Allesley Flood Risk Management Community Information Event

8th February 2019

Coventry City Council

Environment Agency

THE wildlife TRUSTS Warwickshire

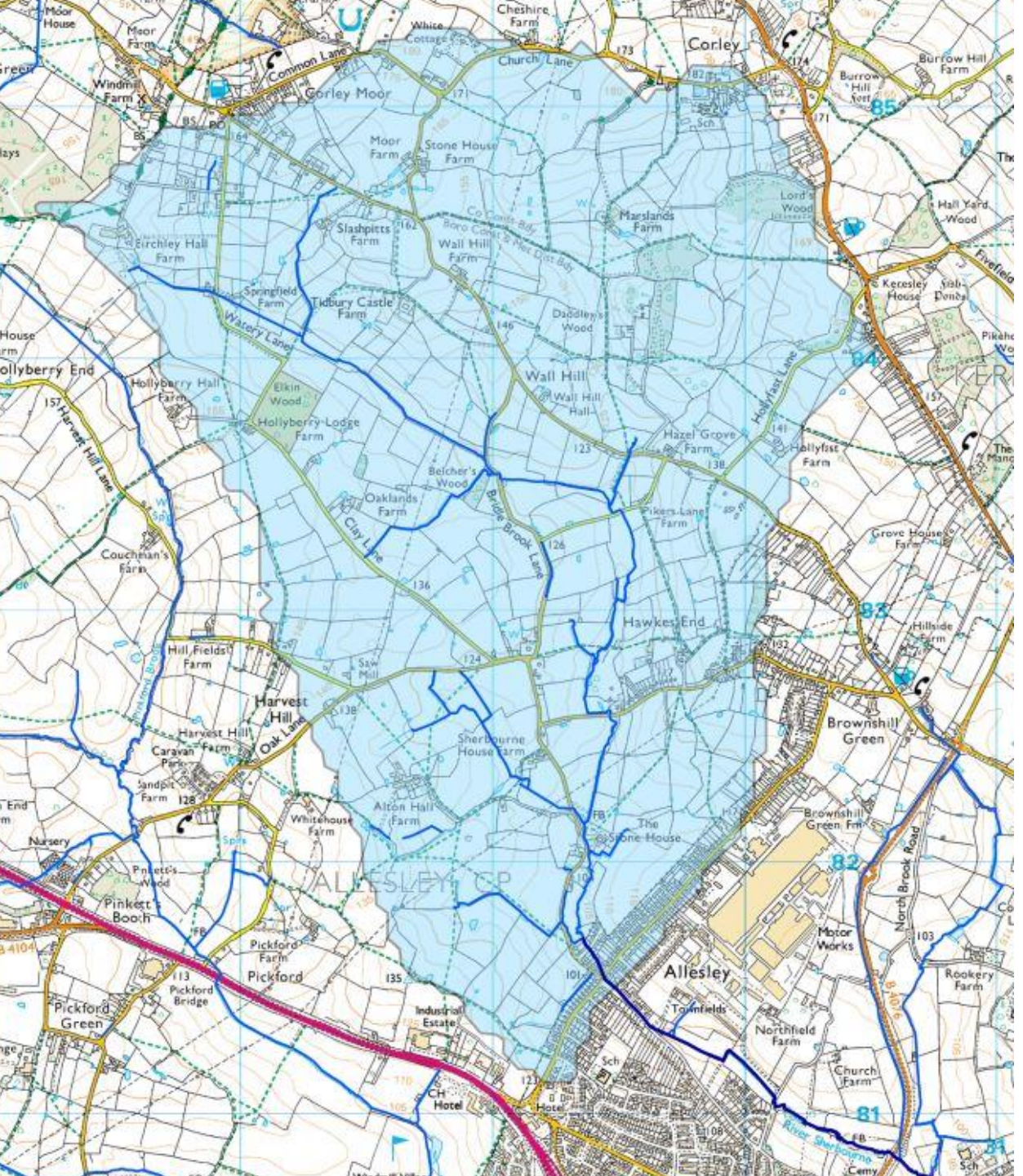
Speakers

Melanie Dinnis, Project Manager, Environment Agency

Neal Thomas, Flood Risk Manager, Coventry City Council

Laurence Hau, Capita

Ian Jelley, Warwickshire Wildlife Trust



Catchment area

Historical Flooding

Melanie Dinnis, Project Manager

Historical Flooding

Butt Lane July 2007

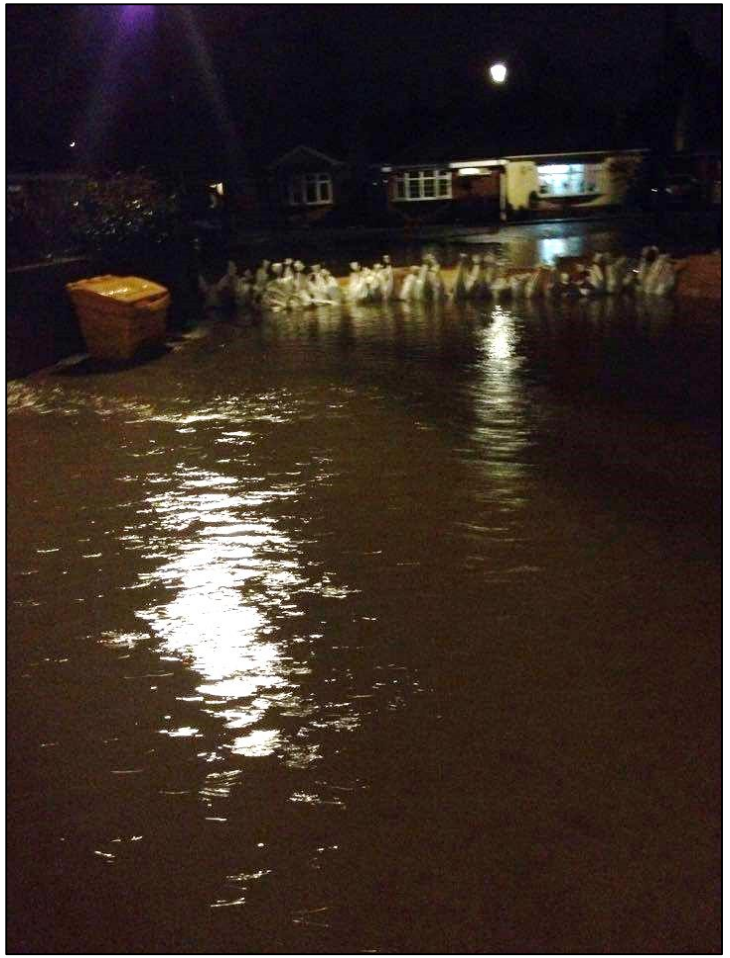
Butt Lane Sept 2008

