and sheet piling would be minimised as vegetation naturally develops. In addition existing walkways would be maintained, and although recreational activities such as boating may not be possible in all sections of the river, it is expected that it will still be possible to use boats and canoes in some sections.

Option 1: Option 1 ('Do Nothing') is a baseline option and is a requirement of the appraisal guidance in order to set a baseline with which to compare the other options against. This option means leaving the gates unmaintained until they fail and not opening them when there are high flows within the River Mole. If they remain shut, this will increase flood risk to approximately 1200 properties. This is an unacceptable outcome, making Option 1 something we only consider as a baseline to compare the other options which do maintain the current standard of flood protection against, and to help in the justification of investment in the future of the scheme.

Structure costs: Yes, the sluice gates have been repaired since installation. Our detailed records on these repairs begin in 2014 so while we cannot provide a comprehensive overview of our total costs we can tell you that since 2014 we have spent £500,000 on repairs to operating machinery on the gates, the telemetry system (the monitoring system that tells us how high the river levels are) and temporary repairs to sections of banks that had been damaged by high river flows. We are currently carrying out repairs as a result of damages from the 2019/20 floods. This is expected to cost around £500,000, with a gate at Island Barn estimated to cost £300,000 in repairs plus electrical and wiring upgrades at Molember and Island Barn and repairs to the operating equipment on a gate at Viaduct. Repairs to Island Barn over the winter have cost around £90,000 so far, with more work expected later this year. Across the four sluice gates at each of the three structures on the Ember channel, known as Viaduct, Island Barn and Molember, since 2014 three of the four actuators and/or gearboxes have had to be repaired or replaced at Viaduct and at least one at Molember. We are currently scoping possible works at Zenith sluice. Although this structure is not normally operated to manage high flows, the works currently being scoped are to ensure this structure would still operate into the future. The current indication is these works are likely to cost in the region of £60,000. We have noticed that the frequency of breakdowns has increased significantly since the high flows of the winter 2013/14 and during subsequent winters. As well as the above listed repairs to come, we also intend to replace or repair the one remaining original Actuator / gearbox at Viaduct and carry out further work on the tilting gate at this structure between now and the end of this year. All four of the gates at Island Barn will require work or replacement within a maximum of five years, as will the three remaining original gates at Molember. We are also investigating the condition of the drive mechanism for the tilting gate at Molember.

Structure life-cycle: The thirty-year life cycle is set by our organisational standard, the MEICA (mechanical, electrical, instrumentation, control and automation)

specification ‘369_13_SD04 – Water Control Structures’. This document states that we should assume a 30-year design life for water control structures such as radial and tilting gates. We need to base our costings on what we know now. We cannot prejudge or assume any changes to future technology.

Mailing: We sent out 6,000 letters to the area around the scheme in order to set out the details of our interactive website, and to highlight the range of different ways that feedback and comments can be sent to us. We have reviewed our mailing list and we believe the Cala Homes development may have been missed as these are new homes. We apologise for this and will make sure communications are sent to these addresses in the future.

Website extension: We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April.

Q: Save mole Option 3 please, save this valuable natural asset.

A: Thank you for your feedback, we have logged this. If you would like to take part in our survey, you can find it on the website here.

Q: The Environment Agency must assess its infrastructure in accordance with a detailed systematic evaluation set out in Flood Risk Asset Management Guidance of 2010. There is a legal obligation to maintain the quality of the water, and the factual presence of the Esher Water Sewage Treatment Works whose licence to discharge is predicated on a flow rate of 0.74 of a cubic metre per second on normal conditions up to 1.7 cubic meters under storm conditions. In 2017 a series of reports by Capita and Jacobs were undertaken into the Assets with the recommendation that the gates were replaced. In other words a Sustained Level of Service could be maintained. Under the Flood Risk Asset Management Guidance once this appraisal occurs no further consultation or analysis is required. However by way of a Workshop held between the Environment Agency and Jacobs in November 2018, this option was specifically discounted by the Environment Agency in favour of removing some or all of the gates to reduce future maintenance costs. So this very consultation has been launched contrary to the guidance set out for the assessment of future assets. It has been predicated on savings to determine the outcome of the consultation, which is also contrary to the guidance. Two steps, two illegalities. It has proposed two options that were discounted in the reports commissioned. What is most concerning is the failure by the Environment Agency to substantially address the environmental concerns that have been specifically raised. Namely: How is the Environment Agency going to maintain or improve the quality of water when it is proposing to let it run dry downstream of a sewage treatment plant? The effluent will be concentrated in the Ember. Given envisaged increased water flows of 50% over half the life span of the project at the River Thames in Kingston, how can the loss of impoundment upstream on the Ember be anything but a catalyst for further flooding downstream? Only options 3 and 4 at least maintain the environment,

and flooding protection. Whilst the agency is quite vague on the specific environmental amelioration it envisages these can be undertaken in any event.

A: Please find our responses below: Sewage works discharge: Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river.

Options appraisal: Option 3 retains all structures and is one of the options put forward on our website. No decision has been made on options to carry forward, and won't be until we have considered all feedback from this public engagement. The Capita report was commissioned to create an Asset Management Plan. This work sits outside of the FCERM appraisal guidance, and its purpose was to tell us what condition assets were in and what residual life they had. This report confirmed we needed to review the scheme to maintain the standard of flood protection. After the report was produced we asked Capita to provide us with high level optioneering based on desktop research only, and this work then fed into the next stage of our work 'Strategic Outline Business Case', which is part of the FCERM appraisal guidance process. We have used the Outline Business Case process to provide a robust appraisal of all options. This robust appraisal would provide us with more options and more scope to review environmental benefits and costs. This is in line with government appraisal guidance which requires us to find the best value in our projects. The appraisal guidance suggests that the appraisal should also aim to identify any wider benefits and also identify and assess solutions that work with natural processes. The appraisal guide suggests consideration of a wide range of options for managing risks should be identified, these can be both structural and non-structural. Project appraisal is an iterative process where options go through a cycle of being developed, reviewed and refined to then ultimately identify a preferred solution. This approach allows a project team to learn more about the costs and benefits of all the options as the project progresses. As well as being able to take account of new information as it becomes available, an iterative approach allows options to be revised, or combined, to end up with better options that before. In June 2019 the community told us it wanted to carry out more ecological surveys which we have done, and information from this has been shared with the public as well as help inform our development of the options. The feedback received from the website over the past few weeks has been very helpful in developing our understanding of the needs of the community. We have started to collate all the feedback we have received so far and this will be shared with all respondents and published on our website. This website has allowed us to engage with a large number of the community and the project team now needs to take the time to go through your feedback which has highlighted where we will need to have more focused engagement on particular aspects of the scheme. Over the coming months, we will be developing our options to incorporate this feedback.

Flooding: our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass, if they were to remain shut the risk to flooding would increase. Should an option be chosen which proposed the removal of the sluice gates, the flood relief channel would continue to convey flood flows as it was designed to do. The flows from the River Mole and River Ember reaching the River Thames would not change and the combined flood risk from the River Mole and River Thames would not increase. In addition, if gates were removed the capacity of the channel would be increased as water would no longer be stored in the channel upstream of the gates and therefore higher flows could be accommodated within the channel. This would reduce flood risk compared to the present day situation.

Q: Freedom of Information Act / Data Protection Act requests. We would request the Environment Agency to provide a copy of all instructions given to the various contractors, and a copy of all reports provided to the Environment Agency, in relation to the Lower Mole Flood Alleviation Scheme from July 2019 to the present day. We would request an extension of time to the Lower Mole Flood Alleviation Scheme consultation because: It is not reasonable for a consultation to run during the confines of a pandemic where many of the concerned parties have had the opportunity to respond limited by the increased obligations of home schooling and reduced capacity to meet. • No consultation can be informed without the further detail elicited from the Freedom of Information Act requests. We would request that any amended consultation period be allowed to run six weeks from the publication or the dis closure of the reports requested in our Freedom of Information Act request. Once these details have been provided we would be better placed to ascertain how the options would impact the householders and the river and understand the scope of any scheme's compliance with the published Flood Risk Management Strategy. Pending the receipt of the documents requested and our timely response below are my initial questions that arise from Options 1 to 6 as presented.

We note that the format of the consultation does not invite comments per se, but rather limits us to questions and ideas. Taken at it's highest • Only option 1 and option 6 have significant benefits in costs. • Only option 5 and option 6 have a reduction in flood risk. • Options 3 to 5 are in the similar realm of costs. Matters for elucidation Options 2, 3, 4 provide for fish access, and it would be useful to have a more defined extent of difference between these options and options 5 and 6. Costs - Option One: Has the costs of the Environment Agency's liability for losses arising from flooding been factored in to this assessment? Options 5 and 6 Has the costs of the Environment Agency's liability for losses arising from flooding downstream along the Thames been factored in to the assessment of the removal of the barriers? Penny Wort -

Options 2 to 5: The consultation asserts that these would provide no option to remove floating pennywort. We consider that the assertion is premature in view of the pending authorisation to use the weevil, Listronotus elongatus, as a means of controlling the same. We would request reasons why this may not be a suitable avenue to consider. See; - https://www.cabi.org/projects/controlling -floating-pennywort-in-a-safe-and-sustainable-way/. Reduction in Water level - Options 4: The graph shows a reduction upstream of 50 cm at Molember Sluice. We query the extent the picture at option 4 is an accurate representation of a drop of 50 cm. From where has the 50cm measurement been taken to reach the water level depicted? Or can the Environment agency provide an accurate depiction of where the water level will be at 50cm, 25 cm 10 c m etc. Options 5: Before and after photo appear to be the same for Options 5 and 6. They are taken some distance from the Molember Sluice gates. Upstream of Molember, the water level is said to drop to 1.5 meters. Option 6. Upstream of Molember describes a reduction of between 1.5 and 3 meters, with a river running dry on occasion. The presentation is quite vague about the extent of this drop and for how many metres this will continue. Specifically to what extent of the river Ember upstream of the Molember Sluice will the river be at 3 meters, and at 1.5 meters and so forth.

Benefits to Wildlife / Reduction in Water level - Options 5 and 6: What are the considerations that lead to the assertion that option 5 and 6 would lead to an increase in the wildlife? Further, to what extent did these considerations take into account the impact of the Esher Sewage plant. Specifically that the Licence enjoyed by Thames Water permitted a discharge rate that was predicted on the flow rate. In circumstances where the river bed dries up the flow rate would presumably diminish? Additionally, any reduction in volume of water, without a concomitant reduction in pollutants added will lead to a reduction water quality with attendant environmental harm that would be unlawful. The River Moles and Ember are also prone to agricultural run-off. The Jacobs Field Survey of April 2020 confirmed that the invertebrates present in the River Ember were those resistant to pollutants. Further concentration of pollutants will reduce this biodiversity. We would be grateful if the Environment Agency would explain why it is considering dropping the water level in the face of the recommendations report by JACOBS in their short list Options Detailed Technical Report at A2? Options 5 and 6: Impoundment - It may be helpful if the Environment Agency would confirm the extent of average impoundment, and provide it's assessment of the likely impact on the health of the Thames if such impoundment were removed. We further note that the projects of the water flow along the Thames at Kingston are likely to increase by 50% by 2080. There is also a likely increase in water usage due to population growth. The need for water management and hence impounding is likely to increase. We would be grateful if the Environment Agency will set out its' reasoning that the removal of impoundment will not affect the risk of flooding or diminution in water management lower down the line?

What are the costs of the reduction in property prices and the compensation sought that has been factored into options 5 and 6 as per Lower Mole Major Refurbishment Project OBC November 2018? Why is option four being considered when it was not included in the long list on the Lower Mole Major Refurbishment Project OBC November 2018 Page 8? Option 5 and 6: We wonder whether the Environment Agency has properly followed the assessment analysis formula as set out in the Flood and Coastal Flood Risk Asset Management Strategy of 2010. For example it sets out the amenity value of the projects as antithetical to the ecological, when they tend to be benefits of the same series of factors. A polluted wasteland is unpleasant to live in, a varied habitat: a rural idyll. That the Environmental Agency has done so, implies that it has failed to properly assess the environmental impact of its proposals, or to pay care to mitigating the same. We reiterate our request of July 2019 that the Environment Agency supplies under the Freedom of Information Act for a copy of the minutes of the Work Shop of the 26th November 2018, held between the Environment Agency and JACOBS, and specifically referred to in the Jacobs Short List Options Detailed Technical Note – January 2019. Thank you for your kind attention.

A: As you have submitted this as a Freedom of information request we will have to deal with these questions accordingly. We will provide you with a response to your information request under the Environmental Information Regulations (EIR) / Freedom of Information Act (FOIA) within 20 working days. We have sent your request over to our enquiries team who will log and respond to your request through our Enquiries inbox. They will then provide you with your reference number. Many thanks.

Q: I like the idea of the rock passage for the fish, and that they will be able to swim both up and downstream. However I am concerned about some options where the water level will fall drastically and run dry in summer months. This would be terrible for the wildlife. I am also in favour of a longer term solution, so not patching things up to last only 30 years.

A: Thank you for your feedback, we will log this. We understand the community is concerned about the impacts of any option that may lead to a water level drop, and welcome your thoughts. If you would like to take part in our survey it is on this webpage.

Q: Has any consideration been given to the fact that the old River Mole forms a boundary of both East Molesey conservation areas and that the Dead River (for which you say the Environment Agency has no responsibility) flows through a conservation area? How has the Environment Agency engaged with the elected representatives of the communities affected by this scheme and how much weight will be given to any representations made by local councillors? Your flowchart of steps in the process shows that we are currently in Step 5 of a process with only 6 steps. Step 6 is called "Identifying the preferred option" and the accompanying commentary says "We are currently at Step 5. Once a preferred option is selected the project team will

begin working on a detailed design." It seems that from the number of questions that remain unanswered in this consultation you are a very long way from being able to move to select a preferred option. What is the appeals process (if any) if the local community objects to your preferred option? Given the length of time it is now taking for you to publish questions and provide answers on this website will you please extend the consultation period to enable a greater degree of participation and at least allow answers to all questions raised to be considered by the community?

