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Somerset Rivers Authority

River Brue modelling update

12th September 2025

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Introduction

- Substantial amount of work now complete in terms of modelling the baseline conditions and potential scenarios
- This has been a vital investment to produce the evidence base to allow future decisions to be made
- Considered short, medium and long term interventions
- Complicated catchment, and the model is essential in understanding what the wider impacts are from any works
- Further work required to be able to move the medium and long term interventions forward

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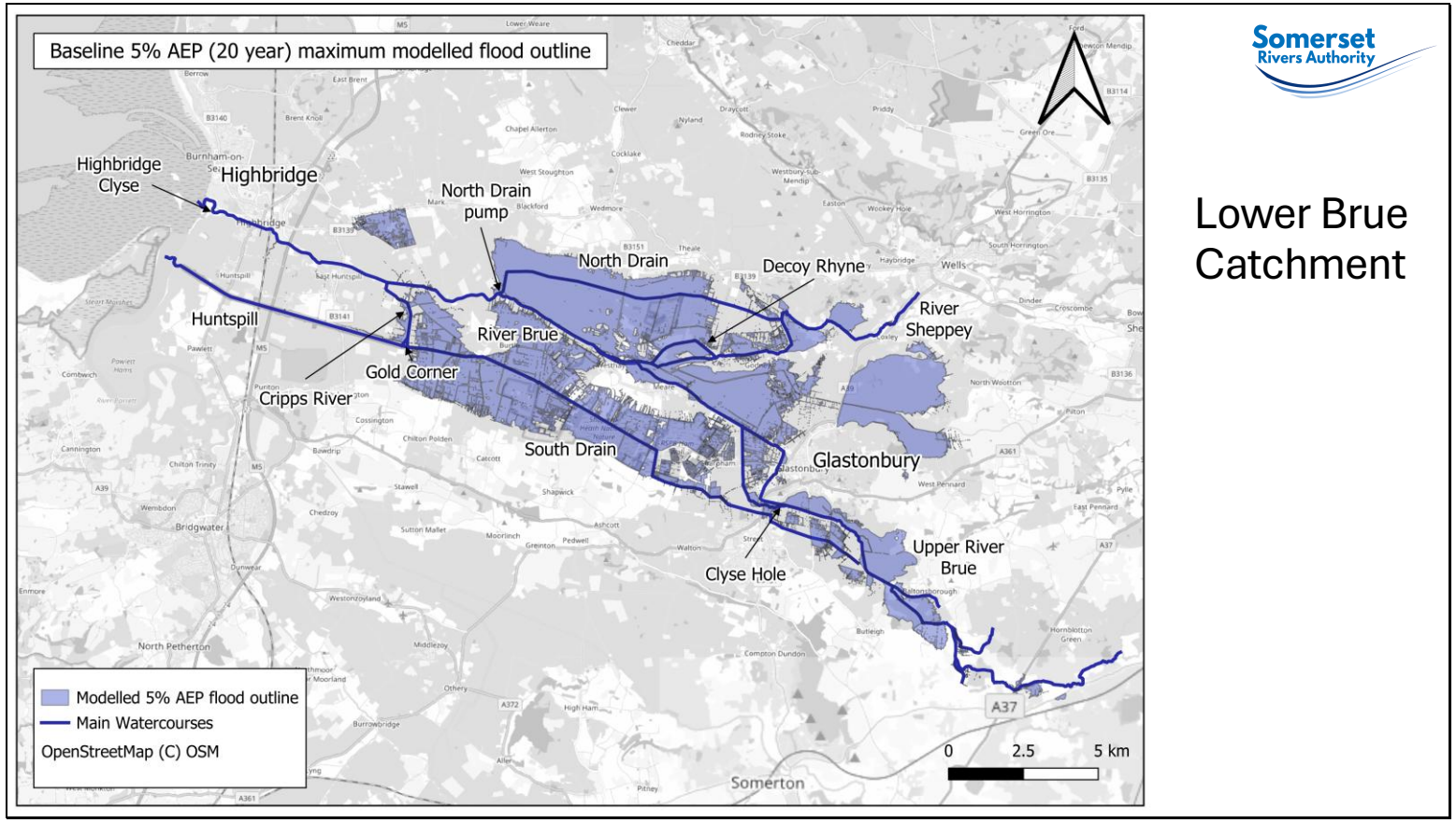

This map demonstrates the key aspects of the catchment. Main rivers are highlighted. Heavily modified system with watercourses not following natural routes. Different to some other catchments in the area as areas of low ground are then artificially connected to the sea through the higher ground at Highbridge. This makes these channels important in that they need to take all of the flow out of the system. Also have pumped catchments to enable this to happen. Highbridge Clyse and Huntspill Clyse act to stop tidal flooding into the catchment, otherwise there would be very regular inundation.

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Table of scenarios

ID	Option	Ran?	Positive result?
1	Lower Brue conveyance components	YES	Positive
2	Lower Brue conveyance combined	YES	Positive
3	Highbridge Clyse expansion	YES	Positive
4	Brue Banks low spot sense tests	YES	No Negative Impacts
5	Upstream flow slowing	YES	No
6	Mid Brue conveyance improvements	YES	Positive
7	Glastonbury Millstream	NO	Descoped
8	Decoy Rhyne conveyance improvements	YES	No Impact
9	North Drain conveyance improvements	YES	No Impact
10	Huntspill River level management	YES	Positive
11	Clyse Hole weir removal	YES	Negative Downstream Impact
12	Cripps River conveyance	YES	No Impact
13	Set back banks storage	YES	Positive

List of individual scenarios that have been tested. Positive result indicates an overall reduction in flood risk. The highlighted options were the ones taken forward. In addition it was requested to assess Decoy Rhyne improvements further to see if they would provide any additional benefits in combination with other works.

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Aware of localised bank erosion resulting in preferential overtopping. Concern that filling in these low spots could make flooding worse somewhere else, so needed to be assessed in the model.

