LANGHOLM
Flood Protection Scheme

Option Review Meeting No.1
Action Screening

May 2nd 2019

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Dumfries & Galloway Council

Introductions

Dumfries & Galloway Council

Brian Templeton

Michael Smith

RPS

Andrew Jackson

Frances Carragher

Stakeholders

SEPA, Scottish Water, SNH, Elected Members, Forestry Commission, Community Council, RSBP, Angling Club, Buccleuch Estate, EA

Overview

Flood risk to Langholm

Langholm Flood Protection Scheme Project Overview

Screening of Actions

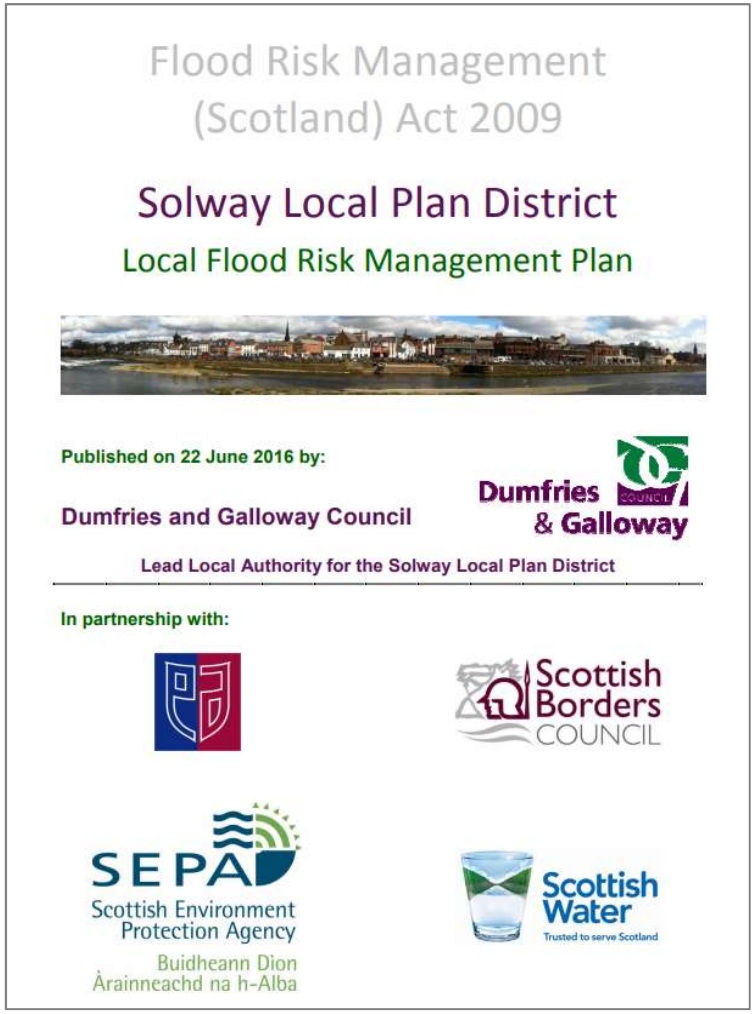
Stakeholder Input

Overview

Flood Risk Management (Scotland) Act 2009

Solway Local Flood Risk Management Plan

Priority 3 out of 4 for Dumfries and Galloway Council



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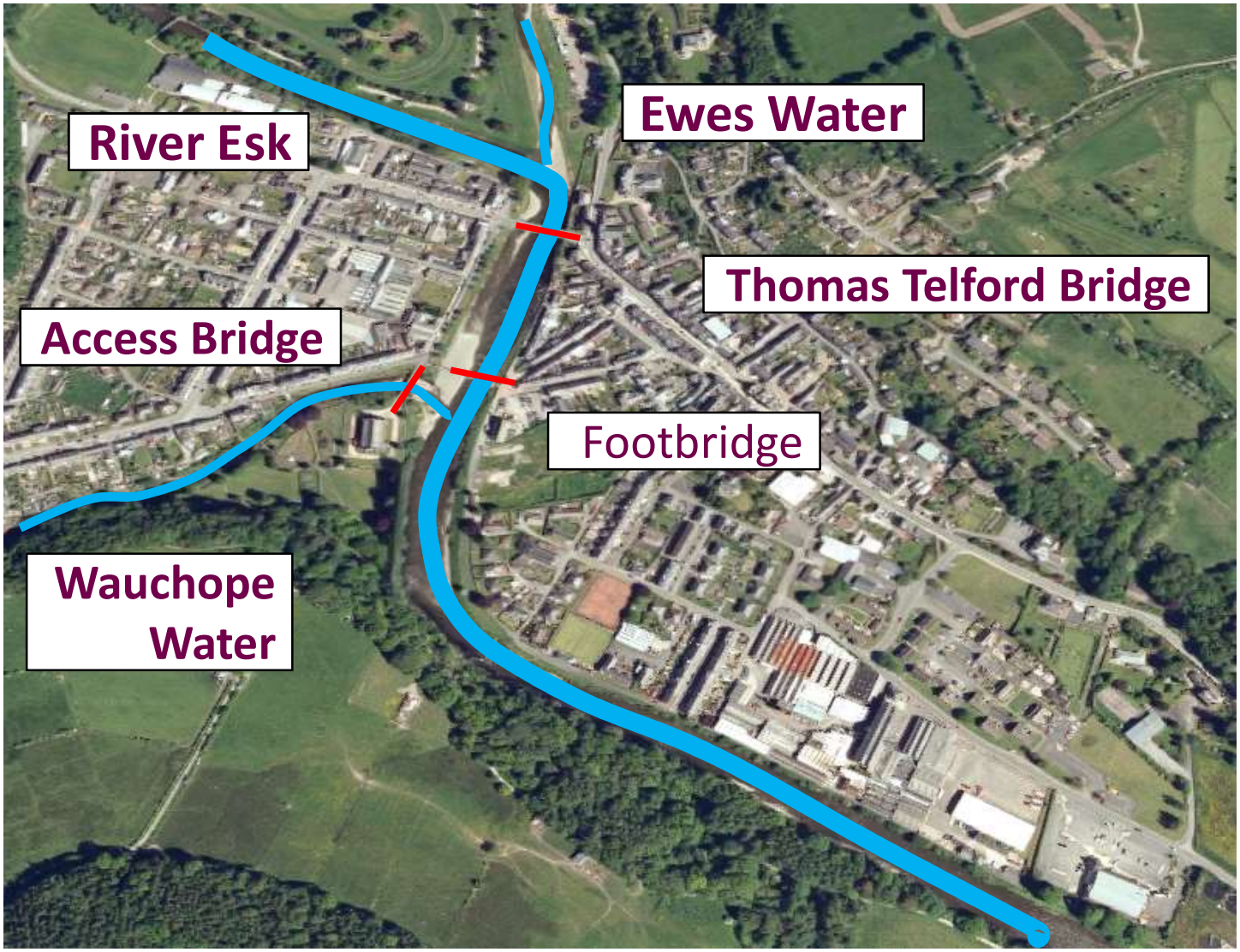
