

# Avonmouth Severnside Enterprise Area (ASEA) Ecology Mitigation and Flood Defence Project

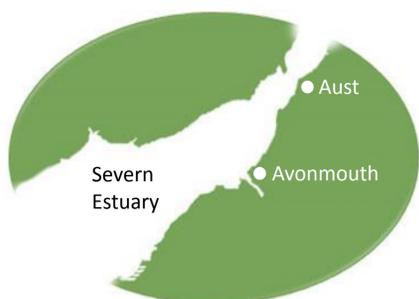
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## Introduction

South Gloucestershire Council, Bristol City Council and the Environment Agency are working together to create new habitats for important wildlife species and improve flood defences in the Avonmouth and Severnside area.

This project will help to ensure that economic development can continue within the Local Enterprise Partnership's designated Enterprise Area without harming the environment. In addition, improving the flood defences and biodiversity will also benefit the local community.

17  
kms



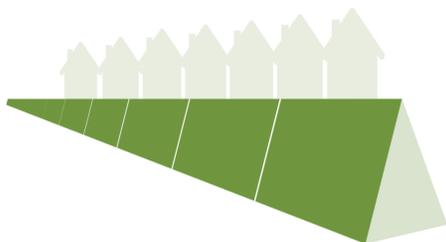
The length of coastline being studied in this project and along which enhanced flood defences are proposed. The study area extends from Aust to Avonmouth Docks.

12,000



The number of new jobs the Enterprise Area will potentially support by 2026. New flood defences are important to give businesses confidence to invest.

2,500



The number of homes in the study area that will rely on flood defences for their protection and will benefit from our proposals for many decades to come. In addition many businesses will benefit.

80  
hectares



The minimum amount of wetland habitat we aim to create to help protect the internationally important habitats and species of the Severn Estuary.

## Your comments

### Why we are asking for comments?

In autumn 2017 we will be submitting planning applications for:

- Flood defence works along the coast, between Avonmouth Docks and Aust.
- Works to create new areas of wetland habitat at Northwick and Hallen Marsh.

Your comments will help us refine our proposals, prior to finalising them for the planning application.

We would like to hear your comments on how the proposals affect you and how you think they could be improved.

### What is already fixed?

Some aspects of our proposals are already fixed because they reflect decisions made in previous studies or in discussions with partners. This includes:

- The location of the flood defences.
- The height of the flood defences.
- The type of flood defence in each location.
- The amount of new habitat required.

Please ensure all comments reach us by:

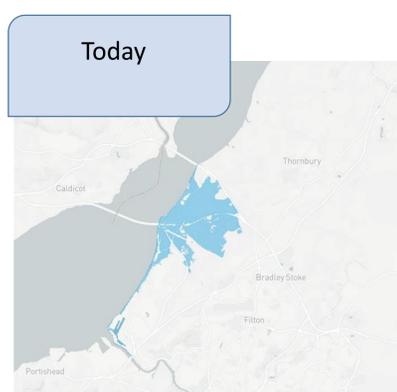


## Flood defences

### Why do we need to carry out flood defence works?

Currently some parts of the study area are better protected from flooding than others. Sea level rise due to climate change means the risk of flooding will increase in the future.

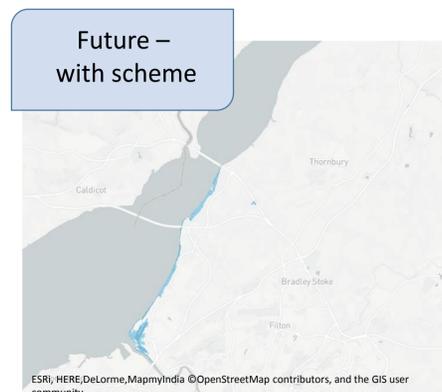
We aim to improve the flood defences so that the study area is protected from the risk of a severe flood\* for at least 60 years.



Area that would be affected during a severe flood if that happened today.



Area that would flood during a severe flood in 60 years time if we do nothing to the flood defences.



Area that would flood during a severe flood in 60 years time if we construct the proposed scheme.

### How much higher do the flood defences need to be?

To achieve the standard of protection described above we need to increase the height of the flood defences.