A: Conservation areas: We're aware of the conservation areas and their presence has been noted and discussed during our options appraisal process. Should Option 6 be taken forward we will liaise closely with the Elmbridge Borough Council conservation officer about the conservation areas, and to agree any appropriate enhancements or mitigation for these areas. Elected representatives: A briefing note on this interactive website was sent to councillors at the time of launch. Elmbridge Borough Council has also added this webpage to their website: Elmbridge Borough Council - Have your say. We will consider all feedback from this engagement exercise, including representations by local councillors and would be happy to engage with them directly if that was requested. On the 24th March we enter a 'pre-election' period. This is when there are restrictions on communications activity with elected members before the local elections. So while we may be unable to fully engage with councillors during this six-week period, we will continue our discussions with them after this time. Preferred Option: As you mention, the project has not yet reached a stage where it is possible to select what the preferred option may look like. All of the feedback we are receiving via our website will help us further develop our options. Once our interactive website closes, it will not be the end of our conversations with the community. We will continue to share information and listen to feedback as the project moves forward. Extension: We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April.

Q: As a Riparian owner living on the Mole at Molesey Park Road I am in favour of an approach that maintains the existing levels in both the Mole and the Ember and keeps Molesey Safe from flooding. Looking at the options you provide option 3 seems to be the best, although I am concerned about a drop in the normal level of the Mole upstream of the Wilderness sluice due to the proposed Rock Ramp. This does not seem to have been mentioned so I would appreciate some further detail on what height the rock ramp would reach and the impact this would have on the depth of the Mole Upstream, and also what would happen in the case of an increased flow through the system as we have seen in recent years during the winter. I notice that in a number of the other options, where gates on the Ember will be removed and water levels reduced, you mention installing Berms and Groynes and other changes to the existing channel to improve the reduced flow. But wouldn't any interventions you make to the existing "Flood relief channel" i.e. what is known as the River Ember, reduce its capacity to accommodate the designed peak flow levels (as perhaps

the existing silting up of the river bed beyond the obstacles does) and make it not fit for purpose. I recall that the system was designed to accommodate flows similar to the extreme event that caused the 1968 floods, from memory I think that was a flow rate of ~ 241 m3 per second at Cobham, approximately 3 months rainfall in two days in the Mole Catchment. Can it still and under various options would it be able to accommodate this? I understand that 1968 was an extreme event, but it could happen again. I also think the very idea of trying to naturalise an artificial man made canal is flawed, other than the existing overgrown banks upstream of the Esher Road Bridge. The only remaining 'natural' section of the Ember is the small off shoot section behind Imber Court/Orchard lane where the Meadow used to be, and it would seem to me that this pretty section of the river would be completely dry if you reduce the levels in the main Ember channel? There appear to be a huge amount of potential impacts and issues with reducing the levels in the Ember channel, which have been raised by others, and it seems to me that having created and designed a system with capacity to absorb the predicted peak flow there is no choice but to continue to maintain it in accordance with the original design. I'm sure that a scheme which maintains the existing water levels, under normal conditions, and allows for the transit of fish, particularly along the Mole stream could be devised.

A: To answer your points: Rock ramps: The rock ramp fish pass proposed in Options 3, 4 and 5 would be designed to retain the same level of water as at present upstream of Wilderness sluice and you would see no drop in the Mole upstream. If there was an increased flow through the system the rock ramp at Wilderness would have no impact on flood risk. Berms and Groynes: The installation of berms and Groynes and other interventions to allow the river to flow within its channel more naturally would not reduce its capacity to accommodate the designed peak flow levels. Our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. If gates are removed the capacity of the channel will be increased as water would no longer be stored upstream of the gates and therefore higher flows can be accommodated within the channel. As a result we believe we are able to install some small berms and Groynes in the base of this channel with no increase in flood risk. The exact nature of these features has not been determined however the key design criteria would be to ensure flood risk is not increased compared to the present day.

Flows: Yes, the Lower Mole FAS is still able to convey the design flows that it was designed for. Should the sluice gates be removed, the flood relief channel would also continue to convey flood flows as it was designed to do. If gates are removed the capacity of the channel will be increased as water would no longer be stored

upstream of the gates and therefore higher flows can be accommodated within the channel. Ember loop: For Options 1-5 there would be no change here as Island Barn Sluice would be maintained. In Option 6, without the inclusion of mitigation measures, no water would flow into the Ember Loop apart from surface water drainage flows from the surrounding area. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat. On our website we have provided some case studies of river restoration projects. These include examples of where previously impounded watercourses have been naturalised. You'll find the information by clicking here. Options: Our options 3 and 4 do as you've suggested with your email, they maintain existing water levels and also allow for the movement of fish.

Q: Option 3 appeals the most

A: Thank you for your comment, we have logged your feedback.

Q: Dear Lower Mole Team I have sent this message today to FASProject.LowerMole@environment-agency.gov.uk My message from February has not been answered, maybe I replied and it has not been registered. This is a failure of the system if you cannot reply to a response. It should guide that follow up question need to be made via the website. Can I please have a reply and can you extend the consultation period so that all my questions and this of a very concerned community can be answered before you get a very large level of objection and a public campaign launched again. As an additional question to that below can you also answer please- Why were sluice gates included in the original 1980's flood prevention design scheme? I have read and other believe that it was to give the option to regulate the flow of water in heavy events and to mitigate against the hard intrusion of a concrete canal by giving amenity and recreational opportunities. Can you answer what has changed on these two matters? For us flood event have increased in recent years since the 2014 floods. None of the 6 options give information on the impact on amenity and recreation. Recreation will be withdrawn for most months of the year in many options where the water levels drop. The amenity value of the river in the concrete canal section will not be enhanced as the concrete will be maintained to the current levels where all vegetation is removed to prevent it degrading. Your practices of over stimming and spraying chemicals are not environmentally friendly. You promote a reduction in carbon footprint and enhanced ecology and wildlife but this is not possible in the concrete channel unless you make investments and produce a strategy. Your visual images are in conflict with your ongoing practices of management and unbelievable. I look forward to your prompt response or

hearing of an extension to the consultation time period. Can you tell me if the Thames Modelling Team have been involved in this proposed set of Options? Can you send me links to the Flood Risk Modelling for the Mole & Ember rivers and for the Thames please? I cannot find any references on your 6 Options presentations and summaries to the likely impact on the part of the Mole & Ember downstream of the Molember & Zenith Sluices, the stretch between the BP garage at the Ember Road bridge and the mouth of The Thames. What is the modelling impact on the flood risk at this stretch please and how will each option impact the ecology & wildlife. This is a very special part of the river that has not suffered from canalisation or urbanisation but it is under threat. Why have you not presented a preferred option? It seems obvious that Options 1 & 2 are not acceptable to the EA? It seems that Option 6 would be the EA's preferred option on cost grounds. Can you explain why the sluice gates were included in the original 1980's scheme if they fulfil no function in reducing flood risk?

A: Please see below our responses to your questions. Do I understand correctly that we have until 1st April now to respond? Yes, the website is now open until 5pm on the 1st April 2021. **Can you tell me if the Thames Modelling Team have been involved in this proposed set of Options?** The Thames modelling team are aware of this project, and the options that have been set out on our interactive website. **Can you send me links to the Flood Risk Modelling for the Mole & Ember rivers and for the Thames**? As the flood risk modelling report is still in draft we are unable to share this at the current time. Could you please tell us what part of the modelling you are specifically interested in as some files are only accessible via specialist software but other modelling data such as flood maps can be supplied at a later date as a pdf. At a later stage in this process we can provide mapping of flood events and depths for various options and should restrictions allow meet with you to share our flood modelling. **I cannot find any references on your 6 Options presentations and summaries to the likely impact on the part of the Mole & Ember downstream of the Molember & Zenith Sluices, the stretch between the BP garage at the Ember Road bridge and the mouth of The Thames. What is the modelling impact on the flood risk at this stretch please and how will each option impact the ecology & wildlife. This is a very special part of the river that has not suffered from canalisation or urbanisation but it is under threat.** Downstream of Molember and Zenith Sluices there will be no change as a result of Option 6. Water Levels in this stretch are controlled by both the River Mole/Ember and the River Thames. The sluice gates at Molember currently remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass. Therefore the amount of flow reaching this stretch of the river from the Mole and Ember will not increase as a result of Option 6. Water levels and flood risk at this location would not change, as this will continue to be a combination of flows from the River Mole and water levels within the River Thames. **Why have you not presented a preferred option? It seems obvious that Options 1 & 2 are not acceptable to the EA?** The project has not yet reached a stage where it is possible to select a preferred option. An important part in any consideration towards a preferred option selection is feedback from the local community and other

stakeholders. When our interactive website closes our project team will take the time to go through all of the feedback received. Over the coming months, we will be developing our options further to incorporate this feedback. Option 1 ('Do Nothing') is a baseline option and is a requirement of the appraisal guidance in order to set a baseline with which to compare the other options against. Option 2 ('Do Minimum') sets out the minimum amount of activity or interventions needed to keep the scheme operating. Option 2 would see reactive maintenance and repairs carried out as structures failed, and would not seek to deliver any wider objectives or enhancements. **Can you explain why the sluice gates were included in the original 1980's scheme if they fulfil no function in reducing flood risk? Why were sluice gates included in the original 1980's flood prevention design scheme? I have read and other believe that it was to give the option to regulate the flow of water in heavy events and to mitigate against the hard intrusion of a concrete canal by giving amenity and recreational opportunities. Can you answer what has changed on these two matters? For us flood event have increased in recent years since the 2014 floods. None of the 6 options give information on the impact on amenity and recreation. Recreation will be withdrawn for most months of the year in many options where the water levels drop. The amenity value of the river in the concrete canal section will not be enhanced as the concrete will be maintained to the current levels where all vegetation is removed to prevent it de grading. Your practices of over stimming and spraying chemicals are not environmentally friendly. You promote a reduction in carbon footprint and enhanced ecology and wildlife but this is not possible in the concrete channel unless you make investments and produce a strategy. Your visual images are in conflict with your ongoing practices of management and unbelievable.** Whilst we no longer have records of the design decisions taken by the Thames Water Authority who constructed the scheme in the 1980's it would appear the structures were put in place to assist flows to pass between the Old Mole and Ember channels, as well as side channels such as that leading to Royal Mills. As you mention in your question, the structures may also have been installed to retain depth of water when flows were low. The sluice gates have to be opened during high flows and should they not operate correctly, flood risk would increase significantly. We recognise that flows within the river in late 2013 / early 2014 were higher than many previous recorded flood events since the scheme was completed in the late 1980's, and that a number of high flow events have been recorded since 2014. The main priority of the project is to maintain the current standard of protection the scheme offers to homes and businesses. No decisions have been taken on which option may be taken forward. We are aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced, and how it would affect recreational activities. We also understand that many residents and those from the local area do use the River Ember for activities such as paddleboarding and canoeing. Should an option be selected which would see a reduction in the water level, although recreational activities such as boating may not be possible in all sections of the river, it is expected that it will still be possible to use boats and canoes in some sections. If an option was progressed that meant lower water levels we would work very closely

with residents to design a scheme that would address concerns and provide mitigation for potential impacts.

Q: Is the Hersham Industrial Estate (near the Water Treatment Works) allowed to discharge its industrial wastewater into the Ember? Is so, at what amount and is it treated?

A: Our records indicate there are no Environment Agency water discharge permits relating to Hersham Industrial estate. There may be Trade Effluent Consents in place for some businesses if they have gained agreement from Thames Water to utilise their network. These types of consents can be viewed on the Thames Water website.

Q: Option 3 looks like the most sensible solution

A: Thank you for your feedback, we have logged your comment.

Q: I write following your letter to residents dated 27 January 2021. May I ask why you have only given residents 7 weeks (7 Feb - 24 March) to view the data and ask questions here? Given it was winter when you launched this website (which you say is temporary) and the country has been dealing with a global pandemic for the last year, including a very difficult start to 2021, I demand an extension to the consultation period. It would seem prudent and more transparent to do this and would also enable you to offer up the information here at a more permanent display in the summer for public viewing, as you did before in 2019. This would be beneficial to older residents who may not have access to or know how to use technology. I am requesting an extension beyond the 24 March deadline and for easy and transparency that this website remained active and viewable in the future.

A: The pandemic has meant that we have had to think differently about how we can engage with the community. As it became evident last year that the pandemic was going to be prolonged it was clear that our usual method of face to face engagement was not going to be possible. We therefore had to think about how we could not only share this new information with you but also provide a way that we could invite you to ask questions and give feedback. The website has been publicised in a variety of ways including a large scale mail out. As a result we have been able to reach a far larger number of people than in previous engagement exercises. We have also found that by having the website open for a number of weeks members of the public have had more time to read all of the information given which isn't always the case with other engagement methods. We are also sending out on request hard copies of all the information contained on the website to those with accessibility issues. We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April. We will be able to comment more on our next steps very soon but please be assured that this is not the end of our engagement with you. All of the information contained on this website including all of the questions submitted and their answers will be available for you to view at all times even when this website closes. This is one part of our

ongoing conversation with you and when restrictions due to the pandemic are eased we anticipate that face to face engagement can continue. We are currently exploring the best way(s) to do this and will give details on this very soon.

Q Thank you for your response further down this question thread to my concerns about this website only being live until 24 March. You say that the site will remain active for 5 weeks from that date and after that will be transferred here: https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/. Firstly, why only make this website temporary? Why not keep it active ad-infinitum? Another question, can you confirm that ALL the questions and answers here will also be published to that website (and not just a summary of FAQ's)? There are some extremely important and detailed questions and answers and a huge amount of feedback, data and information that many will want to refer back to and find useful for future reference.