Langholm Watercourses



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River Esk / Ewes Water Confluence

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Storm Desmond – 1 in 12year Return Period

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River Esk

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Storm Desmond – 1 in 12year Return Period

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Wauchope Water

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Storm Desmond – 1 in 12year Return Period

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Historic - 1 in 12year Return Period

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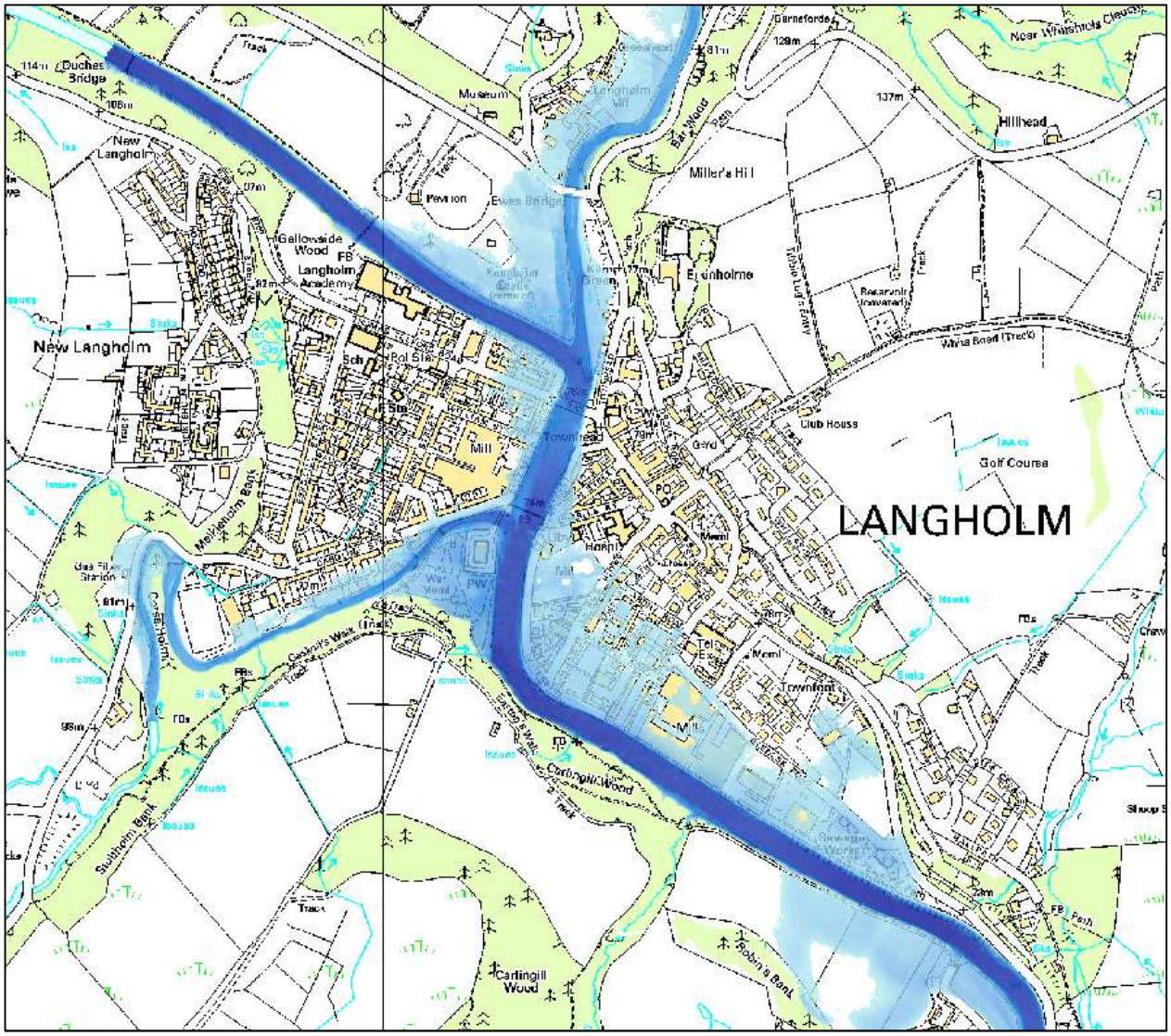
Design - 1 in 200year Return Period