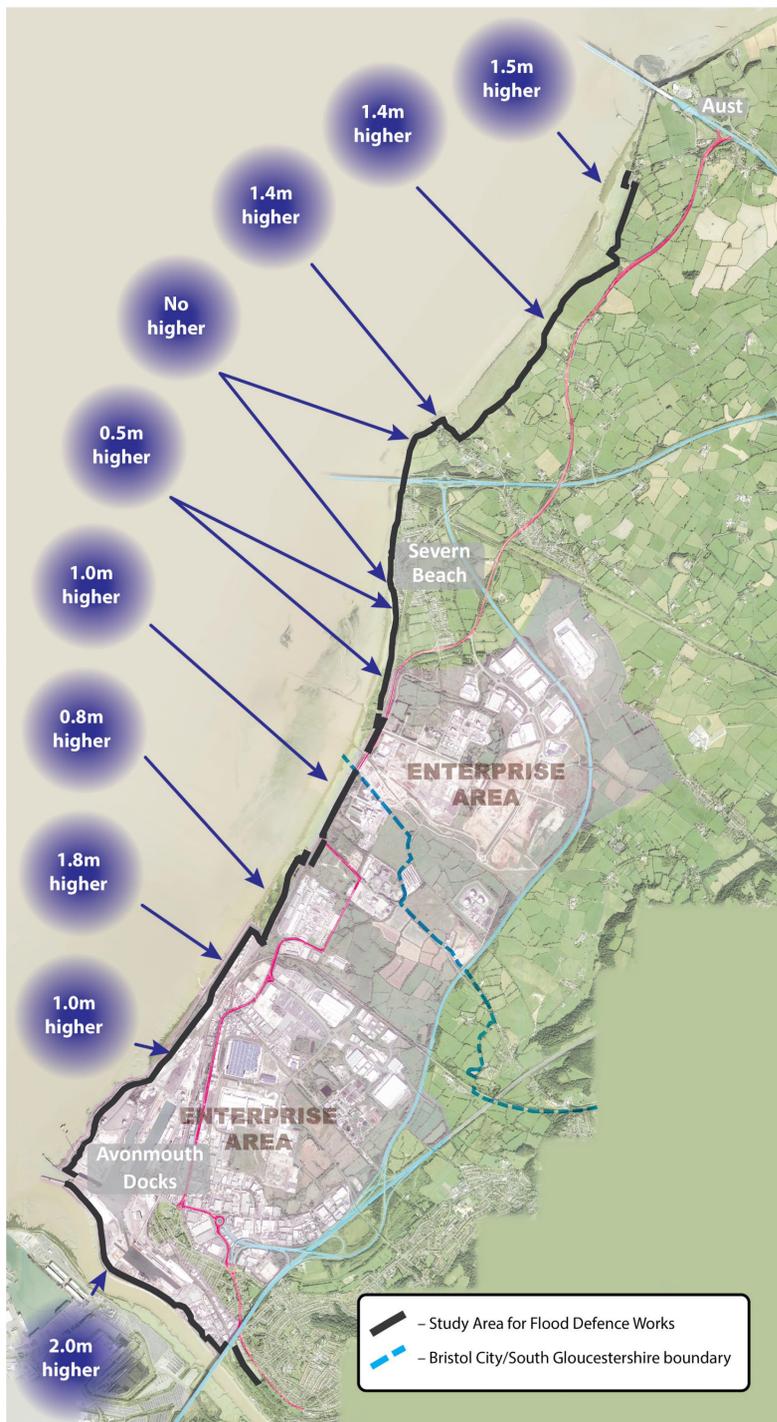
Some of the Binn Wall flood defences at Severn Beach are already high enough and do not need to be increased. However, along most of the rest of the coastline we will need to raise the flood defences.

How much higher we need to make them differs from place to place. In some places, the height increase needed, and the construction work required to achieve it, will be significant.

All heights shown are approximate and typical for each broad part of the study area. In localised places, where there are low spots, the height increase required may be more.

In some areas we may have to build the flood banks higher initially to allow for any settlement that may occur over time.

The map below shows how much higher the new flood defences need to be (relative to the top of the existing flood defences).



Aerial image © Google Earth  
Landsat/Copernicus



\* In this instance, a severe flood is the type of flood that has a 0.5% chance of occurring in any given year (also known as a 1 in 200 year flood).

## Flood defences

### What construction work needs to be carried out?

To increase the height of the flood defences we will need to use a number of different methods.

