

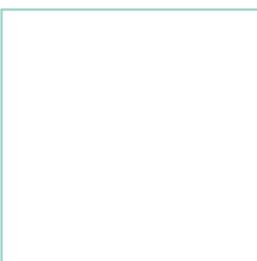


September 2016 Flood Report

Volume 1

Highways and Transport

Flooding in West Berkshire



West Berkshire Council

Flood Investigation Report – September 2016

Introduction

On 15th and 16th September a high intensity storm caused surface water flooding to residential and commercial properties, Newbury train station and many parts of the highway network.

The Flood and Water Management Act 2010 (Section 19) places a duty on West Berkshire Council to investigate flooding incidents and to publish the results of its investigations. This flood report has been prepared in accordance with the Council's policy regarding Section 19 flood investigation reports.

It should be noted that much of the following information is based on anecdotal evidence from members of the public. Therefore, West Berkshire Council cannot accept any liability for any inaccuracies in the information contained within this report.

The recommendations contained in this report are based on site observations only. Prior to taking the recommendations forward, feasibility studies will be required to verify the cause and effect of the flooding and the viability of any potential solutions.

Bartlemy Road, Newbury

To be read in conjunction with drawing no: WBC/S19_0916_BartlemyRoad

1. No. 42 and 44 Bartlemy Road suffered from internal and external flooding. Foul water flooding was seen near to Nos. 40, 42, 44 and 46. There was also external flooding in the rear gardens of several neighbouring properties on Bartlemy Road.
2. Surface water flowed overland across Bartlemy Road towards No. 42 and 44. This was seen to flow from both directions from Andover Road to the east and Valley Road to the west. The highway gullies appeared to drain some of the water however due to the high intensity of rain a large amount of water flowed over the gullies.
3. At No. 42 Bartlemy Road, water flowed down the south side of the carriageway from both the east and west. This flow combined at the low point in the road and the flowed northwards across the road and down the driveway towards the property. The flow of water was then obstructed by the house and garage causing it to back up. When the water levels reached the brick threshold around the airbricks water flowed over the bricks and into the airbrick chamber and filled the suspended floor under the house. This rose up and caused internal flooding throughout the ground floor. Water also entered the garage area and the levels rose as there was no outfall from the garage. The resident of No. 42 noted that the gully on the road, next to the driveway, was flowing and a large amount of water was draining into this chamber and away. However the flow across the carriageway appeared to exceed the capacity of the gully.
4. A large volume of water was also seen to flow overland across the footpath on the north side of Bartlemy Road. It then flowed off the footpath and down the driveway of No. 44 and 46. Water flowed into the garage of No. 44 and into the back garden causing flooding across the whole of the back garden of up to 200mm deep in places. The carpets in the front room of No.44 were flooded and the internal electrical wiring damaged. The water did not enter through the doorway but rose up from the suspended floorboards below.
5. Flood waters inundated the foul water system in the area causing the water in the toilet in the bungalow property, No. 40, to rise. The foul water did not flood internally but the threshold of the toilet was close to overtopping. Water was also seen to be surcharging from the foul manholes outside Nos. 44 and 46 with waste paper also escaping from the chamber.



Figure 1 – External flooding at 44 Bartlemy Road

6. Water flowing overland down the north and south sides of the carriageway on Bartlemy Road is a historical problem in the area. The kerb stones at the entrance to the driveways on the north side of the road have been raised in the past. The residents stated that this does have the effect of containing the water within the carriageway for the smaller storms however the flow during this intense storm was too large to be contained on the carriageway. The raised kerb stones do contain the smaller flows and raising the kerb stones further would create a larger 'bump' for the cars exiting the carriageway to enter their driveways. As the majority of storms are contained on the carriageway further raising of the kerbs is not considered to be worthwhile.