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Project Overview

Aims and Scope

Hydrological & hydraulic update

Optioneering — Option Review Meeting No.1

Outline Design of Preferred Scheme — Option Review Meeting No.2

Publish Flood Order

Continuous engagement

Optioneering

Standard List of Actions

Identify Long List of Actions

Screen Long List to Produce Short List of Options

Appraise Short List Options

Preferred Option

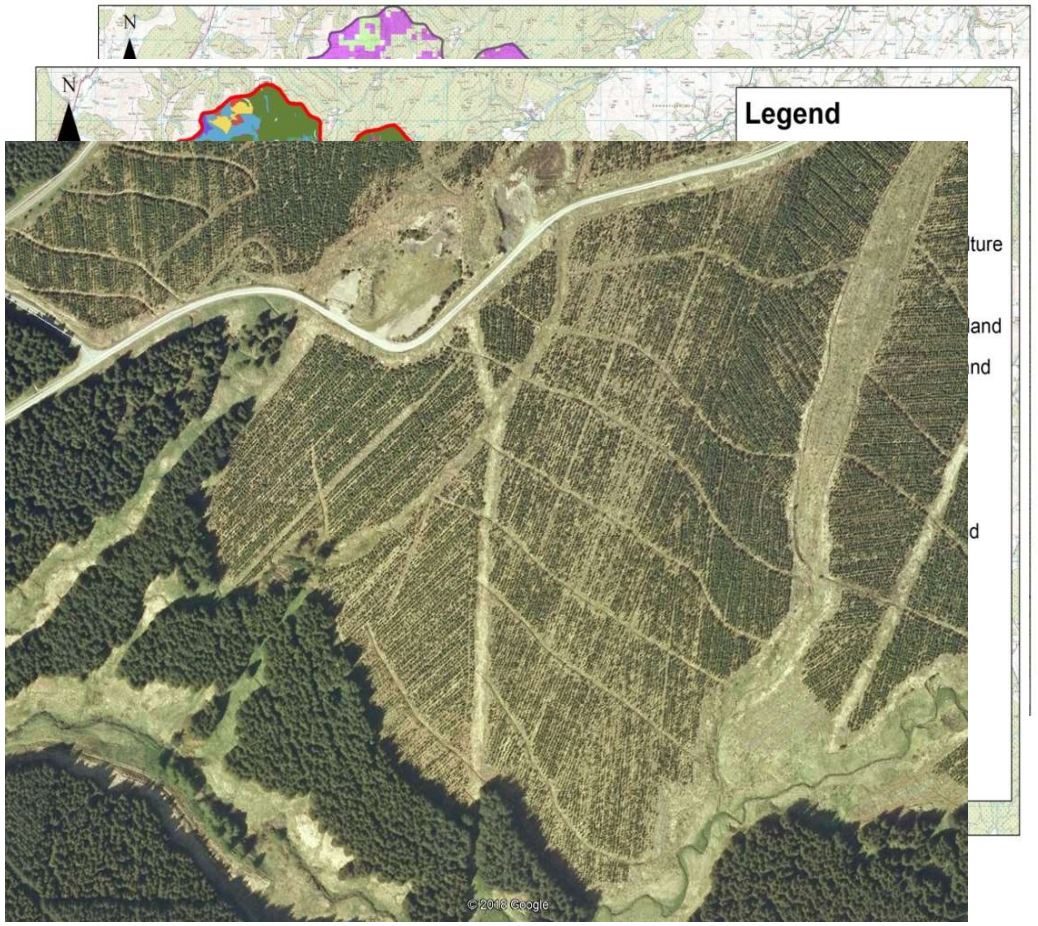
Identify Long List of Actions

Do Nothing

Natural Flood Management Storage Improve Conveyance Direct Defences	Brought forward for screening
Property Level Protection Relocation Flood Forecasting & Warning Self Help Emergency Plans & Traffic Management	Not considered standalone actions

