

## UPDATE ON FLOODING AT THE WILLOWS, AYLESBURY AND OTHER PLACES ACROSS AYLESBURY VALE IN FEBRUARY 2014

### 1 Purpose

- 1.1 To provide an update on actions taken to prevent a recurrence of events that occurred during the flooding events in February 2014.

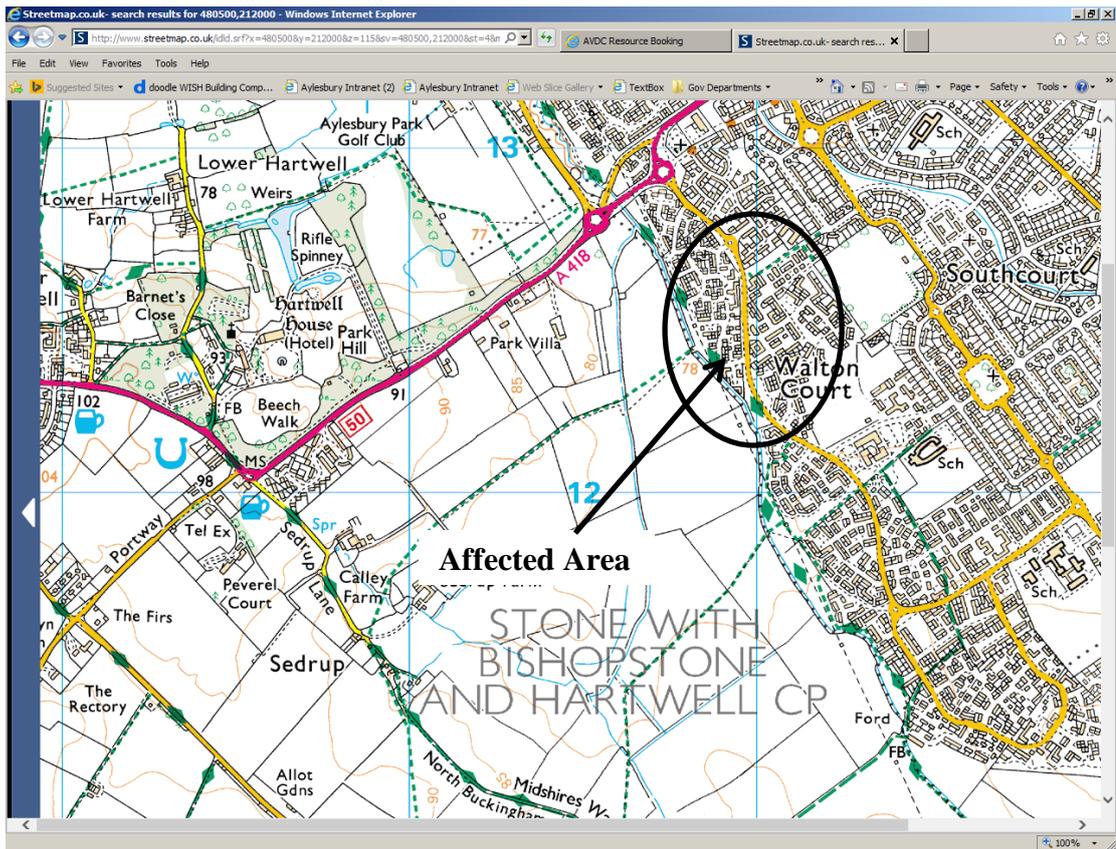
### 2 Recommendations

- |   |
|---|
| 2.1 To consider this update and decide whether the Committee would like to extend its investigations. |
|---|

