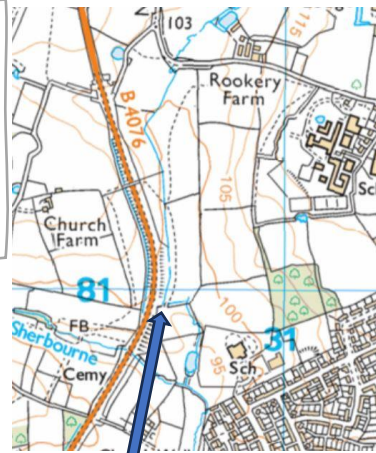


Read through the article and highlight any geographical words. Write them here.

WORD
POWER!

Question What is a leaky dam?

Give 2 reasons why Allesley has flooded in the past



Artificial channel evident in sharp bends and flows on hillside above lowest point which is east of this channel!

Using Soft Management for flood prevention
An urban case study - Coventry & the River Sherbourne.

Allesley village is in the upper catchment area of the 14km long river Sherbourne. The Sherbourne flows from west to east through Coventry city centre, and is part of the river Avon catchment. The river Avon flows into the river Severn, the largest river in the UK (see map). Allesley sits on soils which are slowly permeable but contain large amounts of clay, which can become waterlogged and impermeable in winter. Much of the surrounding area is farmed for arable (crops).

Allesley has suffered from flooding, in 2007, 2008, 2012 and twice in 2016 Part of the flood reduction plan for Coventry has included work on the upper catchment of the Sherbourne. Here the city council, environment agency and Wildlife Trust worked together to put in place flood reduction measures. Initially, there were plans for larger scale flood management works, but the cost at £8.5million was too high for protecting a relatively small area. Instead, a series of small natural flood management features were installed. There was also improvement of some of the roadside ditches, and the sewers and drains in the area were upgraded to be more efficient.

Natural (soft) flood management has been used to slow the flow of water as it moves downstream. Leaky dams, storage pools and hedgerow gap filling slow the flow and so make lag times longer. Leaky dams allow normal (base) flow through without any impact. Once the river level raises after rain, the wooden structures slow the slow of

Water downstream. They also slow the movement of silt, which can build up downstream. This buildup causes the bed of the river to raise and therefore flood more easily. Farmers can take the silt trapped behind the leaky dams and spread it onto their fields to increase fertility in the soil

Hedgerow gap filling enables the plants to slow flow and to trap sediment to raise the soil level around them, slowing flow of water to the river. Whilst reafforestation is not a solution that can be used here, adding vegetation to slow movement of water flowing as surface/overland flow is an alternative for farmland.

Farmers have been helped to use a spiked roller on fields used for livestock. This has helped improve infiltration rates, and helped the grass to become more nutritious by aerating the soil, providing an extra benefit to farmers too.

Climate change is altering weather patterns in the UK, with more frequent storms in autumn/winter and rainfall levels that can vary significantly. Ensuring urban areas have flood mitigation measure in place will be important in the future to lower the number and severity of flooding.

At Coundon, further downstream the river was diverted in the 19th century. The OS map still shows the valley with the 100m contour is dry, with the river sitting to the West and running in a man-made ditch along the valley side rather than in the valley floor.

The shape views on a map (right) is unnatural and shows the channel has been moved.

The river often broke its banks after high rainfall due to footpath erosion next to the channel, with the water heading back for the paleo (original) channel under gravity.

The river was relocated to the paleo channel in 2023. It has taken up its natural meandering course and be allowed to erode the landscape again. In times of flood, instead of funnelling water downstream in a narrow artificial channel, the floodplain either side will hold any floodwater until it infiltrates the soil, stopping it from heading downstream. This reduces the risk of flooding in the city centre, which is visible in the background of the photographs.

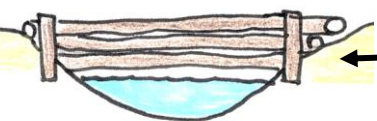
The Sherbourne flows into the Avon and the Severn, which has had severe and serious consequences to its flooding. By slowing the flow of waters in the upper catchments of rivers, the lag time to the Avon and Severn is reduces and the risk of flooding lowers.

Local players such as landowners, parish councils and residents are happy that the flood risk is reduced, and that measures such as the restoration of the river at Coundon are actually enhancing the local landscape.

The solutions in place on the Sherbourne are more cost effective than hard engineering, and in keeping with the local landscape. They therefore offer an effective solution to local flooding problems.