#### Build up the existing banks

- Where there is space we will raise the existing flood banks.
- We will build up the banks on the landward side so that our construction work does not affect sensitive coastal habitats.



#### Build flood walls

- In some areas we will build new concrete flood walls.
- In areas where space is tight we will use sheet pile walls, as these are narrow and extend deep into the ground to cut off water flow.
- Both types of wall can be textured, rendered or clad to improve their appearance.



#### Install gates and ramps

- We will need to create ramps to allow roads and footpaths to cross the flood defences.
- We will provide flood gates to close up gaps in the defence whilst retaining access.



#### Raise and reinforce the outfalls

- There are a number of existing outfalls. These are where water flows out into the estuary.
- We will need to reinforce these structures to protect them against flooding.
- We will also make changes to ensure we can access them more easily for future maintenance and to improve river monitoring for flood management.



### What will the flood walls look like?

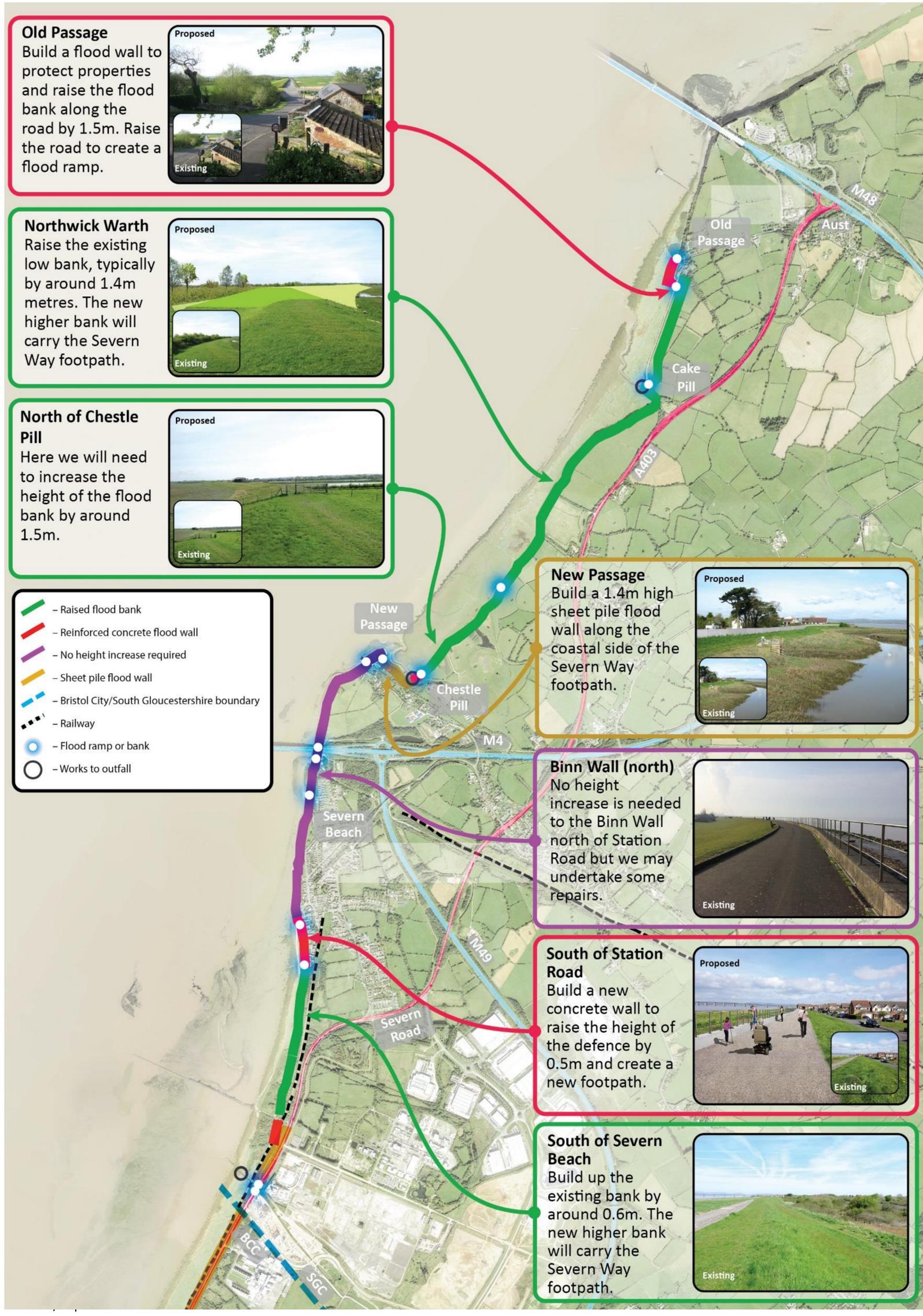
The images below show the sorts of materials and finishes that could be used to ensure the flood defences are attractive and appropriate to the local environment. There could be opportunities to integrate public art.