Recommendations

7. The existing highway drainage system was seen to be flowing however the system could benefit from jetting following on from such a large storm to ensure no blockages in the system. **(West Berkshire Council)**
8. There is a low point on the south side of the road, opposite the entrance to No. 42. This is the point where the flow from both the east and west direction met and turned 90° towards No. 42, water also ponds in this area after most heavy rainfall events. An inspection of the existing highway drainage system should be undertaken and an assessment into the benefits of installing a new gully at this location. This could potentially intercept a large volume of water before it flows over the carriageway towards the properties. **(West Berkshire Council)**
9. Water flowed straight down the footway with no drainage or points to intercept the flow. A survey and investigation should be carried out to assess the potential benefit of creating an interception 'hump' across the footpath angled towards the carriageway. This would potentially divert water off the footpath and into the carriageway and prevent the water flowing down the driveways towards the properties. **(West Berkshire Council)**
10. The garage of No. 42 is a barrier to the flow of water, and causes the water to accumulate at the front of the property. The resident stated they are planning on drilling some holes to allow water to pass through the garage and into the garden.. **(Homeowner)**
11. Water overtopped the brick course surrounding the air bricks and filled the chamber around the bricks which are below ground level. Raising the threshold of the brick chamber by adding courses of bricks should significantly reduce the risk of the water overtopping and filling the airbrick chamber. Alternatively the existing airbricks could be replaced with self sealing airbricks. **(Homeowner)**
12. Foul water was surcharging from the foul manholes in the driveways of Nos.44 and 46. This should be reported directly to Thames Water Utilities (TWU) for investigation. The water rising in the toilets of the bungalow No.40, should also be reported directly to TWU. The residents of No. 40 could also invest in a toilet/WC 'panseal'. This is an inflatable seal that is placed under the lip of the toilet that will seal as the water rises in the toilet and reduce the risk of foul water overtopping the toilet. Residents should also inform TWU who should investigate the sources of water infiltration into the foul network and any possible solutions. **(Homeowner, TWU)**

Bartholomew Street / Pound Street Junction, Newbury

To be read in conjunction with drawing no: WBC/S19_0916_BartSt

1. High intensity rainfall on the evening of 15th September caused the road junction to flood. The extent of the flood covered the entire carriageway and the footways and right up to the buildings on both sides of Bartholomew Street, east to west, from Station Road to the north to approximately the centre line of Pound Street to the south of the junction. Property number 79 had the deepest flooding which was over 500mm deep at the front of the shop. The water entered the shop at approximately 8pm on 15th September and remained there until 11pm. The shop floor is stepped down from the road and pavement outside. The shop front has old wooden doors with visible gaps around the edges. Water was seen to flow directly through the door onto the shop floor. Following further rain at approximately 4am on 16th September the water flooded the shop front again but had drained away by 8am. The shop owner stated that this is the third time they have flooded in three years but this was the deepest it had ever flooded.
2. Two further shop buildings were confirmed to have flooded, however the floor levels are over 400mm higher than number 79. The water entered these shops through gaps in the doorways. The flood water in properties 63 and 80 was approximately 100mm deep.
3. Eye witnesses stated that the highway drainage was seen to be flowing however it was overwhelmed by the large volume of water causing the junction to flood for over 4 hours. The junction had drained clear by 9am the following morning..



Figure 2 – Flooding in Bartholomew Street. credit Newbury Today

Recommendations

4. The highway drainage system was seen to be flowing however, following the flooding the drainage system was visually inspected and silt was found in parts of the systems. Maintenance cleansing of the drain pipes and gullies should be carried out as the flood waters will increase the likelihood of silt and debris entering the system which could cause further blockages. **(West Berkshire Council)**
5. The shop owners are advised to invest in property level protection (PLP) to prevent water entering the buildings. Flood doors or flood barriers for the doorways would be recommended as this was the point of entry for most of the floodwater. For property number 79 water may also have entered through the brickwork; a specialist flood contractor should be contacted by the owner to provide advice on options to waterproof the external walls of the property. **(Property owner)**

