

# The Leigh expansion and Hildenborough embankment scheme

Updated November 2021

The Environment Agency is working with Kent County Council and Tonbridge & Malling Borough Council to further reduce flood risk to homes and businesses in Tonbridge and Hildenborough. The scheme aims to increase the capacity of the Leigh Flood Storage Area and includes a new embankment to protect homes in Hildenborough.

This document provides more information about the proposals for Hildenborough and answers some frequently asked questions about the scheme.

## Where does the flood risk in Hildenborough come from?

Most of the flood risk at Hildenborough is caused not by the Hawden Stream, but by the rising water levels in the River Medway flood plain which occur in times of high flow.

## What already exists to help reduce flood risk?

Hildenborough already benefits from the existing Leigh Flood Storage Area (FSA). The FSA is used to control peak flows coming down the River Medway which would back up the Hawden Stream and cause flooding.

Figure 1 (right) shows the reduction in flood risk provided by the existing Leigh FSA in a very large flood event. The likelihood of a flood event this size occurring in any one year is 1%. An additional allowance has been made within the modelling to allow for climate change.

The orange line shows the flood extent that would be experienced without the operation of Leigh FSA. The blue outline shows the extent with the Leigh FSA in operation at current storage levels.

Figure 1: The undefended flood extent compared with the flood extent with the existing Leigh FSA during a 1% + climate change annual probability event

## Why doesn't the Leigh FSA prevent flooding entirely?

The capacity of the FSA is limited by the available land and local geography. In larger flood events there is not enough room to store all of the damaging flows.

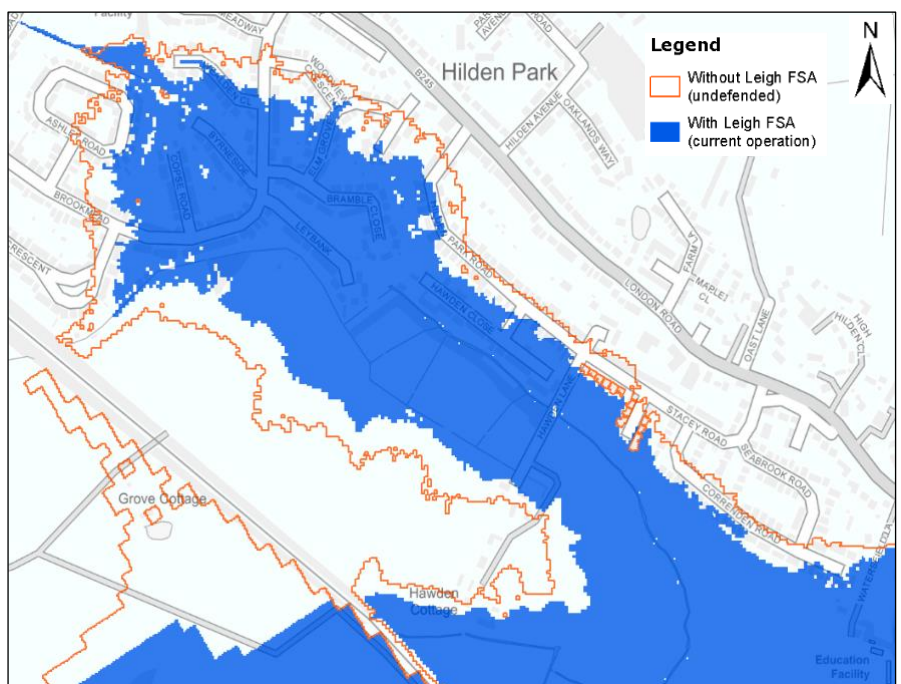


Figure 1: Undefended flood extent compared with the flood extent with Leigh FSA in a 1% + climate change event

## What is proposed to further reduce flood risk in Hildenborough?

For the majority of flood events the Leigh FSA will protect properties in Hildenborough as it does at the moment. But we want to increase the maximum storage level within the FSA to provide a better degree of protection in very severe events, such as that experienced in December 2013.