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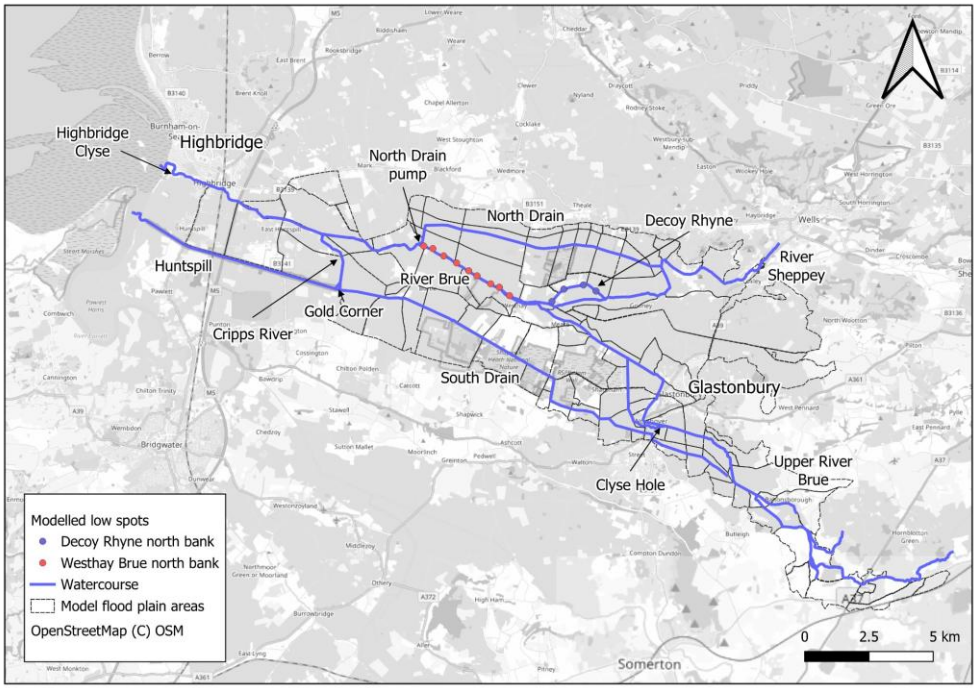
Low spots sensitivity tests

- Three tests simulated
  - Decoy Rhyne low spots
  - Brue – Westhay to North Drain low spots
  - Both of the above



Assessed approximate frequency of low spots based on Brue walkover survey around Westhay and applied this throughout with localised short sections of bank lowered in the model.

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Low spots sensitivity tests

Showed no change in peak water levels within the river channels greater than 10mm

Some isolated impacts to field flooding, but generally limited to areas directly adjacent to the low spots

Evidence that isolated low spots can be filled to levels of adjacent bank without concern of detrimental impacts elsewhere

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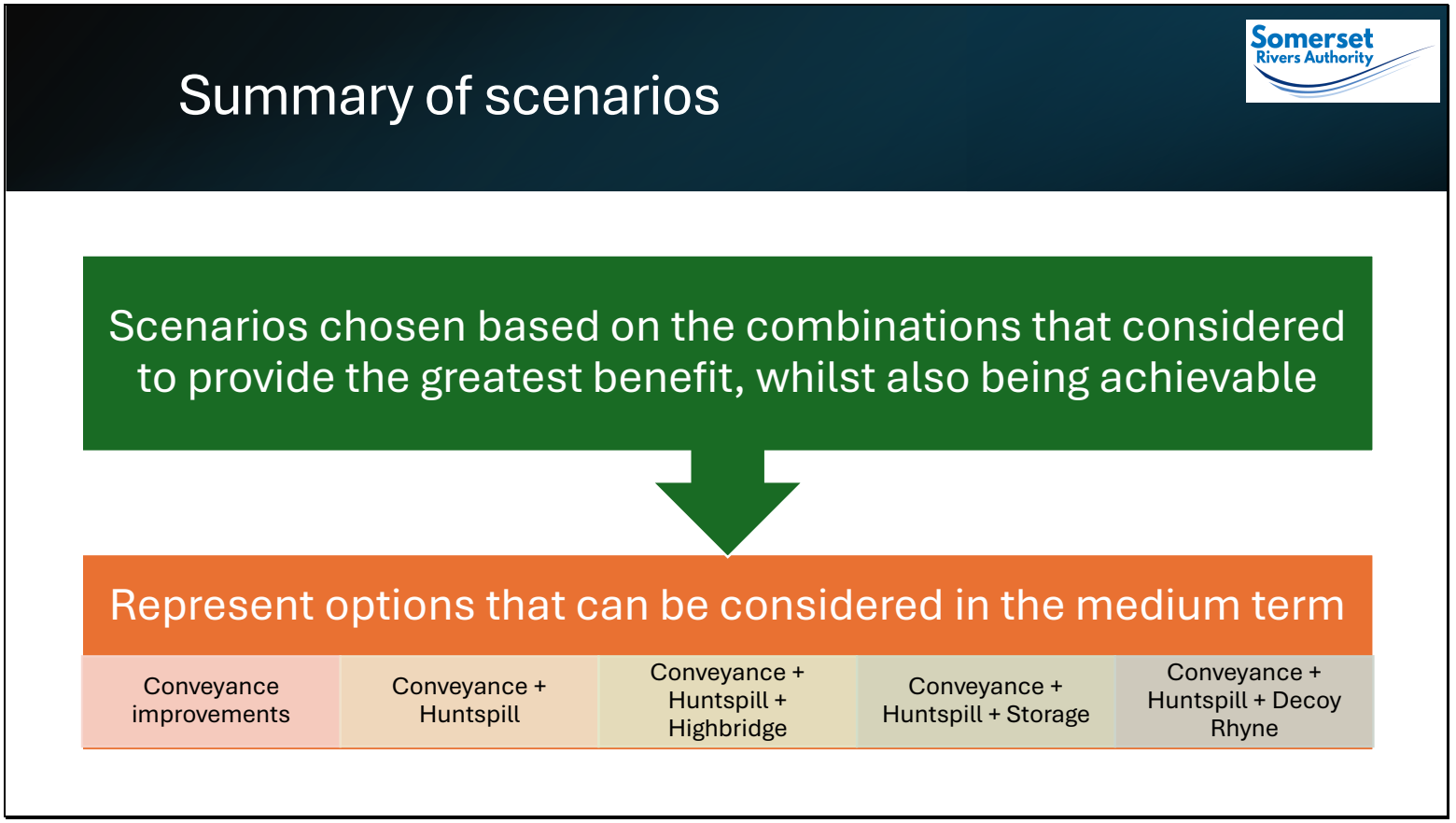