### 3. Background

- 3.1 During December 2013 (23<sup>rd</sup> – 27<sup>th</sup>), and early January 2014 (4<sup>th</sup> – 12<sup>th</sup>), heavy rain showers led to a series of ‘major flooding events’ in the South East.
- 3.2 The first Thames Valley flooding event of 2014 affected Oxford, cutting off the main arterial roads into the City and flooding a small number of properties. Purley in Berkshire and other locations in Berkshire and Buckinghamshire were also affected, but not to the same extent.
- 3.3 While those floods receded, the adverse weather continued with storms occurring at the beginning of February with more rain falling. Due to the ground being saturated and groundwater levels being high, the Thames tributaries reacted quickly to the heavy rain and by 7<sup>th</sup> February surface flooding occurred. The significant volume of water within the tributaries then overwhelmed the natural channels of the Thames in such a way that major flooding followed its entire length.
- 3.4 The River Great Ouse also breached its banks but due to a combination of good maintenance and the rainfall being further south no properties were affected.
- 3.5 By 7<sup>th</sup> February the full extent of a national flood emergency became apparent; starting in the Somerset levels, spreading to the entire South of England including the Thames Valley area. This event was a slow onset event which followed months of above average rain and numerous adverse weather events. It is now known that this winter was the wettest in England and Wales since 1766, with 423mm of rain falling up to 24<sup>th</sup> February.
- 3.6 79 properties were flooded internally on the Willows Estate in Aylesbury – see Figure 1 – due to the Stoke Brook being overwhelmed. Only two households (totalling 5 people) were evacuated to an overnight rest centre arranged by AVDC for one night. Local Media coverage was extensive, with AVDC, BCC and the Environment Agency all questioned over their actions and policies.

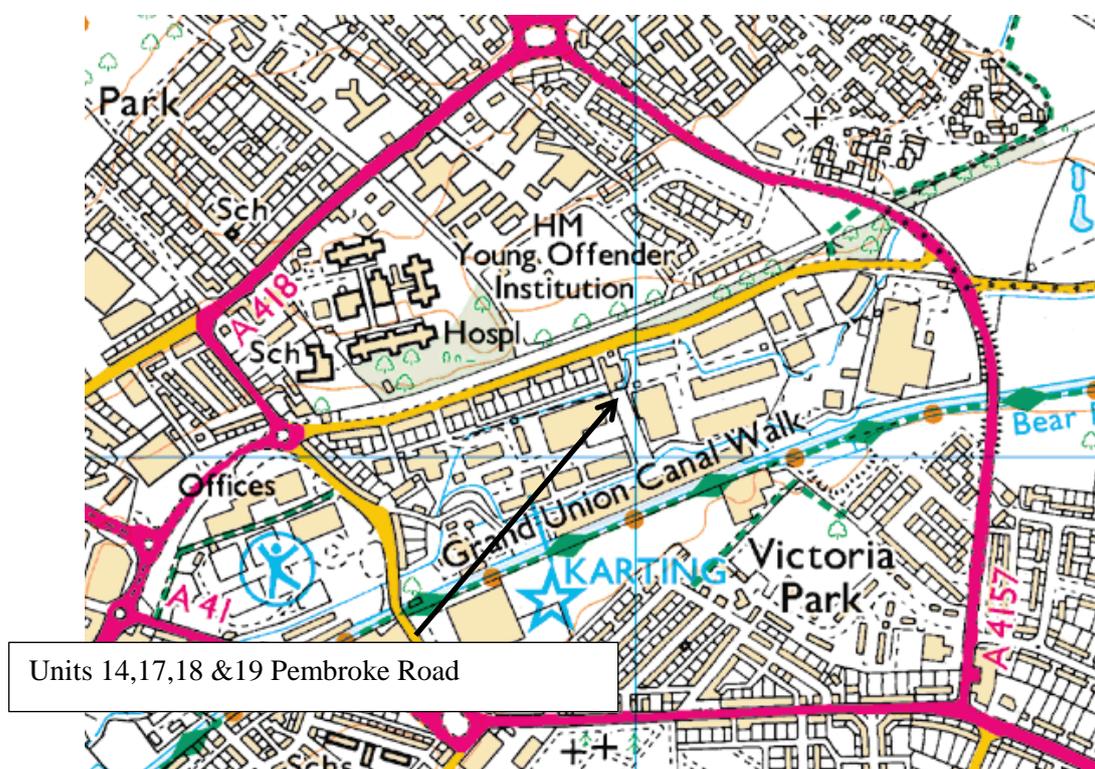
Figure 1 - Area of “The Willows Estate” Aylesbury affected by flooding