Church Road, Shaw

To be read in conjunction with drawing no: WBC/S19_0916_ChurchRoad

1. During the severe storm on the evening of 15th September a large volume of surface water flowed down Shaw Hill from the north down to the bottom of the hill and across the roundabout junction. The water flowed across the junction and to the properties The Millers House and No. 2 Shaw Mill Cottage. The properties are located at the low point in the road and the floor levels are lower than the road. Water flowed under the gate at No. 2 Shaw Mill Cottage and entered the property through the front door. Water also flowed over the footway and against the north facing wall of the Millers House. Water was seen entering through the north wall under the staircase and at the same time flowed around the property and through the front door. This resulted in flooding approximately 50mm deep across a tiled floor in the kitchen and entrance area. The water stayed in the property for approximately ten minutes before it drained away. The resident of The Millers House stated that they have a flood board for the front door, however as they did not receive a warning the flood board had not been put in place.
2. The highway drainage appeared to be flowing during the flood event however, the intensity of rain resulted in a large volume of water flowing over the road gully and into the properties. The morning after the storm most of the flood water had drained off the highway. A visual inspection of the gully chambers confirmed that silt and debris had been washed into the road drainage system.

Conclusions

3. The existing road drainage system in the area is adequate to drain normal rainfall. Upgrading the system to cope with exceptionally severe rainfall events is not considered to be financially viable.
4. Maintenance of the existing highway drainage network should continue to be carried out at regular intervals. The additional gully chambers in the pavement and driveway should be inspected and cleared where necessary.
5. As a result of previous floods at the property the wooden floorboards had already been replaced with flood resilient floor tiles. The damage from the flood was therefore minimal.

Recommendations

6. An investigation into the feasibility of raising the pavement on the corner of the junction near 2 Mill Cottage, and altering the camber of the road to direct water back towards the carriageway should be carried out to establish if this would be economically viable. **(West Berkshire Council)**
7. The Millers House could install additional property level protection (PLP) measures such as replacing the front door with a permanent flood resistant door which would remove the requirement of erecting the flood board. **(Property Owner)**
8. Water appeared to flow through the north facing wall of the property. A specialist contractor should be contacted to advise on options for waterproofing the wall **(Property Owner)**
9. No.2 Mill Cottage could also install flood boards or a permanent flood door. **(Property Owner)**

10. The residents of both properties should be informed about the MET Office severe weather warning service... **(West Berkshire Council)**

Mill Lane, Newbury

To be read in conjunction with drawing no: WBC/S19_0916_MillLane

1. High intensity rainfall on the evening of 15th September 2016 led to surface water flooding at Mill Lane in Newbury. The main source of water travelled down Connaught Road, in the northerly direction, within the dished channel to a gully at the low point in Connaught Road adjacent to 45 Mill Lane. Water also flowed across Mill Lane from both the easterly and westerly directions. The entire carriageway and footway at Connaught Road flooded during the storm. The flood water reached the external walls of both 43a and 45 Mill Lane. The extent of the flooding also partially covered the carriageway in Mill Lane at the junction and in front of property No^s 45, 47 and 49. Eye witnesses confirmed that the road drainage system was working during the storm but was overwhelmed by the amount of water. A large amount of water was also seen to be draining into the foul water manhole in the centre of the Connaught Road.
2. The water was against the external walls of No. 45 during the evening of 15th September but no flooding was seen by the resident at that time. In the morning there was a small amount of flooding in the entrance hallway, downstairs toilet and kitchen area. The laminate flooring was damp and damaged but no standing water was seen. The tiled floor in the toilet area was wet but was easily mopped clean and there was no lasting damage. The resident was unclear as to the entry point of the water as it happened overnight. The resident did see bow waves from passing cars lapping against the front door so this was a possible point of entry.

