

## About the Settlement/ village

<b>Village name</b>	Vernham Deane, Upton, Hurstbourne Tarrant, Stoke, St Mary Bourne	<b>District</b>	Test Valley/ Basingstoke and Dean	<b>Catchment(s)</b>	Test and Itchen
<b>Ward name</b>	Bourne Valley (BV) /Highclere Bourne (HB)				
<b>No. Residential properties: (By ward)</b>	891 (BV) 1293(HB)	<b>No. other buildings (by ward)</b>	1212 (BV) 1513 (HV)	<b>Critical Infrastructure (Ward)</b>	14 (BV) + 15 (HB)
Estimate by settlements	957	<b>By settlements</b>	783		

## About the Local Groundwater Flood Risk

Areas at risk of groundwater flooding in Hampshire have been given a risk ranking based primarily on the number of properties which were reported to have flooded during 2000/01. This includes internal groundfloor flooding and basement flooding, and external flooding by sewage. Other factors, including potential flooding to roads and critical infrastructure and actions taken since 2000/01 to reduce flood risk have also been taken into consideration. The ten areas with the highest rank have been assigned a 'high' groundwater flood risk and have had village specific action plans developed. The Bourne Rivulet Villages have currently been ranked as number 10.

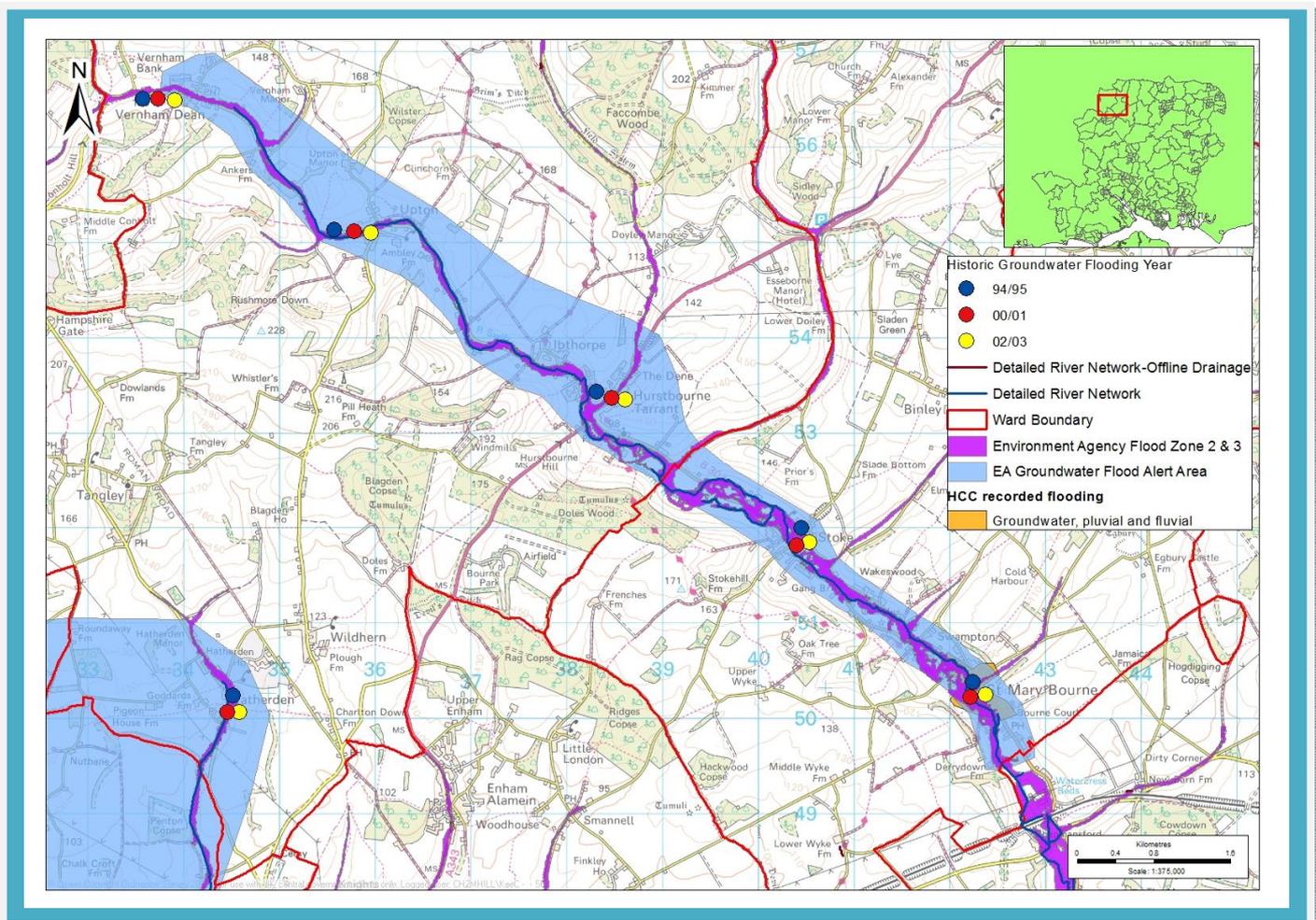
**Overall local flood risk for groundwater** | High