Washbrook Lane Nov 2012

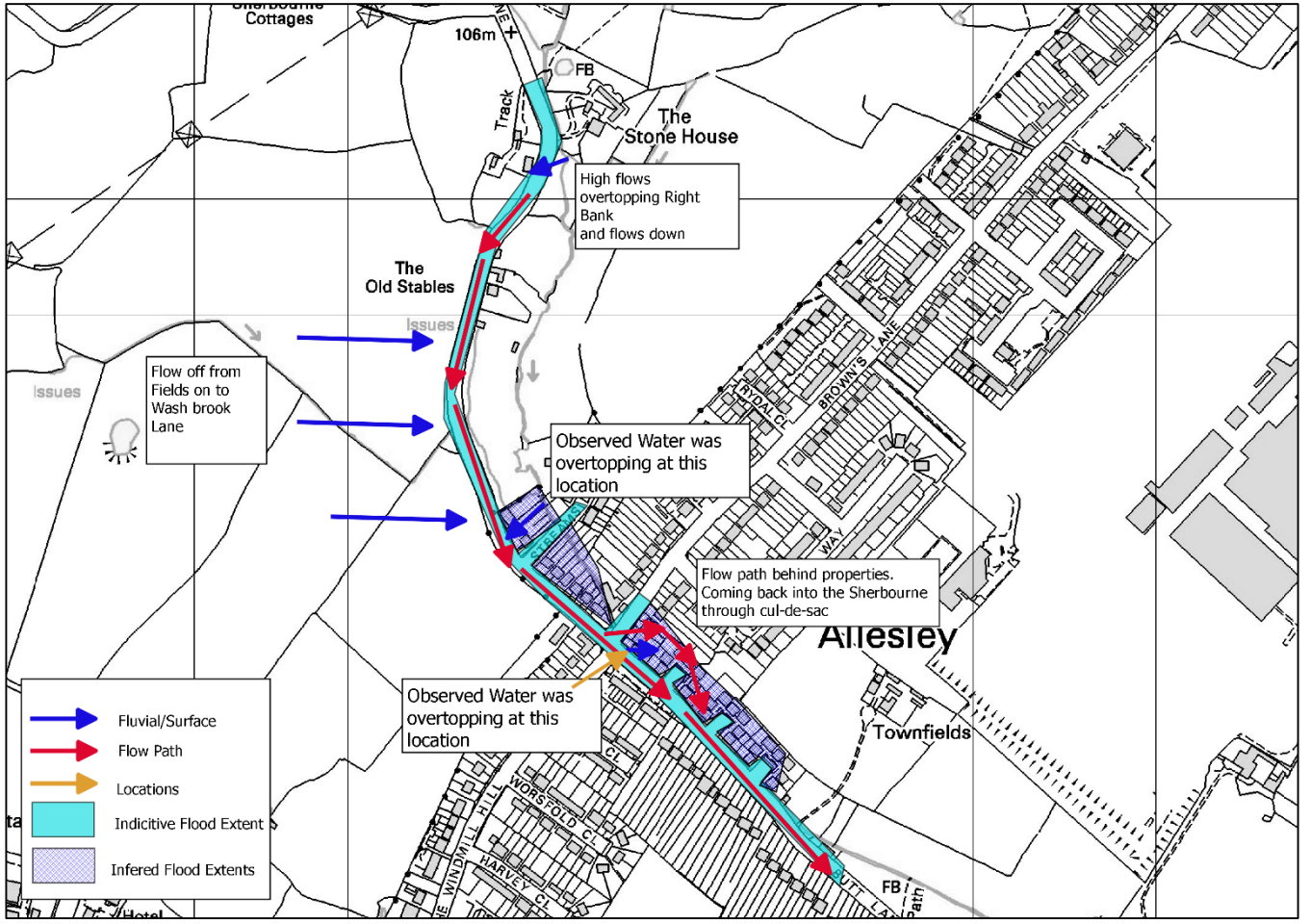
Butt Lane Nov 2012

Browns/Washbrook Lane June 2016

Historical Flooding - February 2016



Butt Lane Feb 2016



A map showing flooded areas and reported flow routes for the 2016 event

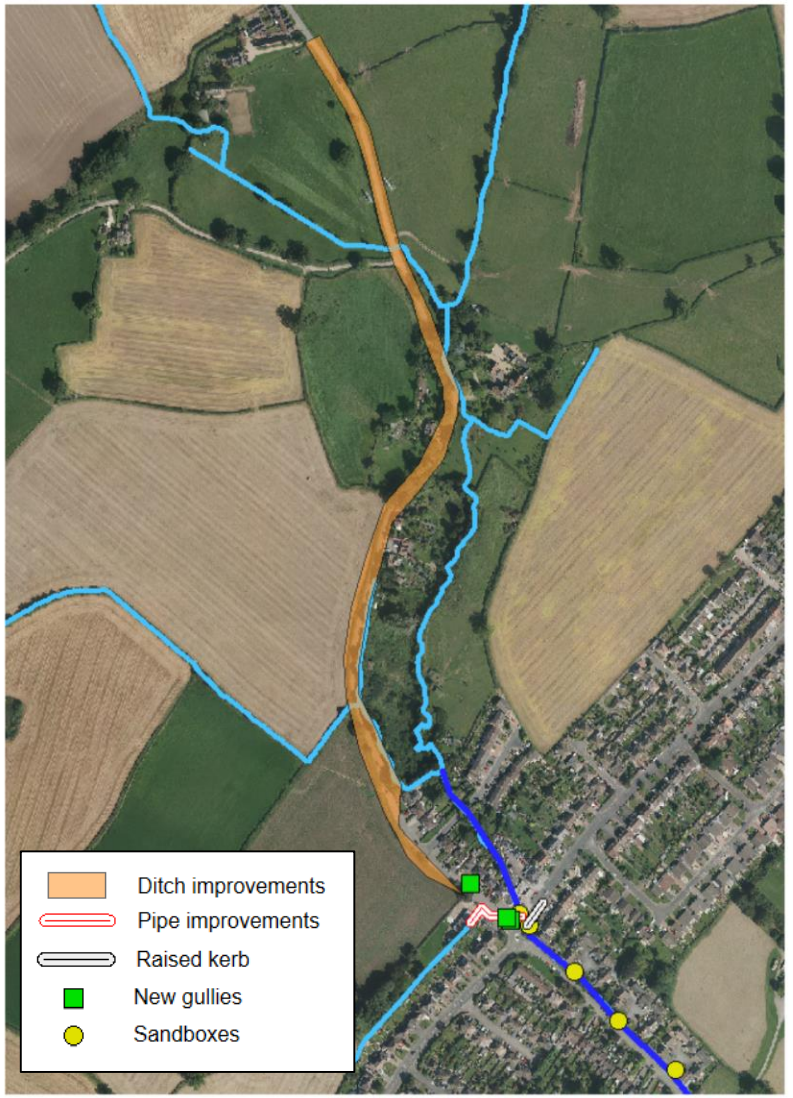
Surface Water Flooding

Neal Thomas, Flood Risk Manager

Surface Water Drainage Improvement Works

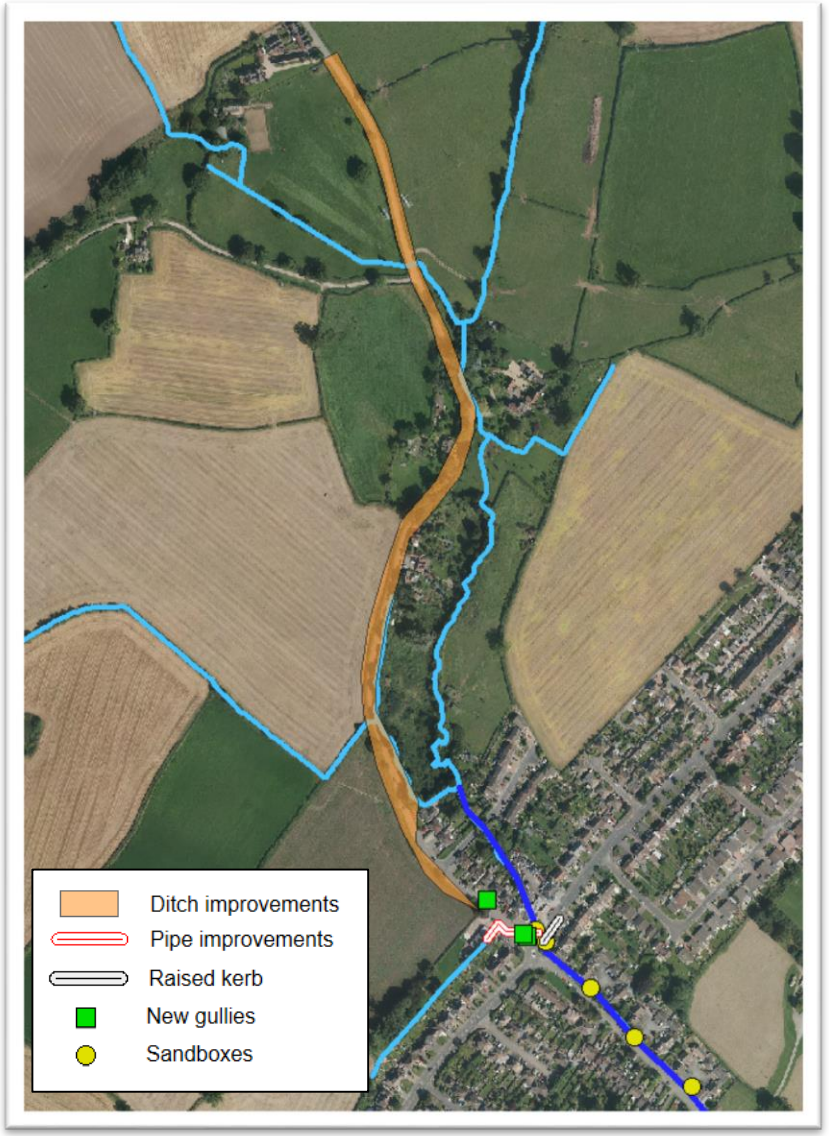
Coventry City Council

Washbrook Lane



Washbrook Lane - Ditch Improvements

Coventry City Council



