



The Lustrum Beck FAS:

Reducing flood risk at a catchment scale

- A wide ranging £3million flood scheme to reduce flood risk to 162 homes
- Flag ship project
- Phase one – Urban and more traditional flood defence techniques
- Phase two – Natural Flood Management and habitat creation
- Funding secured – Various sources and multiple partners
- MUST deliver 30ha of OM4a habitat



Lustrum Beck Flood History

1958



In September 2012, 150 homes were flooded, strategic road networks were badly affected and 1,200 homes experienced power cuts.

1979



2012



FCRM Project Mandate aims

- *Building partnerships with Stockton Borough Council and key stakeholders, with a view to explore external contributions*
- *Have a better picture of flood risk and reviewing the condition of the assets along Lustrum Beck, keeping in mind the parallel works proposed under WFD: exploring the duality of purpose of offline or online storage areas to improve the ecological status of the Lustrum Beck (mainly affected by diffuse pollution)*

Northumbria RBMP aims

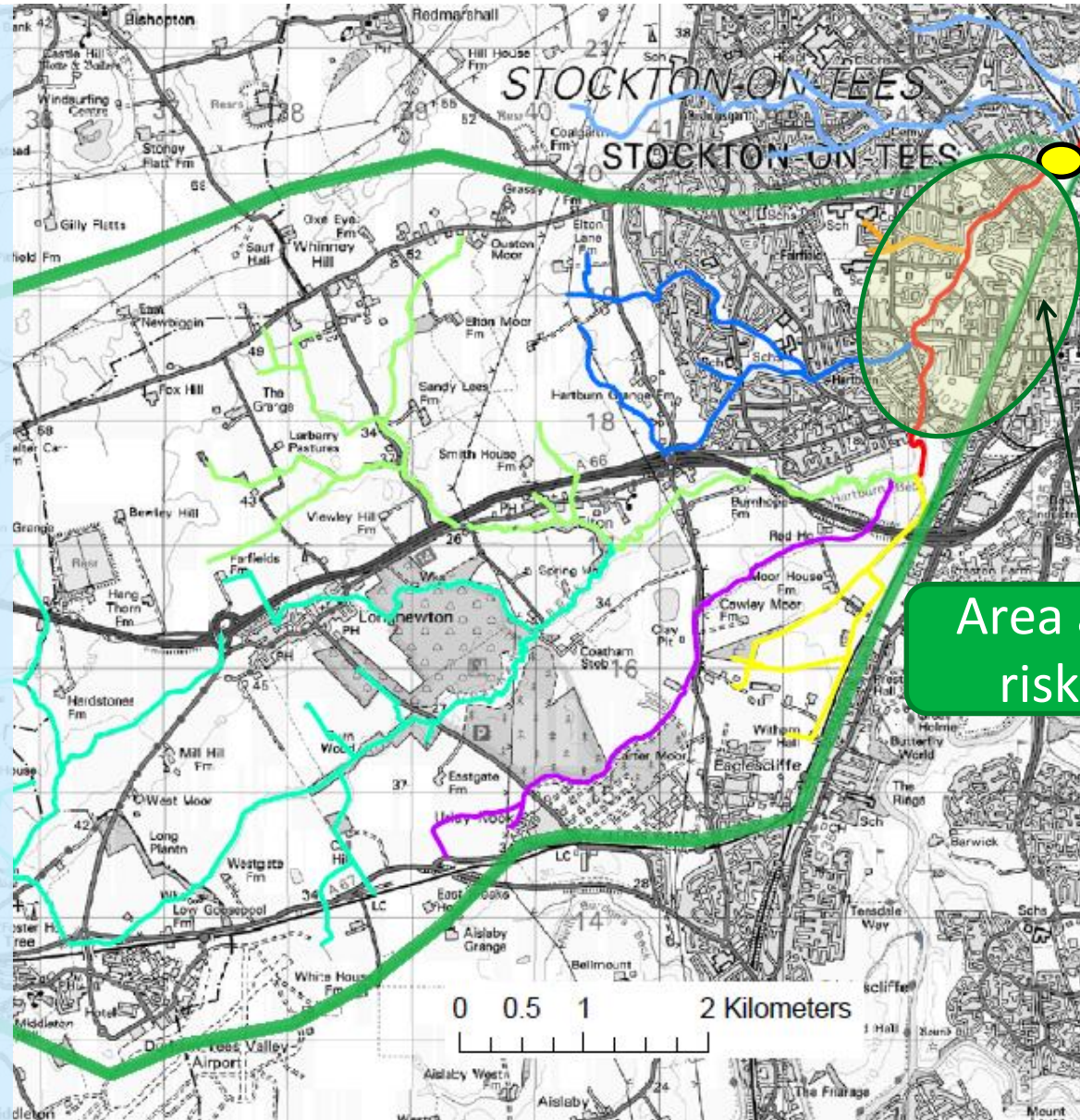
- *A Rural Lustrum Beck project, contributing to Natural Flood Management, habitat improvements and Rural Diffuse Pollution reduction upstream of Stockton*