Natural Flood Management – Baseline NFM Assessment

- Catchment descriptors
- SEPA Opportunity Maps
- Land Coverage Maps
- Historic Mapping
- Land Capability for Forestry



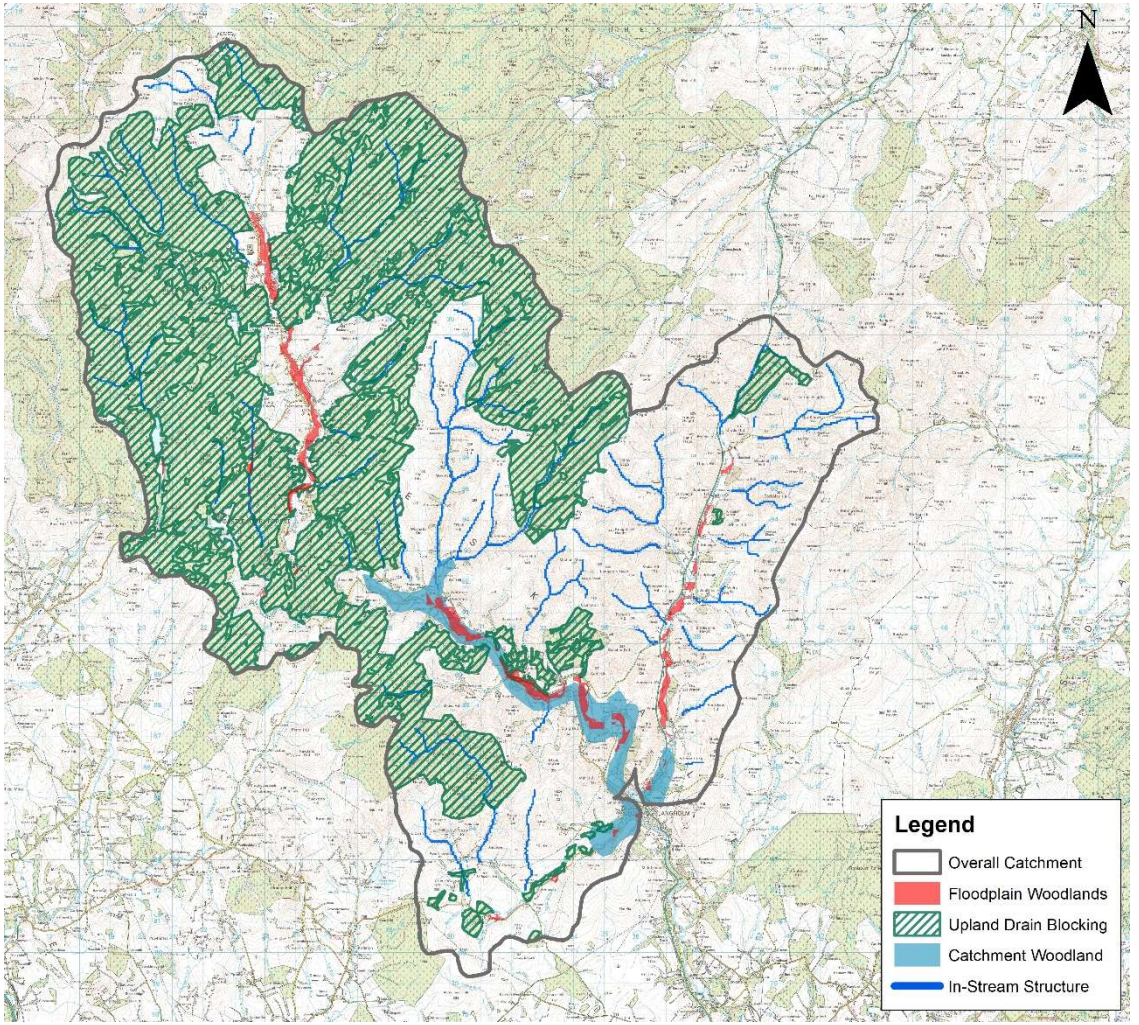
Natural Flood Management – NFM Opportunities Map

Upland Drainage Blocking

Catchment Woodland

Floodplain Woodland

Instream Structures



Natural Flood Management

Sustainable

Improves biodiversity

Difficult to quantify benefits – EA Evidence Directory suggests effect of 5 - 65%