- 3.7 Floods also occurred in various other places across the Vale. Of particular note, there were floods in Lower Road in Stoke Mandeville, and floods in Bishopstone near Aylesbury.
- 3.8 The River Great Ouse at Buckingham did not reach the levels reached prior to Christmas in 2013, nor November/December 2012. Although on standby, there was no need for a full community response.
- 3.9 As statutory Local Lead Flood Authority (LLFA), Buckinghamshire County Council have produced a 'Section 19 Investigation Report' as required under the Flood and Water Management Act 2010 . Appendix 1 details the statutory requirement for such investigations. The full report can be found at <http://www.buckscc.gov.uk/environment/flooding/strategic-flood-management/flood-investigations/>.
- 3.10 Buckinghamshire County Council as LLFA has established a list of criteria for Section 19 flood investigations, which includes flooding to a certain number of properties and businesses as well as significant road closures. The criteria can be found in Buckinghamshire County Council's Local Flood Risk Management Strategy (LFRMS), also available on that website.
- 3.11 Three section 19 reports have been produced for areas affected in the Aylesbury Vale area: the Willows; Bishopstone, and Lower Road Stoke Mandeville. This report focuses mostly on the event which impacted most significantly on residents of the Vale, in the Willows.
- 3.12 The Willows Estate is on a known flood plain clearly identified on Environment Agency flood maps . Residents and members appeared surprised by the extent of the flooding with no issues raised by mortgage companies or the insurance industry until the current event (their approach is also based on historical records).

- 3.13 The Willows Estate is prone to flash flooding as it is near the source with a relatively small catchment. This means that there is minimal response time to erect protection, unlike Buckingham (6-8 hours) and Marlow (4-6 days).
- 3.14 AVDC's Operational Depot at Pembroke Road was the largest commercial business affected by the flooding within Aylesbury Vale (See Appendix 2).

Figure 2 Location of AVDC's Properties at Pembroke Road



- 3.15 A brook at Pembroke Road overtopped the banks and surcharged through the surface water drains and the rainwater harvesting system. Despite sandbagging/gel bagging there was still significant water egress into transfer/storage areas.
- 3.16 As this was a daytime event, staff managed to stop the floodwater from accessing our building – the maximum height of the water was approximately 30mm below the level needed to breach the refurbished offices. Had this been out of hours, our new offices would have been totally flooded with dirty water.

#### 4 Willows - Response

- 4.1 Some individuals raised concerns that the response from AVDC was too slow. Investigations identified that agencies appeared unprepared for surface water flooding in a location without history. Cllr Stephen Lambert was door knocking from around 05.00 with Bucks Fire and Rescue starting their log from around 06:00. Although the AVDC standby duty officer received calls requesting sandbags at around 05:00, this was not at the time flagged as a 'major incident'.
- 4.2 At this point Bucks County Council also were unaware of the extent of the situation.

- 4.3 No request was made to AVDC to deploy a Local Authority Liaison Officer to attend Forward Control Point as per multi agency protocols. Consequently, communication between local authorities and the Estate was reliant on communications from ward councillors.
- 4.4 AVDC provided in excess of £7000 of gel bags to protect homes. This was not brought to the notice of AVDC senior management until after 08:00.
- 4.5 The AVDC decision to open a rest centre was made at 11:25 with a volunteer rota put together with evacuees arriving from 13.40 at the Guttman Centre.
- 4.6 AVDC sent evacuees directly to a rest centre rather than a place of safety for onward movement.
- 4.7 Bucks Fire and Rescue were on site to assist and rescue residents including from stranded vehicles. Pumping out of properties was not possible until the outside water levels had dropped.
- 4.8 After what appeared to be a slow start it is felt that AVDC's response was good. For instance, appendix 3 contains a letter of thanks and appreciation from the Thames Valley Police Deputy Chief Constable for the contribution made by AVDC officers who supported the operation.
- 4.9 AVDC was criticised for not providing sandbags to private properties. There is no statutory requirement on local authorities to do so, and evidence to suggest that these are often ineffective in such situations, although communications from central government over the following weeks blurred this position. (Following the floods in 2007, the government commissioned a review by Sir Michael Pitt. This report identified the weakness of relying upon sandbags for property protection in favour of either community or property level flood protection.)
- 4.10 Within the Thames Valley, AVDC was one of few authorities who did not have a policy to provide sandbags, although this is the approach taken by several authorities to the north of the district.