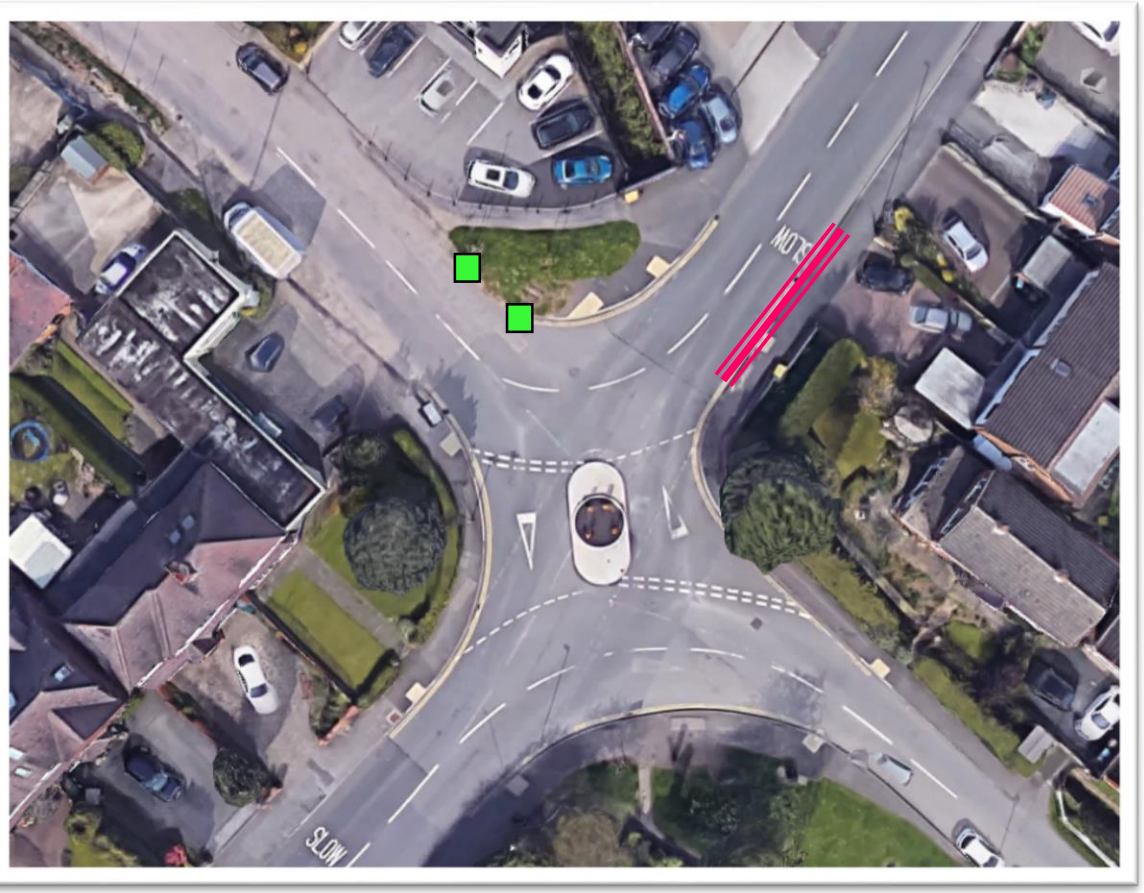
The Windmill Hill

Coventry City Council

The Windmill Hill – Pipe Improvements

Coventry City Council

Browns Lane Junction – New Gullies and Raised Kerbs



Butt Lane – Sandbag boxes

Cost Summary – around £160,000

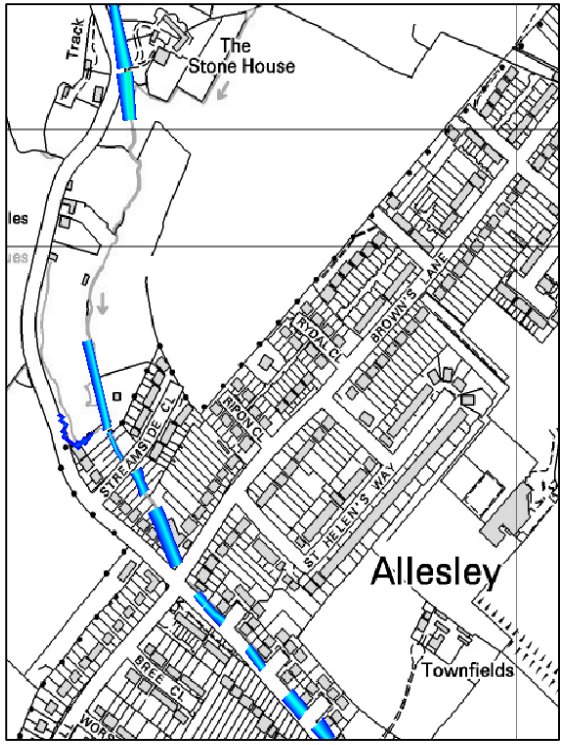
Coventry City Council

Modelling Existing Flooding

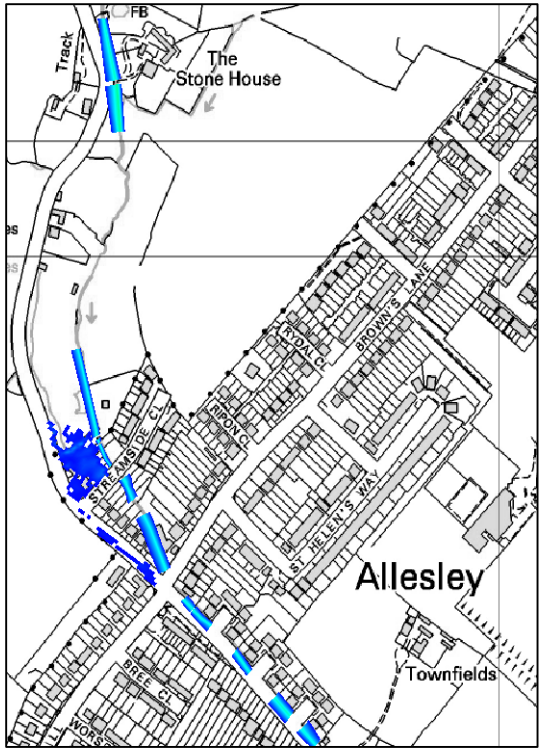
Laurence Hau, Capita

Flooding Issues – Surface and River Water

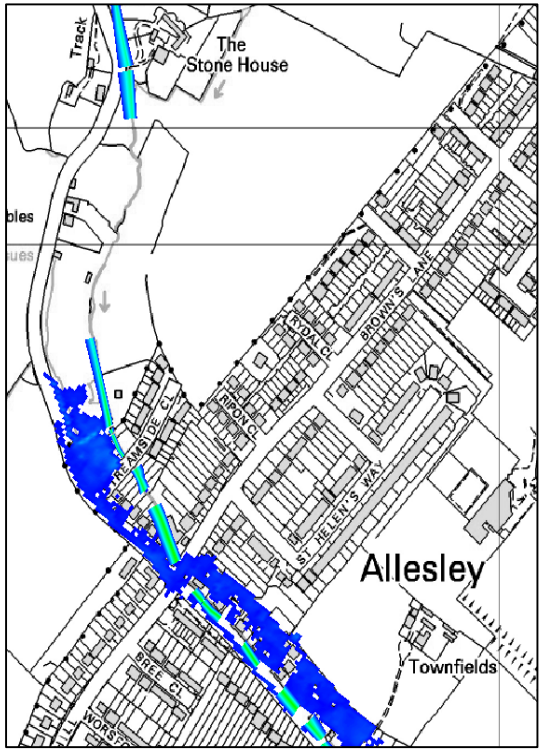
Model run for a 1% Annual Exceedance Probability return period