Recommendations

3. Maintenance of the existing highway drainage network should continue to be carried out on a regular basis. A visual inspection found silt and debris within the gullies along Mill Lane in front of Nos. 45, 47 and 49. The gullies in Connaught Road appeared to be clear, however, it would be prudent to empty these at the same time as clearing the ones on Mill Lane. **(West Berkshire Council)**
4. The homeowner stated that minor flooding in Connaught Road occurs regularly during less intense rainfall. An investigation into improving the highway drainage system is recommended. **(West Berkshire Council)**
5. Property Level Protection advice was given to the homeowner at No. 45. The homeowner stated that he was interested in these products and would research the products available.. It is recommended that a flood board or flood door could be installed. **(Homeowner)**
6. The laminate floor was damaged in the entrance hall and kitchen area. It is recommended that this is replaced with a more flood resilient floor. However, when the property was visited the homeowner was already in the process of replacing the floor with floor tiles. **(Homeowner)**

No.16 Paddock Road, Newbury

To be read in conjunction with drawing no: WBC/S19_0916_PaddockRoad

1. The severe storm on 15th September 2016 resulted in surface water flooding in Paddock Road. Water flowed across Paddock Road from east southerly direction and collected at the low point outside properties No. 14 and 16, causing the carriageway to flood at this location. There is highway drainage in Paddock Road in this area which normally copes with normal heavy storms.. However, there is a recurring problem of highway flooding here during medium intensity rainfall. The rainfall on the evening of 15th September was exceptionally severe and it overwhelmed the drainage system causing water to flow across the driveway and into No.16.



Figure 3 – External flooding at 16 Paddock Road

Conclusions

2. A CCTV investigation of the existing highway drainage system was carried out in 2015. The survey found the section of the system that could be accessed was clear and flowing. However, the whole of the network could not be accessed so the full condition could not be established. After the flooding on 15th September 2016, further jetting of the entire system in Paddock Road was undertaken. The drainage system along Paddock Road was found to be separate to the gullies outside No. 16. This separate system has now been jetted out. The survey established the exact point where the network appears to stop. This point was located and a trial hole was dug to establish the current condition of the pipe. This investigation found that the outgoing pipe has been severed and buried beneath the Willow Close development land.

Recommendations

3. The severed pipe should be repaired and extended to an outfall point to allow the water to drain from Paddock Road. A surface water manhole, approximately 10 metres from the damaged pipe, was identified to connect to within the adopted highway. This repair work was completed in February 2017. **(West Berkshire Council)**

4. In addition to the repair of the damaged drainage pipe the property owner may wish to install property level flood protection measures such as flood boards or flood doors. **(Property Owner)**

Falkland House, Essex Street

To be read in conjunction with drawing no: WBC/S19_0916_EssexStreet

1. A severe storm on the evening of 15th September 2016 led to surface water flooding at Essex Street.. Surface water flowed across Charles Street in a southerly direction onto Essex Street. A large volume of water overwhelmed the highway drainage system and soon began to flow over the highway gullies into the private land of Falkland House, No. 18 Essex Street. The water then entered the property through the front door opening, causing damage to multiple rooms on the ground floor. The flood water subsided in less than an hour but the water had filled the void spaces under the floor boards and caused damp damage throughout the ground floor. The property had to be left vacant for over three weeks for damp treatment work before repairs could begin to the property.

Recommendations

2. The highway drainage network in this area drains into a Thames Water Sewer. Full cleansing of the highway drainage network and an investigation into the current condition has been completed since the flooding. The results of the survey should be reviewed to identify if any actions are required. **(West Berkshire Council)**
3. The homeowner has stated that they are installing Property Level Protection (PLP) measures to the property. A flood board will be installed across the front door and investigations into the possibility of self-sealing air bricks or temporary airbrick covers. **(Property Owner)**

Ivy Cottage, Donnington

To be read in conjunction with drawing no: WBC/S19_0916_IvyCottage

1. High intensity rainfall on the evening of 15th September 2016 led to surface water runoff from the housing estate and driveway opposite Ivy Cottage to the North. The flood water flowed overland down the hill from Abberbury Close. There are four gullies towards the bottom of the hill, at the junction with Shop Lane. A large amount of water flowed over the gullies and over the driveway in between 1 Hunt's Cottage and Ivy Cottage. It then flowed under the gateway to Ivy Cottage and flooded the rear garden. The rear garden and lower floor of the property is at a lower level than the road and driveway so the water flows into the rear garden where it gathered and then entered the ground floor of the property. The house had flood gates installed across the entrance to the sitting room but the flood gates were not erected across the doorway to the kitchen. The internal flood water was no deeper than 50mm within the property mainly causing damage to the rugs within the property.