The bigger the event the less impact – ineffective at larger flood events

Cost ≈ £40M

Recommend considering in future phases if appropriate

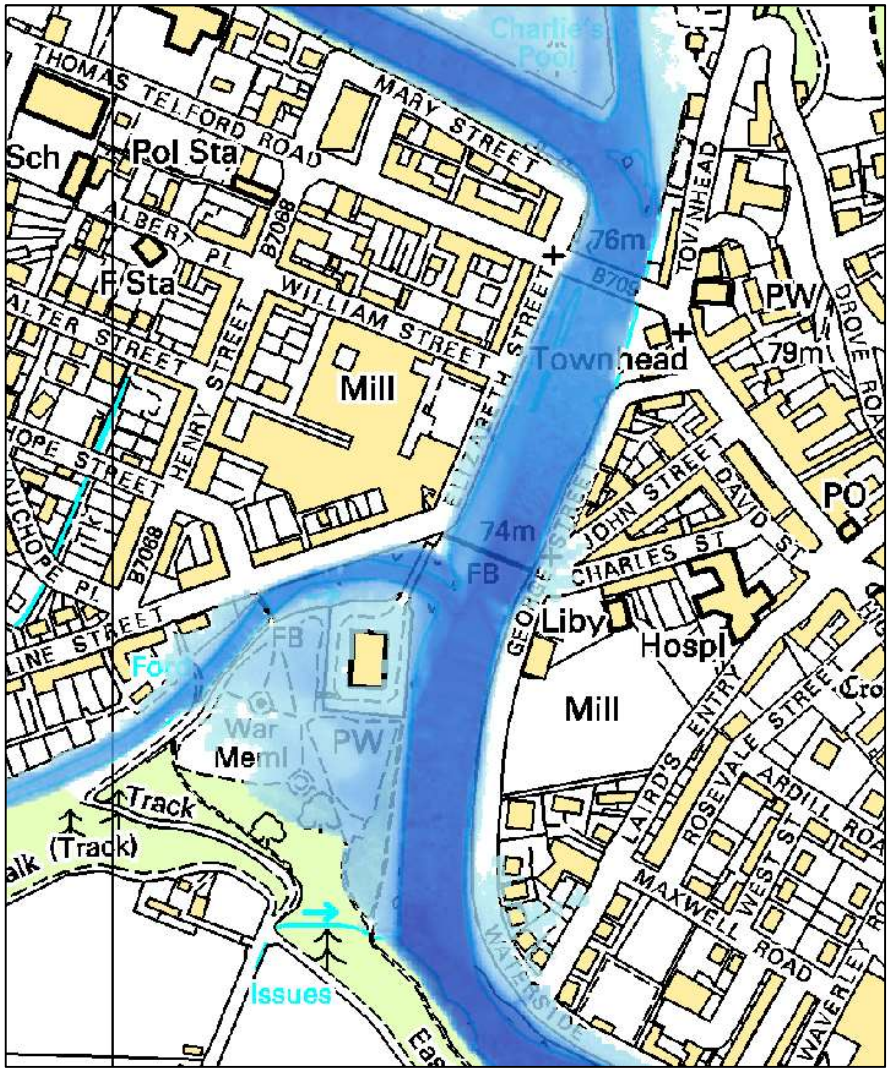
Recommend not progressing to Short List as part of this FPS

Upstream Storage

Volume to store?

Reduce the design event to a 1 in 10 year event

9.9M m^3 (4000 Olympic pools)



