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We will periodically update this document with new questions when they are raised. Please provide feedback to cmblnc-pso@environment-agency.gov.uk as we can then make sure it is tracked.



Q1. How are residents' being given opportunity to comment on the scheme?

In July 2018 the first community drop in event was held, outline designs had not been developed but we wanted to let residents know about the planned scheme. In November 2018 a second community drop-in event was held where residents could comment on the initial outline designs. Residents gave us feedback through conversations at the events, on feedback forms and were given our contact details. The next community drop-in event was held on 20th June 2019 and detailed designs were presented. We demonstrated how we had listened to residents feedback provided at previous events.

As the project progresses we will hold 1 to 1 meetings with landowners, meet with groups of impacted residents and hold open drop-in sessions. We will be applying for planning permission in spring 2021 and residents will be able to comment on the planning application through the formal process.

Important update from the Environment Agency regarding COVID-19 (last updated August 2020):

The Environment Agency are committed to engaging and consulting with the community despite the challenges and restrictions that COVID-19 has created for face-to-face engagement.

Engagement with the community is progressing through a variety of mediums to ensure planned activities continue effectively whilst adhering to Government guidelines. At present, public engagement is primarily online, with the Environment Agency responding to individual enquiries and providing community-wide scheme updates via the Flood Hub page (<u>https://thefloodhub.co.uk/hambleton/</u>) and newsletters. The Environment Agency are actively reviewing possible engagement options as Government guidelines change and will ensure safe ways of working are upheld.

Please provide feedback to cmblnc-pso@environment-agency.gov.uk.

Q2. Why are the Environment Agency looking into a scheme for Hambleton?

Modelling has shown over 600 properties in Hambleton at risk of flooding. More detail on the flood risk is provided in Q3.

The Environment Agency is seeking to invest where we can provide the greatest benefit to people and property, which is why we are looking to provide a flood defence scheme in Hambleton. The proposed scheme would benefit over 600 properties in the village.

With the impact of rising sea levels from climate change this risk may increase in the future. Globally, intense storms are becoming more frequent and climate change is already increasing sea levels around the UK coast.

Q3. What is the current flood risk in Hambleton?

The Environment Agency Flood Map for Planning shows the current flood risk for Hambleton, it can be viewed online at <u>https://flood-map-for-planning.service.gov.uk/</u>. The Flood Map for Planning (i.e. Flood Zones 2 and 3) shows the area at risk for the undefended scenario, so this type of hydraulic modelling does not take into account the effect of any raised defences.



A large part of Hambleton is in flood zone 3 which is an area with the highest probability of flooding. The chance of flooding in any one year is greater than or equal to 1% (e.g. a 100 to 1 chance) for river flooding and greater or equal to 0.5% (e.g. a 200 to 1 chance) for coastal and tidal flooding.

The Environment Agency also publish a map showing the long term flood risk from rivers and the sea. This type of flood risk assessment takes into account the effect of raised defences. As some residents have noted this previously showed a lot of Hambleton as being at low or very low risk of flooding. This map has recently been updated as, after investigation, it has become clear that the assessment in this location did not taken account of more recent water level information from a detailed hydraulic model the Environment Agency has undertaken for the area. As our online mapping is updated on a quarterly basis the changes were made in June 2019.

Q4. What work has been done on the scheme already?

In 2015 an initial assessment of the flood risk to Hambleton was carried out and a report completed. This report assessed flooding issues in Hambleton, historical flooding data was analysed, current defences assessed and tidal data processed.

This initial assessment recommended a more detailed appraisal was undertaken to develop a Strategic Outline Business Case, for expenditure for further detailed work to be carried out. This was approved in early 2018. Economic and environmental assessments, initial hydraulic modelling and phase 1 ground investigations were undertaken and a short list of potential solutions was proposed.

After approval of the Strategic Outline Case, we completed an Outline Business Case. For the Outline Business case an outline design was developed and phase 2 ground investigations were completed. The economic and environmental assessments were developed in more detail. Approval of the Outline Business Case gave us permission to progress the project further and create a detailed design.

We have been engaging with partners including Natural England, Lancashire County Council and Wyre Borough Council. We have also been engaging with the community as outlined in question 1.

Q5. How have the wall heights been calculated?

Detailed hydraulic modelling has been undertaken to review the likely impact of flood events in the Hambleton area. We have used actual records obtained from previous flooding events to ensure the hydraulic model accurately reflects what has happened previously, enabling us to predict what could potentially happen in the future. This allows us to consider the likely impact of sea level rise associated with climate change, as well as the impact associated with storms of different magnitudes.