A: We have received a number of requests by members of the local community asking for the closing date of this interactive website to be extended. As a result it will now be live until 5pm on Thursday 1 April. We produced this interactive website because pandemic restrictions prevented us meeting with the community face to face. We've used an external provider and the website service expires shortly, which is why the information will be moved back to our original website (https://consult.environment-agency.gov.uk/ksle s/lower-mole-flood-alleviation-scheme/). Although the new website has been a temporary measure because of Covid-19, we're keen to hear your thoughts on its performance so we can consider what online tools we use in the future. Please be assured that when the website does close all of the information including all of the questions and answers will not disappear and you will be able to access them at all times on the website address stated above. This page will then be updated on a regular basis as the scheme progresses. In addition the project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available for any further questions the community may have.

Q: I believe EA is shutting down the consultation deadline on this website far too early. There is SO much information to digest and to consider in relation to our homes and there appears to be so many questions from local groups what they do not feel about be adequately answered, about the effect of dropping water levels; on wildlife, increased concentration of sewerage and overall impairment of amenity. These issues certainly seem to need more investigation and communication, or it won't be a full consultation. Living on the Ember, I am seriously concerned that plans to drop the water levels will leave us with a dangerous drop from bank to water, ruin the view, smell, impact on the plentiful fish and wildlife and generally stop people enjoying the river. I would also like more explanation of your carbon footprint calculations as this seems to be the rationale for options 5 and 6, and seems to depend on the fact that it means less maintenance. That doesn't seem to be an adequate rationale if the option doesn't address the real priorities which is maintaining the flood protection and the general amenities including wildlife. If you cut us

off in 7 days, I don't think we will get enough answers and this is too important to the whole community to rush it through. Please extend the deadline!

A: We have received a number of requests by members of the local community asking for the closing date of this interactive website to be extended. As a result it will now be live until 5pm on Thursday 1 April. This project is in the early stages we wanted to share as much information as possible so the community can comment and help shape decisions made in the future. However because we are still at an early stage, we have yet to carry out further detailed assessments and cannot as yet fully answer all questions coming in to us about impacts on particular parts of the channel. Whichever option is chosen we would work closely with the community as we carried out further assessments, sharing information and working together on potential mitigation or improvements that can be carried out as part of the updating of the scheme. With regard to the carbon calculations, the differences for options 3, 4, and to a lesser extent option 5, relates to the need to return periodically to replace the sluice gates in the future. Current guidance on the expected design life of these sluice gates is 30 years and as we consider the carbon impacts of options over the next 100 years, this calculation includes the need for this replacement activity three more times in the future after their replacement as part of the currently proposed works. Our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. The sluice gates were installed during the construction of the channel for amenity and recreation purposes. The gates remain closed on a day-to-day basis to retain a fixed water level, but in times of high flow, they are opened to allow the water to pass and if they were to remain shut would increase flood risk. Should the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. We have considered the potential impacts associated with the options including safety issues, visual impacts and impacts on fish and wildlife and have made predictions on these likely changes. For example we have used predicted physical conditions (water levels, flow velocities and substrate composition) of different options to make assumptions about the likely change in visual amenity as well the change in aquatic ecological community composition. These qualitative assessments show that under Options 5 and 6, water depths within the flood channel will reduce to within the range tolerated by a wider range of aquatic plant species than is currently the case. There will be a greater range of depths between margins and channel centre. Flow variability will create patches of faster running gravelly habitats and slower silty patches and margins. This will create a more diverse, naturally functioning river habitat that will be able to support a wider range of aquatic plants, invertebrates and fish than at present. These increases in aquatic biodiversity, are likely to support a much wider range of terrestrial species including birds. Depending on the preferred option, we acknowledge further work is required during the detailed design to mitigate any potential negative impacts. We will also continue to share information and speak with the community, and through these ongoing conversation ask for further feedback as the project looks to move forward.

Q: We have signed an AMENITY LICENSE with the EA until 2037. The options that remove our amenity access rights, which includes options 4, 5, 6 would all be in breach of our license. For that reason only options 1-3 are possible. Have you considered this???

A: Access through the existing amenity licences will continue to run in accordance with the terms in which they were granted. Future requests for opportunities to access the river channel with in the Environment Agency's ownership will be reviewed on an individual basis. In order for us to provide you with more information please send over a copy of your amenity license to our project inbox FASProject.LowerMole@environment-agency.gov.uk and we will look into this in more detail.

Q: Please can you provide more details of how the options presented will specifically affect the stretch of the River Ember from Spa Meadows to the Esher Road Bridge and beyond? Please advise me what we can expect and how EA will deal with the impact? I am very concerned about the proposals to reduce the water level. We are very close to the banks of this shallow man made river and it seems to me that a reduction in water levels on this stretch would have a much larger impact than other stretches along the river. I am concerned it would have leave us with a small shallow stream, with exposed banks making it unsafe for swimming, kayaking, and paddleboarding and a grim view of exposed man-made river bed. I have heard from local groups that the water reduction means there will be a higher concentration of sewerage, which presumably will smell and will have a massive impact on fish and other wildlife trying to enter that small shallow stream from further up river. Please advise me how you will deal with the specific impact the scheme will have on the stretch of the River Ember from Spar Meadows to Esher Road Bridge. It will have large volumes of floodwater rushing through in season, which means the man made bottom of the river will have to be kept open beyond the small stream. How will you deal with the dangerous drop onto the uneven brick surface? When flood volumes dies down and the water level goes back to the small shallow stream - how much garbage will be left behind? We could end up with what would effectively be not much different to a dangerous drop with open sewer 10 yards from the end of our gardens. What are your proposals to make sure something like this doesn't happen? I have seen responses from EA saying that you would have talks with Thames Water about the changes in water levels and sewerage amounts and there would be an evaluation, but am I correct in thinking this will be AFTER you have chosen the options? It seems that these details are something that the community should know about beforehand, and that the deadline should be extended to accommodate this.

A: Please could you confirm the location you would like the information for in order for us to provide a full response. Please could you also confirm which side of the river you would like this information. Please either send us another question on the website or if it is easier please contact our project inbox FASProject.LowerMole@environment-agency.gov.uk. Safety is a priority for us and we're aware through our previous discussions that it is a key issue with residents as

well. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified. You are correct that further discussions with Thames Water will be held once a preferred option is selected. This is because Options 2-5 have no change at the sewage treatment works outfalls in terms of river flow or level, only Option 6 leads to the change in water level. The amount of water flowing past the outfalls in Option 6 will not change, just the level of the water in the river. Nevertheless, should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended in order to avoid water quality issues. We believe that removing the impoundments (structures) under this option would mean faster flowing water which is generally likely to be better quality due to greater oxygenation, hence the information provided on the website comparison tables. The options appraisal process is one of the first stages in the environmental assessment and considers many different environmental aspects at a high level, including fish passage, aquatic and terrestrial biodiversity, landscape and visual, population and human health, water resources, flooding, carbon and climate and heritage. These high level assessments identify the key issues for consideration in the stages of the project in the run up to the selection of a preferred option. Once a preferred option is selected, further more detailed assessments are undertaken as part of the Environmental Impact Assessment (EIA) process. We will log your comment on rubbish tipping and make sure this is considered as part of any future management plan for the channel. We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April. We produced this interactive website because pandemic restrictions prevented us meeting with the community face to face. We've used an external provider and the website service expires shortly, which is why the information will be moved back to our original website (https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/). Although the new website has been a temporary measure because of Covid-19, we're keen to hear your thoughts on its performance so we can consider what online tools we use in the future.

Q: Could the feed for old Mole be improved, i.e. 1 a greater flow rate to help eliminate Pennywort once and for all 2. Displacement with a barrier slightly upstream to avoid uptake from sewage works

A: Pennywort is prevalent upstream of the sewage treatment works so the flow in the River Mole (upstream of the Ember Channel) has little if any effect on the abundance of it. Pennywort is a plant found in slow flowing watercourses rather than faster flowing ones. When the sluice gates are closed this reduces the water speed. At times, the water flow is very slow as not to be visible as certain times of the year and so pennywort is highly likely to continue to be an issue with the sluice gates in place.

For the risk of pennywort to be reduced, options which involve the removal of sluice gates with a resulting increased water speed would be a way forward. Once a decision is made on a preferred option we will be able to determine how pennywort can best be managed. We have modelled the present day flows by using the Q50 flow, which is the flow experienced for 50% of the time. In this example the flow in the Old Mole is 2.37 cubic metres per second downstream of the offtake near the sewage treatment works outfall, whereas in the River Ember Channel, immediately downstream of the Old Mole offtake, flows are 0.86 cubic metres per second. As the flow within the river increases, the flow is proportionally directed downstream of Island Barn sluice as the River Ember channel has considerably more capacity and it is at this point we start to operate the sluice gates. We have not considered increasing flows into the Old Mole, however your suggestion would have the following challenges: Measures to increase the flow down the Old Mole would reduce flows down the River Ember. Further reducing flows along the River Ember could affect the quality of that channel and the Ember Loop channel that runs to the east of Island Barn Sluice. As mentioned above, with the structures in place at Wilderness on the Mole and Island Barn on the Ember it would be very difficult to get the desired changes in water speed – at least until the sluice gates are opened. A new barrier within the river to increase flows into the Old Mole could increase flood risk as it will reduce the total capacity of the River Ember to convey high flows. This ability to convey high flows is how the Lower Mole FAS provides the current standard of flood risk protection. Depending on how the new barrier is designed it may also restrict the passage of fish and eels. The current sewage treatment works outfall is slightly upstream of the Old Mole offtake as you correctly identify. To avoid the sewage treatment works outfall flows entering the Old Mole, as you suggest, the Old Mole offtake would need to be relocated upstream requiring a new channel to be constructed, potentially through the Caravan Site. This could have a detrimental impact on that business and gaining their agreement would be vital, the costs of constructing a new section of channel would also need to be factored into the overall costs for updating the scheme. One of the project objectives is to understand if it is possible to reduce the long term maintenance costs. Putting in an additional barrier could potentially increase costs rather than reduce them.

Q: 1. Flood relief. If levels drop (4-6) how would EA put new measures in place to keep lowered channels clear of vegetation / debris (fly tipping) to prevent formation of a swamp and damming/flooding when flash floods will certainly arise? 2. Pennywort. An answer to an earlier question states that the exponentially increasing Pennywort problem on Old Mole is not the EA responsibility, and that this should fall to riparian owners (i.e. the private owners, Thames Water beside Island Barn, and Elmbridge Council.) Does the EA accept that IT was responsible for allowing Pennywort to enter the Mole channel across the cill a few years ago, when a huge quantity of it was allowed to spill in an uncontrolled manner over the food relief channel at Viaduct? Should not then the EA have a responsibility for its elimination, given that the other corporate bodies also choose not to accept riparian responsibility? I believe a cohesive strategy is urgently required here. Would it not be the case that options 5 and 6 would exacerbate the problem, due to lowered levels and

decreased flow rate? (Flow rate seems the only natural aid to assist removing the weeds, as it did in main channel, together with downstream shading) 3. Amenity. It's clear that any option which reduce levels will impair amenity and access. Option 4 shows boats and ladders in the new deepened culverts, but ominously mentions "when they are allowed access in the summer". Does this mean that leisure craft access would be limited under these options, compared to the present unlimited annual access? 4. Safety. Reduced levels (Option 4-6) will impair access (above) and expose known existing fly tipping events (Shopping trolleys, Boris Bikes etc.) beside the accessible points of Old Mole (e.g. Ray Rd, Neilson Bridge) This would act as further invitation to miscreants. Has costing to sanitise, make safe and the consequential cost of amenity loss been taken into account with these options? 5. Wildlife. At present, we have at least 16 species of fish in the Old Mole, including rare Stone Loach, Bull head, Swan Mussels. Has analysis been done on the effect of their breeding in the shallow gravel etc. (that they may use) if water levels change? Options 5 and 6 suggest increased biodiversity in a shallow main channel, but might this not be at the irreversible expense of introducing invasive species (including mitten crab, signal crayfish) to disrupt the balance, from the Thames? As yet, I have not seen the Signal crayfish in the Old Mole. We frequently see Kingfisher here, but we unfortunately already have Mink, an apex predator and undoubtedly damaging to the bank nesting Kingfisher, water birds and fish. Please could EA efforts be made to trap and remove these pests, which may also be favoured by options 5 and 6? Overall, in view of above comments, I favour Option 3 (or possibly 4 if year round access and amenity is addressed sensitively).

A: We have responded to each point in turn. Point 1: If an option is selected where water levels are reduced, we will put in place a maintenance plan to control vegetation and debris within the river channel to maintain its capacity and ensure flood risk does not increase. Point 2: For Options 2-5, the typical water levels would not change on the Old Mole as Island Barn sluice gates remain in place and ensure that flows along the channel towards the area in question remain unchanged. With Option 6, a reduction in water level and flow to the Old Mole channel is unlikely to significantly increase pennywort growth as flow conditions are already preferable for this plant. Shading provided by the large trees along the banks is likely to be keeping the pennywort more at bay in the downstream sections of Old Mole at the present time – which will remain unchanged. Would you provide us with further information regarding the incident where pennywort entered the Mole channel a few years ago so we can respond to this query? Point 3: We are not proposing to restrict the periods of access to the river. Access through the existing amenity licences will continue to run in accordance with the terms in which they were granted. Future requests for opportunities to access the river channel within the Environment Agency's ownership will be reviewed on an individual basis. Point 4: Ongoing maintenance and anticipated repairs are included in the options costs as best we can value it now, with an additional 30% allowance for risk included in case these future costs are under-estimated. We recognise removing the sluice gates on the River Ember would require additional work to manage vegetation and debris within

the channel, however this is expected to be less costly than maintaining the gates and the associated electrical equipment at the structures. On the Old Mole channel only Option 6 will lead to a reduction in water levels, with water levels being retained at their current level in all other options.