Upstream Storage

Potential Locations

Topography

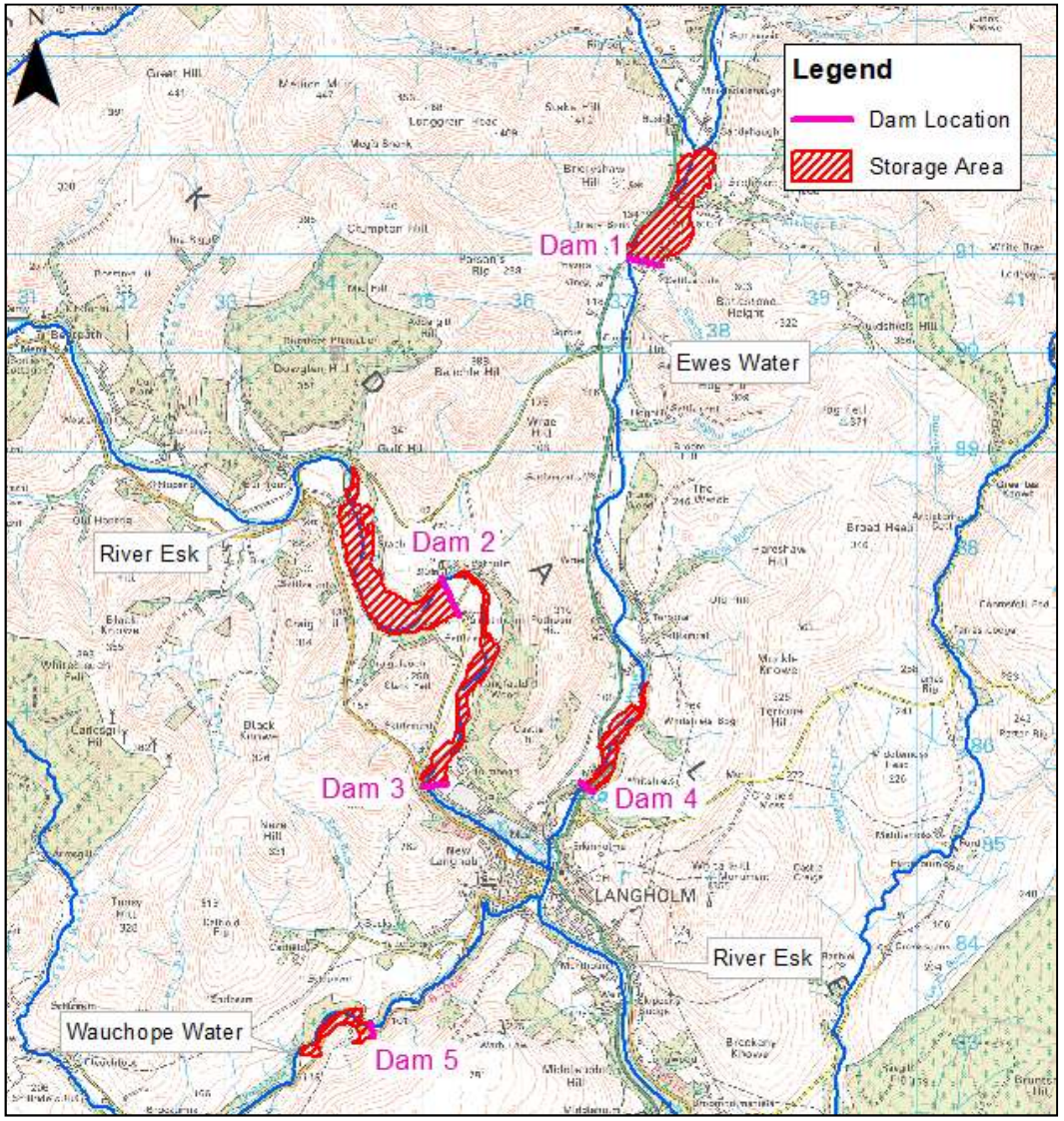
5no. Locations

4.4M m^3 (1760 Olympic pools)