Using this model, we are then able to test how different defences may reduce flood risk to Hambleton and how high they may need to be to protect the town from flood events of different sizes. A lower wall may be more acceptable from a visual perspective, but leaves people and property at more risk than a higher wall would. The height of the walls we have proposed are designed to achieve the target standard of protection which considers these, and other, factors.



When calculating the heights of flood defences we do not look at just the predicted flood levels. We also consider things like the height of waves in the estuary, predicted sea level rise, and whether the walls may settle into the existing ground due to their weight after construction.

Q6. Why is there a variance in wall heights in different parts of the scheme?

The scheme wall heights have been designed using the modelled water levels for an event with an annual exceedance probability of 0.5% (which is equivalent to an event likely every 200 years). Per standard practice the designed water levels (DWL) also include a risk allowance (freeboard) to account for uncertainties within the model and data used to develop the model. In addition an additional allowance has been added to the design water levels to account for our current understanding of climate change trends. This will ensure that the wall heights provide the same level of protection into the future should water levels increase as predicted.

To minimise impacts to residents the wall heights are proposed to be raised in two phases:

- Phase 1 current scheme using DWL, freeboard and initial climate change allowance
- Phase 2 increase of wall height to account for additional climate change allowance*

Zone 1 will have both Phase 1 and Phase 2 works installed due to the extensive highway alterations required and limitations on future upgrade. Therefore, the Design Water Level has been calculated over a 100-year appraisal period including the full 100 years of climate change allowance.

In Zone 2, Zone 3 and Zone 4, the defences will be constructed in two phases as they have the potential to have a much more significant impact on residents' view and enjoyment of the Wyre Estuary. Due to the type of works required these walls are easier to upgrade in the future therefore, a 100-year appraisal period has been used including a reduced years of climate change allowance. Phase 2 at these zones will see the walls increased in height to include the full 100 years of climate change disruption in the future the wall foundations will be designed for the full 100 years of climate change allowance with the only works required in the future being increasing wall heights.

Q7. What standard of protection against flooding will the scheme provide?

The scheme would look to provide protection up to a flood event with a 0.5% chance of occurrence in any given year. Please see question 5 for more detail of the standard of protection the scheme provides. Question 10 outlines the flood mechanisms the scheme is proposing to provide protection against.

Q8. What other options have been considered?

In accordance with Flood and Coastal Risk Management Appraisal Guidance (https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-appraisal-guidance) a list of options to manage flood risk in Hambleton was developed which considers do-nothing, do-minimum, sustain and improvement options.

These options were assessed against different criteria including Health & Safety, Strategic, Technical, Economic and Environmental. The constraints of the area were also considered for example working in a tidal environment, tidal flat deposits, groundwater influence, Morecambe Bay Ramsar / SPA,



Wyre Estuary SSSI, landscape & views, access & recreation, cultural heritage and proximity of residential properties.

The short-listed options were:

- Do Nothing: All maintenance activities cease. (Not considered a practical option but required as per the guidance to provide a baseline against which to measure benefits of other options)
- Do Minimum: Continuation of the existing annual maintenance regime, but without regular upgrades
- Do Minimum plus: Continuation of the existing annual maintenance regime but sustaining standard of protection of the existing tidal outfalls
- Do Something: Repairs to, or replacement of, existing informal and formal defences and provision of a consistent standard of protection between Wardley's Pool outfall and Peg's Pool embankment (Zone 1 to 4)
- Do Something: Construction of raised flood defences in the whole study area by constructing new flood walls and/or embankments between Wardley's Pool outfall and Peg's Pool embankment (Zone 1 to 4)

The preferred option of constructing raised flood defences, to the height outlined in question 5 and 6, was selected as we consider it to be the most feasible and cost effective option.

When designing the defences different design options were considered for each zone. These were assessed in categories including: design feasibility/constraints, environmental, constructability, social/landscape, affordability, legal, health, safety & wellbeing.