Point 5: No specific fish breeding analysis has been undertaken on different options. Each option has been designed to enhance geomorphological diversity: improve flow variation and sediment distribution throughout the Scheme. A wide range of fish species have been reported from the lower Mole and Thames catchment and ensuring habitat for all species (with different habitat preferences and life cycles) is challenging. The creation of faster flowing areas over coarse substrates (gravels/pebbles) will ensure habitat for a wide range of species, including bullhead, stone loach, salmonids and lentic coarse species. Habitat will be retained in the wider catchment for species favouring slower flowing sections and macrophyte spawners. Mitten crab and signal crayfish are already present within the River Mole (mitten crab from the Lower Mole and signal crayfish from the headwaters), as are floating pennywort and zander (pikeperch). A large number of potentially invasive species are known from the wider Thames catchment and increasing catchment connectivity is recognised as a pathway to increasing the distribution of non-native species. Options 5 and 6 are not considered to present a significant risk of the named species entering the Mole catchment from the Thames, given their distribution already includes the Mole catchment. Scheme options that increase flow diversity and water velocities are likely to reduce the habitat suitability for species such as pennywort, zander and mitten crabs which favour slower flowing water. This is therefore expected to prevent the further spread of non-native species in the lower Mole catchment, or lead to their reduction. We usually control invasive species that potentially damage our assets and undermine our ability to carry out our regulatory duties. Whilst we have general duties to protect and enhance biodiversity, we do not have specific duties for water fowl and would not be looking to manage the local mink population. A long term, sustained and concentrated effort, involving a wide range of landowners and partners would be the only effective way to control mink along the Lower Mole. Thank you for informing us about your preferred option. We have recorded your comments

Q: Will the removal of the Island Barn sluice gates and the consequent substantial lowering of water levels in the Ember Loop (including occasional drying up) seriously damage or destroy the present ecosystem of the Ember Loop?

A: For option 6 it is likely that the current ecosystem within the Ember Loop would be affected without mitigation measures being included. In the longer term new types of habitat would be expected to emerge that could be equally important for wildlife. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to

demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat.

Q: Are you certain that with modern methods of construction, sluice gates installed now must necessarily be replace after 30 years?

A: The thirty-year life cycle is set by our organisational standard, the MEICA (mechanical, electrical, instrumentation, control and automation) specification '369_13_SD04 – Water Control Structures'. This document states that we should assume a 30-year design life for water control structures such as radial and tilting gates. We need to base our costings on what we know now. We cannot prejudge or assume any changes to future technology.

Q: Do you consider that planning consent would be required for the implementation of Option 6?

A: Until the project reaches the stage where it is possible to select a preferred option, it will be unclear as to whether planning permission for any of the options will be required. Under certain planning legislation the Environment Agency does have permitted development rights to carry out certain activities in, under or over a watercourse. We will discuss the need for planning permission with Elmbridge Borough Council, as the local planning authority, and if required submit a planning application.

Q: Is there any evidence that sluice gates require to be removed in order to increase the capacity of the engineered channel? Is present capacity inadequate?

A: The engineered channel has the capacity to accommodate high flows in the river. However, the sluice gates need to be opened during high flows to allow the water to pass in order for the engineered channel to protect the area from flooding. With option 3, (gate replacement), the current standard of protection against flooding the scheme currently offers would be maintained. If the gates were to be removed, as with option 6 (remove all gates, passive flood relief channel with rock ramps) the greater flow capacity will reduce flood risk in severe events. There is no need to increase the capacity of the channel through removal of gates, however this provides an additional flood risk benefit in severe events.

Q: Thank you for all the information you have provided. The revised scheme will need to last a long time. I have not yet managed to find your analysis of the impact of fluctuations in periods of drought or increasingly heavy and persistent rain, both of which are possible due to climate change. Please could you tell me how you are approaching this? I am particularly concerned about the impact of drought on river levels which, under three of your options, would have been reduced. Thank you.

A: The data that has been used on these graphs is Q50 data, this is data that would be equalled or exceeded at least 50% of the time. This is an average of the historic records at Esher gauging station which includes periods of very high and very low

flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however, this does provide a representative average water level. We are at the early stages of our project. As the project moves forward, and should an option be selected that may lead to lower water levels, we will carry out further investigations on impacts to the river levels in summer months.

Q: My preference would be for the weir Gates to be updated.

A: Thank you for your feedback, we have logged your comment.

Q: Definitely need to go with Option 3 any other option would have a huge impact on our own quality of life as well as the quality of wildlife both in and out of the water!

A: Thank you for your feedback, we have logged your comment.

Q: Option 3 looks like the best option possible!

A: Thank you for your feedback, we have logged your comment.

Q: In the current financial conditions it is unlikely that any funding will be available for more than the absolutely essential. It would seem appropriate therefore that a proper schedule of routine maintenance be followed – as it should have been for the past 30 years. Most commentators seem concerned with river levels rather than anything else.

A: Our priority is to sustain the current level of flood risk protection and we will continue to maintain the existing scheme. We carry out scheduled routine maintenance and larger repairs to the scheme as required. However, components of the sluice structures are nearing the ends of their design lives and consequently greater and more frequent repairs are required. We are now developing a business case to seek funding for refurbishment of the flood alleviation scheme to make it fit for the future.

Q: Any option that significantly reduces water levels is unacceptable. That would deprive the local community of a valuable amenity, create a serious, significant and permanent health hazard, create a harsh visual environment, and encourage the propagation of undesirable wildlife whilst hindering the passage of fish and other protected species. Option 3 is the only viable option.

A: Thank you for taking the time to provide us with your comments. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps and the best way forward for this project.

Q: It has been noted that discharges from the Esher Water Treatment works by Thames Water pumps 0.7m3 per second into the River Ember that is ¾ of a ton per second. As I am concerned about the quality of the water in the Ember, where can I, or any member of the public, view the past and present records of water quality in the River Ember? Also please inform me of the water quality standard set by DEFRA?

A: Thank you for your question. We are sorry for the delay in responding, we have been receiving a lot of a high volume of questions and we are working our way through them to answer each and every one as fully as we can. You will be able to obtain the water quality compliance and monitoring data through open data which you will be able to view using the link, https://environment.data.gov.uk/water-quality/view/landing. Another website is the Catchment Data Explorer which shows the Water Framework Directive status for each catchment. This information will be for the River Mole catchment specifically which will include the River Ember. In terms of water quality thresholds, these do vary between waterbodies, but the classifications on the Catchment Data Explorer will be set out against the Water Framework environmental quality standards. This can be obtained on the GOV website at https://www.legislation.gov.uk/uksi/2015/1623/pdfs/uksiod_20151623_en_auto.pdf.

Q: After reading through all of this, I think the best option is option 3.

A: Thank you for taking the time to send us your comments. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps and the best way forward for this project.

Q: After reading through all of this, I think the best option is option 3

A: Thank you for taking the time to send us your comments. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps and the best way forward for this project.

Q: Can you explain when my question of the 18th March is going to be posted on line and a reply given, and for the reasons for the delay. If it is not going to be posted or replied to, can you give the reasons for the same.

A: We apologise for the current delay in responding to your questions. A high volume of questions have been received and we are working our way through them to answer each and every one as fully as we can. Please rest assured that all questions will be answered. We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April. We produced this interactive website because pandemic restrictions prevented us meeting with the community face to face. We've used an external provider and the website service expires shortly, which is why the information will be moved back to our original website (https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/). Although the new website has been a temporary measure because of Covid-19, we're keen to hear your thoughts on its performance so we can consider what online tools we use in the future.

Q: I support option 3.

A: Thank you for taking the time to send us your comments. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps are and the best way forward for this project.

Q: I have serious concerns about the impact of options 5 and 6 and ask the following - Is it not the case that options 5 and 6 will result in the River Mole in normal times between the A3 in Cobham and Albany Bridge in Esher being changed from a beautiful, slow moving, wide stretch of river into little more than a ditch? What assessment, beyond the depth profiling and depth predictions, has been undertaken as to the width, volume and appearance of the river upstream of Albany Bridge? How will the river look when observed from the numerous public spaces alongside such as West End Recreation Ground, the path on the A244 Esher Road, Hersham Riverside Park, West End Common and The Ledges? What consideration has been given to the loss of amenity for the stand-up-paddleboarders and kayakers that use this stretch of the river, particularly from West End Recreation Ground? Has any attempt been made to involve the wider local population in this consultation, beyond the riparian owners, given the very significant loss of recreational possibilities options 5 and 6 will cause? What is the impact of options 5 and 6 on the current river wildlife due to the loss in volume and surface area of the water body and the greater variability in flow rate? Is it not the case that there will be significant loss of habitat, nesting sites, biodiversity and existing fish stocks upstream of Albany Bridge should option 5 or 6 be followed? Thank you in anticipation of your responses.

A: We have carried out a bathymetric survey of this section of the river to understand the level of the river bed across the whole width of the river, we also have cross sections of the river channel that are included within the flood risk model for the River Mole/Ember. For this section of river, as indicated on the water level presentation on the Options page of our interactive website, the depth of the river will vary with the greatest difference when compared to the level today seen directly upstream of Albany Bridge and becoming less as you travel upstream. Water will be retained within the channel throughout this reach, although it would be shallower in places, and also in some areas closer to Albany Bridge, would not cover the full width of the channel. Further upstream the depths increase with water being retained across much of the channel width. We understand that, although the river is not classified as a formal navigation, many residents and those from the local area do use the River Ember for activities such as paddleboarding and canoeing. The potential loss of amenity has been considered in the options assessment and has been identified as an aspect of options 5 and 6 that requires further consideration. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. We carried out a large scale mailing of letters to the wider area around the scheme to set out the details of our website, this large scale mailing was much wider than just riparian owners. We have also worked with Elmbridge and Surrey Council to help raise awareness of our website within the wider community. For example, a link to our website was made available through the News section of the Elmbridge Council website. Local groups have kindly posted links to our webpage on their digital platforms. We have also put a number of posters along the scheme at access points which advertise our website, and how the community can get in touch with us. There are known habitat associations /

relationships between plants, invertebrates and fish in riverine environments, and habitat suitability/preferences which have been described for a wide range of species in literature. We have used the predicted physical conditions (water levels, flow velocities and substrate composition) for the different options to undertake a number of qualitative assessments to help understand what the likely changes in the aquatic ecological community composition could be for options 5 and 6. These qualitative assessments show that under Option 6, water depths within the flood channel will reduce to within the range tolerated by a wider range of aquatic plant species than is currently the case. There will be a greater range of depths between margins and the channel centre. Flow variability will create areas of faster running gravelly habitats and slower silty patches and margins. This will create a much more diverse, more naturally functioning river habitat that will be able to support a wider range of aquatic plants, invertebrates and fish than is currently the case. These increases in aquatic biodiversity, are likely to support a much wider range of terrestrial species including birds.

Q: What is the name of the contractor/s undertaking refurbishments as part of the flood alleviation scheme and what is the likely cost of refurbishments?

A: Volkerstevin will be the contractor for the scheme and JBA will be carrying out the detailed design. As the project has not reached the stage where it is possible to select a preferred option, the current cost estimates are based upon the best information available at the present time. The current costs associated with each of the options are set out on our interactive website. Please view each of the options using this link https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/option-summaries-and-presentation-video.pdf. If you would like to view the 'full options document' please use this link https://consult.environment-agency.gov.uk/++preview++/ksles/lower-mole-flood-alleviation-scheme/user_uploads/full-options-table-new-version-final-27-1-21.pdf.

Q: Where we live on the Ember Loop flocks of Daubentons Bats forage and swoop down on the river catching midges, caddisflies and mayflies. They are a protected Species and roost in holes in the trees and under bridges. There are two bridges in Imber Court land adjacent to where we live. I am very concerned that you have not seriously taken this into account when you are considering the various options on future river management and the water levels. This species of bat depend on open water and the reduced water levels over summer months could have a serious effect on their numbers.

A: We undertook a bat survey in 2020 and found evidence of bats than can be grouped into the Myotis species of bats, which includes the Daubenston's bat (Myotis daubentoniii). We have considered the impact of the options on protected species, including bats. The creation of more low-lying wet habitats (such as reed beds or mud flats) would most likely benefit invertebrate life, in turn increasing the foraging opportunities for bats in general. The river channel would maintain flight lines for bats under all of the proposed options. Whichever option is taken forward, the environmental impact would be fully assessed in accordance with Environmental Impact Assessment Regulations and UK Habitats Regulations.

Q: Please make it easier for people to register their opinion on the options. It seems the survey is the right option. However the survey does not ask an explicit question. I did complete the survey for Option 3.

A: Thank you for your question and filling out the survey. While it is important to us that residents are able to select a preferred option we placed it in the survey as we would also like people to interact with the ideas, interactive map and question tabs as well as letting us know about which option they would prefer.

Q: In response to a previous question about how reducing water levels could possibly increase biodiversity in creatures that live in the water! A colleague at Jacobs replied….. I quote...' Whilst the rivers now contains a variety of species, it does not have much variability in habitat and offers a uniform environment, therefore the species diversity is quite low.' I refer to the 2019 EA report on the Mole which classified Biological Quality Elements as Good. Fish as Good, and Invertebrates as High. Further to that in the 2003 EA publication Our Nations Fisheries. A Snapshot, the Mole is quoted as…' Boasting the greatest diversity of fish species, of any river in England. And adds that ...' the EA's priorities are to protect and improve water in Inland Rivers. Certainly in the engineered sections of the scheme downstream of Viaduct Sluice, you might say that by definition the environment would be uniform. But you certainly cannot say the same for the 9 KM stretch of the 'natural' Mole upstream of Viaduct Sluice to the A3. It's about as natural and meandering and environmentally beautiful as you could hope to get. Yet this section is going to suffer a catastrophic loss of water level, it will be drained by up to 60%, should you go ahead with Options 5 or 6. This will not be a 'Restoration' as you so colourfully described it in a previous response, which is the action of returning something to a former owner, place, or condition, according to my dictionary. The River as we know it today, will be irrevocably drained and destroyed. I've posted pictures from this stretch from the 1930's, and last week on your website, that demonstrate the depth and width, relatively unchanged over that 'lifetime'. I don't know why I have to try and prove it to you, you're the EA, and you should know this stuff. Surely your salaried Asset Manager, should have a collection of pretty pictures through the centuries, to reflect upon. Pick any evening on the beautiful river bank at the bottom of my garden from April to November, there is no shortage in any way of flies of all sorts, midges and mosquitoes. We certainly don't need 2 stretches of muddy bank supplying any more, most certainly not if the cost of that, is losing 1.7 m of water depth, replacing a proud river with an intermittent stream of 40cms depth. So dealing solely with the fish population in your biodiversity plan, can you help me with understanding how by draining a water course by up to 60%, you get a better than 60% improvement in the water available for the fish to swim in? Thanking you in anticipation.