These are the preferred combination of scenarios which will be assessed further in terms of hydraulic benefits

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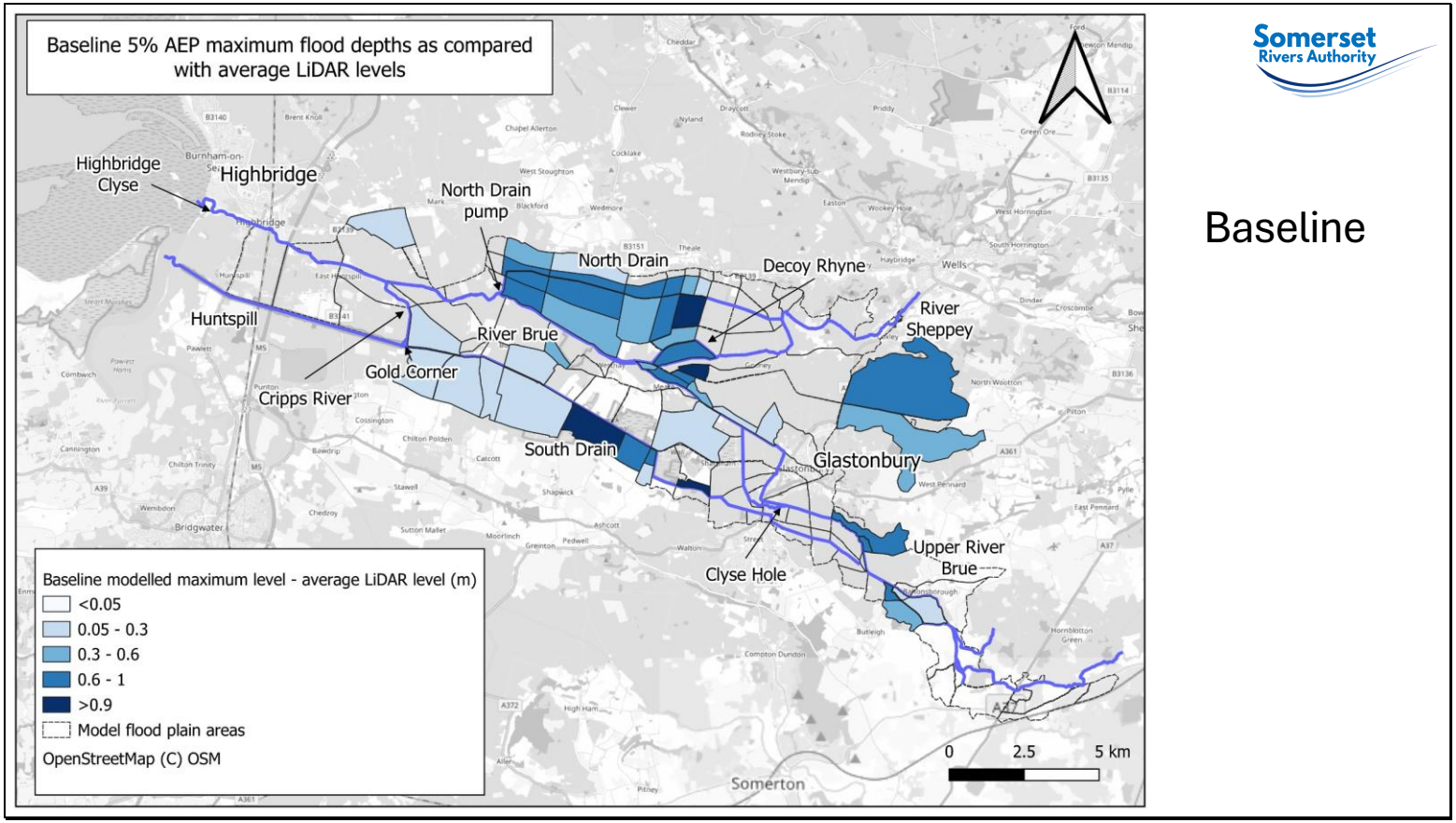

There are a lot of results that could be presented, but to simplify matters just the 5% (or 1 in 20) annual probability event is shown. The mapping just shows the average depth of flooding across different moor areas. That does not mean there isn't flooding in other areas, but it allows for an easy way to compare options.

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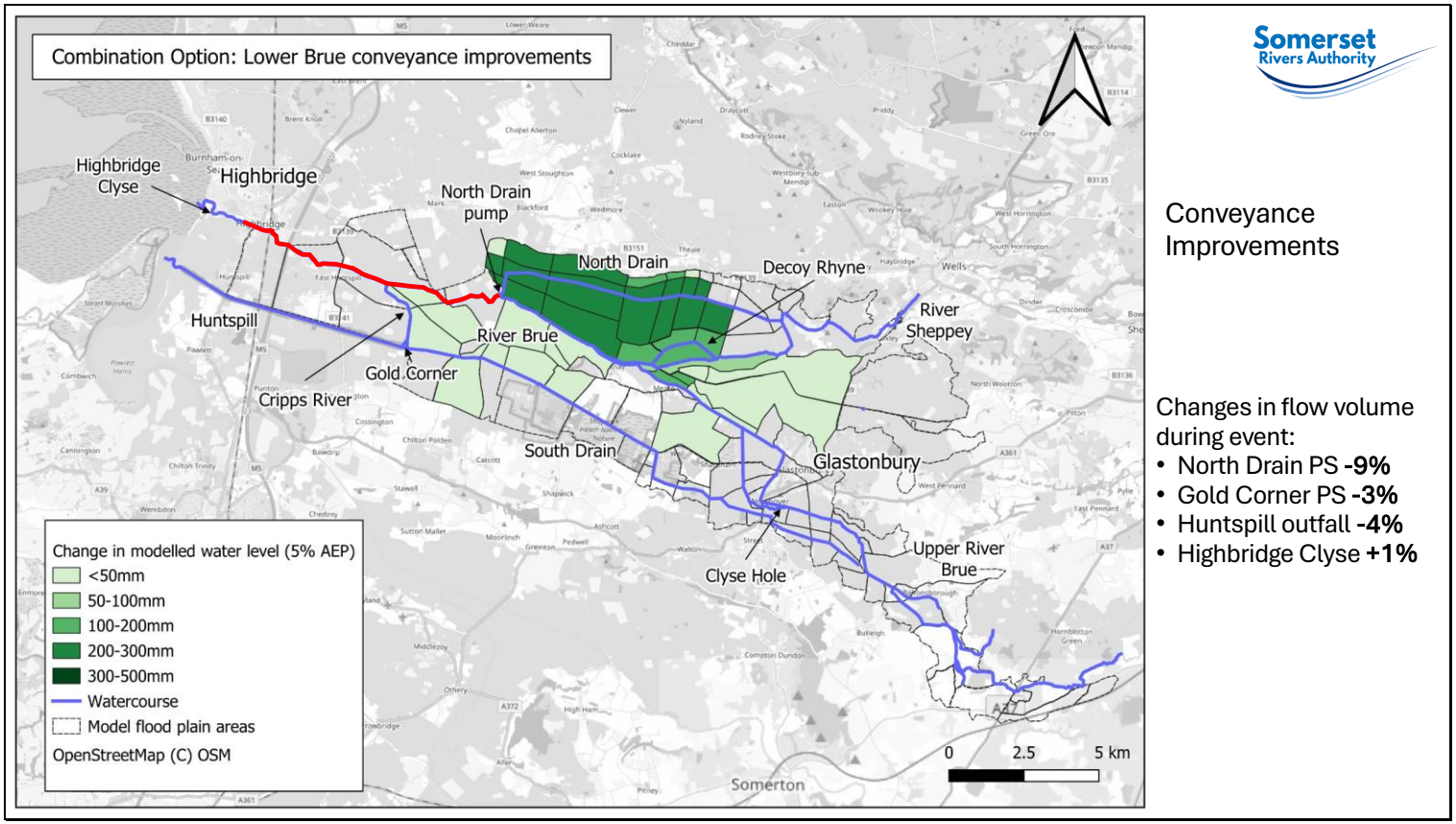