Location	Summary of Options considered	Current preferred option (subject to detailed design)
Zone 1	 Wall on the 'wet' side of the road, raise the road height and use ramps when the defence crosses the road Wall on the 'wet' side of the road, raise the road height and use flood gates when the defence crosses the road Wall on the 'wet' side of the road, don't increase the road height Wall on the 'dry' side of the road, don't increase the road height, use flood gates when the defence crosses the road Embankment 	Wall on the 'wet' side of the road, raise the road height and use ramps when the defence crosses the road
Zone 2	 Wall on the 'wet' side of the road, raise the road height Wall on the 'wet' side of the road, keep the current road height Position the wall further into the reeds/salt marsh than in the current design Embankment Replace the existing property boundary walls, flood gates required for driveways 	Wall on the 'wet' side of the road, keep the current road height



Zone 3	•	New wall 3m from the existing wall, footpath between	Build a new wall close
		the walls and ramps to transition	to the existing wall,
	•	New wall 3m from the existing wall, use steps for the	Footpath on the 'wet'
		footpath rather than ramps at each end of the zone	side with ramps/steps.
	•	New wall 3m from the existing wall, keep the footpath	Fill the 'gap' with grass
		at the existing height (e.g. create a walled alleyway)	or concrete
	٠	Replace the existing boundary wall, footpath on the	
		'wet' side, ramps or steps give access over the wall	
	٠	Build a new wall close to the existing wall, Footpath on	
		the 'wet' side with ramps/steps. Fill the 'gap' with	
		grass or concrete	
	٠	Remove the footpath completely and divert it	
		elsewhere	
	٠	Position the wall further into the saltmarsh e.g. 10m+	
		from the existing wall	
	•	Embankment	
Zone 4	•	Sheet pile wall on top of the existing embankment	Reinforced earth
	•	Concrete wall on top of the existing embankment	embankment
	•	Reinforced earth embankment	

Q9. Why don't you dredge the river instead of building a wall?

In many cases, dredging is not a long-term solution because tidal rivers quickly silt-up again, other measures such as building walls or embankments are more effective. It can even increase flood risk and erosion and alter the ecosystem and wildlife.

Q10. What is the likely cost to me if my property is flooded?

Across the country we are spending over £2.6bn on flood management because flooding has devastating costs for people and businesses.

- The average cost of flood damage to a home is £30,000
- The average cost of flooding to a business is £82,000
- If you are flooded, temporary accommodation costs on average £10,000
- If you are flooded you are likely to be out of your home for an average of 5 months.

Q11. What is the current funding situation for the scheme?

We invest where we can provide the greatest benefit to people and property at risk of flooding.

The first funding towards a scheme in Hambleton was secured in 2015 to undertake an initial assessment. We then secured additional funding to develop the Strategic Outline Case and to carry out the work to develop outline proposals for public consultation.

Approval of the Strategic Outline Case gave us additional funding to develop a subsequent Outline Business Case. We secured funding to begin developing a detailed design.

Following a national review of Flood Risk Management Schemes in 2019, the Hambleton scheme was identified as a project that would be paused during the financial year 2020-2021. This decision



was made to ensure that the investment programme across the whole of England was affordable. The project was scheduled to pause in summer 2020 and restart in financial year 2021-2022.

Additional government funding was secured for financial year 2020-2021. This has been possible as the Hambleton Flood Risk Management Scheme has been identified as a local and national priority.

The project will no longer be paused. This funding will enable the completion of the detailed design and further work to finalise the planning application for submission in spring 2021.

We will then produce a Final Business Case to seek funding to carry out construction of a finally agreed preferred option that is acceptable to the public and is justifiable within the guidelines we have to work to. Construction of the scheme is forecast to cost £11 million.

Q12. Will the scheme address the surface water and drainage issues in Hambleton?

We are working with partners to look at the wider risk of flooding in Hambleton through the Making Space for Water Group but the scheme proposed by the Environment Agency is to manage the risk of tidal flooding from the River Wyre. If we can, and it can be justified, we will help address surface water and drainage issues whilst progressing this scheme.

The Wyre Making Space for Water Group contains representatives from the following Risk Management Authorities:

- Lancashire County Council
- Environment Agency
- United Utilities
- Wyre Borough Council

The minutes of the Wyre Making Space for Water group are shared at the quarterly Wyre Flood Forum, previous minutes are available on Wyre Borough Council's website.

Q13. Will we still be able to access the boats in Wardley's Creek?

We are aware that access to the yacht club was omitted in the draft outline designs on display at the drop-in event in November 2018, this has now been added as we work on the detailed design. Access to the yacht club will be maintained and we will meet landowners to discuss where the access should be located as we develop the designs.

Q14. What will the impact be on the view from my property?

We will be doing everything we can to minimise the impact of the new flood defences, through careful consideration of the height, finish and colour of the wall. We are also bidding for additional funding to see if we can include some glass panels to Zone 1 and 2 of the scheme, to further reduce the visual impact caused. We hope to be able to confirm whether the project budget will be able to accommodate some glass panels before October 2020.