A: Under Options 5 and 6, the water depth will be reduced but the river will be able to flow more naturally again and at no point will the main channel become an intermittent stream, it should always flow. Whilst there will be a physical reduction in depth of water it will also create a range of different flow types, such as faster-flowing

shallow gravelly areas and deeper slow-flowing pools. This physical reduction in water depth does not equate to an equivalent reduction in the amount of wildlife it can support. This is because the different flow types create a range of habitats that are able to support a wider variety of species i.e. those that likes low moving water and those which thrive in faster shallower water. Shallower water depths and faster flows also support the growth of in-channel vegetation which provides valuable habitat and introduces complexity and structure. Downstream of the Esher Road road-bridge, the slow-moving engineered channel is deep and homogenous and provides little to no diversity in habitat types and there are very limited areas, located in the side channels, where the water naturally flows. One of the only habitats in this environment for fish is overhanging marginal vegetation with little to no in-channel vegetation. Any in-channel vegetation that does exist is typical of that found in ponds and lakes. As you quite rightly point out, the 9 km upstream of Esher Road road-bridge is much more rural and the banks are predominantly natural, additional habitat is provided through fallen trees and more established marginal vegetation. The lack of flow diversity however still exists due to the impounding effects of the downstream structures which prevents in-channel vegetation, characteristic of flowing rivers, from establishing. It also leads to the smothering of gravels, used by fish for spawning, due to the lack of flow to keep them clean. If you are able to visit the Mole at Painshill in the summer months, above the A3 road bridge, you will find in-channel vegetation. The impounding effects of the structures can create favourable conditions for midges and mosquitoes to proliferate by creating large expanses of slow moving water. Allowing the river to flow more naturally should help to reduce their presence, rather than encourage it. The initially exposed banks would be temporary and would allow for marginal areas to become established, with plants such as reeds and iris's, which form important habitats for wildlife such as breeding birds. You are correct, the fish population from Hersham to the confluence with the River Thames, which encompasses the Lower Mole FAS is classified as 'good potential' under the Water Framework Directive. The section of river, classified as 'good potential' is considered as a Heavily Modified Water Body. This means the fish population status will always be prevented from reaching their full potential by virtue of their environment. This is why the terminology 'good potential' is used. Given the environmental constraints imposed by the Lower Mole F AS, the fish population can only ever reach 'good potential'. Options 5 and 6, would look to reinstate a more natural system, as described above with the reinstatement of flow diversity and subsequent improvement in the variety of habitats, which in turn support a greater number of riverine fish species. The current system, albeit it considered as 'good potential', supports fish species best adapted to lake-like environments and those which thrive in running water, such as barbel, are absent. We appreciate the point you make about the definition of 'restoration', however the textbook definition of 'restoration' is difficult to apply in the context of rivers. This is related to the profound way that humans have changed and modified rivers for their benefit and therefore it is hard to define what its former condition might have been. A more appropriate definition of 'river restoration' outlined by the River Restoration Centre, is 'the process of managing rivers to reinstate natural processes to restore biodiversity,

providing benefits to both people and wildlife'. This corresponds to the information we have provided on the website and in our response above.

Q: Could you clarify one aspect on the process. I understand from previous information that these options are in the discovery phase and they are 'options' without robust impact analysis and costs as these are yet to be explored and finalised once selection of an option is completed. With this in approach in mind how can we select a recommended option if we are not fully clear on the costs and various significant impacts, as with any selection a decision can only be made when there is sufficient information. If an option is chosen without full and detailed cost and impact analysis how can we ensure it is appropriate? A decision might be made based on inaccurate and incorrect assumptions that if known at the time would have deselected itself. This approach feels unsatisfactory and creates mistrust due to a lack of real transparency. I am interested in your thoughts on this process. Thanks

A: It is standard practice as part of the development of a flood risk management scheme to assess the anticipated capital, operational and maintenance costs of all options and include these in the total expected cost when comparing options. We have used our knowledge and experience gained from this and other projects, as well as that of our consultant and contractor to assess the estimated costs of each of the options. We acknowledge that without the full design and detail for each of the options, there will be an impact on the accuracy of the costs which are currently presented. We have incorporated additional costs for risk and uncertainty into each of the options. Whilst this process enables us to develop reasonable costs based on our current understanding, the costs may change during the detailed design process. The appraisal process establishes a range of options for updating the scheme, and compares their economic viability (costs and benefits), technical feasibility (engineering difficulty) and environmental impacts to determine the best overall option. It also incorporates feedback we receive from the public and other stakeholders and is in line with the FCERM (Flood and Coastal Erosion Risk Management) Appraisal Guidance which is available online (https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-appraisal-guidance). This allows consistent comparisons to be made between options. There are a number of steps within the appraisal process. Once the scope of a project is known, a range of options for carrying out works moves from a long list, then to a short list, and then eventually the determination of a preferred option. As the project moves forward through each of the steps, the level of detail will increase, allowing us to understand the pros and cons of each option more, and to rule out those which will not be viable for economic, technical or environmental reasons. All of the information gained during the appraisal process is taken into account when determining what the preferred option for updating the scheme would be.

Q: Please could you provide supporting evidence to the information contained in the table for all 6 options. It appears that the table is biased towards the simplest & cheapest option and would be interested to see where these figures have been derived from. The whole life of a project like this would mean that

the per annum costs are not unreasonable for option 3 (my preferred option) given the impact on so many properties and people.

A: Please could you confirm which table you are referring to? We have produced a full options table which is on the right hand side of the 'what are the options page'. The statements at the end of the document explain how the costs are developed. No decisions have been made on which option may be taken forward for updating the scheme. We will continue to speak with the community, share information and listen to feedback as the project moves forward. Cost is only one of the factors we consider when appraising the options. The other factors we consider are: environmental impacts, carbon footprint, impact on water levels, how each option can be delivered, expected design life and long term maintenance requirements. More details on these factors are presented on the options section of the Citizen Space page.

Q: The pictures of the River Kennet presented on this website are not appropriate, indeed misleading, given that the starting point of a deep concrete river bank in East Molesey. Do you have any pictures of a similar river to this that has been through any lowering water levels? It clearly will not be a meandering green river bank, but a dried up, dangerous eyesore. Has any investigation been done to confirm what impact on gardens/houses close to the river a dried up river bank would have?

A: Some parts of the river upstream of Viaduct sluice could be considered similar to the Kennet as there are long lengths of natural bank, but we do appreciate your comment regarding the river around East Molesey where the channel is constructed from sheet piles and concrete. Observations from times when the river has been lowered for maintenance purposes have indicated a meandering pattern the river takes at a lower level. We're very aware that residents living alongside the channel will be concerned about how it may look if water levels were reduced. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts. While the Environment Agency has worked to improve urban rivers through restoration schemes such as the River Kennet, or is aware of other organisations doing so, locally we have not worked on a restoration scheme to the same scale as that on the River Mole/Ember. We have made contact with other teams across the country to ask for examples we can share but please understand this may take us a little time. With regards to your question concerning the impact some of the options could have upon the banks, we are aware that should water levels in the channel change we would need to review the effect of this on the banks. At this stage of the project we have not carried out detailed assessments of any impacts but we can say that all options under consideration include works to repair the channel banks, which may involve reinforcing sections along the river bank, improving their integrity and reducing the risk of damage during high flow flood events. Should an option be chosen where such works would be necessary we would work with homeowners to look at alternative ways to access the river.

Q: In many of your responses to questions in this section you state that safety is your priority. If this is the case please could you remove any options that involve lowering the water levels, with the section of the river with concrete banking's there will be a significant risk of injury to anyone wanting to use the river, our main reason for buying our house 20 years ago was river access, this section is very well used and acts as a shared space for many families. A significantly lowered water level will not suffice from a safety perspective. We strongly support option 3.

A: We have recorded your feedback regarding the options. We understand you are concerned about safety. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified.

Q: re: Water Treatment Works. In an earlier response you said, "The frequency of Operator Sampling Monitoring is dictated by the size of the treatment works, this is measured in terms of the population the treatment works serves." Has the capacity of the Esher Water Treatment Works kept pace with the housing expansion in Elmbridge?

A: With regards to the population the sewage treatment works services, a measure known as population equivalent (or PE) is used. PE is a measurement of organic biodegradable load. The 'population equivalent' served by a sewage works represents the local population, plus a measurement of industrial effluent, expressed as an equivalent number of people. As an example, effluent from a local factory might equal that produced by 5,000 people. If the works also treats sewage from 2,000 residents, its PE would be 7,000. PE for treatment works is reviewed by water companies and reported under the Urban Waste Water Treatment Regulations. It is a water company responsibility to monitor PE since they need to plan future investment. If a permit variation is required they will need to apply to the Environment Agency for us to consider the possible environmental impacts. With regards to the Esher Water Treatment Works keeping pace with the housing expansion in Elmbridge, we are not aware of any capacity issues at Esher and the works performs consistently within the existing permit limits.

Q: Option 3 looks best as it allows the local wildlife and environment to flourish with added benefit of recreational usage being maintained. Does cost of sluice gate maintenance come from Council Tax?

A: We have noted your comments regarding option 3. The Agency is funded in part from the UK government's Department for Environment, Food and Rural Affairs (DEFRA) for flood and coastal risk management activities in the form of Grant in Aid (FDGiA). As part of any project to update or create a flood risk management scheme, it may be necessary to see Partnership Funding to cover the full cost of a project as it is not always possible for FDGiA to cover the whole cost. Partnership

funding means the costs of flood risk management projects are shared between National and local sources of funding.

Q: Option 3 is the only way to go.

A: Thank you for taking the time to send us your feedback. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps are and the best way forward for this project.

Q: Given it was winter when you launched your website (lowermolefloodalleviationscheme.co.uk) and the country has been dealing with a global pandemic for the last year, including a very difficult start to 2021, I would like to request an extension to the consultation period. It would seem prudent and more transparent to do this and would also enable you to offer up the information contained in the website at a more permanent display, as you did before in 2019. This would be beneficial to older residents who may not have access or know how to use technology. I would like to request an extension beyond the 24 March deadline and certainly feel it would be more transparent if the website remained active and viewable in the future.

A: We have received a number of requests by members of the local community asking for the closing date of our Lower Mole Flood Alleviation Scheme website to be extended. As a result it will now be live until 5pm on Thursday 1 April. We will be able to comment more on our next steps very soon but please be assured that this is not the end of our engagement with you. All of the information contained on this website including all of the questions submitted and their answers will be available for you to view at all times even when this website closes. This is one part of our ongoing conversation with you and when restrictions due to the pandemic are eased we anticipate that face to face engagement can continue. We are currently exploring the best way(s) to do this and will give details on this very soon.

Q: If you close this website down 5 weeks after 24 March 2021 and transfer the information (as you say you will) I would like to ask if ALL the questions listed here will be transferred verbatim and not just summarised as FAQs. There are many valid, specific and interesting questions and concerns here which the general public, residents and involved parties will find very useful to refer back to. It does not feel transparent if the EA close this website down completely, why not have it run in tandem with your other site?

A: We have received a number of requests by members of the local community asking for the closing date of this interactive website to be extended. As a result it will now be live until 5pm on Thursday 1 April. Please be assured that when the website does close all of the information including all of the questions and answers will not disappear and you will be able to access them at all times on our original website address https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/. The questions and answers will not be summarised and will be available in their entirety. In addition the project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available for any further questions the community may have.

Q: Given it was winter when you launched this website (7 February) and the country has been dealing with a global pandemic for the last year, including a very difficult start to 2021, I would like to request an extension to the consultation period. It would seem prudent and more transparent to do this and would also enable you to offer up the information contained in the website at a more permanent display, as you did before in 2019. This would be beneficial to many residents and extend the consultation to more of the public and useful to older residents who may not have access or know how to use technology and prefer face to face conversations, albeit socially distanced should the existing rules and situation continue beyond summer 2021. I would like to request an extension beyond the 24 March deadline and certainly feel it would be more transparent if the website remained active and viewable in the future.

A: The pandemic has meant that we have had to think differently about how we can engage with the community. As it became evident last year that the pandemic was going to be prolonged it was clear that our usual method of face to face engagement was not going to be possible. We therefore had to think about how we could not only share this new information with you but also provide a way that we could invite you to ask questions and give feedback. The website has been publicised in a variety of ways including a large scale mail out. As a result we have been able to reach a far larger number of people than in previous engagement exercises. We have also found that by having the website open for a number of weeks (03 February to the 01 April) members of the public have had more time to read all of the information given which isn't always the case with other engagement methods. We are also sending out on request hard copies of all the information contained on the website to those with accessibility issues. We have received a number of requests by members of the local community asking for the closing date of this interactive website to be extended. As a result it will now be live until 5pm on Thursday 1 April. Please be assured that when the website does close all of the information including all of the questions and answers will not dis appear and you will be able to access them at all times on our original website address https://consult.environmentagency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/ This page will then be updated on a regular basis as the scheme progresses. In addition the project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available for any further questions the community may have.

Q: If it was designed 40 years ago how can the scheme respond to the current upward trend of extreme flooding events? This cannot be the case, it must only mean that the flood relief is degraded? It would also appear from the current understanding, that the standard of protection of 1:100 is woefully out of date?