Stage 1

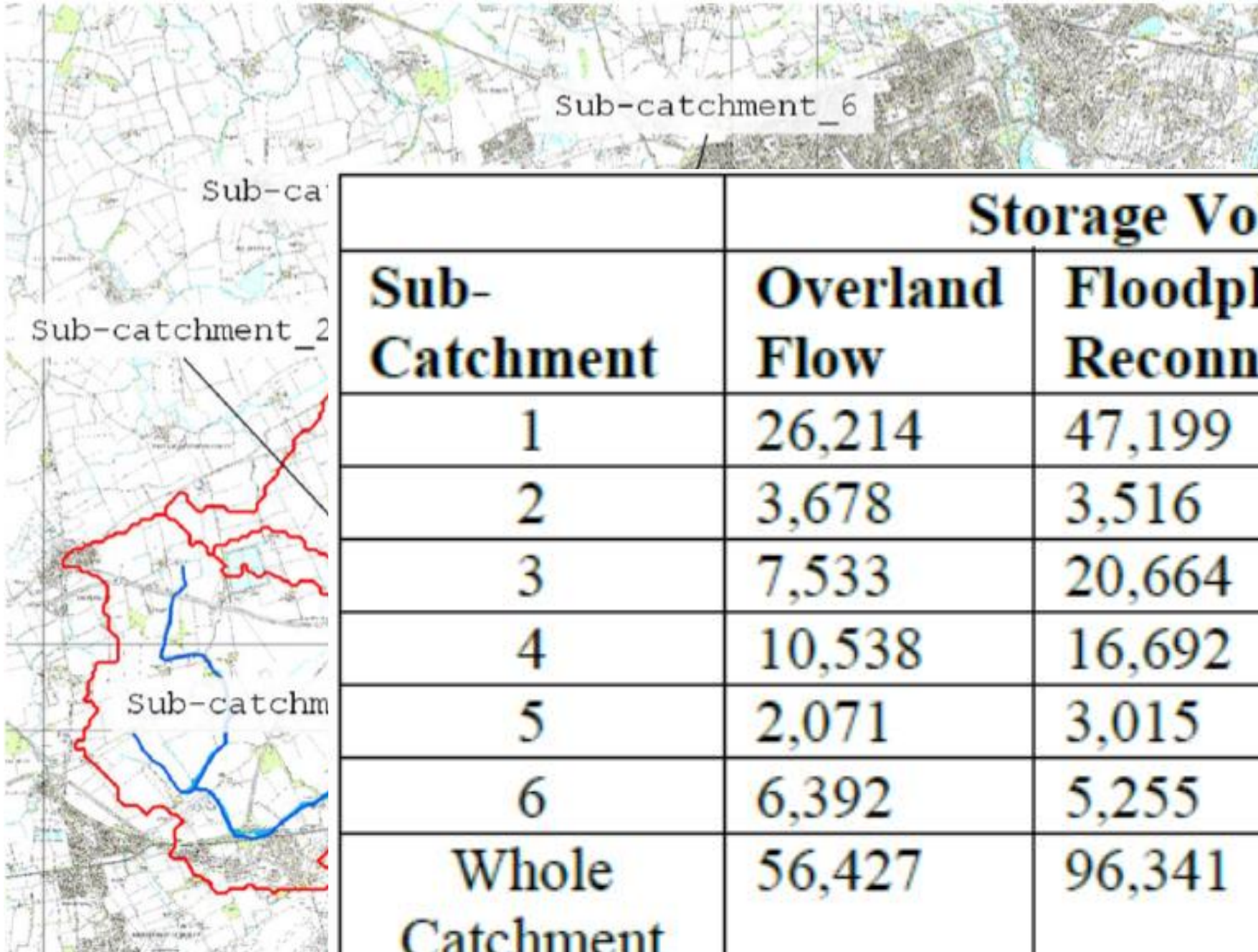
- *Completed in 2017 – comprised new and improved defences through the town and replacement of assets*

