Lower Mole Refurbishment FAQs

March 2019

List of Questions

Project Overview

- What area does this project cover?
- How will you decide what works to carry out to the scheme, is there an assessment being carried out and what information does this contain?
- Will the scheme still offer the same standard of protection against flooding as it does now?
- You mention the possibility of decommissioning some of the assets. Does this mean that the risk to flooding will increase?
- How long will the works take to complete and when are they scheduled to start?
- Will all of the planned works take place at the same time?
- During the works, will the water level in the river be lowered for long periods of time?
- How will the water levels and flows within the River Ember and the River Mole be managed whilst the works are carried out?
- Will the Lower Mole be dredged?
- Are you going to be working with others on this project?
- Are there plans to increase access to the river so it will be possible to walk alongside it for a greater distance?
- Are there going to be any alterations made to make it easier to use boats along the Scheme? For example, will it be possible to install a Lock at Molember?
- Will any new sluice gates be as quiet as the existing?
- How will these works be paid for?
- Have you accounted for climate change?
- Will planning permission be required for the proposed refurbishment works?
- What measures will be put in place to reduce the impact to local residents whilst the works are taking place?

Environment

- Management of Pennywort
- What does naturalisation mean?
- If fish passage to the River Thames is being improved, will this result in a loss of fish from the River Mole to the River Thames?
- Are there plans to control mink?

General Information

- Why was the Lower Mole Flood Alleviation Scheme built and why are these works being proposed?
- Why does the Environment Agency remove the vegetation along the walkways at Molember?
- Why are there fences around the structures and along parts of the scheme?
- Can any improvements be made to the security of the scheme, to stop people trespassing onto the structures and private land?
- Can more be done to stop illegal fishing?
- What do the safety booms do and why are they there?
- Does the Environment Agency makes changes to the water levels within the scheme during the year or does this occur naturally?
- Would it be possible to inform people of when alterations to water levels are planned to take place?
- Riparian ownership and responsibilities
- Do you offer a flood warning service for this area?

Project Overview

What area does this project cover?

The Lower Mole Flood Alleviation Scheme is approximately 7.5km in total length, from Hersham/West End area upstream, to where the River Mole joins the River Thames opposite Hampton Court.

How will you decide what works to carry out to the scheme, is there an assessment being carried out and what information does this contain?

We are carrying out an appraisal to determine our options for the proposed works.

This appraisal establishes a range of options for the refurbishment of 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 received from the public and other stakeholders.

As the scheme is funded using Government money, we are required to use the Flood and Coastal Erosion Risk Management Appraisal Guidance to carry out this assessment. This guidance sets out the steps that we need to follow throughout the project appraisal, which we must comply with in order to receive funding.

We start with a long list of options for the scheme, and try to narrow them down to a short list that has the best chance of attracting Government funding. As the project moves from the long list to the short list, the level of detail we have increases, 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.

The appraisal process uses a range of information, for example, river modelling, costs, economic benefits, condition surveys of the assets along the Lower Mole, historical information, habitat surveys and feedback from stakeholders. This is used to understand both the opportunities and constraints present.

All of these are taken into account when making determining the preferred option for the scheme's refurbishment.

Will the scheme still offer the same standard of protection against flooding as it does now?

One of the objectives of this project is to maintain the standard of protection against flooding that the scheme currently offers to households and businesses.

You mention the possibility of decommissioning some of the assets. Does this mean that the risk to flooding will increase?

No. Maintaining the current standard of protection against flooding is an objective of this project and any option which proposes the removal of assets would be carefully assessed to ensure that flood risk is not increased as a result.

How long will the works take to complete and when are they scheduled to start?

The programme for works to the scheme is currently still under development, so at the present time we are only able to offer general details. Currently, the proposal would see investigatory works and surveys, such as ground investigations, taking place during summer 2019. The main works, which could see activities such as the replacement of sluice gates, are planned to start in summer 2020.

Will all of the planned works take place at the same time?

Due to the area the scheme covers, it is likely that the works will be phased over a period of a few years. We are seeking to complete some works to the sluices that we own and operate by the spring of 2021, with other items of work starting once works to the sluices is completed. Although we are currently unable to offer a specific timeline, when we have more detail on the nature and scale of the works we will be able to share this information.

Some of the structures and areas of land along the scheme are owned by others. We have started discussions with those owners to understand if they have any concerns, and to work with them to move the project forward.

During the works, will the water level in the river be lowered for long periods of long time?

