

Soil & Land Management

Soil and land management techniques can reduce peak flow by slowing and storing surface water runoff and encouraging infiltration with the soil. They can include a wide range of different measures as conservation tillage, early sowing crops, cover crops, stocking density, hedge rows and buffer strips.



Catchment woodlands

Catchment woodland can intercept, slow, store and filter water. This can help reduce flood peaks, flood flows (from 3 to 70%) and flood frequency. Largest reductions in flood risk have been seen for small events in small catchments, the extent of this reduction decreases as flood magnitude increases.



Cross-slope woodlands

A cross-slope woodland is a woodland which is planted across a hill slopes. It intercepts the flow of water as it runs down the hill reducing rapid runoff and encouraging infiltration and storage of water in the soil.



Leaky barriers

Leaky barriers are usually formed of wood and they are either formed naturally or are installed across watercourses and floodplains. They reduce flood risk by intercepting the flow of water in a river, this can help restore river-floodplain connectivity which can reduce flood peaks, slow water velocities and attenuate flow by storing water.



Headwater drainage

Headwater drainage management techniques can delay and reduce peak flow locally for small flood events by intercepting, slowing and filtering surface water runoff and encouraging attenuation and infiltration with the soil.

They can include a wide range of different measures such as flow paths in ditches and fields. They usually work best as a cluster of features throughout the landscape.



Floodplain woodlands

Woodlands in floodplains can slow floodwaters and increase water depth on the floodplain. This can help reduce flood peaks (0-6%), delay peak timing (2 hours or more), desynchronise flood peak and reduce peak height.

Floodplain woodlands have greatest flood risk effect in the middle and lower river reaches of medium to large catchments.



River restoration

River restoration reintroduces meanders to rivers and restores physical process. Making a river more sinuous can reduce flood peaks, water velocities and attenuate flow by slowing and storing flood water. The extent of this flood risk effect depends on the length of river restored relative to the overall size of the river catchment.



Offline storage areas

Offline storage areas, are areas of floodplain which have been adapted (with a containment bund, inlet, outlet and spillway) to store and then release flood waters in a controlled manner. They provide temporary flood storage which can reduce peak flow.

The extent of their flood risk effect depends on the number of storage areas provided throughout a catchment and their total storage volume.



Run-off pathway

Run-off pathway management techniques can delay and reduce peak flow locally for small flood events by intercepting, slowing and filtering surface water runoff. They can include a wide range of different measures such as ponds, swales and sediment traps and usually work best as a cluster of features throughout the landscape.



Riparian Woodlands

Riparian woodlands are planted on land immediately adjoining a watercourse, they can slow flood flows and can help reduce sediment delivery to the watercourse and reduce bankside erosion. They also have high evaporation losses and can create below ground water storage. Largest reductions in flood risk have been seen at the reach scale, in middle and upper Catchments.



Floodplain Restoration

River floodplain restoration restores the hydrological connectivity between the river and floodplain, which encourages more regular floodplain inundation and flood water storage. This can decrease the magnitude of the flood peak and reduce downstream flood depths especially for high frequency, low return period floods.



Examples from....

Working with Natural Processes to reduce flood risk
The evidence behind Natural Flood Management
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/654440/Working_with_natural_processes_one_page_summaries.pdf