Even if we do this, however, in very severe events the increased capacity in the Leigh FSA will not prevent all homes in Hildenborough from flooding. So an embankment is needed to stop the rising levels in the River Medway floodplain from flooding the low lying land and homes in Hildenborough.

The proposed embankment will work in tandem with the FSA. It is designed to cross the natural Hawden Stream valley to stop some of the peak flood water from the River Medway. A gate structure and pumping station will be within the embankment. The gate will allow the Hawden Stream to flow downstream into the River Medway through the embankment. For the vast majority of the time the gate will be open, and the Hawden Stream will flow towards the River Medway as it does at the moment.

If the flood event is sufficiently large that the volume of water in the River Medway cannot be managed by the FSA alone, then the gate structure will close to stop the rising levels in the River Medway floodplain affecting the vulnerable houses in Hildenborough. Once the gate is closed the Hawden Stream will flow into the pumping station and be pumped over the embankment into the River Medway.

## Could the new embankment increase flood risk to my property?

We have carried out extensive modelling which shows that the proposed embankment will not increase flood risk to any households. We understand concerns that an embankment across the floodplain could create a 'wet' and a 'dry' side of the proposed defence. However, this will not be the case.

The embankment will allow water levels in this part of the River Medway floodplain to be controlled to prevent flooding of homes. During operation water levels will still rise on both sides of the embankment in Hildenborough. But on the upstream side, the level will be kept below that which will cause flooding to low lying properties.

The purpose of the pumping station is to maintain the flow in the Hawden Stream towards the River Medway and not to pump water out of the floodplain.

## Will the embankment have a visual impact on the local area?

We have carried out numerous design revisions to minimise the visual, environmental and construction impact of the design at all stages. We have sought to reduce the height of the embankment, the pumping station, and the control kiosks to make these as unobtrusive as possible.

We are working with landscape architects and designers to minimise the visual impact from all directions. We recognise the concerns of all residents in the area, and we will continue to seek to minimise and reduce any visual impact where we can. The works proposed by the Environment Agency will be subject to planning approval.



## Will the scheme only benefit some homes?

We understand that residents are concerned that homes on the downstream side of the embankment will not benefit from a reduction in flood risk.

Whilst it is true to say that some of the properties most at risk of flooding will gain the greatest benefit, all properties at risk will benefit from the proposed scheme. It is important to remember that the expansion of the Leigh FSA is part of this project and properties downstream of the embankment already benefit from the existing Leigh FSA and will benefit further from its expansion.

Figure 2 (right) shows that the increase in FSA capacity will further increase protection for all properties in Hildenborough. It also shows the further benefit that the Hildenborough embankment will provide.

It is worth noting that the flood extents shown in Figures 1 and 2 are based on an extreme flood event greater than any experienced to date. In less severe flood events, the extent of flooding will be less than that shown.

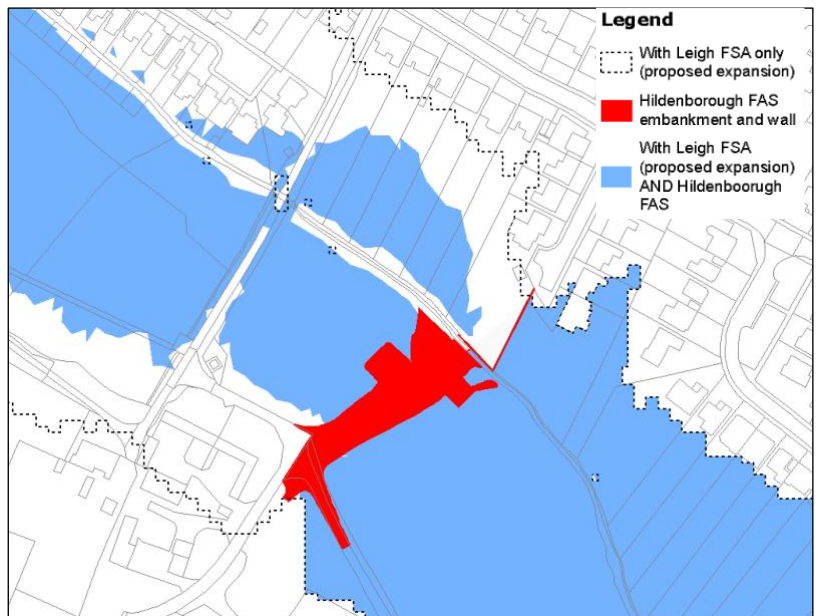


Figure 2: Change in flood risk for 1% + climate change event

## How will you manage the impact of construction works?

We appreciate that construction work can be very disruptive to the local community. Health, safety and environmental impacts are key considerations in our work, and we are keen to work with everyone who will be affected so that we can find ways to minimise the disruption.