## **5 Buckinghamshire County Council's Local Flood Risk Management Strategy (2013-17) and Section 19 Report**

- 5.1 The conclusions of the Section 19 report on the Willows are summarised in appendix 4. Appendix 5 sets out the recommendations from that report, together with a commentary from the identified lead agencies regarding progress in following up those recommendations. BCC and TfB have declined to contribute commentary on those recommendations which are primarily their responsibility, principally on the grounds of resource pressures.
- 5.2 AVDC officers determined that to address a number of the recommendations in the section 19 report, a flood alleviation feasibility study should be commissioned. After meetings with other flood management partner agencies to determine the scope of such a study, the estimated cost of the study is £24,000. Officers have determined from DEFRA that the costs for this study can be claimed back from flood-affected households agreeing to contribute a proportion of their Repair and Renewal Grant (although invoices for the study have to be paid first before the grant payments can be claimed) and any claims on this grant funding need to be made by 31 March 2015.
- 5.3 AVDC have offered to forward finance 1/3 of the costs of the study and have approached BCC and EA to provide matching 1/3 forward funding contributions, whilst we seek residents' agreement to claim on their behalf Repair and Renewal Grant monies towards this study. At the time of writing

this report, no such confirmation from those two agencies has been received, so the study has not yet been commissioned.

- 5.4 The delay in commissioning this study is concerning, as it will be financially beneficial to the authorities to be able to use the Repair and Renewal Grant funding stream to pay for this study, and more importantly to contribute to the cost of any capital works that the study recommends as being necessary to reduce flood risk in this area. Those capital works would need to be completed and invoiced by March 2015 to enable a claim against this grant stream.

## 6 Other changes to AVDC practices following the flood event

- 6.1 **Emergency Procedures** - AVDC's emergency procedures have been reviewed following the above investigation as follows:

- Clarification of procedures amongst other Category1 responders that when a 'significant' flooding event takes place that a request for an AVDC LALO (liaison officer) to attend the fire service Forward Liaison point (Other Category1 responders have also reviewed their plans)
- Clarified procedures allowing for evacuation to any 'place of safety' rather than the Guttman Centre for events occurring during the day
- Commenced working with the British Red Cross to co ordinate volunteer support at 'places of safety' and 'victim support' information point at the scene of the incident
- Further definition of the role of Duty Manager is needed.
- We shall be carrying out further training for Duty Managers and Duty Directors in November 2014.

- 6.2 BCC has been asked to develop a Buckinghamshire wide 'Tactical Plan for Riverine Flooding' excluding the river Ouse to incorporate lessons learned into key activities for areas where flooding is unexpected.

- 6.3 **Pembroke Road** - At Pembroke Road we are looking to make ourselves more resilient from a Business Continuity perspective. As we are in a flood plain and Stocklake is a main river we would need approval from the EA. Our proposals are a combination of:

- Raising the levels of our yard that flooded to that of the areas of the yard that did not flood,
- Providing site bunding, in effect protecting our buildings and stored dry recycling. We need to keep our material and buildings dry but also allow access and egress of vehicles at all times as it is an operating transfer station.

- 6.4 **Riparian Maintenance Responsibilities** - Our current maintenance regime for our riparian responsibilities has been updated to give more regular inspections of the Stoke Brook where we are the landowner. This is done cooperatively to cover the full length of the Brook by working with the Environment Agency (EA) and is done on a monthly inspection. In regards to fly-tipping, when an incident is reported between inspections, AVDC arrange for clearance to occur.

6.5 **Sandbags policy** – Since the February 2014 flooding event, AVDC have agreed with Buckinghamshire County Council to streamline the process for sandbag requests. Sandbags will only be provided in exceptional circumstances, such as properties in imminent risk of flooding or protecting critical/vital infrastructure. These sandbags, if provided, will be filled, stored and distributed by Transport for Bucks (TfB) on behalf of AVDC who will reimburse the costs.