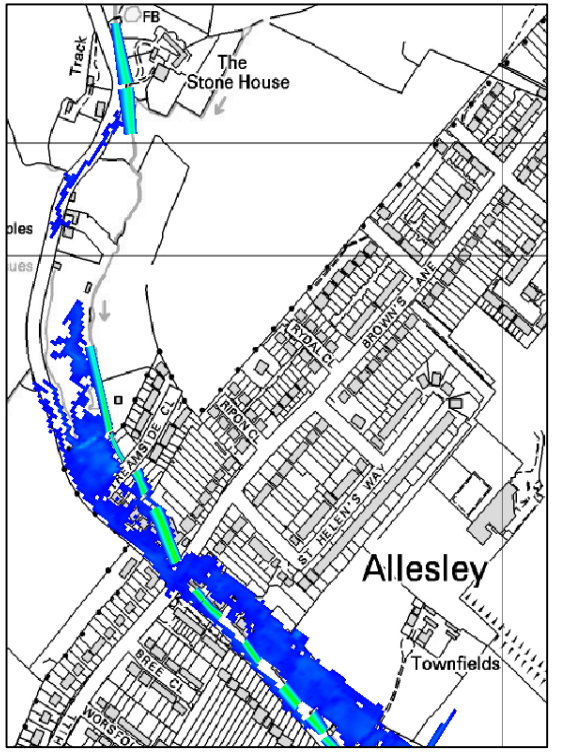
Flood Extent – 0.2 hours



Flood Extent – 0.5 hours



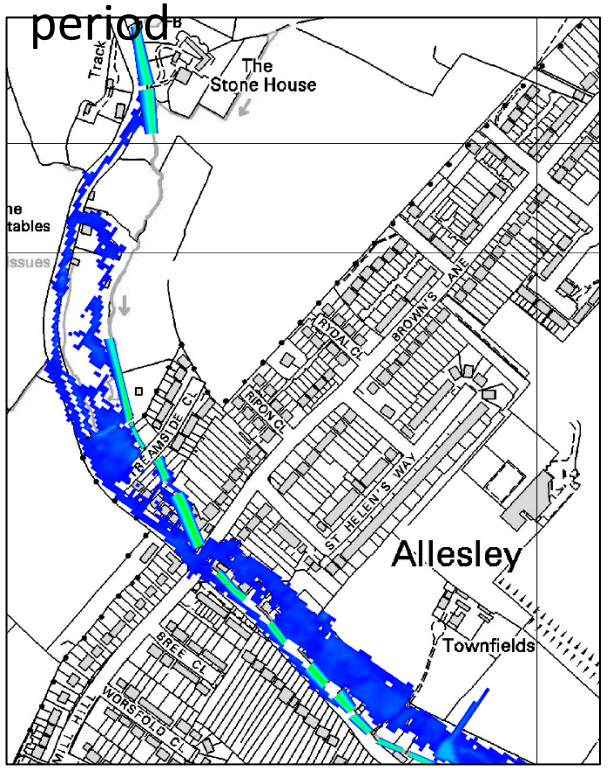
Flood Extent – 4 hours



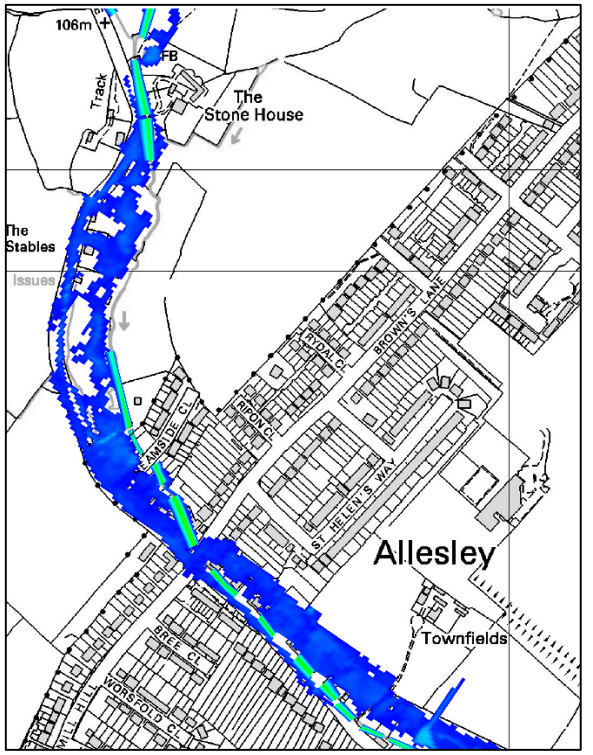
Flood Extent – 5 hours

Flood Issues – Surface and River Water Continued

Model run for a 1% Annual Exceedance Probability return period



