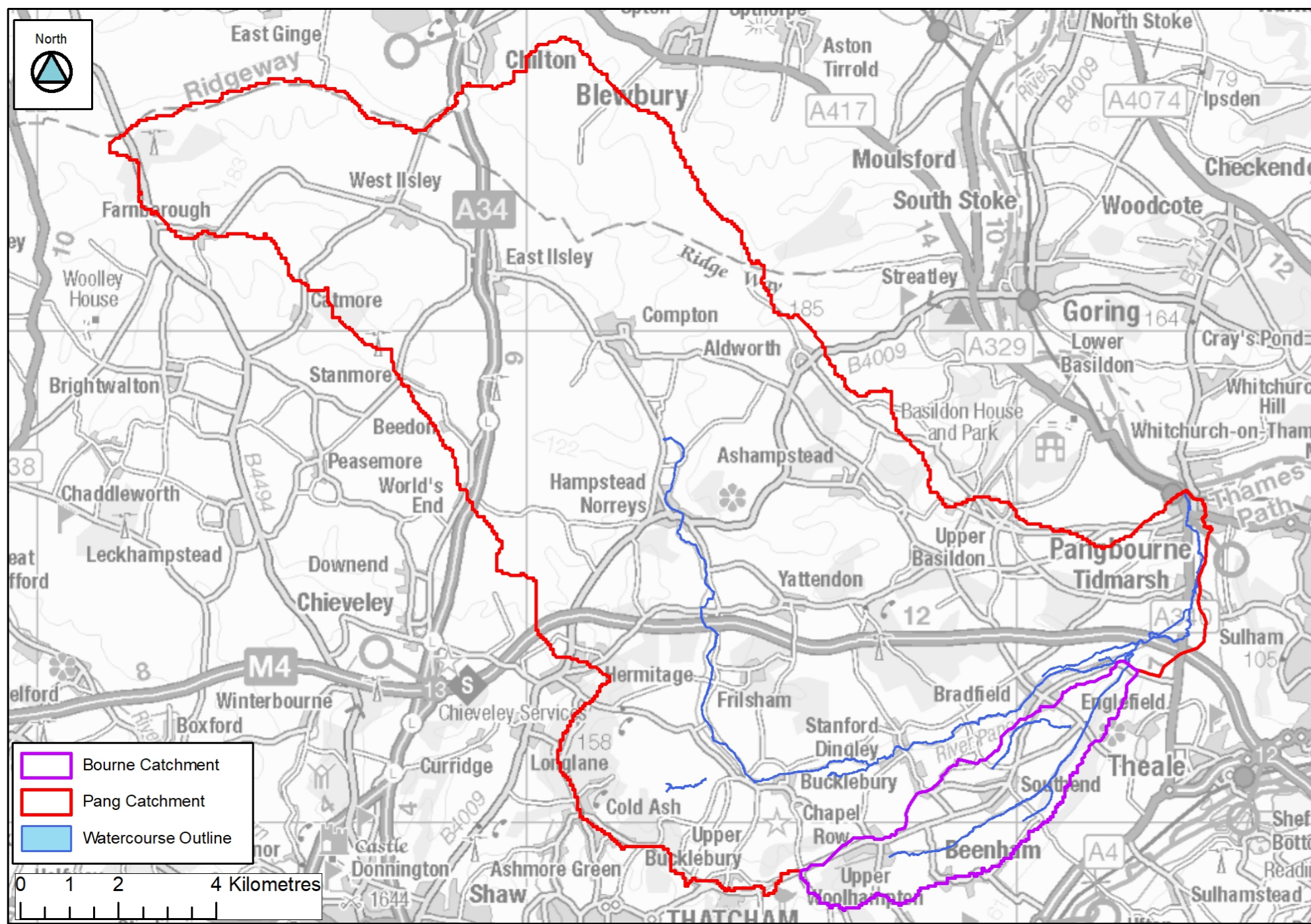


Catchment Overview

River Bourne is a tributary of the River Pang with its confluence situated upstream of Tidmarsh. Like the River Pang the River Bourne runs through mainly arable land draining 11km². However, unlike the River Pang the River Bourne is situated on top of a layer of London Clay making the catchment highly impermeable. Therefore, surface water flooding from direct runoff is a major contributor to flood risk within this catchment. There is still some groundwater influence however as the tributary runs back into the Seaford Chalk as it nears the River Pang.



Bourne NFM Scenarios

As part of this modelling approach; three NFM scenarios have been modelled.

- The first scenario is based on identified features by the Pang Valley Flood Forum (<https://www.floodalleviation.uk>). They have pre-identified potential NFM areas within the catchment for leaky barrier implementation and online bunds.
- For scenario two we have increased the number of identified potential areas throughout the catchment, this scenario does not consider any local constraints.
- Scenario three includes the Riparian buffer strip throughout the catchment as well as the interventions used in scenario 1 and 2.

Pang Valley Flood Forum Scenario 1

- 21 Leaky Barriers
- 3 Online Bunds

Increased Potential NFM Scenario 2

- 21 Leaky Barriers
- 3 Online Bunds
- 42 Additional Leaky Barriers

Riparian combination NFM Scenario 3

- 21 Leaky Barriers
- 3 Online Bunds
- 42 Additional Leaky Barriers
- 105,180m² Riparian Buffer Strip (alongside all watercourses)

It has been noted that the results show significant flood attenuation benefits for the initial implementation of the Pang Valley Flood Forum features. By significantly increasing the number of leaky barriers for scenario 2, the additional flood peak reduction is small. This is also the case for the inclusion of the riparian buffer strips. The scale of the reduction is diluted as the flood events increase in magnitude.

Surface Water Modelling

Direct rainfall dropped onto bare earth Digital Terrain Model (DTM) of catchment.

- Runoff determined by rainfall amount and intensity, slope, soil characteristics and initial wetness, land surface cover and condition.
- NFM features represented in model by changes to DTM (e.g. bunds, ponds, leaky barriers), losses to soil (e.g. infiltration), land surface roughness (e.g. vegetation).
- 'Before NFM' and 'After NFM' discharge hydrographs can be generated at multiple locations across catchments.