## 7 **Resource implications**

7.1 These are still to be quantified and depend in particular on the findings from the feasibility study, to which AVDC has offered to contribute £8000. As noted above, there are financial risks if we are not able to maximise the leverage of using the Repair and Renewal Grant funding stream by March 2015.

Contact Officer	Jon McGinty (01296) 585251 David Thomas (01296) 585158 Emma Chilton (01296) 585784
Background Documents	None

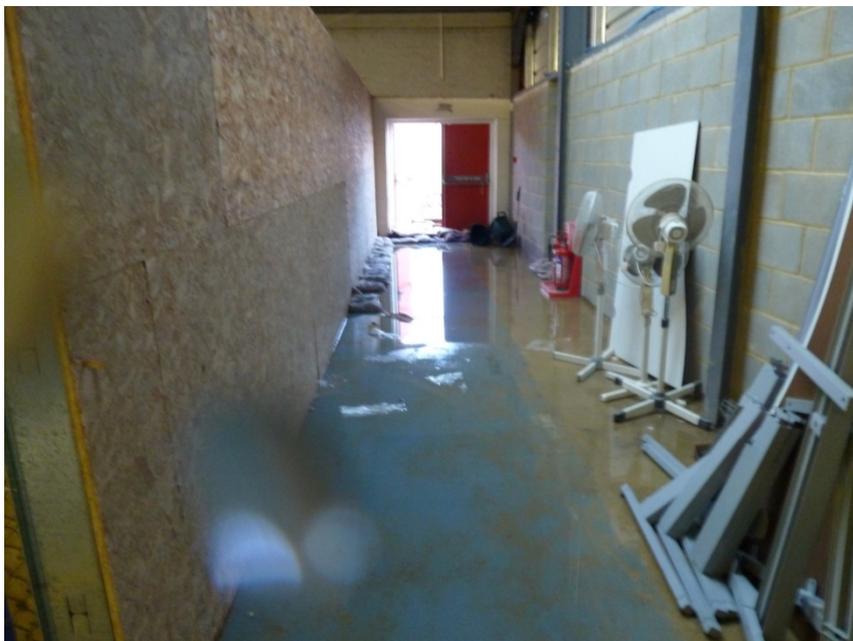
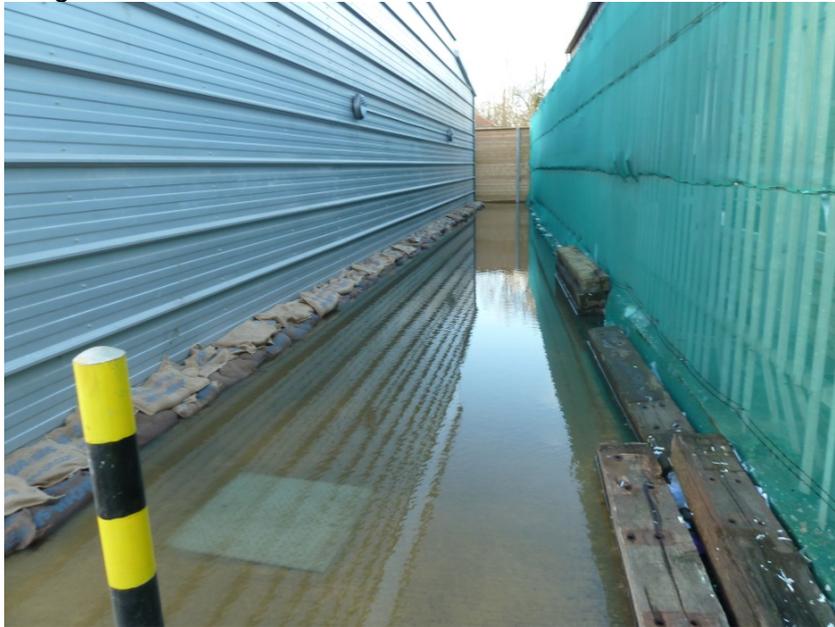
**Appendix 1 – Section 19 Report Flood and Water Management Act 2010- Terms of Reference**

