Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Frequently Asked Questions

Question 1. What is the Avonmouth Severnside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Project?

Answer 1. The Avonmouth Severnside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Project will deliver a new flood defence scheme for Avonmouth Severnside, along a 17 kilometre stretch of coastline to protect local communities and reduce flood risk to at least 2,500 homes and businesses, now and in the future. The project also includes creating new habitats for important wildlife specific in the area and to help enhance and grow the Avonmouth Severnside Enterprise Area to reach its economic potential.

Question 2. Who is involved in this project?

Answer 2. This is a joint partnership project with South Gloucestershire Council as the lead partner, Bristol City Council as a partner and the Environment Agency as a partner and delivery partner.

Question 3. Where is the Avonmouth Severnside Enterprise Area (ASEA)?

Answer 3. The Avonmouth Severnside Enterprise Area extends for five miles along the Severn Estuary and covering some 1,800 hectares and located between Bristol and the River Severn. It is currently a mix of industrial and former industrial areas and greenfield sites immediately adjacent to the M5 and M49 motorways. It consists of two main areas of economic activity – Avonmouth in the south and Severnside in the north. The scheme extends outside of the ASEA and this is to ensure that flood risk is reduced to the ASEA and surrounding properties which will result in 17km total length along the coast.

Question 4. Why do we need flood defences in this area?

Answer 4. Within Avonmouth Severnside there are areas which are at risk of tidal flooding and some which are at risk of fluvial (river) flooding. An estimated 1,051 existing properties are currently at risk of flooding. There are some existing defences, but these don't provide consistent levels of protection, and to unlock the potential of the Enterprise Area and to reduce flood risk to communities, new effective flood defences will be essential.

The Environment Agency exercise their permissive powers to maintain 8km of the existing flood defences, with riparian owners being responsible for the other sections, which provide varying levels of protection. Through this scheme we will achieve a consistent level of protection across the project area. The Environment

Agency have agreed to take on the responsibility to operate and maintain most of the new defences subject to an appropriate maintenance regime being agreed and appropriate legal agreements for access.

New, more effective flood defences for the area is considered to be essential both in order to attract new development and to reduce future flood risk to existing properties and infrastructure.

Question 5. How will this project help with the planned growth in the Avonmouth Severnside area?

Answer 5.The Avonmouth Severnside location is considered internationally significant and is expected to continue attracting major manufacturing, logistics and distribution companies over the next 30-40 years. Improving the flood defences in this area will help give businesses more confidence to encourage investment in the Avonmouth Severnside Enterprise Area and help to support the creation of 12,000 new jobs from new commercial development by 2026.

Question 6. What flood defence work is being proposed, what height will the flood defence be and why?

Answer 6. The recommended standard of flood protection for new developments at risk from tidal flooding is 1 in 200 years (0.5% Annual Exceedance Probability), plus an appropriate allowance for climate change impacts such as rising sea levels.

The work required to upgrade the flood defence will include raising existing earth embankments and walls, as well as using innovative techniques such as glass panel flood barriers to ensure views out to the Severn Estuary are retained.

For each section of coast, the project has considered the following to arrive at the actual proposed flood defence levels (levels determined in Metres Above Ordnance Datum (mAOD)):

- **Joint-Probability Analysis:** providing worst-case scenarios of estimated still water flood levels and wave actions (utilising Environment Agency Coastal Boundary Data - established from long-term level gauge records). The levels and action vary depending on the section location.
- **Residual Uncertainty Allowance:** an assessment of the statistical error that may exist in the coastal boundary data and wave run-up calculations.
- **Overtopping:** (due to sea level and wave overtopping) must not exceed 10l/s/m during a 0.5% AEP (1 in 200 years) event. This allows for sea level rise and increases in extreme wave height due to climate change, as well as wave period, defence geometry and the nearshore slope geometry.
- Additional factors depending on whether the defence structure proposed in each section consists of an earth embankment or is a hard defence.