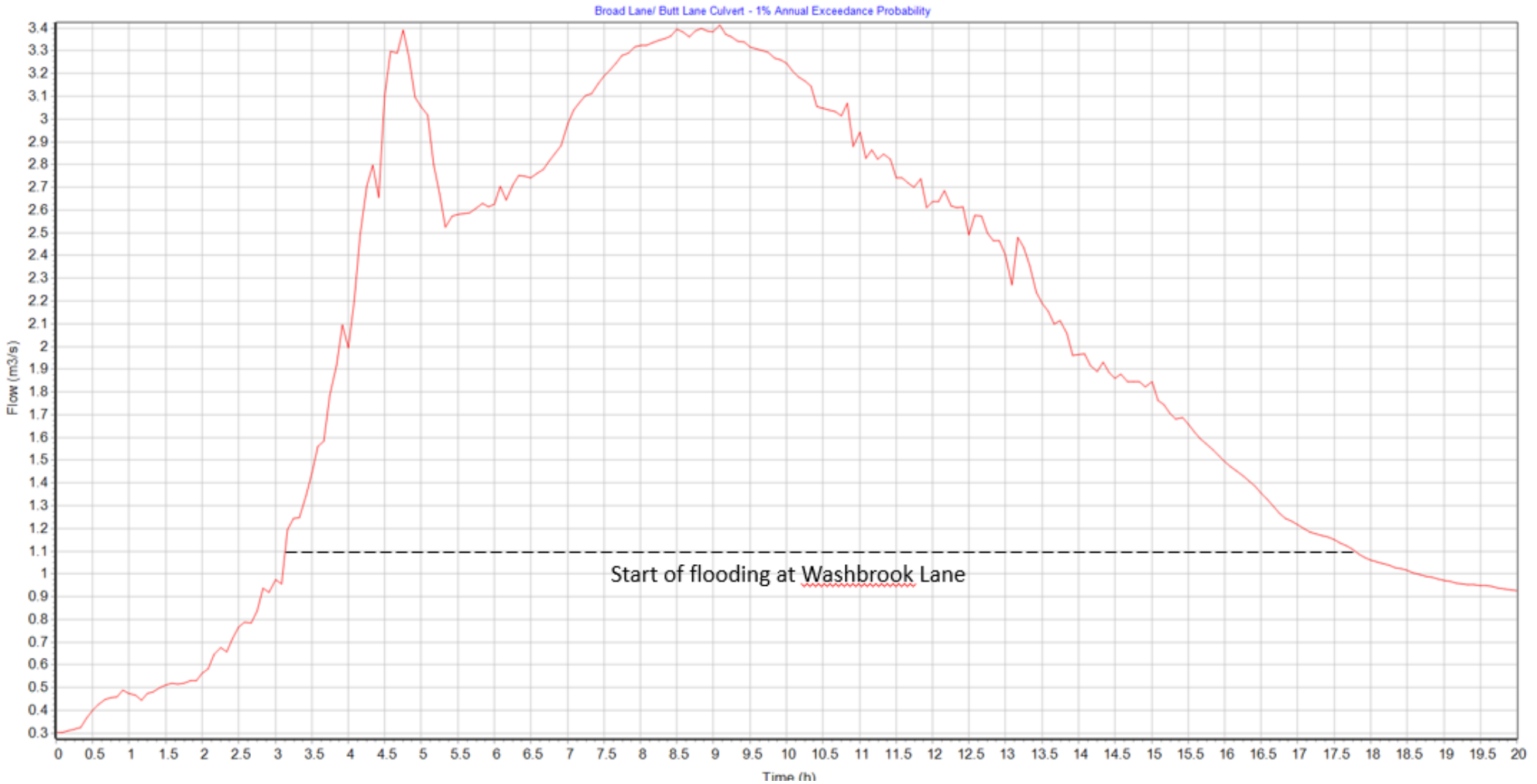
Flood Extent – 5.15 hours



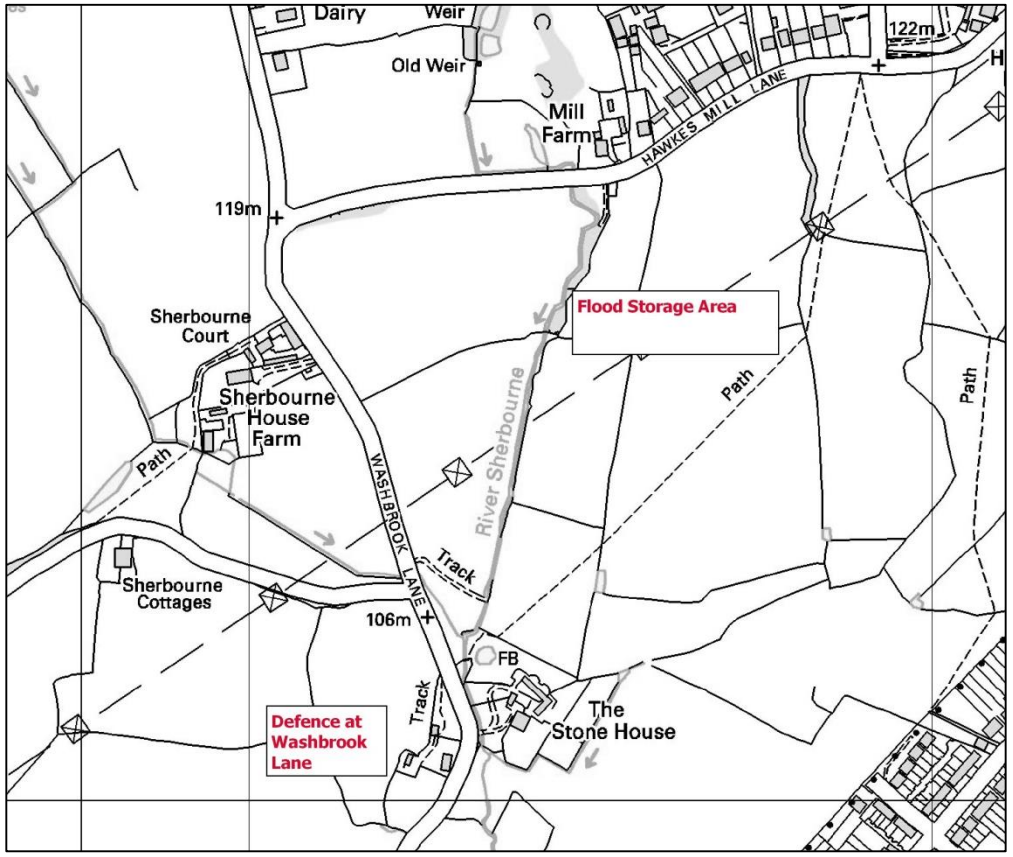
Max Flood Extent – 9 hours

- Surface water causes flooding at the onset later combined with high flows from the river
- Flow path from Washbrook Lane through the properties at Browns Lane to the Gardens of Butt Lane
- 31 properties shown as flooding