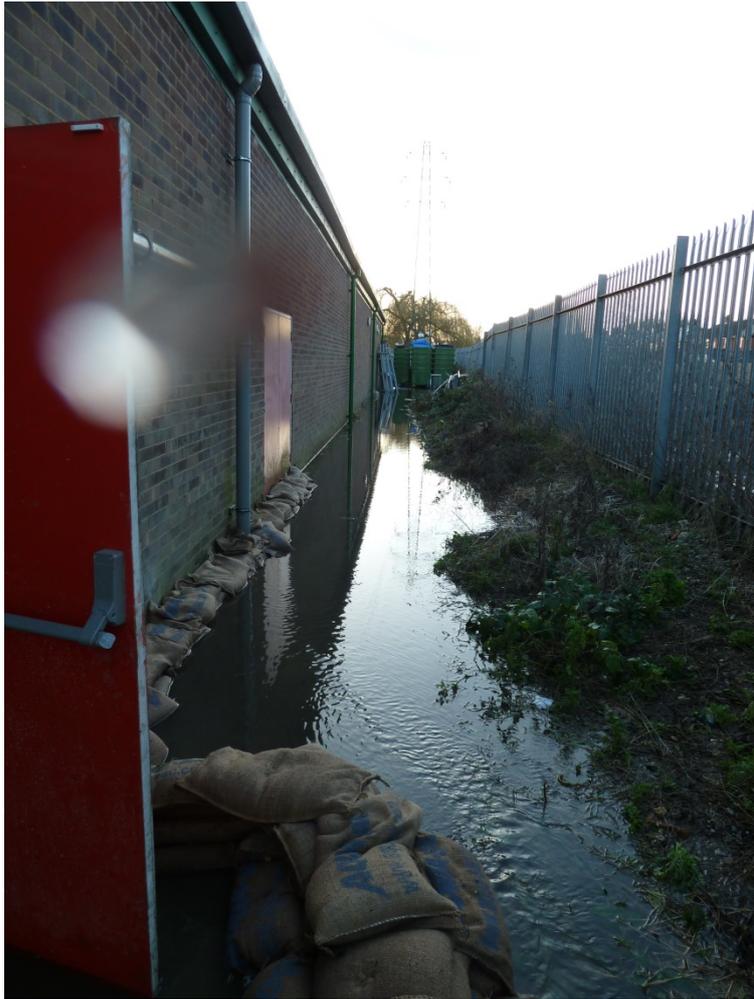
- 19 Local authorities: investigations.
- (1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate—
- (a) which risk management authorities have relevant flood risk management functions, and.
  - (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood..
- (2) Where an authority carries out an investigation under subsection (1) it must—
- (a) publish the results of its investigation, and.
  - (b) notify any relevant risk management authorities.

## Appendix 2 – Impact of flooding on the Council’s Pembroke Road depot

### The Event

Water was surcharging from the drains. Staff believed that the dry recycling shed and its contents (valued at £150 to £200K) together with the caged area containing sports, election, communications and marketing and elections equipment was in danger.









Flood water rose 200mm between 08:30 to 09:30 and was overlapping doors. Staff assisted with the construction of sandbag in the yard/around the dry recycling shed. The water they were working in included raw sewage. Staff did not have wellington boots and were wearing (relatively) expensive work wear.

Due to the nature of waste service activities our own vehicles were offloading recycling and food waste with external vehicles also having to be loaded. This flow of vehicles created a bow wave that was topped over as vehicles passed by. Staff 'gel bagged' as much as possible so that the effects of drain surcharging would not enter the buildings. They managed to save half of the recycling. Bag walls were approximately 2' high with the yard approximately 18" deep.

Staff were unable to gain access to all of the protected Caged Storage Areas except one which had water ingress from an external door, managing to protect the Christmas Tree Lights as it was felt that these were the most valuable single item. Staff considered the gel bags to be largely useless in containing the flooding, although the bags prevented dirty water from entering. Any ingress would have rendered the offices unusable with staff relocation required until a deep clean had taken place.