## Other local flood risk assessment

Ranking of ward by local flood risk and the measures identified to manage the risk (LFRMS)	33 (BV) 9 (HB) out of 248	EA surface water	Moderate/Significant
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## Flood risk to property from rivers and sea (based on Environment Agency flood maps)

Identified community	Vernham Dean, Stoke, St Mary Bourne
Communities at risk ranking (EA database)	82, 71, 21
Number of properties at significant or moderate flood risk	0, 6, 55,



## Summary

### Flood incidents recorded

The Bourne Rivulet Villages have a history of groundwater flooding, with some households impacted by backing up of sewage into their homes. During periods of high groundwater, the foul sewerage system in and upstream of St Mary Bourne, Hampshire, experiences infiltration which causes it to become overloaded with water.

Type of flooding: Ground floor flooding, cellar flooding, sewage surcharge.

Thirteen properties flooded in 2000/01 (excluding external 'clean' flooding): 5 properties with cellar flooding and 6 with ground floor flooding. Two properties were flooded externally by (sewage) contaminated water.

### Settlement characteristics

Residential area with surrounding countryside, woodland and agriculture.

Critical infrastructure within each ward includes:

Bourne Valley	Highclere and Bourne	Linear selection around the Bourne Rivulet Villages
5 x Electricity Substation	10 x Electricity Substation	6 x Electricity Substation
3 x School	1 x School	3 x School
6 x Pumping stations	3 x Pumping stations	3 x Pumping stations
	1 x Medical Centre	1 x Medical Centre
NO AMBULANCE. NO FIRE AND RESCUE. NO POLICE. NO AIRPORT	NO AMBULANCE. NO FIRE AND RESCUE. NO POLICE. NO AIRPORT	NO AMBULANCE. NO FIRE AND RESCUE. NO POLICE. NO AIRPORT

The Bourne Rivulet starts its course around Vernham Deane, travelling through Upton, Hurstbourne Tarrant, Stoke and St Mary Bourne respectively before joining the River Test about 5km south east of St Mary Bourne.

Landscape, biodiversity and cultural heritage features and designations within 2km:

#### *Cultural heritage features:*

- Fosbury camp (Scheduled Monument)
- Iron Age enclosure and associated earthworks in the north east corner of Blagden Copse (Scheduled Monument)
- Banjo enclosure, two barrows and associated field system in Blagden Copse (Scheduled Monument)
- Bowl barrow 120m ESE of The Croft (Scheduled Monument)
- Egbury camp (Scheduled Monument)
- Large number of listed buildings: <http://www.britishlistedbuildings.co.uk>
  - 54 in Vernham Dean
  - 121 in Hurstbourne Tarrant
  - 91 in St Mary Bourne
- Hurstbourne Park (Registered Park and Garden)

#### *Biodiversity features:*

- Rushmere & Conholt Downs Site of Special Scientific Interest (SSSI)

#### *Landscape features:*

- North Wessex Downs AONB
- 2 Sites of Importance for Nature Conservation (SINC)
- 2 Biodiversity Opportunity Areas

#### *Other environmental:*

- Groundwater and Eutrophic Nitrate Vulnerable Zones
- Test Valley Environmentally Sensitive Area
- Rivers Test and Itchen Priority Catchment (Catchment Sensitive Farming Capital Grant Scheme Target Area and Catchment Sensitive Farming Delivery Initiative 2011-2014)

## Future risk

### Detail of future risk, plus objective assessment of climate change on risk

Most climate change models indicate that we are likely to experience drier summers, albeit with more intense rainfall when it occurs, and wetter winters. There is a view that groundwater recharge may decline by 5-15%. However, as groundwater flooding occurs primarily as a response to extended periods of rain during late autumn and early winter, there may be an increased risk of groundwater flooding. This is far from certain and the buffering effect of increased groundwater storage (due to lower overall recharge) may mitigate any such effect.

Note on areas of development: Specific policies should be considered by the Planning Authority to control development within this risk area. This should involve suitable property resilience levels until such time as the source, pathways and receptors are understood at a detailed enough scale to ensure that any new development is not at risk of flooding.