A: The 1968 flood event was estimated to be not less than 1:200 annual probability (quoted from the Foster Harris 1988 ICE paper) and the scheme was designed to convey an equivalent event. Climate change is expected to make higher flows more frequent and as such the standard of protection will reduce over time. We do include the impact of climate change in our appraisal process by incorporating percentage

increases in river flow and/or rainfall intensity into our flood risk modelling and mapping. These percentage increases are taken from our national guidance which uses the latest climate change projections. Taking account of the current guidance on climate change impacts of increased river flow, our hydraulic modelling shows that the standard of protection provided by each of the options at the end of the appraisal period (next 100 years) would vary, but not reduce below a 1:100 annual probability. In order to maintain a standard of protection closer to the original design we would need maximise the capacity of the flood relief channel.

Q: I refer to the East Molesey Old Village Conservation Area Character Appraisal & Management Proposals. The document was considered and endorsed by the Elmbridge Borough Council Planning Committee on 18th April 2006. (The document is available in PDF format on the Council's website www.elmbridge.gov.uk). Page 32 includes the following comments: The character appraisal identified the landscaped area at the eastern end of Walton Road (to the south of the junction with Bridge Road, adjoining the Esher Road bridge) as being of particular importance as a landscape and amenity area linking with the river and the principal area of public open space for informal recreation. Furthermore, the maturing trees within this area and along the north bank of the River Mole make a valuable landscape contribution on this prominent corner and in long views down the river, especially from the bridges. RECOMMENDED ACTION: The Council will endeavour to ensure that this area of public open space is appropriately managed and protected from development. It will explore landscape enhancements with the local community to improve the area, create visual links to the river and provide interpretation for the local history of the area, including the provision of a heritage board. Elmbridge Council have therefore undertaken to ensure that the "long views down the river, especially from bridges' are protected from development. Please can you confirm that anything other than option 3 would run counter to this undertaking. I also attach a photograph and comment from page 15 of the report for your information. This captures very clearly what should be protected from development. The sylvan view from the bridge over the River Mole at Esher Road to the west is evocative of Old Molesey.

A: We hear your concerns regarding the conservation area. We're aware of the conservation areas and their presence has been noted and discussed during our options appraisal process. Should an option other than option 3 be taken forward we will liaise closely with the Elmbridge Borough Council conservation officer about the conservation areas, and to agree any appropriate enhancements or mitigation for these areas.

Q: Option 3 looks the best to me.

A: Thank you for taking the time to send us your feedback. Please be assured that we have logged your feedback. This will be taken into account when considering the next steps are and the best way forward for this project.

Q: After much reading, option 3 is the only option I could support.

A: Please be assured that we have logged your feedback. This will be taken into account when considering the next steps and the best way forward for this project.

Q: Hello, are there plans to deal with pennywort as part of this scheme?

A: The Lower Mole Flood Alleviation Scheme directs the majority of flood flows through the engineered channel. This is the river channel where Viaduct, Island Barn and Molember are located, called the River Ember. We can confirm that we still continue to work to control floating pennywort. However a few years ago, we had to take the very difficult decision to concentrate our efforts in controlling this invasive non-native plant. Up until that time, we had tried to keep all channels downstream of Hersham clear, but this was not sustainable following a reduction in resources available to us. We still work to ensure that we can keep the engineered flood alleviation channel clear of pennywort, together with the lower section of the River Mole. We also work to raise awareness with riparian owners along the upper section of the River Mole about the management of pennywort. The Environment Agency along with Medway Valley Countryside Partnership are running a short virtual training session tomorrow night on the safe removal of pennywort which may be of interest to you, please see the link to book your tickets. https://www.trybooking.co.uk/ZNV Please feel free to pass this on to any fellow residents who may be interested.

Q: Thank you for your earlier answers, in response to your question regarding Environment Agency allowing Pennywort to enter uncontrolled into the Old Mole channel; The Old Mole was completely free of Pennywort until 2015 following the devastating floods of winter 2014, The Environment Agency undertook work using contractors at Viaduct Sluice, to repair the gates and, I believe, the surrounding bank. The sluice gates were opened to drop the level, and at that time a mass of Pennywort (hitherto held back at Viaduct) was permitted to flood the main channel and to enter the Old Mole feed. This occurred in the summer of 2015, or possibly 2016 - but of course the works will be in your records. I am therefore asking if Environment Agency will accept responsibility for this and clearing of this pernicious weed, and not just leave it to the "riparian owners* (which include Elmbridge and Thames Water)? 2. Thank you for your insightful comments regarding options to increase flow rate on the Old Mole, and agreeing the uptake for this channel being slightly downstream of Esher sewage works. I understand your comment that it would prove expensive to alter the feed position of the Old Mole, to avoid sewage contamination in the event of alterations. However, your Q50 figures state that the flow rate in the Old Mole is" 2.37 cu m/s compared with only 0.86 cu m/s in the main channel just downstream of the uptake." The Old Mole is therefore taking over 3 times the flow of main channel, together with sewage outflow. Surely, the solution would be for Esher Sewage Works to move its outflow downstream 50metres, allowing dilution in the larger body of water? The added nitrogen in the effluent will otherwise only continue to exacerbate the Pennywort problem in the Old Mole (it has long since been washed through the main channel) 3. You state several times that shading downstream in Old Mole helps to keep Pennywort down in the slow flow. As you do not wish to

risk increasing the flow rate in Old Mole (you cite flood risk), please would you sponsor an environmentally enhancing tree planting scheme along the upper reaches of Old Mole to help suppress this weed which I can only see flourishing unchecked with all options, especially 6 I repeat that my preferred option is 3.

A: Thank you for your enquiry and for your suggestion regarding tree planting a scheme along the upper reaches of Old Mole. We will consider all suggestions made through the website when further developing the scheme proposals. We have included our responses to your questions below.1. You asked if the Environment Agency will accept responsibility for this and clearing of this pernicious weed, and not just leave it to the "riparian owners* (which include Elmbridge and Thames Water)? Our response: Our catchment team became aware of pennywort in this area around 20 years ago, and as an organisation, started a clearance programme in 2001. Due to the invasive nature of pennywort, we would not intentionally spread this plant along the river system and our ongoing management of pennywort has allowed us to significantly reduce its presence within the River Ember. We will continue to manage any pennywort within the River Ember in the future as this is the channel required to reduce flood risk. Flood risk is significantly less in the Old Mole. On this basis riparian owners continue to be responsible for the management of pennywort within the old Mole section of the river. We continue to raise awareness with riparian owners along the upper section of the River Mole about the management of pennywort. We, along with Medway Valley Countryside Partnership, recently held a virtual training session on the safe removal of pennywort. 2. You asked: Surely, the solution would be for Esher Sewage Works to move its outflow downstream 50metres, allowing dilution in the larger body of water? The added nitrogen in the effluent will otherwise only continue to exacerbate the Pennywort problem in the Old Mole (it has long since been washed through the main channel) Our response: This suggestion would need to be discussed and agreed with Thames Water. Changes to the levels of nitrogen due to alterations to the Esher sewage treatment works (STW) are unlikely to exacerbate the Floating Pennywort problem within the Old Mole since nitrogen is not usually a limiting factor to plant growth within the waterbodies. Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river.

Q: Along with lower mole how will opening help with smaller water ways around Molesey as over year's seen these ignored and unmaintainable causing bank erosion and rubbish build up. Are these going to be continued to be ignored as well.

A: The smaller waterways such as the Old Mole channel and the Ember loop are not being ignored. We have included them in our plans for the scheme. The main River Ember flood relief channel provides the main flood protection and therefore that is

where we will focus our maintenance efforts. The Environment Agency only has powers and funding to work on ‘Main Rivers’ to reduce flood risk. Main rivers include the River Mole, Ember and Dead River. All other ditches and streams are a matter for the (Riparian) owners. Surrey County Council does have similar powers to the Environment Agency to oversee flood risk and/or to carry out works on non-main rivers. The old Mole channel - Out of the six options shown on our website, only Option 6 would affect water levels within the Old Mole channel, while Option 5 will not lead to any change due to the retention of the sluice gates at Island Barn sluice under the option. The presence of the structures at Zenith and Wilderness would act to retain water levels in these areas under Option 6, and flows would also come in from the Dead River and surface water drains. Therefore, under summer conditions, we do not believe there will be any significant changes to water levels in the Old Mole between Wilderness and Zenith Sluice. We believe the structures at Zenith will retain water levels at their existing levels. One channel that is slow flowing and tends to accumulate rubbish and debris is the Dead River. As its velocity is restricted by the effects of Wilderness weir this will not change unless Wilderness weir is opened and or lowered in some way. Rivers tend to flow faster and are much less likely to suffer from Pennywort for example if they are not controlled by weirs, as is the situation on the River Ember and old Mole. Ember Loop Channel - For option 6 it is likely that the current ecosystem within the Ember Loop would be affected without mitigation measures being included. In the longer term new types of habitat would be expected to emerge that could be equally important for wildlife. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat. Erosion and deposition of the eroded bank is part of the natural process in most rivers and in the right locations it brings ecological improvements. The deposited material can promote emergent vegetation such as reed beds and the eroded banks provide habitat themselves for nesting birds for example.

There is the possibility of erosion to the banks occurring if there was a rapid change in water level or flow, such as through sudden opening or failure of a sluice gate. As part of the original design of the scheme, large sections of the channel were engineered to include hard materials to cope with higher flows and reduce the risk of erosion to the banks of the river channel, though there are sections where less hard engineering is present. At this stage of the project we have not carried out detailed assessments of potential erosion impacts but we can say that all options under consideration include works to repair the channel banks. This may involve reinforcing sections along the river bank, improving their integrity and reducing the risk of damage during high flow flood events. Any decisions on how the scheme may look in the future will also need to balance the need to protect the banks in comparison to

the obvious negative impacts of the revetment both in terms of aesthetics and reducing potential habitat. We have logged your comment on rubbish tipping and will ensure this is considered as part of any future management plan for the channel.

Q: Given that there is much work still to do, i.e. an Environment Impact Assessment, a Public Safety Risk Assessment and the BNG Assessment, is it not premature to put out costed options which clearly have shortfalls and gaps in their preparation? When will the EA Project Board meet to make a decision?

A: We have used our knowledge and experience gained from this and other projects, as well as that of our consultant and contractor to assess the estimated costs of each of the options. This includes allowances for managing safety and providing environmental enhancements. We acknowledge that without the full design and detail for each of the options, there will be an impact on the accuracy of the costs which are currently presented. We have tried to manage this by incorporating additional costs for risk and uncertainty into each of the options. Whilst this process enables us to develop reasonable costs based on our current understanding, the costs may change during the detailed design process. We would like to reiterate that no decisions have been made on options to carry forward, and won't be until we have considered all feedback from this public engagement. Our project board has no current plans to meet to take a decision on options. They will review all the community feedback received from this website before deciding on next steps.

Q: Your report states that the Biodiversity Net Gain approach "aims to leave the natural environment significantly improved as a result of any development". You state "Net gains for biodiversity are typically either an increase in overall diversity, or an improvement to the biodiversity which is already present". How will the natural environment or biodiversity of the Ember Loop be improved under option 6 and how does it give priority to natural solutions? This part of the Ember will be turned from a 6 metre wide river into a trickle- see photos showing a before and after (sent under separate email on 25 March).

A: For option 6 it is likely that the current ecosystem within the Ember Loop would be affected without mitigation measures being included. In the longer term new types of habitat would be expected to emerge that could be equally important for wildlife. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat.

Q: Your report interprets naturalisation, so that "sections of the river could be restored to a more natural state". This is already the case for the Ember Loop, including the control of pennywort by volunteers. Option 6 would destroy this

“natural state”. Has the EA considered how the Ember Loop could be maintained in its current natural state? What does the Ecological Impact Assessment say on this and where is it published?

A: When we refer to ‘more natural state’ we largely refer to removal of sluice structures that impound (back up) water behind them for significant distances and so by removing them, allows the river to flow more naturally. This creates a diversity of flow types and habitats including fast flowing gravelly sections and slower flow deeper pools. The statement you refer to reflects the River Ember on which the sluice structures are located and not the side channels. The side channels include the Ember Loop. Situated within the side channels are weirs, and we do not plan to remove these as part of this project. This means there is limited scope for these to be restored to a more natural state in the context explained above. As you mention, some stretches of the side loops already flow more naturally but are also subject to impoundment. Once a preferred option has been decided on, and should the chosen option mean a potential change in water levels, we would carry out an Environmental Impact Assessment (EIA).The EIA would set out likely effects on the environment. Should an option be chosen that will result in a drop in water level, we will need to demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into the side channels, or by offsetting what is lost by creating compensatory habitat.

Q: Looking at the three photo visualisations on your interactive map (numbered 3) on the stretch of River Ember behind Esher Road towards the Molember sluice, the visualisations do not appear to specify which season or water level they are representing, particularly for options 5 and 6. From what I've seen of the options, the water level will intentionally vary considerably throughout the year, i.e. floodwater v dry spells. Are these visualisations representations of what the rivers will look like when the water level is at a relatively high point? Could the EA specify the season and or water level that these visualisations represent? Where residents have raised concerns about the health and safety of a steep drop from the bank during low water levels, you have stated that you will look at mitigation. If this includes fencing, shouldn’t this also be represented on the visualisations, since this would have a dramatic effect on the appearance of the scheme in this area? Also, I note that this website is now closing in five days time on 1 April. I still have two questions unanswered from 20 March. I do understand that you have a lot of questions to get through and that this may take some time, however I am concerned that if a question is answered just before 1st April, whether and how people will have an opportunity to respond to your answer once the website is closed.

A: The visualisations were created using a representative average water level calculated from historic records at Esther gauging station. In this location however, (River Ember, upstream of Molember Sluice, running adjacent to Molember Road), the water level is also controlled by the River Thames and the system of weirs and locks at Teddington. This means under Options 5 and 6 we would expect the water levels calculated and shown on the visualisations to reduce by around 3cm in the

summer before it is prevented from reducing any further by the water level in the River Thames. The numbers on the map relate to the number of images in a cluster, rather than a location, so please do let us know if we haven't given you the details for the right area and we can revisit this question. As this project moves forward, and should an option be chosen that reduces water levels, we will work with residents on the design of mitigation and produce visualisations at this stage. We're sorry we haven't yet answered your previous questions, a large number came through last week and we are working through them all. Please be assured that all questions received while the website is open will be responded to via the website. The Easter break may mean it takes us a little time to respond but we will and all answers will be published. Our project email inbox will remain open.