We will need to lower the water levels within the river to allow us to carry out work to the sluice gates and the river channel. As the proposal is still being developed, currently we are not able to say how long the water level will be lowered for, but we will share this information once it is available.

How will the water levels and flows within the River Ember and the River Mole be managed whilst the works are carried out?

The lowering of the water levels and the management of flows within the river whilst the works are ongoing will be carried out with both flood risk and environmental needs fully considered. Management of the levels and flows will be confirmed once the proposal is fully developed and the details of the works are finalised.

In the past, we have successfully managed water levels to carry out maintenance works to our sluice structures and the river channel. We can use the knowledge from previous works to help us manage water levels and flows during this project.

Will the Lower Mole be dredged?

Currently, dredging is not planned to be carried out as part of this project.

We consider each location carefully and only carry out dredging where we know it will make a difference to the management of flood risk. Understanding where dredging will, and won't, reduce flooding is the key.

Dredging has many short and long term environmental impacts such as the escape of silt plumes into the water, reducing water quality, or the removal of gravels from the river which is an important substrate on which fish spawn. In addition, this substrate helps to reduce channel erosion as it absorbs the energy of the river.

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.

Are you going to be working with others on this project?

Yes. We have already made contact with the owners of those structures which are not under our ownership, to understand if there is the opportunity to work together as part of this project.

We are also speaking with Elmbridge and Surrey Councils, utility companies, businesses and developers along the length of the scheme. We are also engaging with Surrey Wildlife Trust, South East Rivers Trust, Natural England and the Lower Mole Catchment Partnership.

By working with others, we hope to realise more benefits and achieve a better overall outcome.

Are there plans to increase access to the river so it will be possible to walk alongside it for a greater distance?

We are assessing the feasibility of increasing public access as part of this project, and identifying areas where this may be able to happen.

However, some of the land adjacent to the scheme is not owned by the Environment Agency, and there are also health and safety and security aspects to be taken into consideration in opening up some areas to the public.

Are there going to be any alterations made to make it easier to use boats along the Scheme? For example, will it be possible to install a Lock at Molember?

These aspects will be looked at in more detail as the project progresses, to understand if it's feasible and ascertain how this would fit with other improvements to the scheme.

Will any new sluice gates be as quiet as the existing?

Should there be a need to replace the existing sluice gates with new ones as part of this project, we will seek to reduce the noise levels or at the minimum, maintain the current level of noise that the water makes as it passes through the sluice structures.

How will these works be paid for?

The refurbishment works will be at least part funded by central Government through the use of Flood Defence Grant in Aid (FDGiA). The current indication is the refurbishment works will be eligible for full funding, and Government funding has been allocated to this project.

As Government funding is limited and is spent for the benefit of the Nation, we are also exploring options for funding from other sources, to ensure the works can progress.

As the refurbishment options are still being developed, only high level costs have so far been estimated to give an indication of how much it will cost to refurbish the scheme. We should have more accurate costs as the appraisal progresses and the options are agreed on.

The amount of funding will be determined by a funding calculator, which prioritises funding for projects which have the greatest benefit to people and the environment. Environment Agency projects must go through an appraisal process to fully understand the costs and benefits over the full lifetime of the schemes design, and long-term maintenance. Our economic appraisals produce both a cost-benefit ratio and a Partnership Funding (PF) score. The PF score determines the proportion of a projects costs which can be paid for using FDGiA, with any shortfall in funding needing to be found from other sources. These other sources can include local authorities, water companies, private businesses and individual land or property owners.

Have you accounted for climate change?

Climate change is expected to make flood risk worse in the future. We include the impact of climate change in our appraisal. We do this by incorporating percentage increases in river flow and/or rainfall intensity into out flood risk modelling, mapping and other calculations. These percentage increases are taken from our national guidance which utilises the latest climate change projections.

Will planning permission be required for the proposed refurbishment works?

As the project is still in the appraisal stage, all the information that is needed to understand if planning permission is required is not yet available. We will be speaking to the Local Planning Authority to gain their feedback and understand what permissions will be needed. Under Planning Legislation, Permitted Development rights do exist for certain types of building work, but we will have a better understanding of the planning requirements once further information is available. It is highly unlikely that we would need any additional Compulsory Purchase of land, as the proposal is for the refurbishment of the existing scheme.

What measures will be put in place to reduce the impact to local residents whilst the works are taking place?

As the options are still being developed, we do not yet know for certain what the works will look like, or the type of machinery required. Once we have further information, we will consult with householders and businesses who may be affected to understand concerns and share what plans will be put in place to minimise disruption.