For sections where earth embankments are proposed allowances for the following factors have also been incorporated into the design:

- Initial settlement during construction period (0.1m).
- Settlement over 60-year design life (for up to a 3.0m high embankment) (0.1-0.3m).
- Desiccation risk (drying/shrinkage). This is managed by allowing for soil blending and admixtures within the upper layers to reduce risk of desiccation cracking.
- Topsoil (considered as not waterproof) above flood defence level (0.1m).
- Safety factor, to guard against lower grade material or changes to sea level rise allowances (0.2m).

UK Climate Projection data has been utilised (based upon the UKCP09 dataset). While the UKCP18 dataset was published in November 2018, guidance to authorities designing flood defence schemes is yet to be updated. That said, the methodology outlined above is precautionary so as to produce a design outcome broadly in line with the 2018 data.

Question 7. How is the width and structure of the flood defence decided?

Answer 7. The width of most of these tidal flood defences is based upon criteria for maintenance (resulting in an increased width at the base of the structure) rather than criteria related to a retaining structure capable of withholding a body of water. There are some flood defence walls where maintenance access is available either side.

The design is associated with providing a flood defence structure capable of withholding a body of water. The design consideration does also have some regard to future maintenance. Therefore, in places, the design is such that it incorporates a gradient of no more than a 1 in 4 (to allow the safe operation of grass mowers).

Question 8. Why is the Avonmouth Severnside area important to wildlife

Answer 8. The Severn Estuary is an important ecological area and is home to protected species including water voles, bats, breeding wading birds and a range of rare plants. Parts of the area are designated as either Special Protection Area (SPA) a Special Area of Conservation (SAC), a Site of Special Scientific Interest (SSSI) or a Ramsar site - an internationally important wetlands site.

Question 9. What new habitats are being created?

Answer 9. Coastal wetland habitat is one of the most valuable natural habitats for the UK, as it is under threat from rising sea levels due to climate change. The Severn Estuary's protected status means that new habitat will need to be created to replace habitat affected by new development within the Enterprise Area. We will create a minimum of 85 hectares of new wetland habitat in the Hallen Marsh and Northwick areas to provide "high-tide roosts" for the birds. This will include wet grassland to encourage wading birds and open water to encourage wildfowl. We will use a

number of different methods to create this habitat, including new ponds and areas of shallow water over the winter months called scrapes.

Question 10. What consideration has been given to minimise the ecological/environmental effect of the scheme design?

Answer 10. Local considerations have been given greater importance to minimise the ecological/environmental effect of the scheme design. The scheme design is predicated on the basis that all works will need to take place outside of the SSSI/RAMSAR/SPA/SPC/Nautica 2000 boundary. While this will cause a short-term impact on the local ecosystem, the benefits over the medium to longer term will be considerably advantageous.

The planning consents incorporate several pre-commencement planning conditions and these include approval of a Pre-Construction Environmental Management Plan (CEMP); a Landscape and Ecological Management Plan (LEMP); pre-construction ecological surveys and arrangements for longer-term biodiversity monitoring.

Question 11. What measures are you putting in place for any tree and/or hedge losses?

Answer 11. We are ensuring that a thriving environment will be established in the area for people and wildlife to last the rest of this century and beyond. Regrettably, a number of poplars (with short remaining lifespans) and some hedgerows will need to be removed to facilitate the new defence. However we are proposing to compensate the loss of these trees with an equivalent area of native mixed broadleaf woodland and hedgerows.

Question 12. What area in Avonmouth Severnside will the flood defence and ecology mitigation work be carried out in?

Answer 12. The project has been divided into five geographical areas listed below and an overview of the work required:

- **Area one – Severnside defence**.
  Including on-line raising of existing earth embankments and new flood defence walls and flood gates, local realignment, secondary defences for overtopping. Improvements to the Cake Pill Outfall, Chestle Pill Outfall, and Cotteralls Pill Outfall.
- **Area two – Avonmouth docks defence**.
  Including on-line strengthening and new defences set back from the waterfront at Lamplighter's Marsh.
- **Area three –Central outfalls and Existing Embankments**.
  Including on-line raising of existing earth embankments. Set back earth embankment on the landward side of a section of the railway embankment. Improvements to the existing outfalls to take water out into the estuary from the land drainage rhine network.