We are working closely with our contractor, VolkerStevin, to see how we can mitigate any impacts as we work towards submitting a planning application.

We will provide a traffic management plan prior to the construction phase as part of our planning application, this plan will minimise the impact and disruption of construction. If any damage is caused as result of vehicle movements or any construction activities, we will make sure that it is repaired.

## What happened to the proposal to build the embankment on the border of Tonbridge School and Hawden Farm?

The early Tonbridge School option was not taken forward as our assessment of its technical feasibility, economic cost and benefits and environmental impact highlighted a number of issues:

- the embankment would need to be over 1km long. The resulting cost, construction phase disruption, environmental impact, and embedded carbon cost of this would be significant.
- the modelling showed that the Tonbridge School alignment would not move any more households to a lower flood risk band than the Stacey Road alignment. As a result, this option would not attract any more government funding than the proposed alignment at Stacey Road.
- the resulting loss of flood plain storage from this alignment would increase the risk to nearby homes and reduce the benefits of the increased capacity in the Leigh FSA.





## Could you use the upstream floodplain to prevent flooding in Hildenborough?

The upstream floodplain is already being used in two ways to store flood water:

- 1) The Leigh FSA already uses the natural flood plain up to Penshurst to store floodwater and reduce flooding in Hildenborough and Tonbridge. The project to increase the capacity of the FSA will increase the storage volume available to provide better standards of flood protection.
- 2) The storage area of the FSA extends up to Well Place Farm in Penshurst. During flooding the land upstream of Well Place Farm (continuing west beyond Penshurst on the River Medway and the River Eden) forms the natural floodplain. The upstream natural floodplain protects Tonbridge and Hildenborough as it temporarily stores water in the same manner as the Leigh FSA.

## Why don't you dredge the Hawden Stream?

Dredging the Hawden Stream provides little flood risk benefit as, during an event, it is the rising levels in the River Medway flood plain that causes flooding. During the peak of a 1% flood the flow in the Hawden Stream reaches a maximum of 2 cubic metres per second. The flow volume in the Medway during such a flood event will be in excess of 150 cubic metres per second. The marginal increase in capacity in the Hawden Stream that dredging might provide would have no measurable or observable impact in reducing levels of flood water in Hildenborough.

The Hawden Stream was last dredged around 2009/2010. Unfortunately, after the dredging, we received complaints about the silt creating unpleasant odours and concerns of damage to the riverbanks caused by dredging. The banks in this location are very unstable and clearing silt can further decrease stability, which can lead to bank collapse and erosion on both sides of the watercourse.

With the concerns of the stability of the banks and the little benefit provided by dredging in mind, we currently only carry out an annual mechanical weed cut along the Hawden Stream to prevent blockages in the river.

## More information

You can find out more about the Leigh expansion and Hildenborough embankment scheme here:

[www.gov.uk/government/publications/leigh-expansion-and-hildenborough-embankments-scheme](http://www.gov.uk/government/publications/leigh-expansion-and-hildenborough-embankments-scheme)

You can find out more about the history of the Leigh FSA here:

<https://www.gov.uk/government/publications/leigh-flood-storage-area>

If you'd like to find out more about how the Leigh FSA works to reduce downstream flood risk, take a look at our You Tube animation: <https://www.youtube.com/watch?v=9FVsi0WNa50> or search for "Leigh Flood Storage Area".

If you have any questions about any of the works described in this newsletter, or would like to join our electronic distribution list for future updates, please email the project team at: [LEHES@environment-agency.gov.uk](mailto:LEHES@environment-agency.gov.uk)