In the past, we have carried out maintenance works to the scheme which have required the use of large machinery in areas close to houses. We consulted and notified the households that were affected, and successfully used techniques to reduce noise, vibration and dust and prevented materials or debris entering the watercourse.

Environment

Management of Pennywort

Floating pennywort is a fast growing invasive species of freshwater plant. It is well established in the south and east of England and is widespread in the channels that form the Lower Mole.

Floating pennywort grows in the margins of slow flowing watercourses and drains, forming dense mats of vegetation. These dense mats grow rapidly (up to 20cm per day) and can grow up to 15m out from the bank in one season. Due to the rapid growth of floating pennywort, it can quickly dominate a watercourse, restricting flows and pushing out native plant species. Oxygen levels in the water often become reduced and this can result in fish deaths. The plant also limits the movement of animals and boats, restricting the recreational use of the river.

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 have a limited budget within our Environment Agency Area (Kent, South London and East Sussex) that is set aside for ongoing maintenance works, including the removal of pennywort. We prioritise this maintenance spend on areas at greatest flood risk. As the River Ember channel is essential for managing flood risk, our main focus on pennywort management is the Ember channel.

We work alongside the riparian owners along the River Mole and Imber Court Loop to raise awareness of and manage pennywort. During the past year a number of riparian owners along both of these areas of river have carried out work to remove pennywort. We will continue to engage with and work alongside riparian owners in the future to carry on the work that has been started to manage pennywort.

We have sprayed the pennywort in the past, though we favour its physical removal by hand pulling and offsite disposal as this is an effective way to reduce the strength of the plant. We have experimented with lowering the retained water levels within the river during frosty weather to expose a greater area of the pennywort plant to frost, which has been successful and we consider using this technique again in the future if necessary.

What does naturalisation mean?

In terms of this project, it is looking for where sections of the river could be restored to a more natural state. This could include creating small meanders in some sections, planting areas of aquatic vegetation, and also changing the way it looks from a hard engineered concrete channel to one where it looks more natural.

If fish passage to the River Thames is being improved, will this result in a loss of fish from the River Mole to the River Thames?

As part of the scheme's refurbishment, we hope to open up over 20km of habitat to improve passage for fish. This will also improve fish populations and the general wildlife and biodiversity within the River Mole. At present, the structures along the river restricts the free movement of fish throughout the Lower Mole and also into the River Thames. This project offers an opportunity to investigate options for improving fish movement.

Improved connectivity will allow fish in the River Mole and River Thames to mix and create stronger, larger and more diverse fish populations which will benefit the fish, the fisheries and the wildlife throughout both catchments.

Are there plans to control mink?

We do not have any plans to control mink as we do not have the resources available to implement an effective programme of control.

General Information

Why was the Lower Mole Flood Alleviation Scheme built and why are these works being proposed?

The original Lower Mole Flood Alleviation Scheme was designed to reduce the risk to flooding in the lower reaches of the River Mole catchment, following a significant flood event in September 1968. The River Mole has a history of flooding, though the September 1968 event is still considered to be the largest and most severe recorded flood event along the River Mole. It has been estimated that several thousand properties in the lower reaches of the River Mole were flooded during that event.

We then started to consider options to reduce the future risk of flooding along the lower reaches of the River Mole. These options included:

- creating flood storage areas in the middle area of the river catchment
- a tunnel scheme to carry water from the Hersham area to the River Thames
- a pump scheme that would move large volumes of water through the lower reaches of the River Mole
- widening and engineering of the river channel from Hersham down to the where the River Mole connected with the River Thames.

An engineering assessment was carried out to gain a better understanding of the magnitude of the flood that has occurred in September 1968, and to determine which of the proposed options could offer the best overall solution to reducing flood risk in the future. This assessment concluded that the scheme should offer protection against flooding if an event of similar magnitude to September 1968 was experienced again, due to the significant damage and disruption caused. The option that was taken forward for design, and ultimately construction, was the widening and engineering of the river.

A Public Inquiry was held in 1972 to discuss the planning application. As part of the proposed works, a Compulsory Purchase Order for areas of land, and a number of properties, was submitted for consideration. This land was needed to allow for the widening of the river channel. Objections from local residents, and others who would be affected, were made to the original proposal at the planning stage. The large scale nature of the scheme, the proposed changes to the existing river system and landscape, the loss of amenity, concerns over privacy and future access, were some of the concerns highlighted.

During the course of the Planning Inquiry, a number of recommendations and revisions were made to the proposed scheme in order to address the concerns and objections raised and to try and reduce the impact the works would have on the area. After consideration of all of the information, planning permission was granted for the Scheme in 1974.