Infiltration drainage should be avoided unless it can be clearly demonstrated it will not have a local impact through increased groundwater rise. Septic tanks should also be avoided unless it can be demonstrated that they can operate successfully during periods of extreme groundwater level.

### Measures delivered to reduce risk since 2000/2001

#### What has happened?

Action	By Whom	When	Constraints
Improvements to the Environment Agency Flood Warning Service- Telemetry borehole installed at Vernham Dean (SEE BELOW)	Environment Agency	Following a minor flooding event in spring 2007 the groundwater flooding procedures for Solent and South Downs were updated with new telemetry trigger levels for the new purpose drilled boreholes and refined procedures for some sites.	Although groundwater flooding cannot be accurately predicted, notice of high levels can be provided in sufficient time to avoid some damage.
Development of St Mary Bourne Infiltration Reduction Plan. The plans sets out over the short, medium and long term the actions SW believes are necessary to tackle the problems in St Mary Bourne. It will require a multi-agency, multi-disciplinary team to be established to implement these actions and they must be accompanied by support and action from local residents and the local community.	Southern Water, with the cooperation and support of the EA, HCC, Parish Council and the local community. Additional comments and input from neighboring Test Valley Borough Council.	Draft action plan circulated by SW for comment in December 2012.	Feasibility study to be carried out by SW to determine options for action going forward.  Currently SW not funded to deal with private sewers. SW is looking to discussions with OFWAT to fund repairs on private sewers for 2015-22.
St Mary Bourne Foul Flooding Emergency Plan <ul style="list-style-type: none"><li>Includes trigger levels/Alerts and actions to implement in an emergency</li></ul>	Southern Water	Created in 2002	Will be superseded by Infiltration Reduction Plan
Inspection of the flows in the waste water system at St Mary Bourne	Southern Water	2012	

**Environment Agency Flood Alert Area: "Groundwater flooding in Vernham Deane, Upton and the Bourne Valley"**

**Floodline details: 0845 988 1188, select option 1 and enter Quickdial number 0122621 to get more information**

For further information regarding each of the parish council's FAG or the flood action plan:

- Parish council website:

- <http://www.vernhamdean.com/PARISH-COUNCIL>
- <http://www.hbt.org.uk/ParishCouncil.htm>
- <http://communities.hants.gov.uk/upton-grey-index>
- <http://www.stmarybourne-pc.gov.uk/index.php/minutes-agendas>

### Identified Mitigation

Mitigation proposed includes:

Mitigation	By Whom
Review the maintenance and provision of the surface water drainage system and establish proactive maintenance schedule and flood incident reaction plan (see below)	HCC, District Councils, Parish Council and riparian owners
Review the need to install a pumping system to reduce groundwater cellar flooding in individual properties	Individual property owners
Sign up to Parish Lengthsman initiative 2014-15	Parish Council
Information gathering	Parish Council, HCC

### Is there residual risk that needs to be managed?

Further residual risk will be reviewed following consultation with and comments from local residents.

### Future measures needed to reduce risk

Measure	By Whom
<b>PHYSICAL ACTIONS</b>	
Continued work on developing and implementing the Infiltration Reduction Plan for St Mary Bourne	Southern Water and risk management authorities
<b>MAINTENANCE ACTIONS</b>	
Routine (inspection)– annual (late autumn) check of surface water channels/ drainage pathways culverts, including field drains etc. to check for blockage and clear as necessary	Riparian owners prompted by Parish councils
Establish and formalise proactive maintenance response schedule in response to high groundwater levels, to include:  Agree with EA suitable trigger levels based on Vernahma Deane borehole. (note existing trigger levels prompt various alert actions already - including issuing of information to PCs by the EA )  Check and clear as required:  Road drainage gullies; road drainage culverts; all other surface water channels and drainage pathways.	HCC/ Environment Agency/ District Councils/ Riparian owners
<b>AWARENESS RAISING and INFORMATION GATHERING</b>	
Creation of Village Flood Plans (The Bourne Rivulet Villages are located within two wards, with two separate parish councils. The PC's must communicate and coordinate effectively together to produce a flood action plan.)	Parish Councils in liaison with HCC
Creation of Flood Action Groups (as above... cooperation between parish councils required)	Parish Councils in liaison with HCC
Ensure that residents are aware of the risk of flooding and are registered with the Environment Agency flood alert service	Environment Agency/ Parish Council
Ensure that residents are made aware of advice on how to protect themselves and their property in times of flooding	Parish Council
Encourage individuals to create a bespoke flood action plan.	Parish Council
Keep accurate records of flood events as they occur	Parish Council , HCC