Q15. Why has a cycle path been incorporated into the scheme?

The proposal to incorporate a cycle path has now been removed from the scheme. However the footpath, which is part of the Wyre Way, will remain and be incorporated into the scheme design.

Q16. How are you addressing the concerns raised about security and privacy?



We have altered the designs to address the concerns raised about security and privacy. We meet with residents in January 2019 to discuss how the footpath could be positioned to address their concerns. Please note that the planned cycle way has been removed from the design.

Q17. Will access be maintained to the existing footpath and to Pedder Lane?

Yes, we plan to keep the route of the existing footpath and the access via Pedder Lane. There will be temporary diversions in place during construction as required. Temporary closures may be possible if a suitable and safe diversion route cannot be found.

Q18. How will the environmental impact of the scheme be minimised?

The Environment Agency conduct environmental assessments to manage and minimise impacts. We continue to engage with Natural England to discuss any potential impact on the SSSI and how this can be mitigated. We are also looking for opportunities to provide environmental enhancements as part of the scheme.

Q19. Will people still be able to walk on the salt marsh?

Currently the salt marsh, which is a SSSI, has areas which are being damaged by pedestrians and dogs walking on a number of different informal footpaths. By defining a footpath more clearly we aim to allow enjoyment of the salt marsh while protecting the habitat from trampling.

Q20. What are the next steps?

We are currently working on the detailed design of the scheme and continuing the environmental assessments and permissions. We aim to apply for planning permission in spring 2021 and will continue our engagement with the community, subject to any Government guidelines associated with COVID-19.

We will then produce a Final Business Case to seek funding to carry out construction of an option which is acceptable to the public and is justifiable within the guidelines we work to. Construction is planned to start in 2021 with the scheme planned for completion in 2022.

Q21. Will the scheme increase the risk of flooding in other places?

Some residents outside of the proposed schemes have asked to see modelling evidence that the flood risk to their property will not increase when the scheme is built. As part of the formal planning process we have to demonstrate that there is minimal increase to flood risk of properties outside of the immediate flood scheme design, a flood risk assessment will be included in the planning application. Residents will have the opportunity to review this data through their involvement in the planning process. We are also exploring whether there are any options available to us to reduce flood risk to properties just beyond the extent of the scheme and will consult with landowners about this.

Q22. Who is responsible for managing flood risk from rivers? Whose responsibility is it to improve the drainage system?

Information on roles and responsibilities for landowners can be found here: <u>https://www.gov.uk/guidance/owning-a-watercourse</u>

Newground are an organisation who the Environment Agency work closely with to engage with communities across the North West. They have created an information sheet 'Who is responsible for managing flood risk?' which is available here:



https://thefloodhub.co.uk/wp-content/uploads/2018/10/Who-is-responsible-for-managing-floodrisk.pdf

Q23. Will the Wyre Barrage reduce our risk of flooding?

The Wyre Barrage has previously been proposed by a private company with the main purpose of generating electricity. It is several years since we have been approached by anyone about a barrage in the Wyre. If a project was to be progressed in the future it is likely to require planning approval from the Secretary of State. The Environment Agency is a statutory consultee for such developments. A high level of environmental protection would need to be demonstrated by the applicant to ensure there was no adverse impact on the environment. If we are approached by a company looking to develop the barrage, we will work with them on a number of areas, including the flood risk implications to ensure flood risk is not increased.

Q24. Why have we received a flood alert but there hasn't been any flooding?

Flood Alerts warn people of the possibility of flooding and encourage them to be alert, stay vigilant and make early preparations. They cover a wide geographical area and do not necessarily mean a Flood Warning and flooding to property will follow.

Hambleton falls within the 'Wyre estuary from Fleetwood and Knott End to Little Eccleston' Flood Alert area. Flood Alerts are issued when we expect flooding to impact low lying land and roads including riverside and coastal footpaths and promenades. As a result, Flood Alerts can be issued fairly frequently, especially when the Flood Alert area in question has low lying tidal areas which are particularly susceptible to flooding. This is however an important service for many customers who may be impacted by such flooding, whether this be farmers with livestock on low lying land or residents whose access and egress to property may be impacted. Inland communities can be affected if the tidal Flood Alert coincides with heavy rainfall which may keep river levels higher for longer. Footpaths and promenades may become dangerous or impassable. Also some local authorities and emergency responders have operational activities linked to a Flood Alert.