## Aust to Severn Beach

### What is proposed?

Between Aust and Severn Beach we will need to use a variety of methods to achieve the required standard of flood protection, as shown below. These works are likely to be carried out in phases starting between 2018/19 and 2020/21.



### For more information:

Indicative cross sections and larger versions of the artist's impressions are available as a separate document on our webpage:

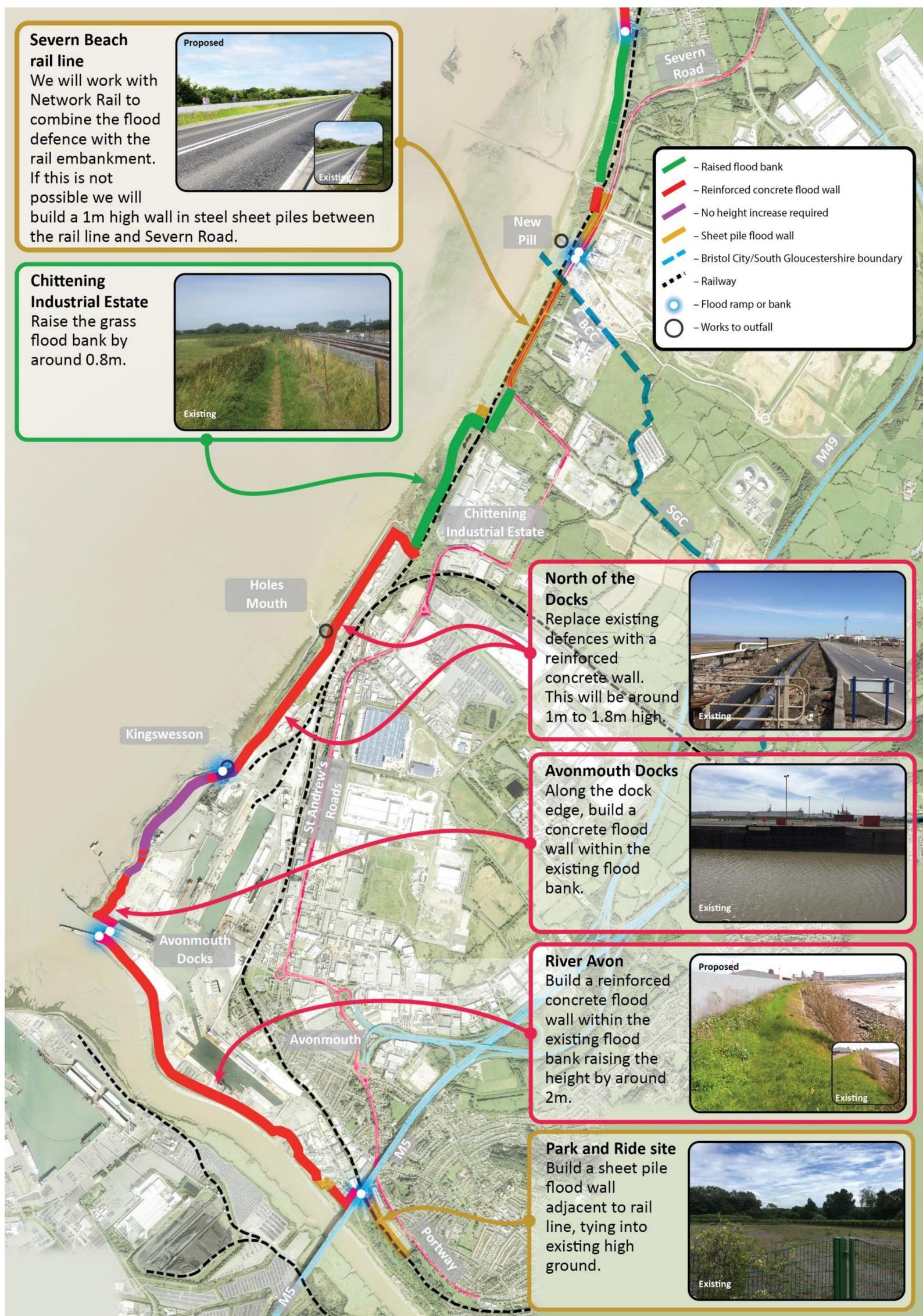
[www.insouthglos.co.uk](http://www.insouthglos.co.uk)