Q: Large stretches of the Ember and Mole are currently inaccessible to the general public. Residents backing onto these rivers have private access and mooring and fishing rights. Have the EA costed out the construction erection and maintenance of fencing or other security measures to fully secure the channels so that the public cannot walk along these river beds, which will have all but dried up under some of your proposals? What will the EA do to ensure that public access is still restricted when the river beds are exposed? Your ideas board says you will be looking at Landscape and Aesthetics and Safety and Security.

A: Your feedback has now been logged. We are at the early stages of this project. As the project moves forward and reaches the stage where it is possible to select a preferred option, should an option be chosen which would see a reduction in water level the costing for the construction, erection and maintenance of any fencing and other security measures would be developed in detail. Security is an important factor and remains a key consideration in the development of options. We will consider improving fencing along parts of the scheme that are under our ownership to manage public access. However, we also need to consider the impact further fencing would have on how the scheme looks, how the area is used for amenity purposes and to ensure that additional fencing does not have any impact on the ability of the channel to convey high flows or increase the risk to flooding by catching debris. Moving forward, we seek to achieve the right balance between security and the way the scheme looks.

Q: Looking at your water levels graphics there will clearly be sections of the Mole and Ember that will have very low water levels under options 4, 5 and 6, and if climate change continues on its current trajectory the rivers will have barely a trickle or even run dry in extreme hot weather. Can the EA detail and publish how much it will cost to prevent and clear rubbish and debris collecting in these exposed river beds. What are the EA's intensions and plans to clear the river beds, once exposed, of all the dangerous historical waste, debris, discarded fishing tackle, sunken boats and all other currently submerged waste that is laying at the bottom of the rivers? How much will this cost? Exposed historical debris would pose a health and safety risk to wildlife and people.

A: We are at the early stages of this project, at this stage options which result in a change to water levels include cost allowances for ongoing maintenance which includes ongoing clearance of debris from the river channel, as well as allowances for removal of existing debris. As the project moves forward and once it has been possible to select a preferred option, we will then review any potential impacts in greater detail and refine our costs. We have logged your comment on rubbish tipping and make sure this is considered as part of any future management plan for the channel. Also, should an option be selected that may lead to lower water levels, we will carry out further investigations on potential impacts to the river levels in extreme hot weather.

Q: Although I favour Option 3 I would still like a reply to the question I posed in July 2019, namely what will be the standard deviation around the average drop of 1.6 metres? Am I wrong in concluding that the flow could be close to zero in dry periods?

A: You have referred to water levels and water flow so we will address both points in our response. The flow (volume of water moving down the river) will not be close to zero in summer as the amount of water flowing down the river would not change. The data presented on the website is Q50 data. This is data that would be equalled or exceeded at least 50% of the time. This is an average of the historic records at Esher gauging station which includes periods of very high and very low flows. On average, in the summer flows may be lower and in winter they are likely to be higher, however, this does provide a representative average water level. We do know that the flow in the channel could be in a very low flow scenario which we refer to as Q95, which is the flow which is exceeded 95% of the time in the recorded data at the Esher gauging station. The Q50 flow is 2.99m3/s while the Q95 flow is 1.31m3/s. This is publicly available on this website https://nrfa.ceh.ac.uk/data/station/meanflow/39104.Regarding the 1.6m drop in water levels, would you let us know the area you are concerned about? In 2019 we quoted 1.6m drop as the reduction in water level upstream of Molember on the presentation boards at the drop in and the latest information we have suggests this is still the case at that location. Please let us know if this is not the area you are interested in. In the section of the River Ember upstream of Molember Sluice the water level is also controlled by the River Thames. The River Thames water level does not drop below the water level which is retained by the weirs and locks at Teddington which is 4.38m above ordnance datum (AOD). Water levels in the River Ember will not fall below this level, and at this location the average water level in Options 5 and 6 is 4.4 1m AOD, so even in summer the water level should reduce by another 3cm before it is prevented from reducing any further by the water level in the River Thames.

Q: Your video explaining option 6 states that water levels will drop dramatically affecting the River Mole, Ember Loop and Royal Mills Channel which will experience lower flows and potentially run dry during some periods. It states that this option could include 'in channel mitigation measures which would help minimise lower flows'. Can you confirm whether you would work to prevent the Ember Loop from drying up and what measures you would take to do this? If not, how often do you anticipate this stretch of river to be dry?

Some of the photos used to demonstrate the change with option 6 are taken from Spa Meadows. How much would the water level drop by here? How much would the levels change throughout the year? We are incredibly concerned that if this option is chosen, not only will recreational activities such as canoeing become impossible and the aesthetic of a beautiful stretch of river be ruined, what is left behind may consist of stagnant water which could smell and attract unwanted animals such as rats. Other questions mention the possibility of an issue with sewage - can you guarantee that this would not become an issue? We strongly support option 3.

A: We have divided our response into sections to correspond with the points you have raised Ember loop: For Options 1-5 there would be no change here as Island Barn Sluice would be maintained. In Option 6, without the inclusion of mitigation measures, no water would flow into the Ember Loop apart from surface water drainage flows from the surrounding area. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in bio diversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to demonstrate that we can either reduce any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat. Spa Meadows: At Spa Meadows for Options 5 and 6 the water level drop is expected to be 1.34m in normal flows (Q50) and this is the basis of the visualisation we have used on the website. The water level drop for Option 4 is 0.6m.Recreational activities: Following on from previous feedback from the community, we understand that many residents do use the engineered Ember channel for recreational purposes. If, as our project progresses, an option is chosen that will change present-day water levels, we will carry out further investigations to find out how the reduced depth would affect recreational access, and would work closely with residents and recreational groups in doing this. Aesthetics and wildlife: We’re very aware that the community is concerned about how the river channel may look if water levels were reduced, and how it could affect the environment and recreational activities. While Option 6 may result in some negative environmental impacts in certain areas of the scheme due to water level lowering it is expected that overall Option 6 will also provide significant habitat gains, including for fish, aquatic invertebrates, bats, birds and small mammals. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Should Option 6 be selected as the preferred option, we would work with local residents and wildlife groups to ensure that any habitat losses are minimised as far as possible through mitigation measures and are also compensated for elsewhere. Sewage works: Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their

current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river.

Q: We have a 60 year Amenity Licence with the EA, signed in 2000 for "amenity use of bed and bank of the new channel of the River Ember". My question is twofold: - you regularly state that the sluices which are now 'end of life' were only put in place for amenity & recreational use, thus stating that the increased water level is the amenity. The Options that remove these sluices would, by definition, therefore be removing this licenced 'amenity'. Please confirm. - you state that "the scheme is now reaching the end of its design life" – why were the EA signing Amenity Licences in 2000 for 60 years if they knew the design life only had 20 odd years to run? Thank you.

A: Access through the existing amenity licences will continue to run in accordance with the terms in which they were granted. Future requests for opportunities to access the river channel with in the Environment Agency's ownership will be reviewed on an individual basis. In order for us to provide you with more information please send over a copy of your amenity license to our project inbox FASProject.LowerMole@environment-agency.gov.uk and we will look into this in more detail. Since 2013/14, there has been a need to carry out more works to the scheme, and these works have become larger and more extensive in nature to ensure the scheme can continue to function. As the scheme is reaching end of its lifespan, we are looking at the system as a whole to better understand what options there are now for updating the scheme. Since 2000, the aspects that we take into consideration when carrying out an appraisal to update a flood risk management scheme have increased. We are now considering if there are ways to achieve an overall net gain in biodiversity, or reduce the carbon impact from the scheme for example, as well as ensuring the scheme continues to offer protection against the risk to flooding. As the project moves forward and once a decision on the future of the scheme has been agreed, it is possible that we could explore the expansion of recreational use and to understand where it may be possible to introduce items such as steps to allow better access to the river. If an option was progressed that meant lower water levels we would work very closely with residents to design a scheme that would address concerns and provide mitigation for potential impacts.

Q: I am a riparian owner of a stretch of the Ember Loop. We have a penstock (sluice gate) on our land that plays its part in controlling the water levels in the loop. This has historically been set to allow a relatively small amount of water through to the "millpond" downstream which I have been told "super" oxygenates the water and is responsible for the large quantity of fish in the vicinity. This flow must be roughly equal to the amount that enters the loop upstream in order to maintain a consistent level upstream of the penstock. Upstream, the Ember Loop meets the flood channel south of Imber Court and upstream of the Island Barn sluice gates. The junction and structure are accessible via Grove Way. There is a pipe and a penstock to control what comes into the loop. On occasion the EA have closed this penstock for maintenance and this has allowed the river levels to drop. I have photographs of the loop with only a trickle of water. From what I have read on this site

Option 6 will result in the level of the flood channel upstream of Island Barn falling by 3m. The pipe feeding the Ember Loop appears to be about 500mm in diameter with the top approx. 500mm below water level and the bottom maybe 1metre below. I may be wrong on these measurements but I fear that with option 6 the bottom of the pipe would be out of the water by between 1m and 1.5m - and therefore no water at all would feed into the Ember Loop and it would completely dry up. As a consequence there would be no water flowing into the millpond downstream (as seen from the bridge at the bottom of Orchard Lane) - I believe there is also the possibility that the millpond and the shallow stretch leading alongside Cow Common to the flood channel will also become dry. The water level of this stretch and the millpond is always at the same level as the flood channel immediately downstream of Island Barn - which is set to fall by 300mm under option 6. I believe the millpond is approx. 1m to 1.5m deep in places but the stretch that connects it to the flood channel is as shallow as 100mm to 200mm in places. Therefore the millpond would become isolated from the rest of the river and starved of water from upstream, would either dry up completely or become a stagnant pond. I must say that the prospect of the EA choosing an option that will cause the Ember Loop and the millpond to dry up completely is very distressing and I must register my objection. Obviously I am objecting firstly with my own selfish interests in mind. My family and I enjoy the River and its wildlife for its natural beauty. Whether that is watching the Heron feed or taking the boat out early on a misty morning - if the River dried up the enjoyment of our property would diminish. On a cruder level I am certain that the river drying up would diminish the value of our property - I am pretty sure that would not be relevant to your decision but aside from property resale value there is also the matter of significant property damage. Our house sits right beside the river and the foundations are wooden piles. We have been told by a specialist engineer that the wooden piles survive only because they have been constantly submerged. If the river drys up and the piles are exposed to air they will start to rot. I have not yet investigated how long they would take to rot or how much it would cost to replace them with concrete or underpinning etc. but I imagine that it would be a very specialist and expensive operation. I am guessing that it might be hundreds of thousands of pounds. Will the EA compensate me for this? There may be others who are potentially affected - for instance - the Molesey Venture - which is a very large building. In the answers to other people's questions the EA mention "net biodiversity gain" - apparently this could be directly in place of the dried up river or elsewhere. Much as I am in favour of net biodiversity gain I must say that no amount of planting or naturalisation or bringing in new native species will properly compensate for losing a real river. Biodiversity is very important and I understand that the flood channel is not particularly diverse and could be improved by the various options - but if the cost is losing the old historic stretches or the Mole and Ember that is too high a price to pay.

Please do not choose option 6. From the responses on this website it is obvious that many people are also distressed by the options that lower the water levels. Whether they are worried about the Ember or the Mole there are

an awful lot of people who object to any option other than option 3 and I am in agreement. Please do not go for option 6. Option 2 is the most expensive - so option 3 at £69m sounds like the best compromise. I know this is supposed to be the questions section - rather than just objections - so here are a few questions I would be grateful to have answered. I have merely speculated about the levels in the ember loop and how the upstream penstock works to allow flow inwards from the flood channel. • What are the facts about the levels and measurements of the pipe and penstock at the southern end of the Ember loop? Please correct my guesses if I am wrong. • Given that the water level upstream of Island Barn will drop by 3m - will the pipe be out of the water on the flood channel side and therefore not allow any water in to the Ember Loop? • Will the Ember Loop dry up if Option 6 is chosen? • If the loop does dry up - would it be possible to close it either end and turn it into a long lake. It could be kept full by periodically pumping water from the lowered flood channel. Perhaps people would be willing to pay for the (solar powered) pump to be installed. • What will be the water level of the stretch that runs from the orchard lane bridge/millpond to the flood channel and will this also dry up? • To save me consulting a lawyer at this stage - do you know of any instances where riparian owners have been compensated for foundation damage by the EA due to this kind of work. Thank you for the candid and detailed answers that you have been giving.

A: We acknowledge your comments regarding the options, your views on biodiversity net gain and water levels, and your objection to option 6. We value your feedback and will consider all feedback we receive when developing the options. We have responded to your questions below:

• What are the facts about the levels and measurements of the pipe and penstock at the southern end of the Ember loop? Given that the water level upstream of Island Barn will drop by 3m - will the pipe be out of the water on the flood channel side and therefore not allow any water in to the Ember Loop? At the Ember Loop offtake pipe from the River Ember channel we have topographic survey data that tells us the elevation of the pipe. The base of the pipe is at 8.35m AOD, and currently water levels within the River Ember (main flood relief channel) are maintained at 8.82m AOD by Island Barn Sluice. If gates at Island Barn Sluice were to be removed typical water levels as shown by the long section graphs on the website would reduce to 6.54m AOD with the pipe not receiving flows from the River Ember in normal conditions.

• Will the Ember Loop dry up if Option 6 is chosen? In Option 6, without the inclusion of mitigation measures, no water would flow into the Ember Loop apart from surface water drainage flows from the surrounding area. Any option which removes sluice gates from the River Ember will need to address impacts from changes in water levels. The project is aiming to achieve overall net gain in biodiversity throughout the Lower Mole, and in doing so will consider the river system as a whole. Changes in water levels will be considered in our Environmental Impact Assessment, which will be carried out as the project progresses. Should an option be chosen that will result in a drop in water levels, we would need to demonstrate that we can either reduce

any negative impact from this, such as finding a way to maintain a flow of water into side channels, or by offsetting what is lost by creating compensatory habitat.