Conveyance improvements only. Initial investigations suggest the greatest benefit will come from addressing pinch points and encroachment on the Brue between North Drain and Highbridge Clyse. From now on results are compared against the baseline. The darker the shade of green the greater the reduction in depths. This is just the conveyance improvements which is based on assessing silt build up and pinch points in the system. These show the greatest benefit happening on the pumped catchment between the Brue and North Drain. This is primarily due to the greater flow being able to discharge by gravity and the pump becoming more efficient. Does overall reduce the amount of pumping required.

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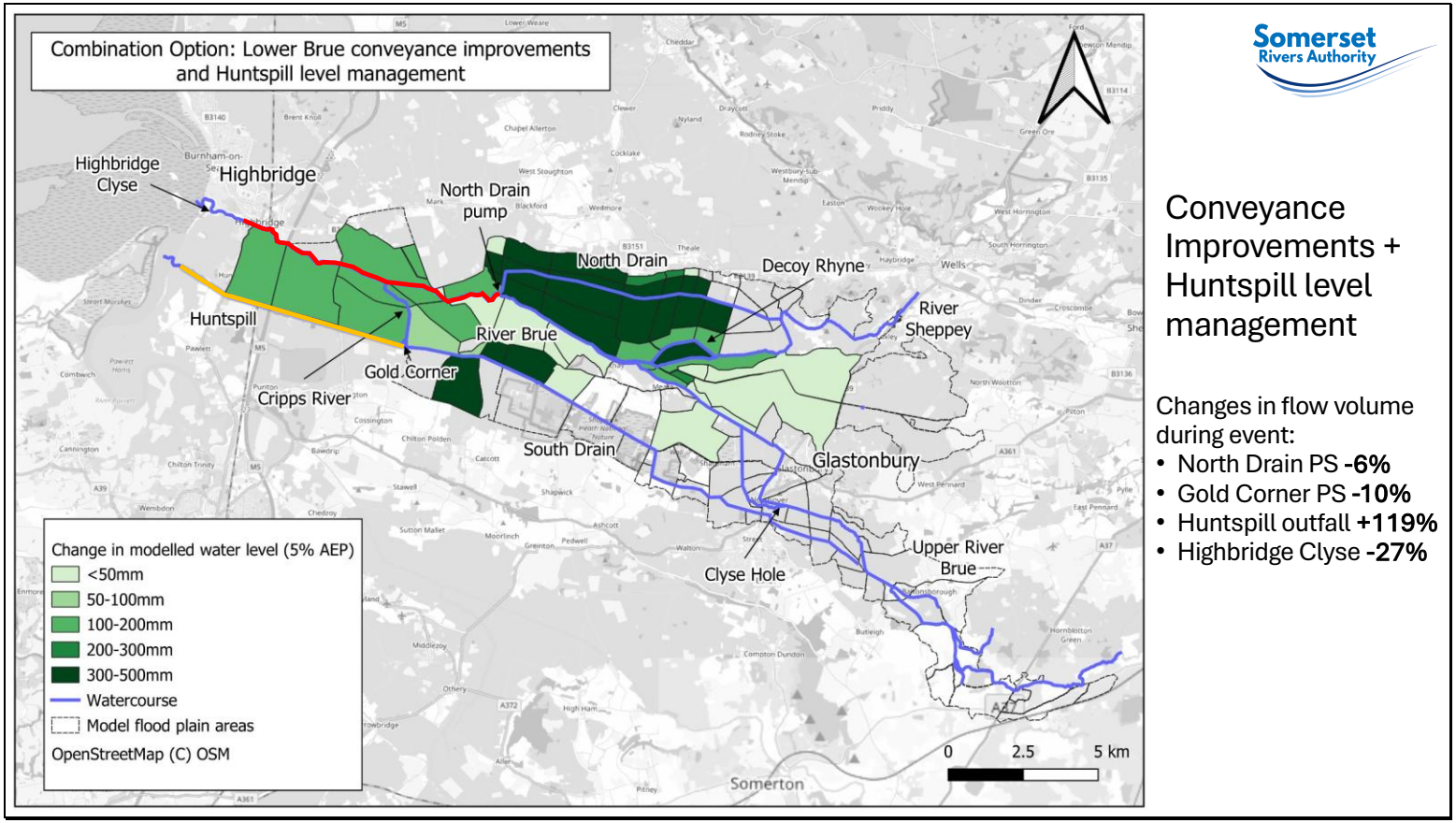

Conveyance plus Hunstpill. Work on the Huntspill will involve lowering of the retained water prior to a flood event. Additional benefits above doing the conveyance improvements shown. There may be difficulties with this due to siltation within the channel and environmental constraints. Provides significant additional benefit, especially to the pumped catchments, but also around Decoy Rhyne. Reduction in pumping at Gold Corner, yet much increased discharge from Huntspill. This is because with this lower level flow can enter the Huntspill via gravity without pumping.