The construction of the scheme took a number of years, with the works being completed during the 1980s. The scheme is now reaching the end of its design life and needs to be refurbished to maintain its standard of flood protection and to ensure it is the best scheme for the environment, people and wildlife.

Why does the Environment Agency remove the vegetation along the walkways at Molember?

We manage the vegetation around Molember so we can clearly see the walls and walkway when inspecting the condition of these assets. We have a regular programme of asset inspection. We check for

any possible defects and are able to keep a record of the condition of the currently flood alleviation scheme. This allows us to plan for any maintenance works which may be required.

The walkways are accessible to the public. Removing vegetation and keeping the walkways clear of moss, reduces the possibility of trips and slips during wet weather. This also helps our staff access these areas during the night to monitor water levels and operate the sluice during high flows.

We are happy to discuss whether there are any changes our current ways of working which will allow a better balance between the operational needs of removing the vegetation, and the way that the scheme looks.

Why are there fences around the structures and along parts of the scheme?

When the scheme was designed, there was a requirement to carry out a Public Safety Risk Assessment (PSRA) as parts of the scheme are located within a residential area, and many areas of the scheme and its structures are accessible to the public. This assessment determined that fencing was required in certain locations to protect the public from coming into contact with moveable parts on assets, such as sluices, and the edge of the river, which could be hazardous.

Can any improvements be made to the security of the scheme, to stop people trespassing onto the structures and private land?

We will look to improve fencing along parts of the scheme that are under our ownership. However, we also need to consider the impact further fencing would have on how the scheme looks and how the area is used for amenity purposes.

With these considerations in mind, we will seek to try and achieve the right balance between security and the way the scheme looks, as well as maintaining access to publicly accessible areas.

Can more be done to stop illegal fishing?

We have installed security fencing and placed signs along the scheme to deter illegal fishing on land under our ownership, and our staff will discourage this activity if we see this taking place. We seek to achieve the right balance between security and the way the scheme looks, as well as maintaining access to publicly accessible areas.

Unfortunately our resources for tackling illegal fishing are limited, but we will continue to discourage illegal access for fishing by making the best use of the resources that we do have, and through the upkeep of appropriate fencing and signage.

What do the safety booms do and why are they there?

The safety booms were installed to safeguard canoeists and boat users from being swept into the sluices. There is a risk that people travelling on the river could be swept over the sluice structures or get into difficulties with the turbulent flows on the downstream side of the structures. A risk assessment carried out on similar structures on the River Medway following an incident where a river user was injured recommended that safety booms were installed on other sluices. The booms also prevent large debris from coming into contact with the sluices and either blocking or damaging them, especially during times of higher flows.

Does the Environment Agency makes changes to the water levels within the scheme during the year or does this occur naturally?

The majority of the changes in the water levels along the scheme happen following rainfall or longer spells of dry weather. We do reduce the level of the water if we are carrying out certain types of maintenance or survey work, for example, when we need to inspect parts of the sluices that are normally under water.

Over the past couple of years, we have reduced the water level by 300mm at the start of the winter. This creates more volume within the river channel and helps to manage higher flows. We have also used the lowering of water levels over the winter season to help with the management of pennywort. This action has successfully helped to reduce the amount of pennywort regrowth along the Ember channel.

Would it be possible to inform people of when alterations to water levels are planned to take place?

We would be happy to let people know when we are planning to alter river levels. Please let us know if you would like to be kept informed. We would like to hear from you how best to communicate these messages.

Riparian ownership and responsibilities

A riparian owner is someone who has any watercourse within or adjacent to any boundary of their property. Where a watercourse is located between two or more property boundaries, each owner may be equally responsible. Riparian owners are responsible for maintaining the river bed and banks within their section of the watercourse. It is their duty to minimise pollution and prevent obstruction to the water flow.

Further information on riparian ownership can be found on the Gov.uk website by following this link: https://www.gov.uk/guidance/owning-a-watercourse

Do you offer a flood warning service for this area?

Yes, we do. We operate a comprehensive free flood warning service. We would encourage householders and business owners to sign up for our flood warning service if they have not already done so. You can check if you are considered to be at risk to flooding by checking on Gov.uk using the link;

https://www.gov.uk/check-flood-risk

If you are located in an area at risk to flooding, you can sign up to get flood warnings by providing some contact details, the process is set out on the Gov.uk website;

https://www.gov.uk/sign-up-for-flood-warnings