Potential < 50% required

Cost ≈ £25M

Recommend not progressing to Short List



Improve Conveyance

Moving water away quicker

2 Stage Channel

Diversion Channel

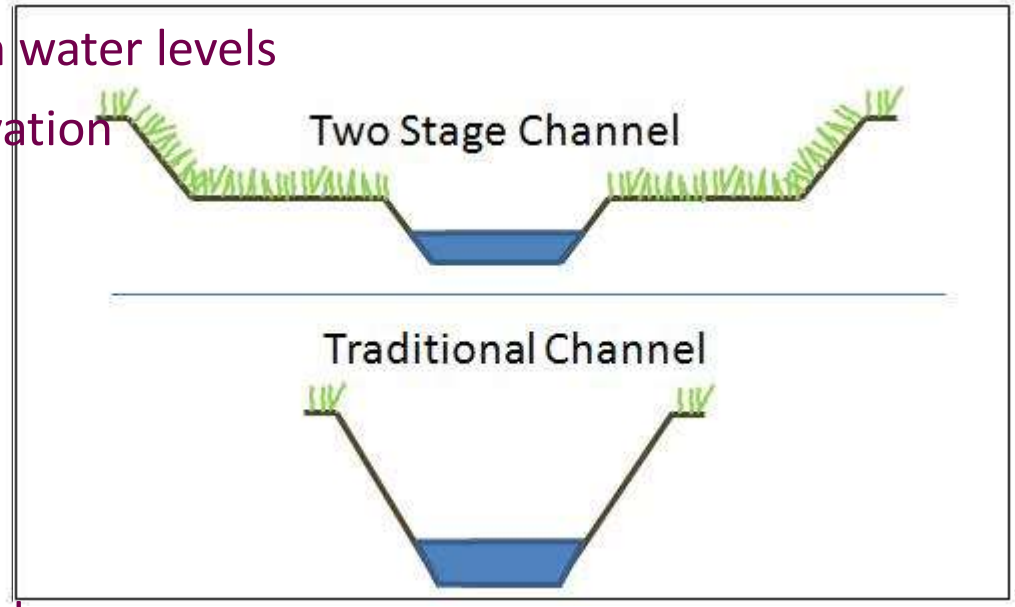
Sediment Management

Improve Conveyance – 2 Stage Channel

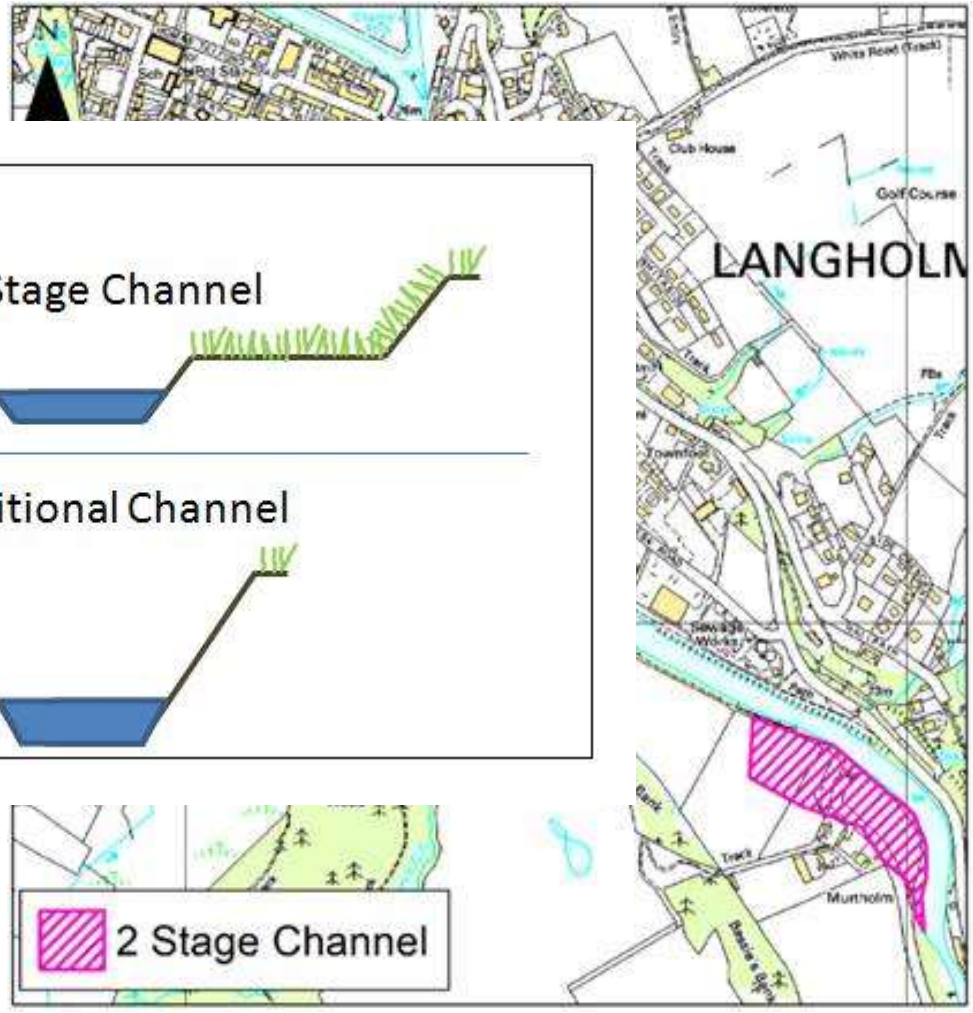
Identified suitable locations

Little impact on water levels

Extensive excavation



Recommend not progressing to Short List



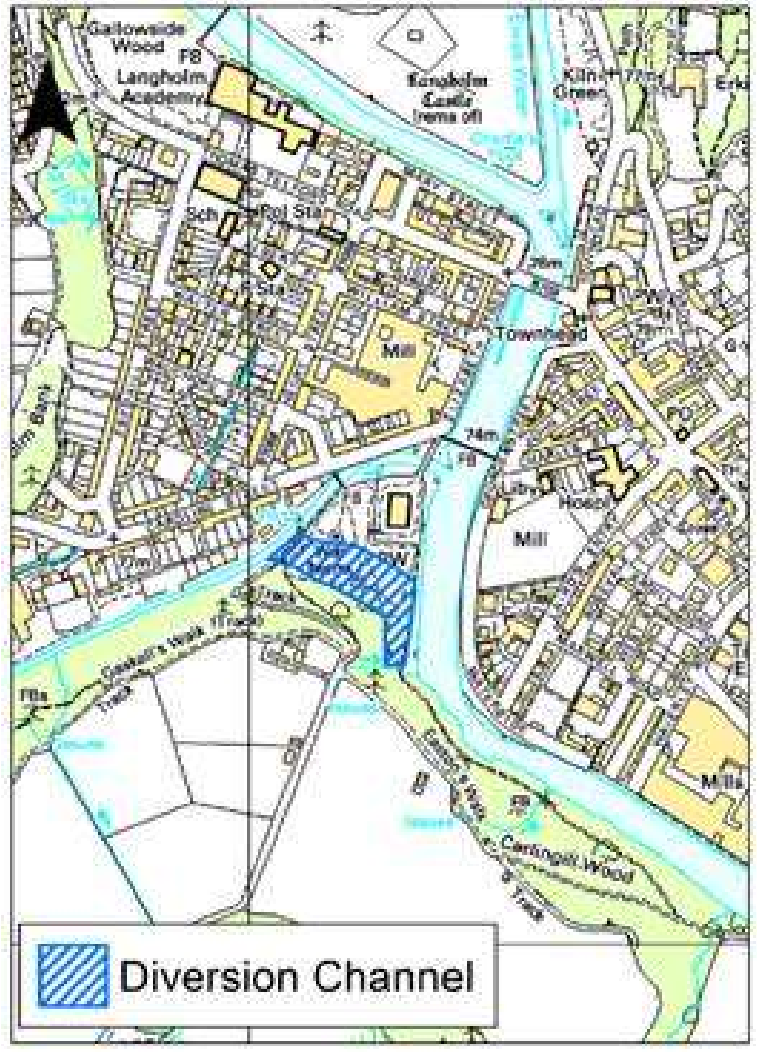
Improve Conveyance – Diversion Channel

Identified one location

Short diversion

190mm decrease in water levels

Recommend progressing
to Short List as an add-on



Improve Conveyance – Sediment Management

Gravel bar - 4700m^3 of gravel