Lustrum Beck FAS

- ➔ Two phase scheme
- ➔ Phase 1: In town defences (complete)
- ➔ Phase 2: Natural flood management (delivery 2017-19)



Area at risk



1 storing water in the upper

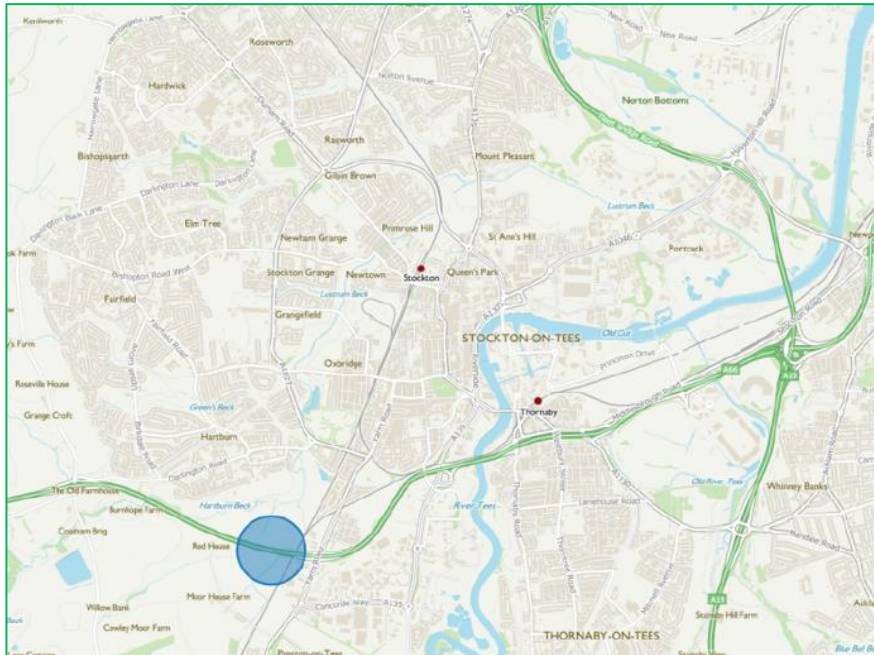
	Storage Volumes (m³)		
Sub-Catchment	Overland Flow	Floodplain Reconnection	Total
1	26,214	47,199	73,414
2	3,678	3,516	7,194
3	7,533	20,664	28,197
4	10,538	16,692	27,230
5	2,071	3,015	5,087
6	6,392	5,255	11,647
Whole Catchment	56,427	96,341	152,769

Targets for Stage 2

- *Maximise storage within the upper catchment to improve standard or protection*
- *Create 30ha of water dependent habitat*
- *Contribute to habitat improvements and rural diffuse pollution reduction*