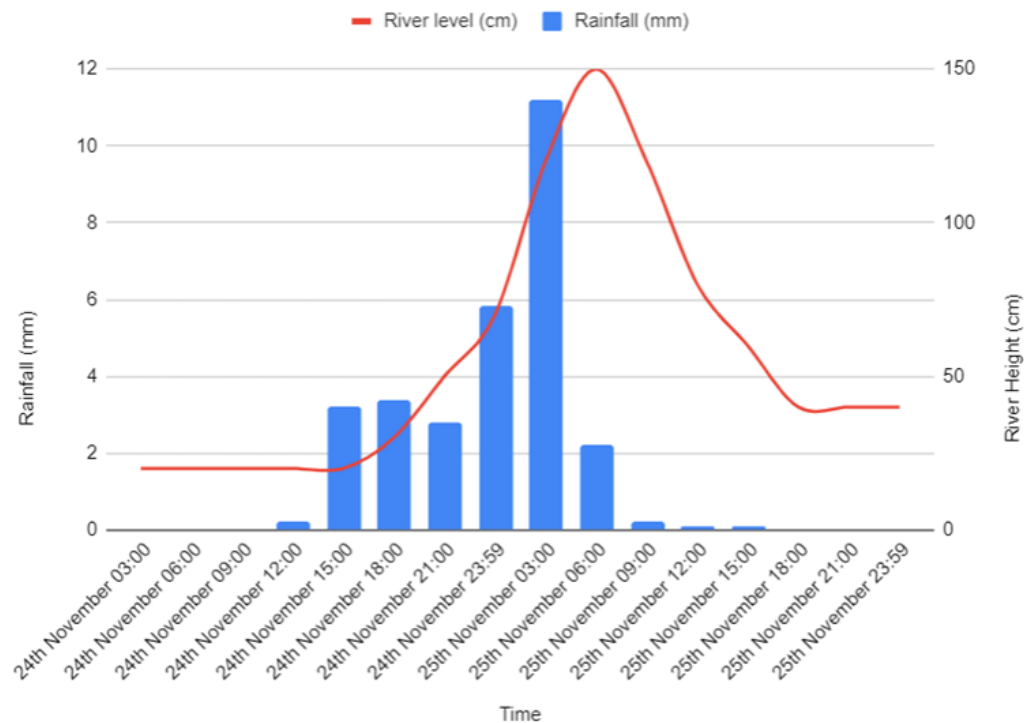
Question: Why might climate change make flooding more likely in the future?

How do leaky dams work to slow down lag times during flood events?

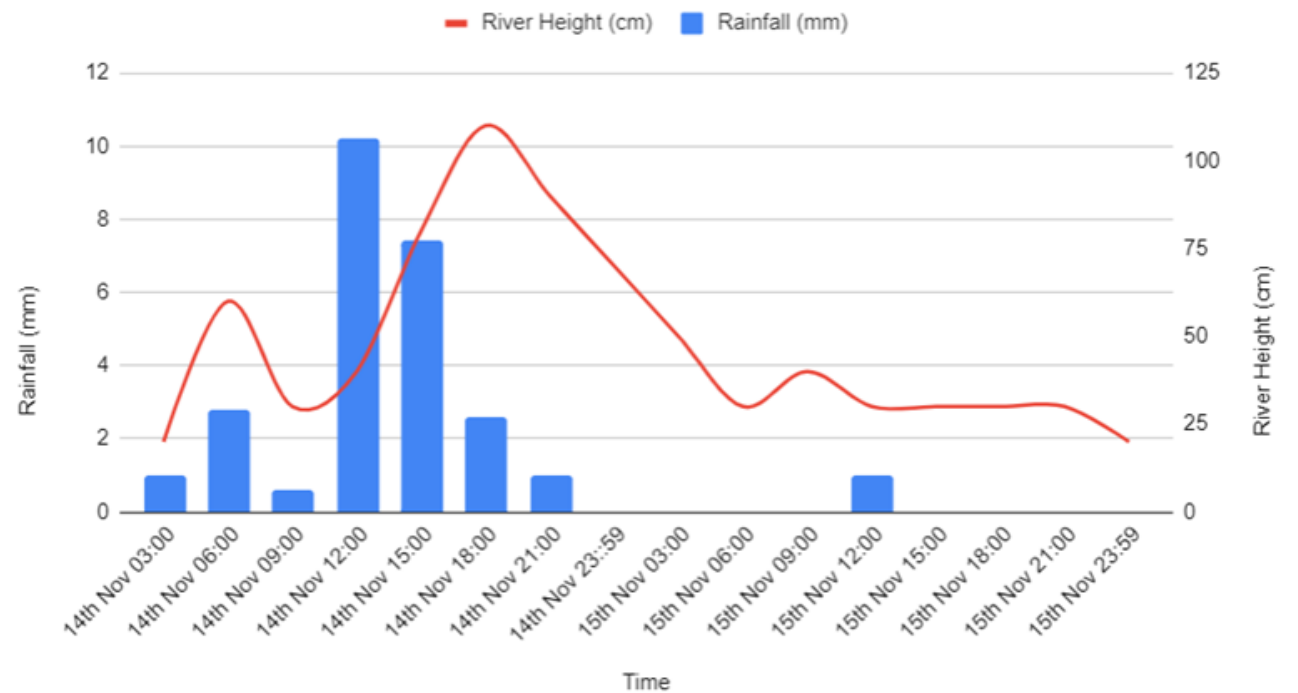


Give three methods of soft management used on the Sherbourne

Sherbourne November 2012



River Sherbourne November 2019



- 1) Add the following to the hydrographs: rising limb, falling limb, base flow, peak discharge, lag time.
- 2) Assess the effectiveness of flood management in this area. Refer to the hydrographs below to help you (8). **Remember to use data, and geographical terms when answering.**