- **Area four – Hallen Marsh**.
  Including creating additional ponds and scrapes and wetland landscape.
- **Area five – Northwick**.
  Including creating additional ponds and scrapes and wetland landscape.

Question 13. What previous work has been carried out?

Answer 13. In 2012, the three organisations commissioned a study to establish the possible options for the future flood defence of Avonmouth Severnside Enterprise Area. This identified a preferred flood risk management option, taking into account the socio-economic, environmental and financial components to ensure sustainable development, together with engineering considerations.

Earlier this year (April 2019), South Gloucestershire Council awarded planning permission for the project Bristol City Council also passed a 'resolution to approve' planning permission in March 2019, which is to be confirmed shortly. The decision to proceed to the next phase of the project will see the detailed design and build of the proposals.

Question 14. When will construction start?

Answer 14. The construction phase of the project will start in summer 2020 and will take place in a number of separate stages between 2020 through to 2026/27. The sites which are identified as being currently at highest risk of flooding will be tackled first, as priorities.

Question 15. Who will undertake the construction work and how long will the project last for?

Answer 15. The Environment Agency will lead the project management of the design and construction stage as delivery partner and will manage the awarded contractor, who are a multi-disciplinary contractor to carry out the works.

Question 16. Will construction work be seasonal?

Answer 16. The Spring and Autumn periods are as important as the overwintering period to the species of wader bird that is designated/protected. Construction time limits have been set to minimise the disturbance to the protected species during the over wintering period only.

Question 17. Which fields will be used for construction compounds?

Answer 17. The Traffic Plan submitted as part of the planning application documentation identified local fields of traditional ridge and furrow will be used for construction compounds.

A Construction Traffic Management Plan will need to be agreed with the Local Planning Authority prior to commencement of works. This will also need to address the issue of the approach towards the use/non-use of fields containing traditional ridge and furrow.

Question 18. Will the project include any traffic implications and what will the volume of and type of traffic movements be within the project area?

Answer 18. A Construction Traffic Management Plan will need to be agreed with the Local Planning Authority prior to commencement of works. This will need to address the issue of traffic movement and materials movement into, within and out of the project area. There will need to be a number of HGV movements as part of the construction but the CTMP will be agreed with the Local Planning Authority.

Question 19. What is the project cost?

Answer 19. Construction costs are estimated between £31 to £80 million.

Question 20. Who is paying for it?

Answer 20. The project is being funded through a combination of the below channels:

1. **West of England Local Enterprise Partnership Economic Development Fund:** A fund created from retained business rate growth across the West of England Enterprise Zone and Areas. The fund runs for 25 years from 2014 until 2039 and is focussed on supporting capital infrastructure to unlock job creation in the Enterprise Zone and Areas.
2. **Flood Defence Grant in Aid (FDGiA):** Funding from central government for managing flood risk in England. The total national amount of FDGiA available is distributed across several bodies responsible for managing flood risk. These include the Environment Agency, Local Authorities and Internal Drainage Boards.
3. **Local Levy:** Local income raised by a Regional Flood and Coastal Committee (RFCC) to fund activities within its region that are a local priority. Lead Local Flood Authorities (LLFAs) contribute to the local levy fund.

Question 21. How can I have my say about the project?

Answer 21. We shared information on the design proposals throughout 2017, where we sought feedback from local stakeholders. Consultation was also undertaken on the planning application for the scheme through the planning process managed by the Local Planning Authorities in 2018. We are now moving towards the construction phase and will be using a range of communication channels to encourage people to sign up to receive updates.

Question 22. How can I be kept up to date on the project?

Answer 22. You can sign up to receive newsletter updates from us and our contractors by emailing ASEA@environment-agency.gov.uk

We will be keeping our webpage up to date with the latest information please see - www.insouthglos.co.uk/enterprise/avonmouth/flood-ecology

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