The Lustrum Beck Solution: A66 Water Storage



Sixfields – Creation of water dependent

- A storage dam was investigated in 2003, it was not viable
- Therefore smaller scale, whole catchment solutions were investigated
- Opportunity for habitat creation



Sixfields – Creation of water dependent habitat



Sixfields – Creation of Water Dependant Habitat

Stockton - On - Tees Borough Council have been working in partnership with the Environment Agency to create water dependent habitat at Sixfields. This work is being completed as part of Phase II of the Lustrum Beck scheme, which follows on from work completed in 2017 in the Newtown area as part of Phase I of the Lustrum Beck scheme, from Lustrum Beck and its tributaries.

Here at Sixfields, we are creating 3 hectares of valuable wildlife habitat in the Hartburn Beck catchment. The project, expected to be undertaken in June 2018, will create species rich vegetation in the area that will occasionally be inundated with water. This will create an area of greater biodiversity that can be enjoyed by all local residents.

For more information about the Sixfields scheme, and dates when work will be happening please visit: www.stockton.gov.uk/flooding

We are also looking to deliver further habitat creation across the wider partnership through the Beck Flood Alleviation Scheme.

For more details about the project contact Dorian Latham, Project Officer, dorian.latham@stockton.gov.uk

The project is funded by the Environment Agency, Stockton-on-Tees Borough Council, Forestry Commission and Tees Rivers Trust

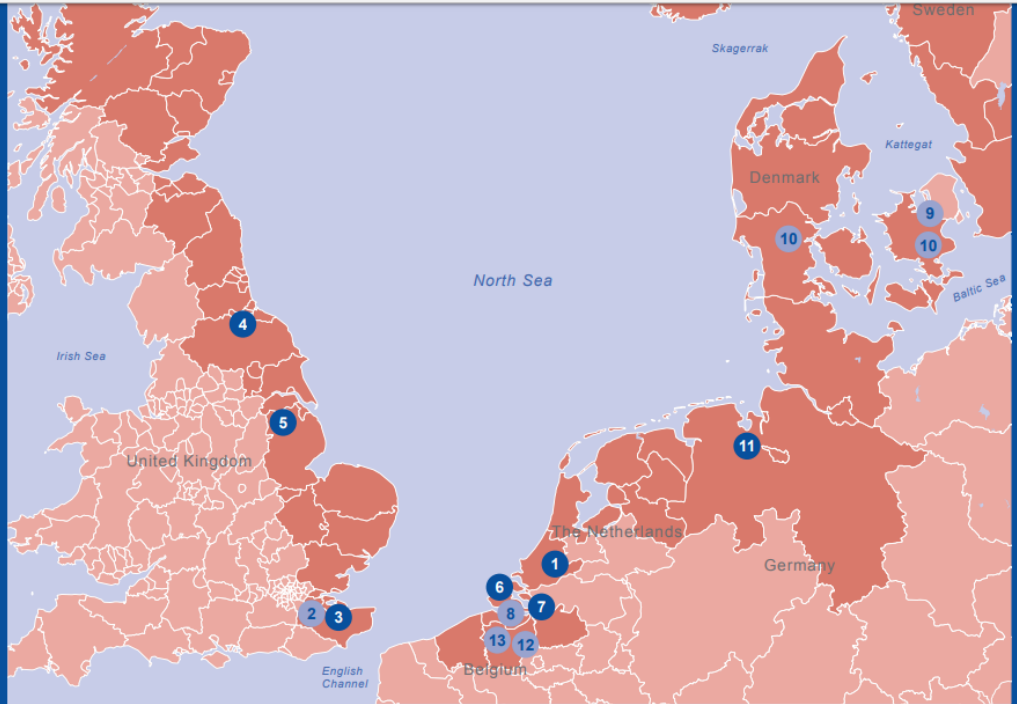


- Area 1: Water Habitat Creation**
Excavated area between 1.5m and 3.0m deep, covered with 10cm of silt for water dependent habitat. Excavation located to the south of the stream (shown in blue) to create a new habitat area. The habitat area will be planted with native species.
- Area 2: Water Habitat Creation**
Excavated area between 1.5m and 3.0m deep, covered with 10cm of silt for water dependent habitat. Excavation located to the north of the stream (shown in blue) to create a new habitat area. The habitat area will be planted with native species.