• If the loop does dry up - would it be possible to close it either end and turn it into a long lake. It could be kept full by periodically pumping water from the lowered flood channel. Perhaps people would be willing to pay for the (solar powered) pump to be installed. We have given consideration to these sort of works you mention should an option be chosen which reduced water levels within the River Ember, but not in detail at present. The upstream section of the Loop would retain water due to structures including the penstock as mentioned, but would gradually drain down when not being topped up by surface water flows from the residential area or high flows within the main channel.

• What will be the water level of the stretch that runs from the orchard lane bridge/millpond to the flood channel and will this also dry up? The Ember Loop in this section should retain water, but it would likely only flow when water comes from surface water drainage or in flood events on the main channel. The water level change in the main channel is 0.92m to 5.13m AOD. This is lower than the downstream end of the Ember Loop at 5.6m AOD, the downstream end of the Ember Loop does have a higher bed levels than the stretches upstream towards the millpond (5.35m AOD) so it would only flow when receiving flows from upstream and become a pond rather than flowing watercourse. Approaches to mitigate these impacts are being considered.

• To save me consulting a lawyer at this stage - do you know of any instances where riparian owners have been compensated for foundation damage by the EA due to this kind of work. We recognise this is a serious issue for many homeowners on the channel. As the project is in its early stages with a number of options under consideration, we are unable to outline a comprehensive view on compensation. We can confirm that property owners do have the right to claim compensation for any damage arising from our flood risk management works. Evidence would be required to prove any claim. In addition to these questions you have also raised some further points regarding recreational use of the Ember Loop. We have noted your concerns. If an option was progressed that meant lower water levels we would work closely with residents to design a scheme that would seek to address concerns and provide mitigation for potential impacts.

Q: Has an option been considered to replace the sluice gates at Molember & Island Barn with traditional locks that could be self operated? This would allow the water levels to be maintained for recreation & amenity in the concrete channel as one would get in a canal, plus recreational potential would increase.

A: Our priority is to sustain flood protection for residents and businesses. Installing a lock in this part of the river channel would not assist in managing or reducing flood risk, therefore it is not being proposed as part of the scheme. If, as our project progresses, an option is chosen that will change present-day water levels, we will carry out further investigations to find out how the reduced depth would affect

recreational access, and would work closely with residents and recreational groups in doing this.

Q: How do you square this with water volume and level reduction? https://www.theguardian.com/environment/2021/m ar/31/water-firms-discharged-raw-sewage-into-english-waters-400000-times-last-year

A: Any option that involves a change in water levels would need to have an Environmental Impact Assessment carried out to assess the impact on water quality, including discharge from the sewage treatment works and further discussions with Thames Water would be held. Should the volume of the receiving water body change, then there may be a need for Thames Water to have their current Discharge Permit reviewed and it may then need to be amended to align with the change flow/volume regime in the river. As an Agency, we will also continue to work actively with water companies to ensure overflows are properly controlled.

Q: Can you please clarify compensation provided to residents along the riverside? Do you compensate for house value decrease because was once riverside and is now next to a trickle of water? Or do you just compensate for damage because of transformation at end of garden?

A: We recognise that this is a serious concern for many home owners on the channel. As the project is in its early stages with a number of options under consideration, we are unable to outline a comprehensive view on compensation at this time. As stated previously property owners do have the right to claim compensation for any damage arising from our flood risk management works. Evidence would be required to prove any claim. Any person who suffers injury or damage arising from flood risk works also has a right to claim compensation but those claims have to be proved. Until we know exactly what the grounds are for the claim we cannot comment further at this stage only that to prove a claim an expert's report on the diminution in value would be required. Once we have more information we will be able to share more detail.

Q: Can you please provide under the Freedom of Information Act, a copy of the preparatory works to the original Lower Mole Scheme and specifically the creation of the Molember Sluice? Specifically I would like to have reference to those documents that refer to the rationale behind the creation of the Molember Sluice. Can you also please additionally forward to me a copy of those documents held by the EA which sets out the rationale why a movable gate system that impounds water has no effect on regulating water flow downstream as set out in its response of the 30th March 2021 at 13.14. In circumstances where movable flood gates have no effect on modulating water flow, can the Environment Agency advise on the rationale behind the continued maintenance of the Thames Water Barrier? Thank you.

A: As you have submitted this as a Freedom of information request we will have to deal with these questions accordingly. We will provide you with a response to your information request under the Environmental Information Regulations (EIR) / Freedom of Information Act (FOIA) within 20 working days. We have sent your

request over to our enquiries team who will log and respond to your request through our Enquiries inbox. They will then provide you with your reference number. Many thanks.

Q: I would like to amend the first of my previous questions as follows having just had sight of one of your responses and I apologise of any duplication. In circumstances where it is the case that "Whilst we no longer have records of the design decisions taken by the Thames Water Authority who constructed the scheme in the 1980's it would appear the structures were put in place to assist flows to pass between the Old Mole and Ember channels, as well as side channels such as that leading to Royal Mills. As you mention in your question, the structures may also have been installed to retain depth of water when flows were low. The sluice gates have to be opened during high flows and should they not operate correctly, flood risk would increase significantly." - Can you provide the justification behind your response to me on 30th March 2021, that "The sluice gates were installed during the construction of the channel for amenity and recreation purposes". How do you know the purpose for which the sluice gates were installed, if you no longer have the working documents as you claim? Please either provide a copy of these documents or answer this question. Please also answer the remaining two of my questions in the previous post. Thank you.

A: As you have submitted this as part of a Freedom of information request we will have to deal with these questions accordingly. We will provide you with a response to your information request under the Environmental Information Regulations (EIR) / Freedom of Information Act (FOIA) within 20 working days. We have sent your request over to our enquiries team who will log and respond to your request through our Enquiries inbox. They will then provide you with your reference number. Many thanks.

Q: If it was designed 40 years ago how can the scheme respond to the current upward trend of extreme flooding events? Thank you very much for your reply, which I believe, in summary says, in 1988 (33 years ago) the Foster Harris ICE paper estimated the 1968 event as not less than 1:200 annual probability, (this was calculated by a quantitative assessment of flow and via historical records). The scheme was designed to convey the equivalent flow to this event. The scheme was benchmarked at this flooding probability in 1988. With no modification to the flow rate of the scheme in 1988 - the scheme protection will not fall below 1:100, (according to percentage increases in river flow and/or rainfall intensity - via national guidelines) in 100 years' time. Are we able to view the EA National Guidance on Climate Change? - can you provide a link to them please. I have copied the previous question/answer below for clarity: XX asked: If it was designed 40 years ago how can the scheme respond to the current upward trend of extreme flooding events? This cannot be the case, it must only mean that the flood relief is degraded? It would also appear from the current understanding, that the standard of protection of 1:100 is woefully out of date? EA Replied "Thanks for your question. The 1968 flood event was estimated to be not less than 1:200 annual probability (quoted from

the Foster Harris 1988 ICE paper) and the scheme was designed to convey an equivalent event. Climate change is expected to make higher flows more frequent and as such the standard of protection will reduce over time. We do include the impact of climate change in our appraisal process by incorporating percentage increases in river flow and/or rainfall intensity into our flood risk modelling and mapping. These percentage increases are taken from our national guidance which uses the latest climate change projections. Taking account of the current guidance on climate change impacts of increased river flow, our hydraulic modelling shows that the standard of protection provided by each of the options at the end of the appraisal period (next 100 years) would vary, but not reduce below a 1:100 annual probability. In order to maintain a standard of protection closer to the original design we would need maximise the capacity of the flood relief channel."

A: Please see the link to the Environment Agency's Climate Change guidance. https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. This information is considered to be the best available at the present time, and is subject to change should updated information on climate change allowances be released.

Q: Please could you confirm approximately how many meters/kilometres of river bank will be alongside areas where you propose to drop the water levels, at the point where the water will be at its lowest levels if you go ahead with option 5 or 6? Please could you also tell us what proportion/percentage of the whole length of rivers in the scheme will be affected by planned drops in water levels? I ask because I am presuming you will have to install health and safety measures along the affected banks, and in the man-made channels there will be a need for regular post flood clean up when the water level shrinks down from flood highs. It would be useful to know the scale of health and safety measures and clean-up for the various options.

A: We have responded to them below; please could you confirm approximately how many meters/kilometres of river bank will be alongside areas where you propose to drop the water levels, at the point where the water will be at its lowest levels if you go ahead with option 5 or 6? As shown by our long section graphs there will be some impact on water levels for a significant distance, however the amount of water level change varies with it being greatest immediately upstream of the existing sluice structures (Molember, Island Barn and Viaduct). In Option 6 on the main channel shown on the graphs water levels are predicted to change along 12.9km in Option 6 and 10.4km in Option 5 (Island Barn would be retained in Option 5 and therefore water levels would not change between Island Barn and Viaduct Sluices). In both options water levels would drop along the length of the Royal Mills Loop (east of Viaduct Sluice) which is 0.5km long. In Option 6 due to the removal of gates at Island Barn Sluice there will also be impacts on the Old River Mole (west and north of Island Barn Reservoir) and the Ember Loop (east of Island Barn Sluice). Water levels are predicted to drop along 2.1km of the Old River Mole Upstream of Wilderness Sluice and the length of the Ember Loop (1.0km). Please could you also tell us what proportion/percentage of the whole length of rivers in the scheme will be

affected by planned drops in water levels? In Option 5 a total of 10.9km of the watercourses is predicted to be affected by water level change, while in option 6 this is 16.5km.The total length of watercourses including the river upstream to the predicted extent of water level change near the A3 is 18km, so the percentages affected are 61% for Option 5 and 92% for Option 6. With regards to post flood clean ups, our main priority is to maintain the standard of protection against flooding the scheme currently offers to householders and businesses. The enlarged river channel provides additional capacity for the high flows in the river during periods of prolonged and heavy rainfall. Should an option be chosen that would see the sluice gates be removed, the flood relief channel would continue to convey flood flows as it was designed to do. The removal of any debris from the channel would also be considered as part of any future management plan. Safety is also a priority for us and we're aware through our previous discussions that it is a key issue with residents as well. Whichever option is chosen we would work closely with residents as we carry out further assessments, sharing information and working together on potential mitigation that can be carried out as part of the updating of the scheme. A Public Safety Risk Assessment will be carried out as the options development moves forward and would seek not to increase any risk to residents and the public. Mitigation measures would be put in place if any potential increases in risk were identified.

Q: Why are you shutting down the consultation on this project so early? This project is massively important to the people who live and use this area. The river Mole is a fantastic resource for local people and wildlife. It needs protection from any plans that will turn it into a dried out ditch for half the year.

A: The pandemic has meant that we have had to think differently about how we can engage with the community. We produced this interactive website because restrictions prevented us meeting with the community face to face. We've used an external provider and the website service expires shortly, which is why the information will be moved back to our original website (https://consult.environment-agency.gov.uk/ksles/lower-mole-flood-alleviation-scheme/). This interactive website has been open for a number of weeks (03 February to the 01 April) as we wanted members of the public to have time to read all of the information given which isn't always the case with other engagement methods. The feedback received from the website over the past eight weeks has been very helpful in developing our understanding of the needs of the community. We have started to collate all the feedback we have received so far and this will be shared with all respondents and published on our website.

This website has allowed us to engage with a large number of the community and the project team now needs to take the time to go through your feedback which has highlighted where we will need to have more focused engagement on particular aspects of the scheme. Over the coming months, we will be developing our options to incorporate your feedback. This is one part of our ongoing conversation with you and when restrictions due to the pandemic are eased we anticipate that face to face engagement can continue. We are currently exploring the best way(s) to do this and

will give details on this very soon. Please be assured that when the website does close all of the information including all of the questions and answers will not disappear and you will be able to access them at all times on the website address stated above. This page will then be updated on a regular basis as the scheme progresses. In addition the project inbox FASProject.LowerMole@environment-agency.gov.uk will still be available for any further questions the community may have.

Q: Thank you for your reply to my 27 March question about the water levels in the photo visualisations on the Ember channel heading towards the Mole Ember Sluice. Reading through these questions, evaluation of mitigation is frequently mentioned as happening after the option has been chosen.

You mentioned that "As this project moves forward, and should an option be chosen that reduces water levels, we will work with residents on the design of mitigation and produce visualisations at this stage." I have seen a similar reply to many of the questions raised on this website.

My questions on this aspect are: Does this mean that we will only have the proposals on design mitigation and visualisations of what these would look like after you have picked an option to proceed with?

Shouldn't there be a full impact study of the preferred option, including the effects and mitigation proposals be published and discussed BEFORE the option is chosen as the one you are going to proceed with, since surely the mitigation of the negative impacts need to be evaluated first, with an opportunity for local community to respond, as practical mitigation could end up being extremely limited and perhaps not satisfactory to residents in areas where the water levels will be dropping substantially?

A: Please see our response to your questions below.

Does this mean that we will only have the proposals on design mitigation and visualisations of what these would look like after you have picked an option to proceed with?

Whilst we have carried out various assessments/studies including environmental, bathymetric and structural condition to help us to understand the impact of each of the options we now need to review all of the feedback sent to us as part of the online engagement and develop the options further, whilst taking into consideration the concerns and additional information requested by the community.

Shouldn't there be a full impact study of the preferred option, including the effects and mitigation proposals be published and discussed BEFORE the option is chosen as the one you are going to proceed with, since surely the mitigation of the negative impacts need to be evaluated first, with an opportunity for local community to respond, as practical mitigation could end up being extremely limited and perhaps not satisfactory to residents in areas where the water levels will be dropping substantially?

No decisions have been made on which option may be taken forward to update the scheme. Over the coming months, we will be developing the options, sharing further details with the community and understanding whether it is possible to move towards a preferred option for the future of the scheme. As suggested above, we will consider the needs, concerns and information requested by the community in the selection of a preferred option and provide an explanation for the selection. This will not be the end of our conversations with you, we will be working very closely with the community in the coming months.