Investigate potential changes to water level, channel velocities and bed shear stress

At Thomas Telford Bridge max. 100mm reduction

No significant impact on water levels downstream of the Thomas Telford Bridge

If removed it will likely re-form

Not cost beneficial

Recommend not progressing to Short List

Technical Screening

Direct Defences

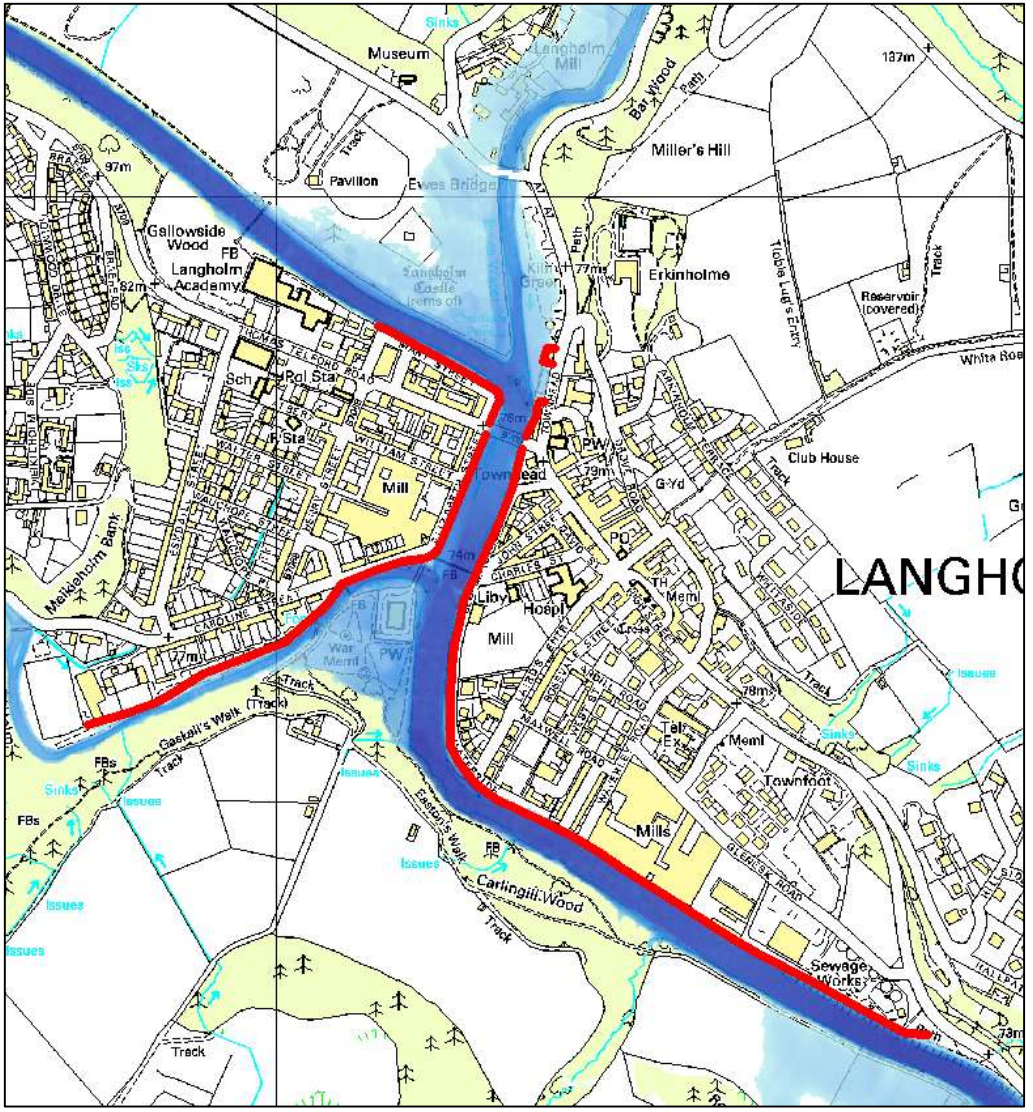
Will technically work

Cost beneficial

Alternative designs to minimise visual impact

Options to reduce heights

Recommend progressing to Short List



Technical Screening

Short List

Direct Defences

Direct Defences with diversion channel

Appraise Short List

Economically

Socially

Environmentally

Preferred Option