FRAMES pilots

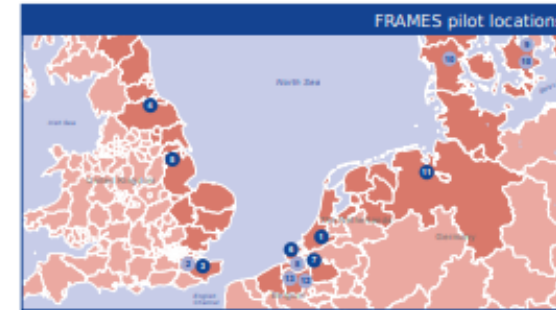


Pilots

- WP3
- WP4

- | | | | |
|---|---|---|---|
| 1 Alblasterwaard (NL)
Provincie Zuid-Holland | 5 Soutwell (UK)
The Rivers Trust, National Flood Forum | 9 Roskilde (DK)
Danish Coastal Authority | 12 Ninove South - Burchtdam (BE)
Provincie Oost Vlaanderen |
| 2 Kent (UK)
Kent County Council | 6 Floodproof electricity grid Zeeland (NL)
Provincie Zeeland | 10 Vejle & Solrød-Køge (DK)
Danish Coastal Authority | 13 Denderleeuw (BE)
Universiteit Gent |
| 3 Upper Darent (UK)
The Rivers Trust, National Flood Forum | 7 Reimerswaal (NL)
Provincie Zeeland, Rijkswaterstaat | 11 Wesermarch (DE)
Jade Hochschule, Oldenburgisch-Ostfriesischer Wasserverband | |
| 4 Lustrum Beck (UK)
The Rivers Trust, National Flood Forum | 8 Sloegebied (NL)
Provincie Zeeland | | |

1704/00102



Flood Resilient Areas by Multi-layered Safety FRAMES

FRAMES aims to reduce the impact of floods from sea, river and extreme rainfall to keep the North Sea regions economically and environmentally sustainable. Due to the effects of climate change, the impact from floods is likely to increase the physical, economic and social damage in flood prone areas.

Traditional flood protection measures may become less effective and sustainable in the future. FRAMES increases flood resilience by building on the Multi-Layer Safety (MLS) concept. In MLS different 'layers' of resilience (prevention, spatial adaptation, emergency response and recovery) are integrated to result in:

- Flood resilient areas: improved infrastructure and spatial planning measures
- Flood resilient communities: better prepared inhabitants and social stakeholders
- Flood resilient authorities: reduced recovery times and increased response capacity

Partners

Province of Zuid-Holland (Lead Beneficiary), Province of Zeeland, Rijkswaterstaat Zee en Delta, HZ University of Applied Sciences, Veiligheidsregio Zeeland, Kent County Council, Consortium Rivers Trust (Rivers Trust, Tees Rivers Trust, Trent Rivers Trust, National Flood Forum), Carl von Ossietzky University Oldenburg, Jade Hochschule, Oldenburgisch-Ostfriesischer Wasserverband, Province of Oost Vlaanderen, University Gent, Danish Coastal Authority.