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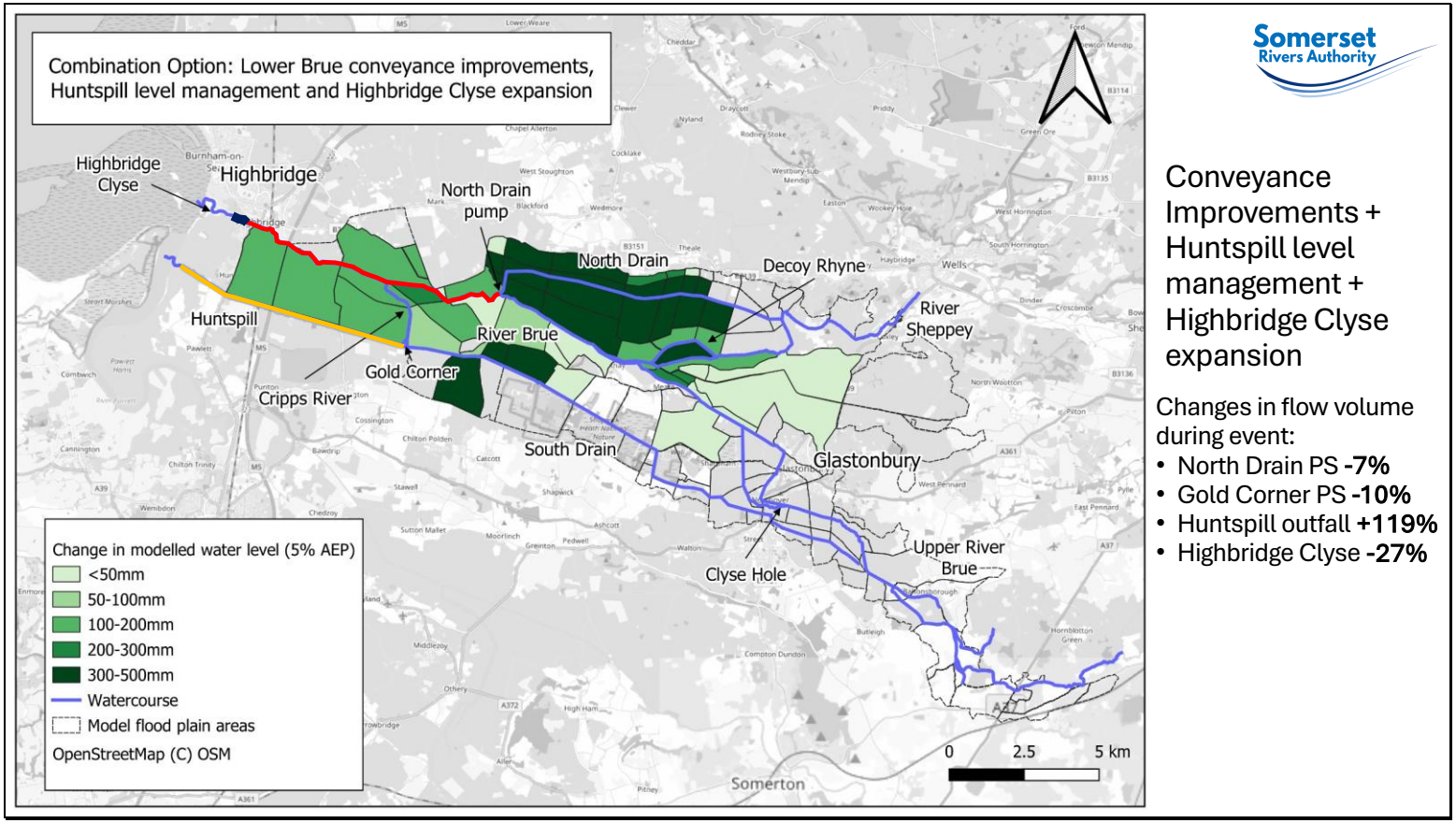

Conveyance + Huntspill + Highbridge. Widening Highbridge Clyse reduces a major constriction and provides additional conveyance at low tides. A much more challenging project to implement.