(Enterprise Areas – Avonmouth Severnside – Flood and Ecology)

## Severn Road to Avonmouth Docks

### What is proposed?

South of Severn Beach, through to Avonmouth Docks and along the River Avon, we need to build higher flood defences, using a combination of walls and banks. Much of the work will be likely to start between 2018/19 and 2020/21 with works at Avonmouth Docks scheduled later, between 2020 and 2030.



### For more information:

Our team will be pleased to explain the proposals in more detail at our public exhibitions:

- Tuesday 4<sup>th</sup> July, Avonmouth Community Centre, 4pm – 8pm.
- Tuesday 18<sup>th</sup> July, Severn Beach Primary School, 5:30pm – 8pm.

## Habitat areas

### Why do we need to create new areas of habitat?

The Severn Estuary is an important ecological area and is covered by a range of national and international designations. It is a particularly important habitat for breeding and over-wintering birds. The protected status means that new habitat needs to be created to replace that affected by development within the Enterprise Area.

**73**  
hectares



Minimum amount of wet grassland we will create to encourage wading birds such as lapwing, common snipe and curlew.

**7**  
hectares



Minimum amount of open water and ponds we will create to encourage wildfowl such as gadwall, teal, mallard, shoveler, pochard and tufted duck.

### What is proposed?

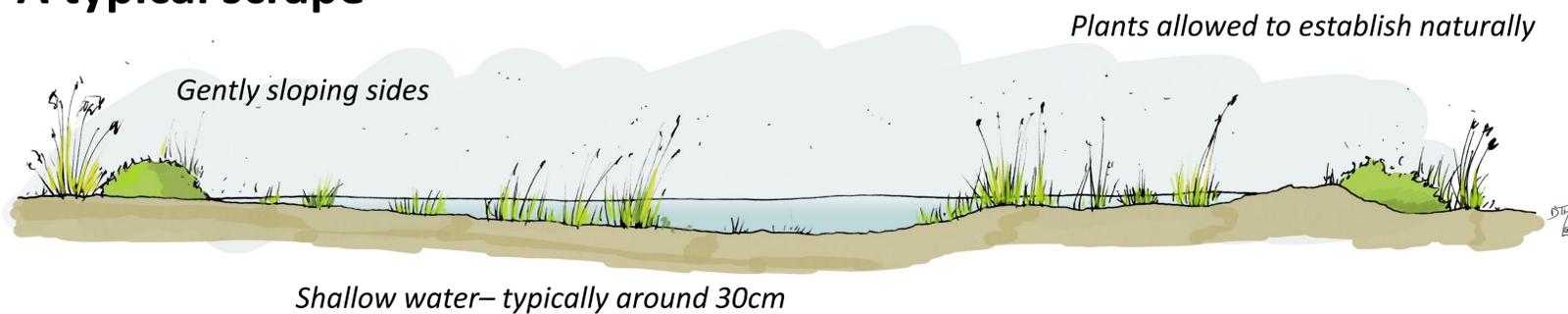
We propose to create a network of permanent ponds as well as areas of shallow water that dry up in summer (these are called scrapes).

Much of the area will continue to be farmed, for example for livestock grazing or management for hay or silage. Other areas will revert to unimproved pasture.