🕒 1 October 2016 - 31 January 2020

Total budget € 6.924.911
ERDF contribution € 3.462.455

northsearegion.eu/frames

Sustainable North Sea Region: Protecting against climate change and preserving the environment

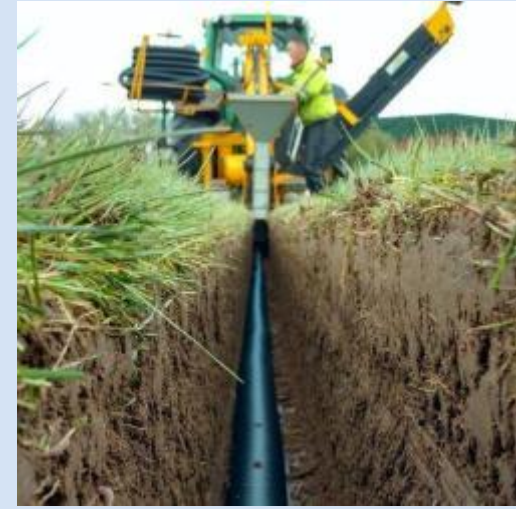
When this....



Ends up here....



This tends to happen...

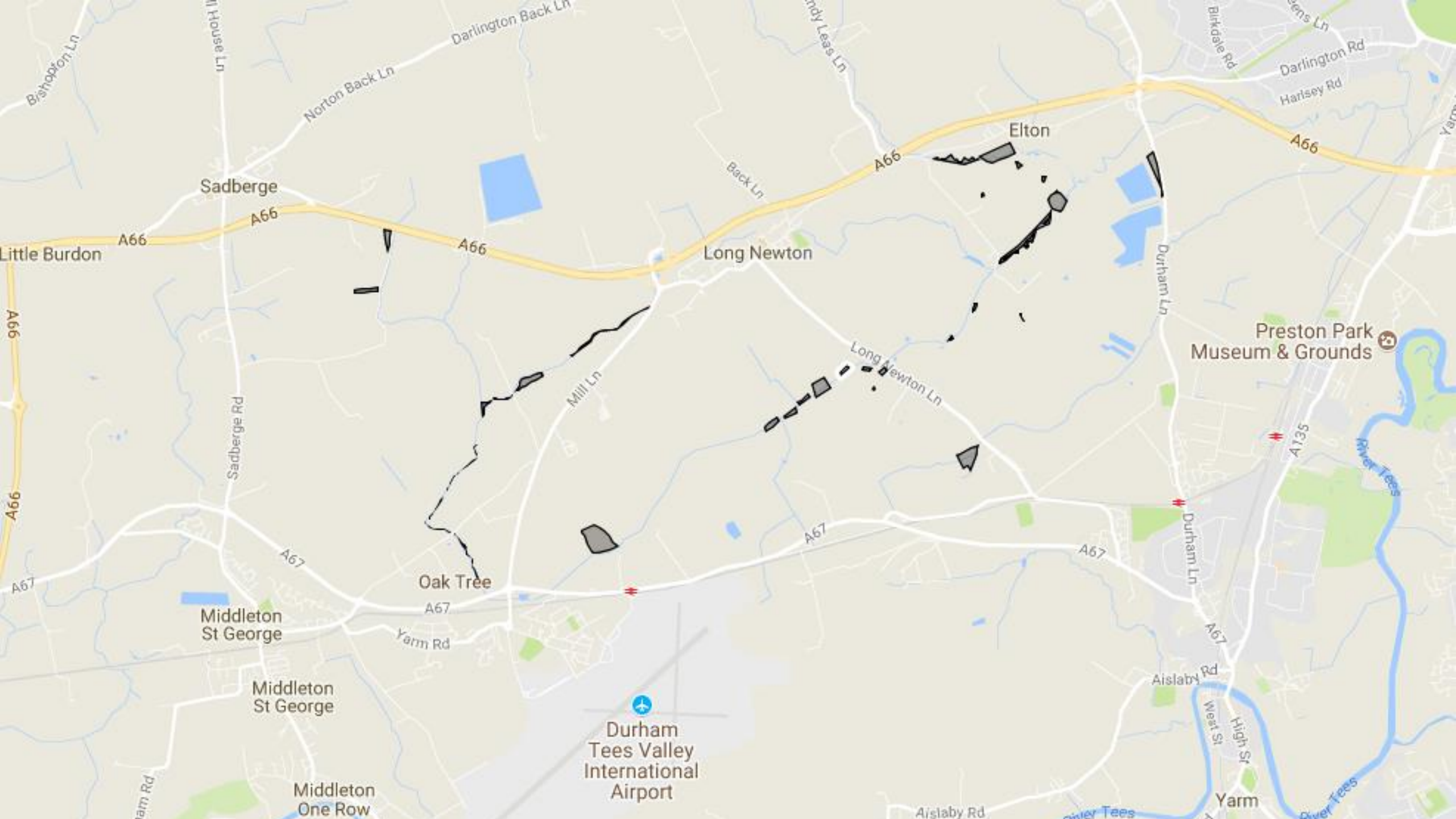


Instead of this...



Understanding water... Understanding flooding...





Bishopston Ln

Il House Ln

Norton Back Ln

Darlington Back Ln

Andy Lees Ln

Birkdale Rd

Sens Ln

Darlington Rd

Harley Rd

Sadberge

Elton

Little Burdon

Long Newton

Preston Park
Museum & Grounds

Middleton
St George

Middleton
St George

Middleton
One Row

Durham
Tees Valley
International
Airport

Yarm

A66

A66

A66

A66

A66

A66

Sadberge Rd

Mill Ln

Long Newton Ln

Durham Ln

A135

A67

A67