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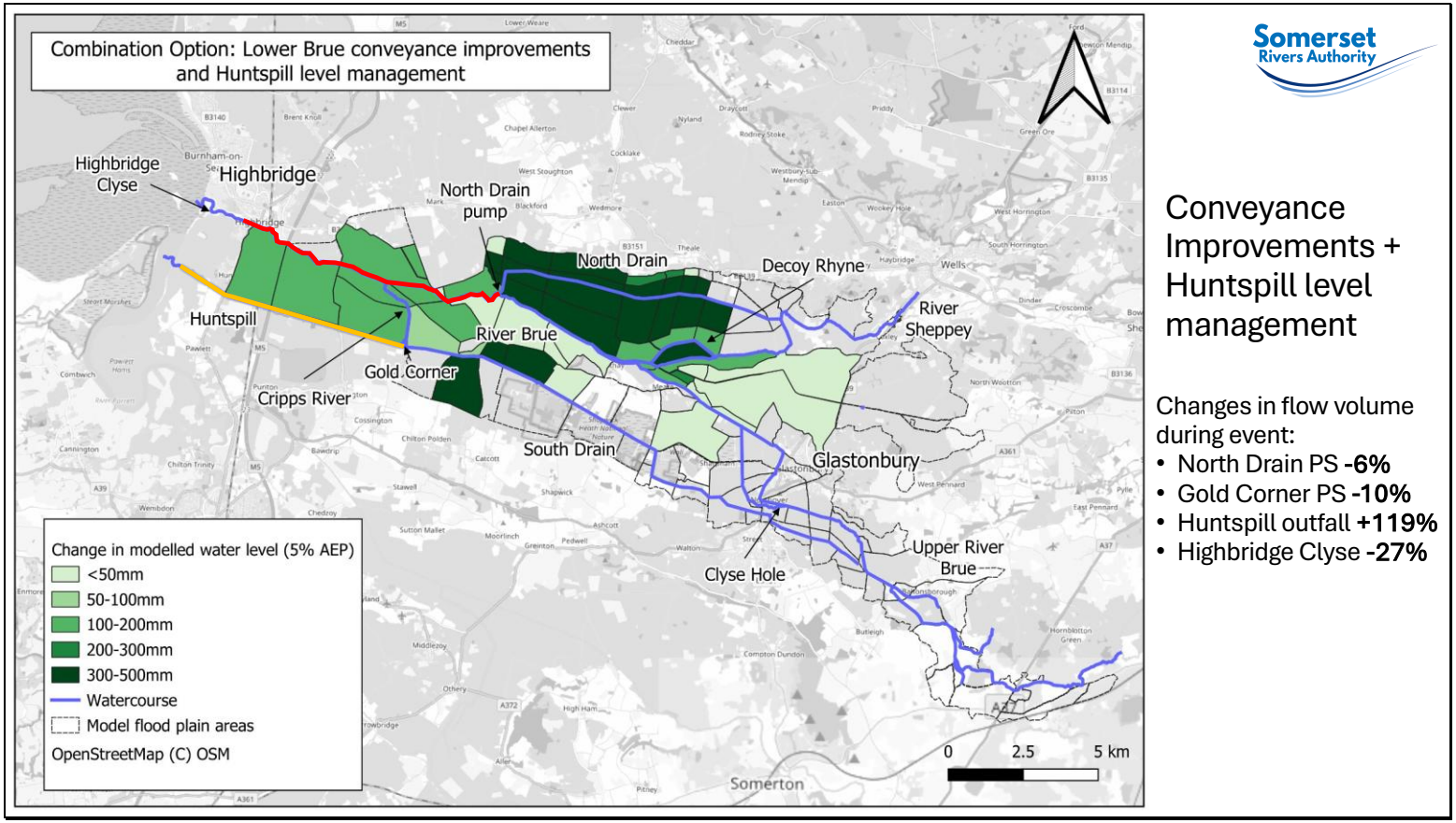

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Conveyance Improvements + Huntspill level management

Changes in flow volume during event:

- North Drain PS **-6%**
- Gold Corner PS **-10%**
- Huntspill outfall **+119%**
- Highbridge Clyse **-27%**

Just a repeat of a previous slide to allow easier comparison to next slide.

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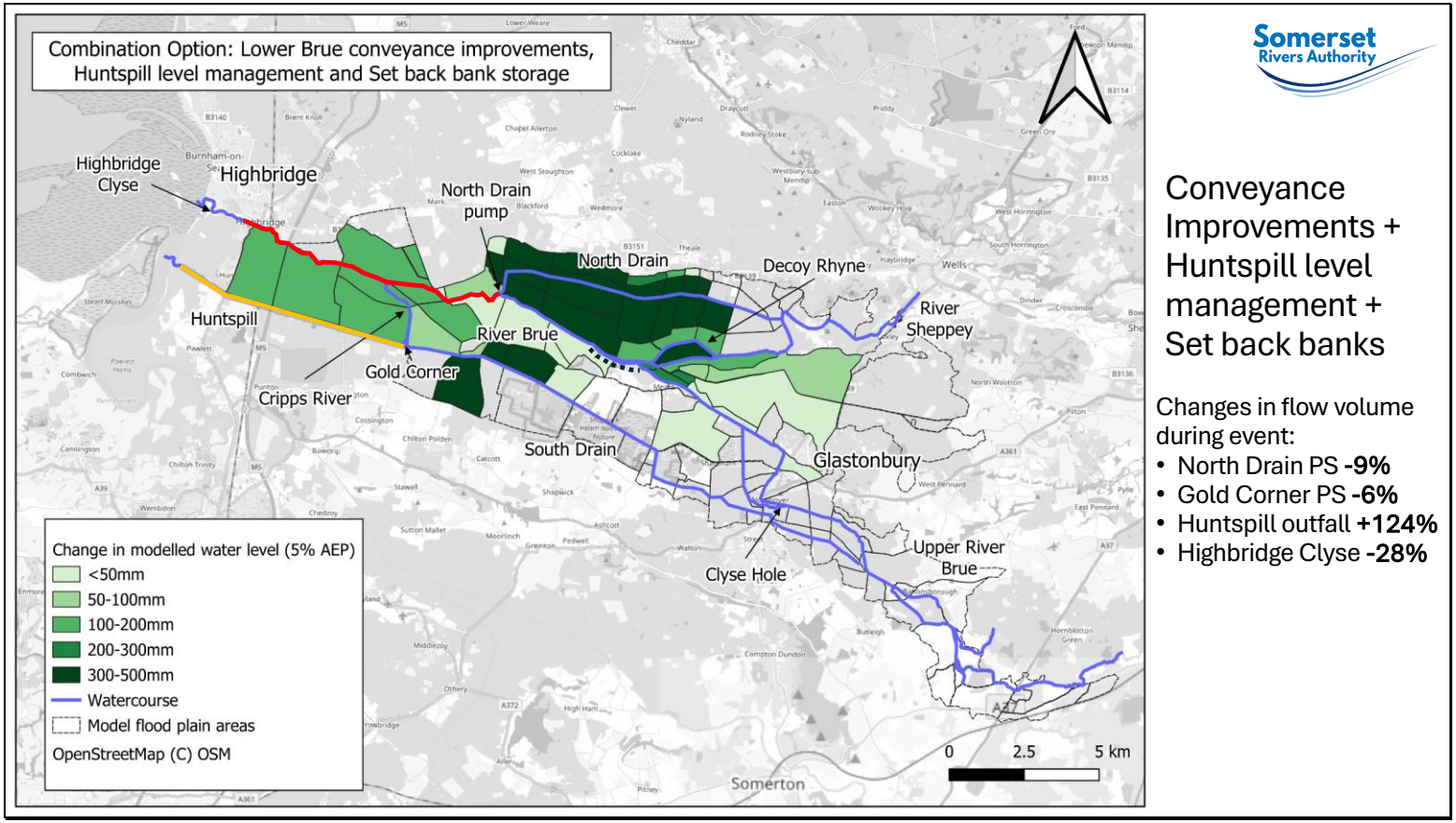

Conveyance + Huntspill + set back banks. The set back banks could be done at various locations along the Brue. This provides extra storage and also allow for the banks to be a lower height. Indicative of any option that increases storage along the Brue. Could be achieved in a variety of means. Doesn't provide a large additional benefit in this sort of event as the storage is used up early in the event, but still beneficial. Potential significant other benefits.