Flood Event Hydrograph



Flood Modelling of Flood Storage Option

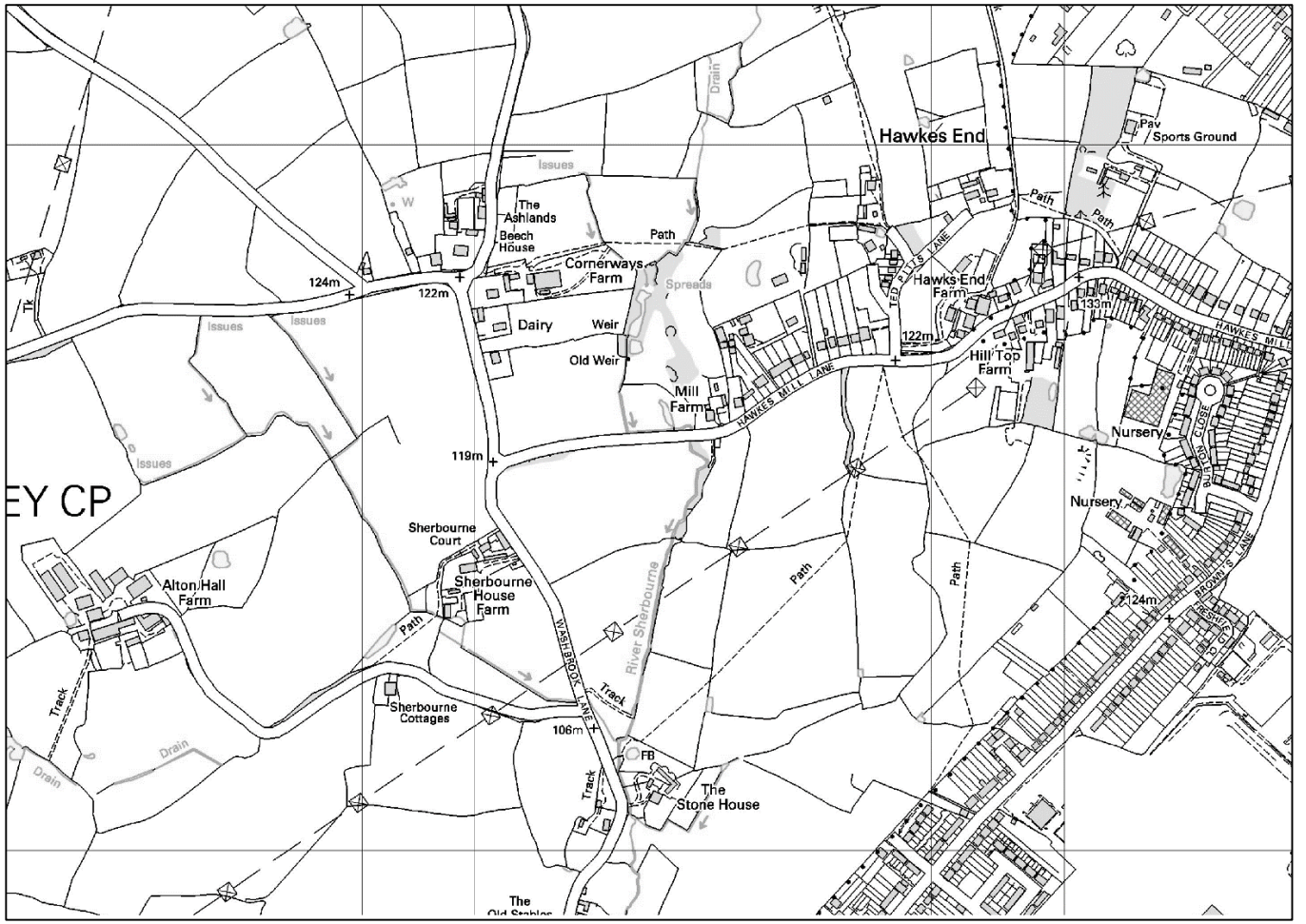


Modelled Option Location

- Construction of a 86,000m³ Flood Storage Area
- Small defence down Washbrook Lane
- The storage area will hold flows upstream to reduce flooding downstream
- Protects 26 properties from the 31 damaged
- Whole life cost – e.g. Construction, design, maintenance and operation. Approximately £8.5 million.
- Not progressed due to the high costs

Other Options Considered

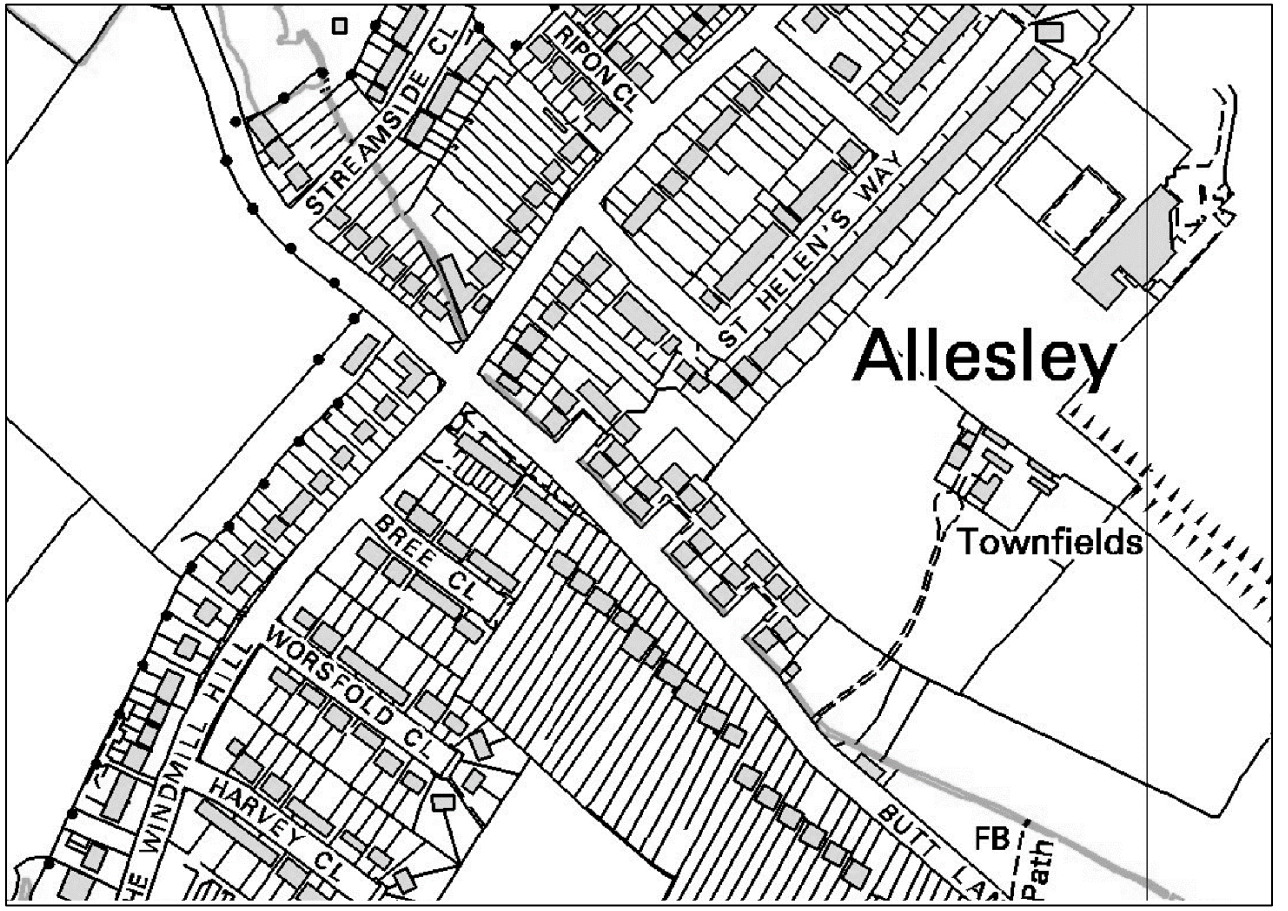
- Flood storage north of Hawkes Mill Lane
- ❑ Reinstatement of ponds and channel alterations north of Hawkes Mill Lane
- Flood storage on the tributary west of Washbrook Lane
- ❑ Small defence at Washbrook Lane to contain out of bank flows