Appendix 3 – Letter from Thames Valley Police Deputy Chief Constable



*Francis Habgood*  
Francis Habgood

**Francis Habgood QPM**  
Deputy Chief Constable

Thames Valley Police Headquarters  
Oxford Road  
Kidlington  
OX5 2NX  
Tel. 01865 848800  
Fax. 01865 846057  
Date. 17 September 2014

Andrew Grant  
Chief Executive  
Aylesbury Vale District Council  
The Gateway  
Gatehouse Road  
Aylesbury  
HP19 8FF

Dear Andrew,

**Floods – February 2014**

I realise that the floods of February 2014 are becoming a distant memory, apart from those personally affected. However, at the recent review the work of staff across many organisations was highlighted. Therefore, I am writing to express my thanks to Aylesbury Vale District Council and particularly to those members of your staff who supported the Police operations with their invaluable support.

The floods were one of the most severe ever experienced, and undoubtedly your team members contributed significantly to the overall success of the operation and mitigate the impact that the floods would have otherwise had. On behalf of Thames Valley Police and as Chair of the Thames Valley resilience Forum, I am very grateful for the assistance they provided and would appreciate it if you could pass on my thanks to Dave Thomas.

I am sure there are others in your organisation, who provided invaluable assistance not named above. It would be remiss of me not to express my thanks to those members as well.

Best wishes,

A handwritten signature in black ink, appearing to read 'Francis Habgood'.

Francis Habgood QPM  
Deputy Chief Constable  
Chair of the Thames Valley Local Resilience Forum

#### **Appendix 4 – Conclusions from Section 19 report into flooding at the Willows**

- There was high rainfall on the night of 6th/7th Feb.
- Catchment was saturated due to wet conditions in preceding three months.
- Levels in Stoke Brook rose due to heavy rainfall and runoff from hard surfaces and already saturated areas. The levels may have been increased upstream of the A418 culvert which was reported to have been blocked by debris. The backing up from the A418 culvert and high water levels meant that the pipes from the road gullies were less able to convey the flood flows. Sediment at the outfall into the brook from the road gullies may have contributed in a small way to this restricted conveyance of flows from road to the Stoke Brook.
- The culvert under the A418 may not be of sufficient capacity to convey the required flood flows. This restricted capacity may have raised water levels upstream alongside the Willows estate.
- There was fly tipping in Stoke Brook which restricted the flow.
- There were branches, debris and vegetation in Stoke Brook which restricted the flow and caused the water level to rise higher. This debris was due to a combined impact of fallen branches as a result of high winds in the preceding few days and lack of maintenance of Stoke Brook.
- Environment Agency cleared debris and vegetation from Stoke Brook on 7th February.
- AVDC did further clearance of vegetation and silt on 10th/11th February.
- Transport for Bucks had cleared gullies twice within preceding 3 months.
- Fire service and the local County Councillor responded promptly to emergency calls.
- BFRS and TfB delivered sand bags to the area and AVDC delivered gel bags.
- Resources around the area were very stretched with different flood events. The operational response to this event was slow initially and the co-ordination between the different RMAs could be improved.
- Emergency response co-ordination could have been facilitated better if operational or tactical command had been established in combination with the Thames Valley LRF Flood Plan.

**Appendix 5 – Recommendations from Section 19 Report into flooding at the Willows, with commentary on actions taken by agencies to date**

	<b>Recommendation</b>	<b>Lead Agency</b>	<b>Progress and Position at end Sept 2014</b>
1	To ensure that owners of culverts, watercourses and drainage infrastructure are aware of their responsibilities.	Bucks CC	
2	To discuss maintenance of watercourse and how to deal with fly-tipping issues and look at how maintenance can be improved.	Bucks CC, EA, AVDC and landowners	<p>AVDC have had to get a contractor out several times to remove items including old carpets, tyres, road signs and garden rubbish. Have discussed this with BCC who have now erected signs about fly tipping. A leaflet drop is also planned.</p> <p>We are currently on track with our programme to deliver routine river maintenance throughout Aylesbury. We have completed the Stoke Brook maintenance from the A418 to the Ford.</p>
3	To facilitate sharing of information between RMAs and the community and to investigate establishing a residents' flood group.	Bucks CC	