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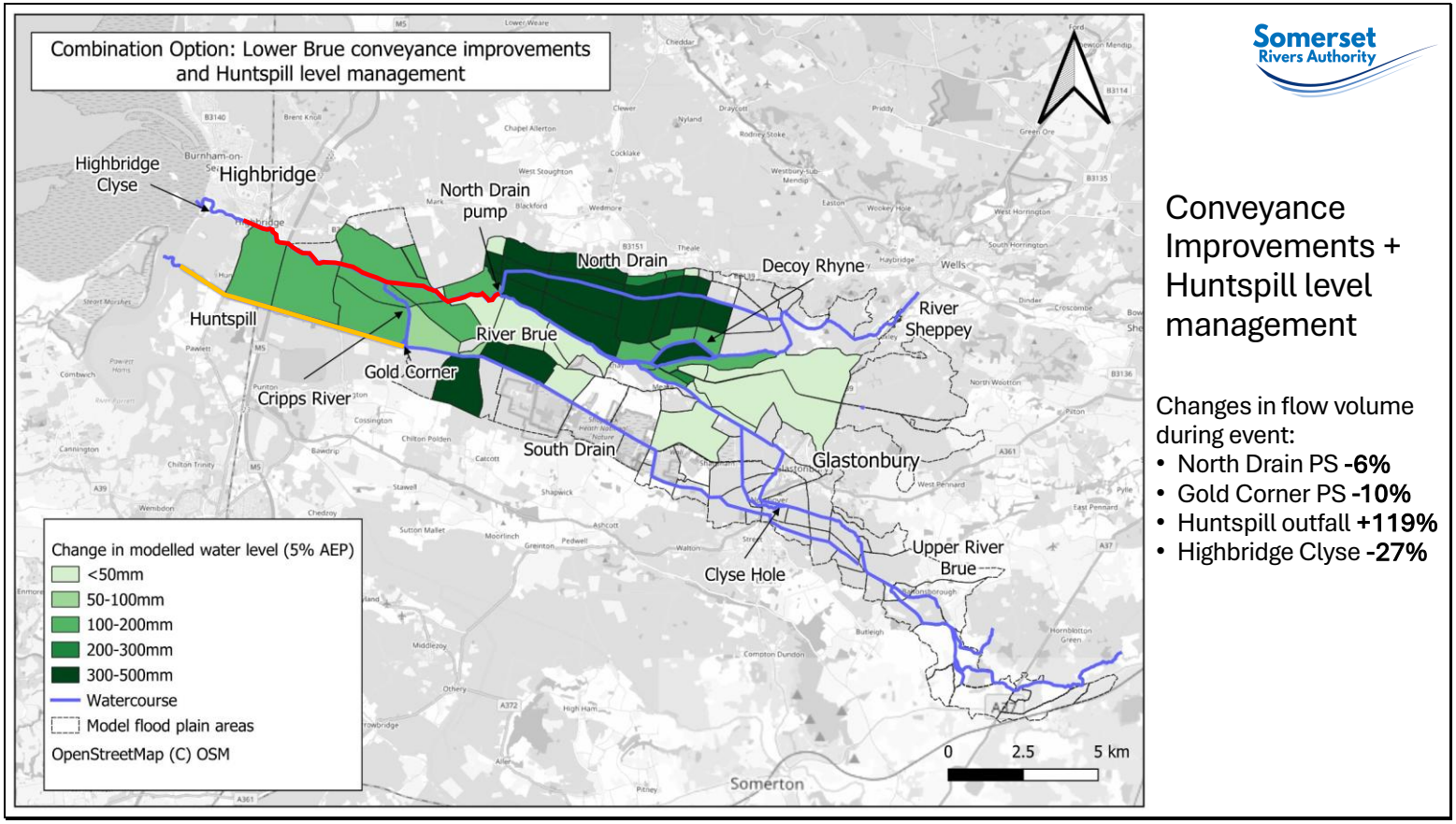