A67

A67

A67

Aislaby Rd

West St

High St

Aislaby Rd

River Tees

River Tees

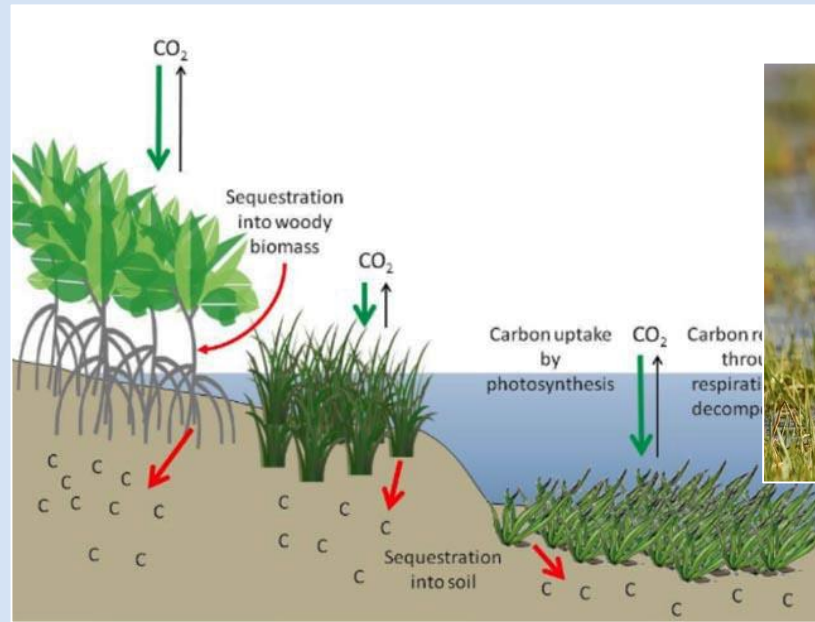
OM4a - What is it?

- ▶ ‘Priority habitats that are water dependent’
- ▶ Can include...
 - Ponds
 - Reed bed
 - Wet woodland
- ▶ Does not included deciduous woodland/grassland etc



What are the benefits of wetlands, woodlands and reedbeds?

- Carbon sequestration
- Improve water quality
- Reduction in flood impact
- Increasing and improving biodiversity
- Support rare and threatened species



Reducing sediment and nutrient rich run-off

- Intercepting and disrupting connectivity
- Makes good business sense
- Reduces risk to farms
- Forward planning ahead of potential changes in subsidy / payments for ecosystem services
- Reduces flood risk





Thank you!

Any Questions or Advice?

Ben Lamb and Dorian Latham