Options North of Streamside Close

Other Considered Options Continued

- Cattle grids or water diversion measures on Washbrook Lane to redirect surface water flow
- Measures at Brown Lane to prevent flow path around the back of Butt Lane properties
- Bypass pipe starting at the junction of Butt and Brown Lane transferring flood waters past the properties at affected at Butt Lane
- Widening around the third culvert at Butt Lane
- Natural Flood Management

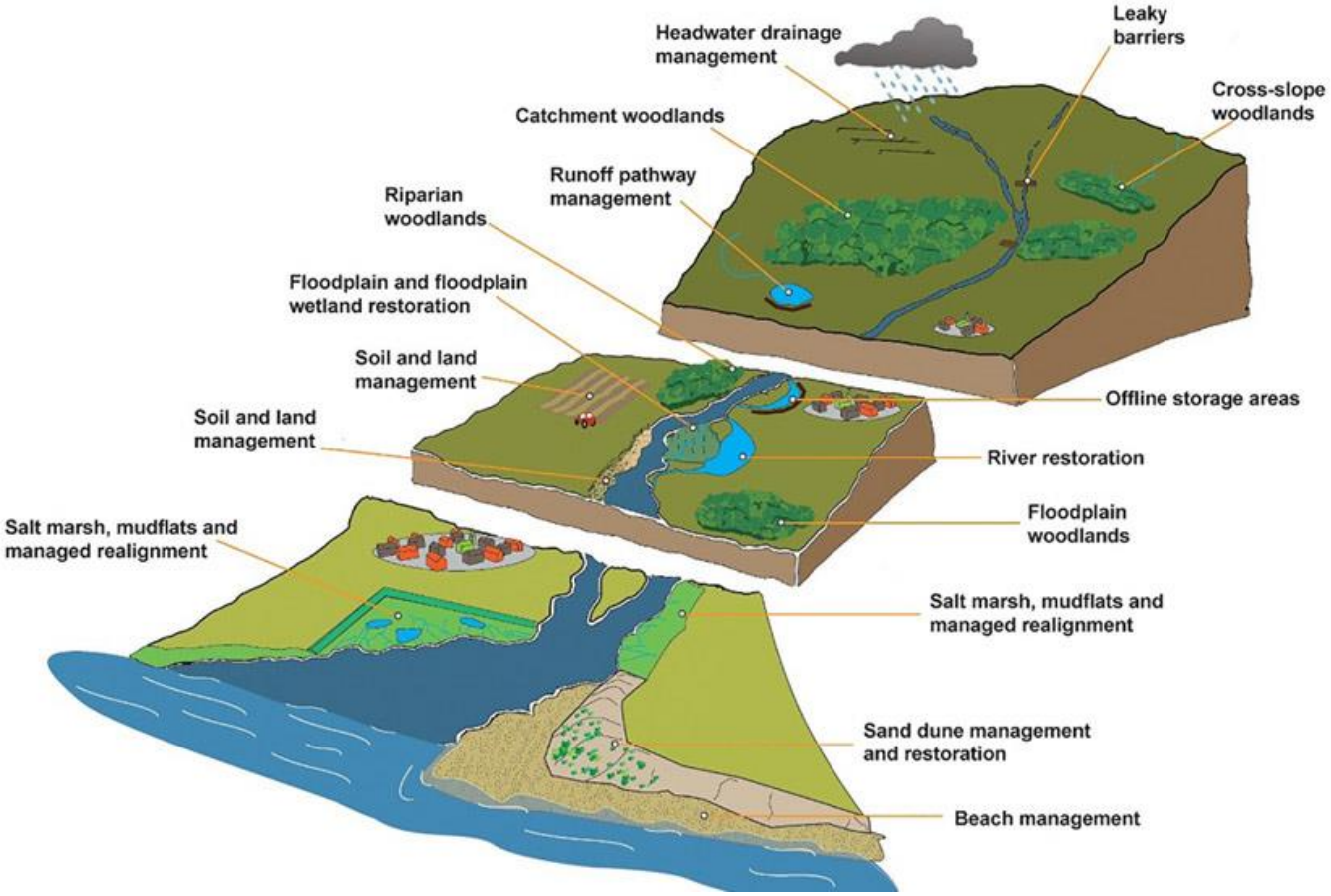


Options near or south of Streamside Close

Why Natural Flood Management?

Our thoughts on NFM:

- Flood risk cannot be managed by simply building ever-bigger hard defences. Softer approaches are often more sustainable, complement & extend the lifetime of more traditional defences
- We should work with natural processes where possible and enhance the environment
- Defences that work with natural processes generally are more sustainable
- NFM measures are often more resilient to extreme events and provide better value for money
- Cost effective solutions both in the cost of resources and maintenance
- Individually each initiative may make a small difference but added together they can have increased and cumulative effect for Flood Risk Management, and can provide other ecosystem services
- Encourages working in partnership



Natural Flood Management

Ian Jelley, Director of Living Landscapes

What is natural flood management?

1. **Slowing water down –** by installing woody debris, planting hedges and creating buffer strips.

2. **Storing water** – by creating capacity in ponds, scrapes, swales and ditches so that they fill and then empty slowly after 12-24 hours.

3. **Intercepting rainfall** - Vegetation, especially tree leaves, intercept rainfall so it doesn't reach the ground. Water is then evaporated from the leaves, reducing the volume of flood water. Trees can reduce the amount of water reaching the ground by 25 – 45%.

4. **Increasing soil infiltration** – by improving soil structure and reducing compaction, which can increase the volume of water which is stored in the soil.

Slowing water down

- Slow high flows, reduce peak flow.
- Increase time it takes for storm water to pass downstream, thereby reducing the maximum flood peak.
- Large woody dams are created by laying large tree trunks in a cross formation across the channel to rest safely on both banks, wedged and secured in position.
- The height of the lowest timber should allow normal flows to pass underneath. This will also permit fish passage.