As a result of the often frequent issuing of Flood Alerts in the Hambleton area during Spring tide cycles, I understand that customers who are only interested in flooding impacting their residential property may feel that the service is too sensitive and providing unnecessary alarm. It is important however to note that Flood Alerts do not relate to the expected flooding of property, and therefore the issuing of a Flood Alert may not always precede the issuing of a Flood Warning. If customers feel they are receiving Flood Alerts too frequently and are not affected directly they may wish to remove them from their Flood Warning Service account, this will not affect their Flood Warning registration.

Whilst our Flood Alert areas are designed to cover wider geographical areas (ie in this case the Wyre estuary from Fleetwood and Knott End to Little Eccleston), our Flood Warning areas are designed to be more targeted to specific areas where the flooding of property can be expected. We therefore have two specific Flood Warning areas for Hambleton – 'Wyre Estuary at Hambleton, around Wardleys Pool and Brickhouse Lane' and 'Wyre Estuary at Hambleton, bordering Brickhouse Lane and A588'. The former covers lower lying areas of Hambleton than the latter, which allows us to warn customers in a more targeted way for greater or lesser magnitude flood incidents. Our Flood Warning areas are derived based on predictive flood risk modelling, which helps us to identify locations at flood risk and their associated level of risk.

The threshold at which we issue a Flood Alert or Flood Warning is determined by the water level at which we expect flooding to commence within the respective Flood Alert or Flood Warning area.



Clearly as Flood Alerts relate to the flooding of lower lying areas than a Flood Warning, the threshold at which a Flood Alert is issued is much lower, resulting in more frequent messages. For the Hambleton area, we have used data gathered from historic tidal flood incidents to verify and validate our Flood Alert and Flood Warning thresholds, and to calibrate our predictive flood forecasting models. This is very much an iterative process, and so we continue to monitor the performance of our flood warning service and make amendments to our thresholds if evidence suggests doing so. NB: Spring Tides do not refer to the season, they occurs just after a new or full moon, when there is the greatest difference between high and low water. Therefore Spring Tides can occur at any time of year.

The astronomical tide height can be influenced by a surge and/or wind speed and direction which means that the predicted tide height (which we have up to a year in advance) can either increase or decrease according to atmospheric pressure and sea spray and wave overtopping due to strong winds can cause flooding in some locations.

Q25. Which tide gauge has been used to provide data for the hydraulic model?

Heysham gauge is part of the national tide gauge network which comprises 44 gauges across the UK. Each gauge measures sea level in metres above Chart Datum (CD), with CD being approximately the lowest astronomic tidal level at a given site. Chart Datum is different at each gauge site, hence to ensure consistency, we relate Chart Datum to Ordnance Datum (OD). Ordnance Datum is the mean sea level as observed at Newlyn tidal gauge, it is fixed and doesn't change and is used for all Ordnance Survey datasets.

Heysham CD is 4.9m below OD, hence when undertaking our calculations, we have adjusted the data to allow for the change in datum. Further, extreme water levels have been calculated using the Coastal Flood Boundary dataset of extreme tides around the country, this dataset also uses OD, as do all other data (topographic survey, etc) within our hydraulic models.

Q26. Have temporary flood barriers been considered as an option, given that tides can be predicted?

Temporary flood barriers are not effective in every situation. They can present operational challenges relating to deployment times and traffic management, and are reliant on accurate weather forecasts. They are less effective than permanent barriers, and remove access to homes. Temporary barriers are a nationally-managed resource, so there is also no guarantee that we would be able to access them, or get hold of the specialist staff to fit them, at short notice.

The movements of daily tides, with average weather conditions, can be predicted with accuracy. However, weather can have a profound effect on the tide and can result in variations between actual and predicted tide heights. Strong winds and abnormal atmospheric pressure are two of the main causes of alteration to tide heights. For example, a strong wind blowing on to land will result in a higher than predicted tide.

The accuracy of future tidal predictions will be further impacted by the effects of climate change. Sea level is already increasing around the UK coast, with storms increasing in frequency and magnitude. Model predictions indicate that sea level will continue to rise beyond 2100. The risk of flooding in



Hambleton is therefore likely to increase in the future as a result. Significant uncertainties remain in forecasting the magnitude of this increase, both globally and locally.

I have further queries and questions, who can I address them to?

We will periodically update this document when we receive questions we haven't already answered.

If you have any questions not answered above and relating to the Hambleton Scheme please email:

cmblnc-pso@environment-agency.gov.uk

Please email any general enquiries to: inforequests.cmblnc@environment-agency.gov.uk