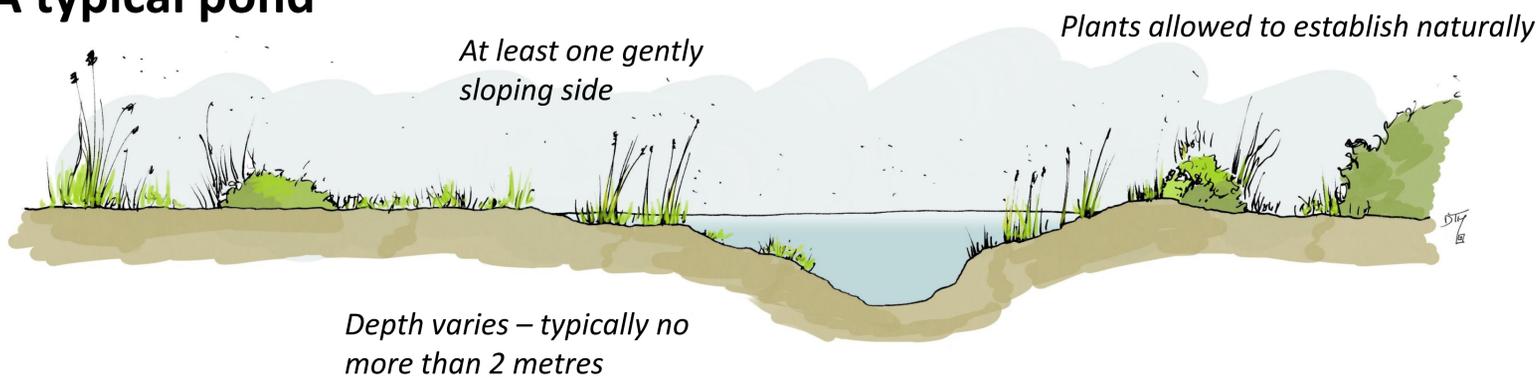


These photos show the type of wet grassland habitat required to support the important birds of the Severn Estuary.