A series of 24 woody dams installed in Cumrew beck to reduce flooding in Cumrew village, near Carlisle. © Eden Rivers Trust

Leaky barriers on Dovenby beck, near Cockermouth © West Cumbria Rivers Trust

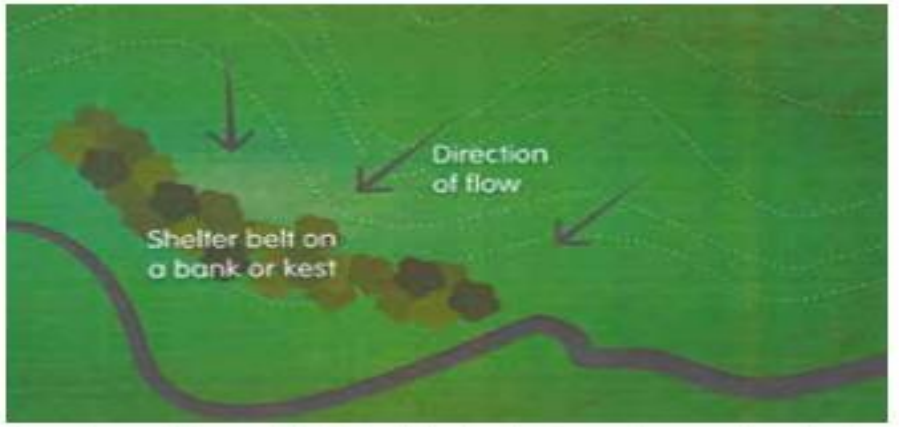
Storing water

- Slowing the flow of water, reducing peak flow.
- Reducing the volume of runoff by increasing the opportunity for infiltration and evaporation.
- Trapping sediment which would reduce the function of neighbouring watercourses and drainage systems.
- Improving water quality & wildlife habitat.
- A variety of designs on a small scale collectively making a big difference.

Swale to divert and hold surface runoff © Eden Rivers Trust

Intercepting rainfall

- Trees and hedges planted in strategic locations to both directly intercept rainfall and slow overland or flow through the soil.
- Improved water quality and pollution removal.
- Improved habitat for wildlife.
- Enhanced landscape character.



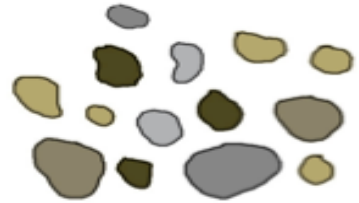
Cross slope planting and shelter belts to slow the flow, reduce runoff and aid soil infiltration. © Forestry Commission

Riparian fencing and tree planting on the River Ehen in West Cumbria © West Cumbria Rivers Trust

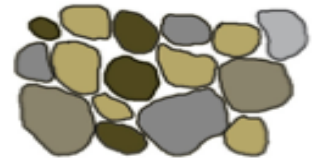
Increasing soil infiltration

- Improved movement of air and nutrients through the soil.
- Promotes strong root growth and more efficient crop/grass growth.
- Improved fertiliser uptake so less fertiliser input needed.
- Reduced soil loss and poaching.
- Increased number of available grazing days (waterlogged soils stay colder for longer).

Loweswater farmer group discussing their shared sward lifter equipment during a demonstration event. Image © West Cumbria Rivers Trust

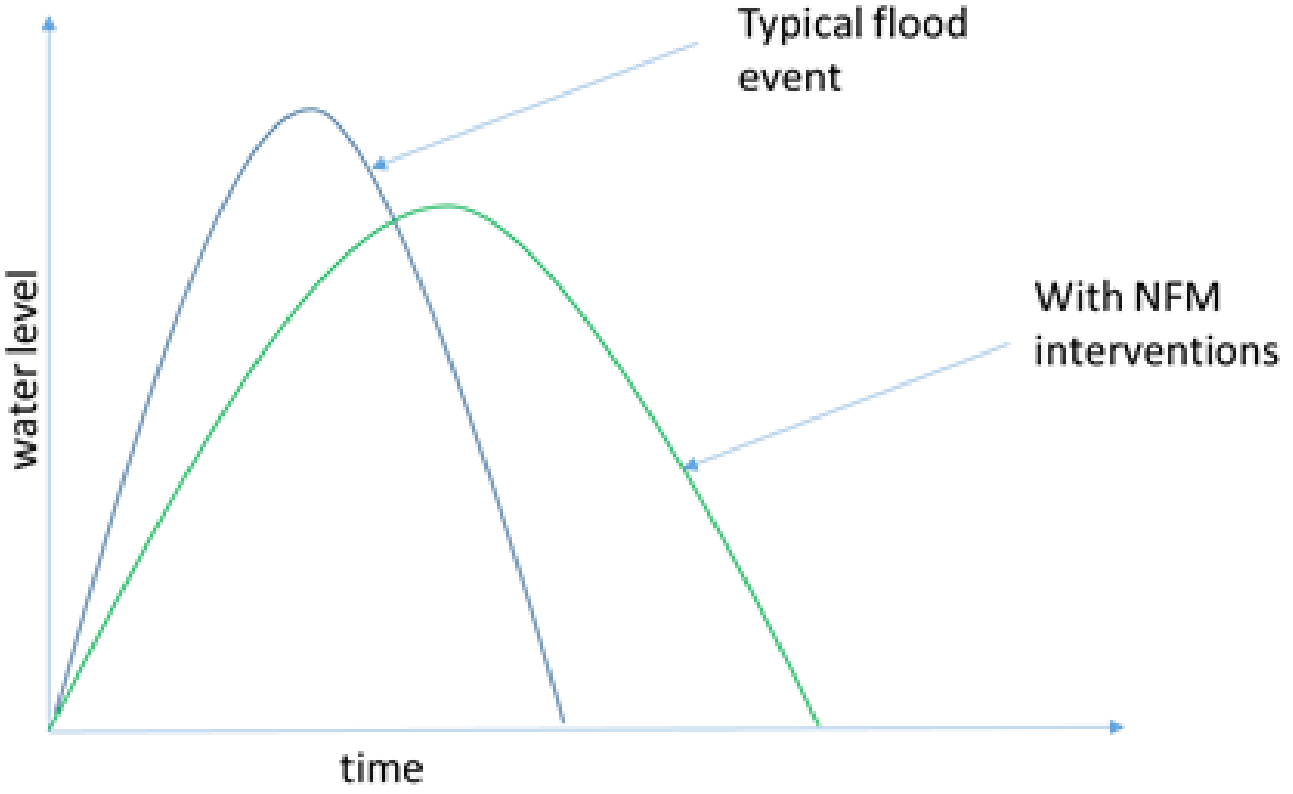


Healthy soil with pore space between particles



Compacted soil with greatly reduced pore space

Hydrograph comparison



What Happens Next?

- Continue to look at capital interventions as listed in the previous slides
- Natural Flood Management will be commencing on the ground over the next few months through Warwickshire Wildlife Trust
- Possible volunteering opportunities around Natural Flood Management
- Future community information events to keep you updated on progress

Thanks for Listening

To view this information after the event, please visit:

www.coventry.gov.uk/SherbourneFRM

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