	Recommendation	Lead Agency	Progress and Position at end Sept 2014
4	To keep in mind enforcement action under Section 25 of the LDA where landowners have failed to maintain watercourses.	Bucks CC	
5	To liaise and look at the catchment to consider options for flood management which could include: <ul style="list-style-type: none"> <li>• Flood attenuation upstream by adapting land use.</li> <li>• Assessing the size, shape and slope of the Stoke Brook locally and along its length to check if flow can be slowed down.</li> <li>• Low embankment alongside the Willows residential area</li> <li>• Investigation of possible areas in the catchment where flood storage could be implemented.</li> </ul>	EA, Bucks CC	This is exactly what the feasibility study AVDC are looking to commission would be looking at, and make recommendations on.  We are working with AVDC and BCC to understand the mechanisms of flooding and we are discussing what needs to be done to reduce flood risk.
6	To look at the design of the A418 culvert to check that it is sized correctly to take the required flow.	EA, Bucks CC, TfB	This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk.
7	To investigate changing the Oxford Road culvert so that is a more efficient shape to be able to convey storm flows during future flood events.	EA, Bucks CC, TfB	This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk.

	<b>Recommendation</b>	<b>Lead Agency</b>	<b>Progress and Position at end Sept 2014</b>
8	To investigate installing a trash screen on the Oxford Road (A418) culvert and ensure that the trash screen is cleared regularly as part of ongoing maintenance program.	EA, Bucks CC, TfB	This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk.
9	To distribute living on the edge leaflets to residents and land owners who own a section of the river bank.	EA	This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk.
10	To complete a topographic survey to assess if the bank of the Stoke Brook is lower at the end of Foxglove Close.	EA	This would be included in the feasibility study that AVDC wish to commission.  This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk.
11	To investigate if flood warnings can be issued in the area.	EA	We will investigate.
12	To maintain the bushes and small trees on the bank of the Stoke Brook and Sedrup ditch, that they own, on a regular basis as part of their ongoing maintenance schedule.	AVDC and Ernest Cook Trust	AVDC Technician meets monthly with EA maintenance crew and inspects the land that AVDC have Riparian responsibilities for. Work is carried out if necessary.

	Recommendation	Lead Agency	Progress and Position at end Sept 2014
13	To advertise, encourage and enable residents to apply for the Repair and Renewal grant money which has been provided by Central Government.	AVDC	
14	To continue to clear and maintain the surface water drains and gullies on the Willows estate as part of their ongoing maintenance schedule.	Tfb	
15	To discuss the best solution to keep the gully outfalls clear of silt using a sustainable solution.	Bucks CC, EA, AVDC, Tfb and Thames Water	This will be considered as part of our ongoing discussions with partners on what needs to be done to reduce flood risk
16	To investigate whether installing flap valves on the outfalls would prevent water backing up through pipes and gullies when water levels in Stoke Brook are high.	Thames Water	Thames Water were going to install flap valves but this has been put on hold for time being as at the time a longer view was being considered. If valves are fitted these would effectively stop highway water on the Willows Estate draining into the Brook and thus lead to highway water flooding the roadways and parking areas causing flooding!

	<b>Recommendation</b>	<b>Lead Agency</b>	<b>Progress and Position at end Sept 2014</b>
17	Who have riparian owner responsibilities to ensure that the Stoke Brook banks are maintained in a suitable manner.	Residents and land owners	For AVDC land ownership - AVDC Technician meets monthly with EA maintenance crew and inspects the land that AVDC have Riparian responsibilities for. Work is then carried out if necessary.
18	To take measures to protect themselves and their properties when flooding is imminent.	Residents	
19	To document and photograph flood incidents where possible and report flooding to AVDC and/or Bucks CC and EA.	Residents	
20	To make improvements to the emergency response and co-ordination from all organisations.	All RMAs	We continue to review our emergency response with the Thames Valley Local Resilience Forum. The multi-agency flood plan and adverse weather plan is currently being reviewed
21	Fully understand the Thames Valley Local Resilience Forum Flood Plan and how Operational or Tactical Command Posts can aid the emergency response of all RMAs during an event.	ALL RMAs	We continue to review our emergency response with the Thames Valley Local Resilience Forum. The multi-agency flood plan and adverse weather plan is currently being reviewed