### A typical scrape



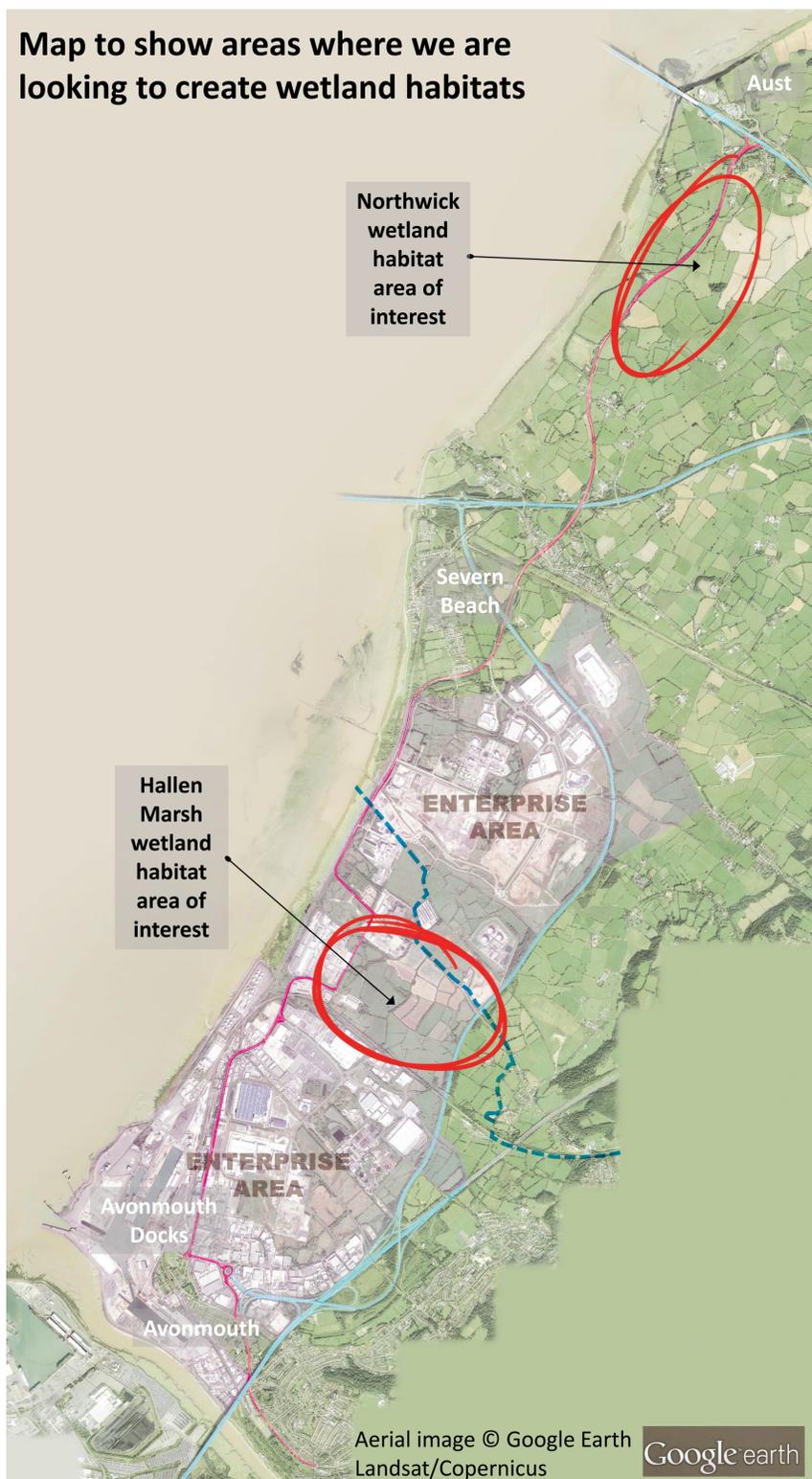
### A typical pond



## Habitat areas

### Where will the new areas of wetland habitat be?

We are working with landowners and tenant farmers in the Hallen Marsh and Northwick areas to identify land that we can use to create wetland habitats. We hope to start work in 2018/19.



### Northwick

At Northwick we aim to:

- Create a combination of wet grassland and open water habitats.
- Create wide and shallow scrapes that will flood seasonally.
- Create larger areas of permanent standing open water and ponds.

### Hallen Marsh

At Hallen Marsh we aim to:

- Create freshwater wet grassland habitat and shallow scrapes that dry up in summer.
- Retain much of the area for grazing.

In some areas we will need to remove hedgerows. We plan to replant to compensate. Where existing hedgerows are retained we will enhance and restore them.

The soil we remove to create the ponds and scrapes will be used to raise the flood banks.

### How will we wet the land?

To create the wetland areas we will reprofile the land and work with the natural drainage system to trap rainwater. Across both areas we will need to use a variety of techniques. These will include:

- Blocking parts of the field drainage network to raise water levels locally.
- Capturing rain water and using low banks to hold it.
- Pumping water from the ditches (known as rhines) and retaining it within areas surrounded by low banks.

We are working with the Lower Severn Internal Drainage Board (IDB) to make sure these measures are designed so that they do not increase flood risk to houses, businesses or other infrastructure.



Some of the wildfowl birds we aim to encourage.

Shoveler



Gadwall



Some of the wading birds we aim to encourage.

Common snipe



Lapwing

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## Benefits

The overall benefits of the scheme are huge. It will help to unlock the economic potential of the Enterprise Area, generate jobs, protect property and improve the environment.



The estimated cost of the proposed works.

The estimated value of the economic benefits these works will help to generate by 2038.

## Impacts

With any large scale project like this there are inevitably some impacts. Over the summer we will be working on our Environmental Impact Assessment (EIA). This will highlight the potential impacts of the scheme and look at ways to maximise positive effects and mitigate any possible impacts.

- We are working to minimise the footprint of the scheme within the sensitive habitats of the Severn Estuary. For example, where we need to raise the banks we will build them up on the landward side.
- We will re-use material we dig out from the ecology areas to make the flood banks to help reduce the need to bring in material.
- Where flood walls are needed alongside the Severn Way footpath we aim to alter the level of the footpath so that pedestrians can see over the walls and out to the estuary.
- The construction work will create some noise, dust, vibration and additional traffic. Our planning application and EIA will identify ways to help minimise any impacts.
- The raised flood defences will inevitably be more visible. We are working individually with those residents who may experience a change in their view to address any concerns. We are also looking at how careful use of materials can help reduce any visual impact.



## Programme

Once we have considered feedback and completed our technical work we will submit planning applications to Bristol City Council and South Gloucestershire Council.

We will then finalise funding bids to the West of England Local Enterprise Partnership and the Department for Food and Rural Affairs (DEFRA). If we are successful, construction will take place in phases, with the first works starting on site in 2018/19.