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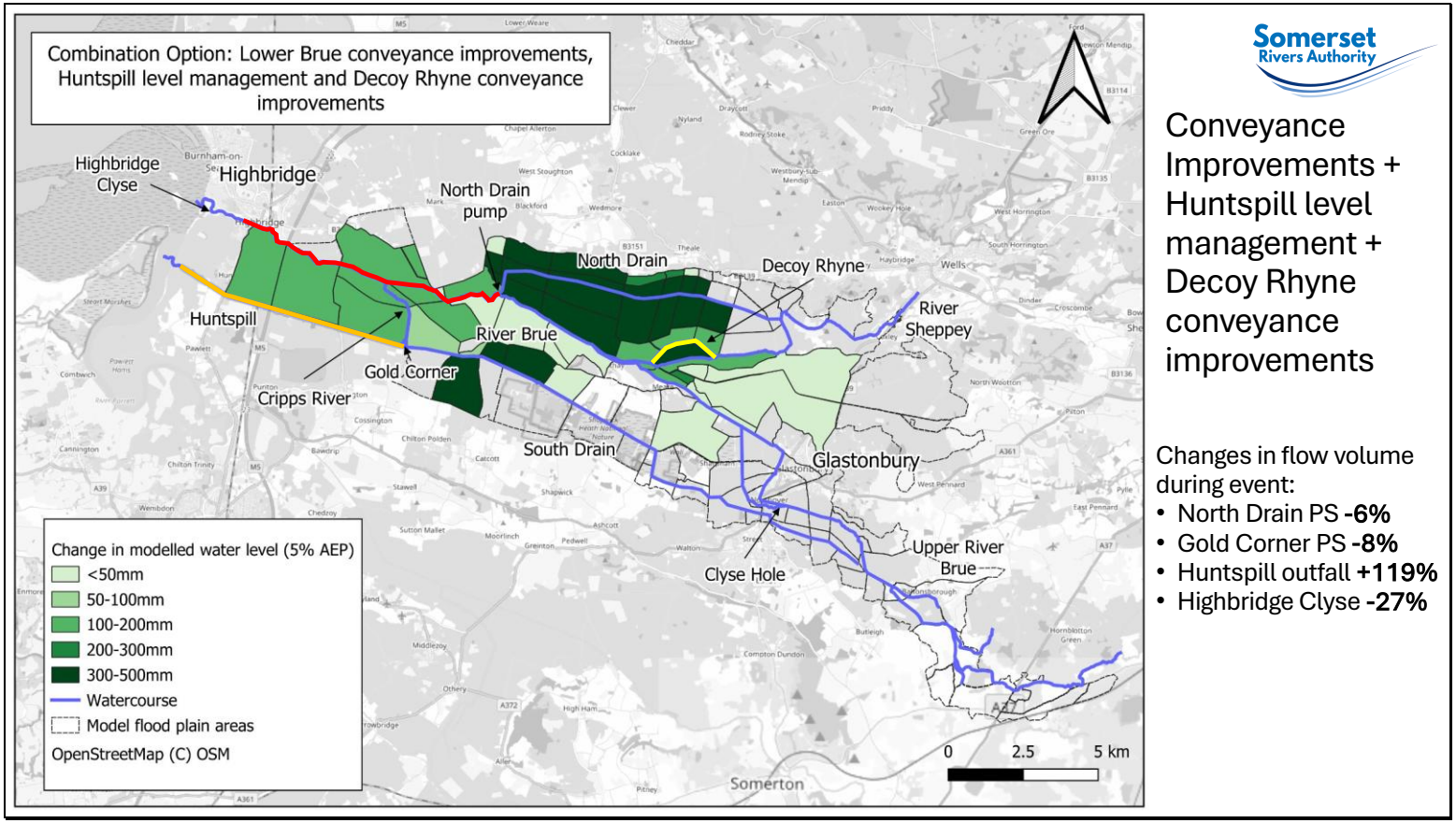
Another repeat slide to aid comparison

Slide 16



Conveyance + Huntspill + Decoy Rhyne. Included as this is perceived to be important, but on its own it was shown to have no downstream benefits. Negligible additional benefits in terms of flood risk from also doing works on Decoy Rhyne

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Next steps

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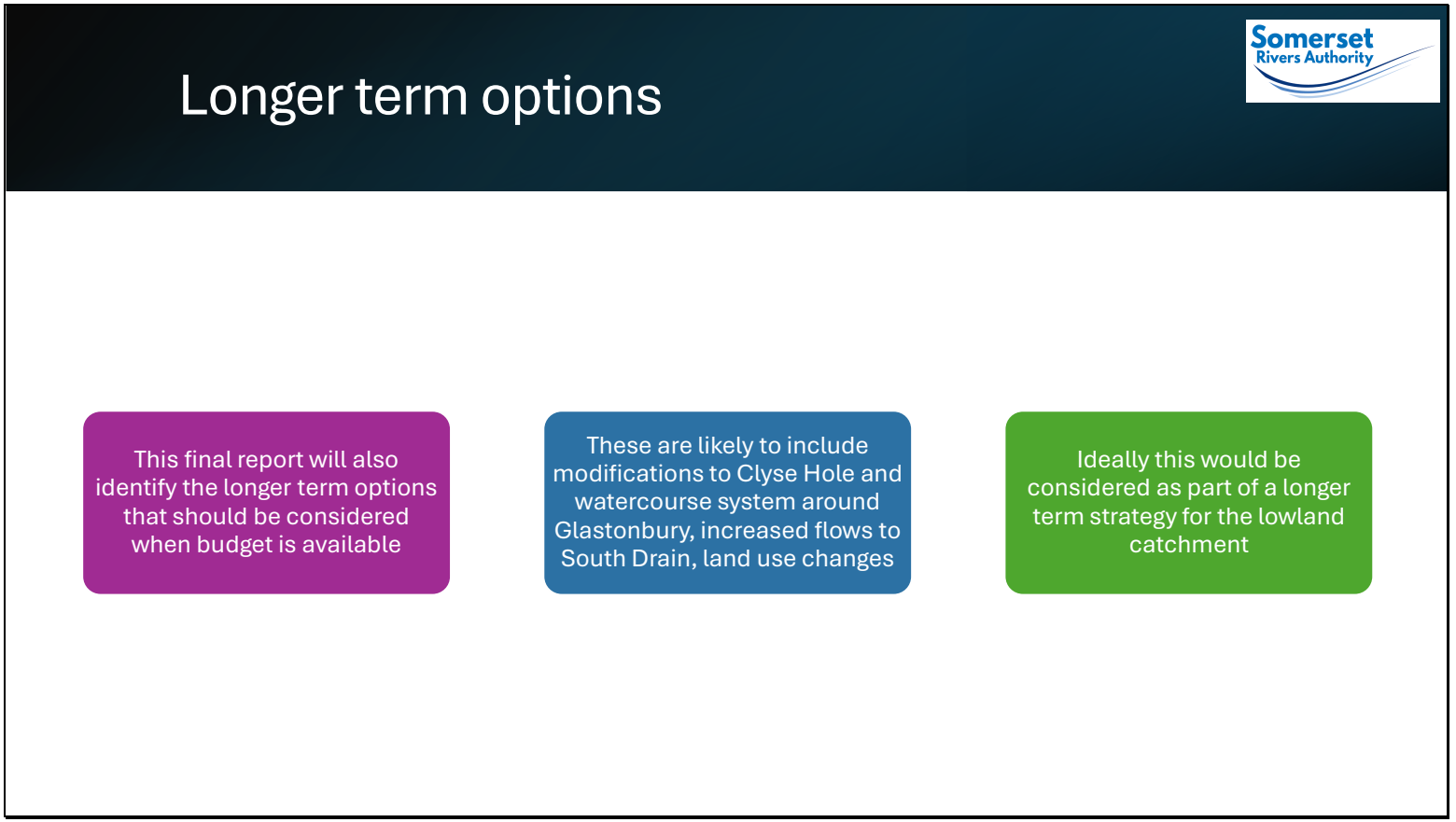

Options to look at as part of longer term strategy for this catchment. Potential for benefits other than just flood risk. Need partner organisation to be willing to take any option forward.

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