Recommendations

2. A pair of highway gullies is positioned outside the front of the property. These were cleared after 15th September and should continue to be maintained to reduce the flood risk at the front of the property. **(West Berkshire Council)**
3. The four gullies at the bottom of the hill from Abberbury Close have been inspected and require clearing of leaves and debris. These gullies are on a private road owned by The Donnington Trust. West Berkshire Council has contacted the owners requesting that this drainage is cleared. **(Donnington Trust)**
4. The homeowner of Ivy Cottage has reported that the volume of runoff appears to have increased following the creation of a car parking area mid way up the hill towards Abberbury Close. This is again owned by The Donnington Trust, West Berkshire Council has contacted the owners asking if any permission was obtained for the car park area and requesting that the runoff off from the site is better controlled. **(Donnington Trust)**
5. On the 15th September water entered the property through the rear of the property. The doorways already have flood boards installed. The entry point into the house is not known. Full building work to the structure of the property has been decided as too expensive and inconvenient by the homeowner. The rear garden only has one drainage point in the lower paved area, approximately 150mmx150mm. The homeowner will look into the cost of upgrading this to a larger drain and chamber. The owner has been advised that the drainage capacity will be limited by the size of the outgoing pipe. The costs of drainage jetting/maintenance will also be investigated by the homeowner. **(Homeowner)**

Newbury Train Station

To be read in conjunction with drawing no: WBC/S19_0916_NewburyStation

1. High intensity rainfall on the evening of 15th September 2016 led to surface water runoff which collected on Station Road to the south of Newbury Train station. As the flood depth increased the flood water overtopped the kerb stones and flowed over the footway through the train station barriers, then across the platform and into the train tracks. This caused the train track area to become flooded.
2. Approximately two hours after the initial surface water flooding the water began to escape from the foul sewer network due to surface water infiltration higher up the foul sewer network. Flood waters were seen to flow out of four foul water manholes along Station Road. This caused further flooding in the same low point of Station Road and caused contaminated water to flow across the platform and onto the flooded train tracks.
3. There has been flooding in this location previously and investigations found that the outgoing pipe from the lowest gully along Station Road outside the westbound ticket barrier had been severed during works by Network Rail when making improvements to Newbury Rail Station. This has resulted in frequent flooding from the highway gully at the low point of Station Road as there is no outlet for the water. A pump has been installed by Network Rail in the chamber of this gully to pump the water via flexible hose laid in the station car park into the track drainage at the west end of the platform. This has been successful in reducing the flooding during smaller, less intense, rainfall events. The pump was working during the flooding on 15th September but the volume of flood water exceeded the capacity of the pump so it was not able to stop the flooding along Station Road. The flooding was exacerbated by the large volume of surface water entering the foul sewer network which flooded out onto station road two hours after the initial flood event.



Figure 4 – Flooding of Station Road and foul manhole flooding



Figure 5 – Train Station and track flooding. Water flowing over the platform

Recommendations

4. West Berkshire Council should ensure the highway gully system is working and carry out maintenance/jetting of any gullies that are not clear. **(West Berkshire Council)**
5. Network Rail should investigate the possibility of increasing the capacity of the pump to clear away surface water flood water quicker. A preliminary proposal for a permanent solution has been drawn up using large diameter storage pipes under the station car park but this is not programmed for implementation until 2019. **(Network Rail)**
6. A large volume of surface water is entering the foul sewerage network leading to contaminated water surcharging and flooding the Station Road area. Thames Water Utilities should investigate the upstream network to establish points of surface water infiltration so these can be repaired. **(Thames Water)**
7. Thames Water Utilities should investigate the upstream surface water network to establish if there are points in the network where the surface water that is flooding Station Road can be diverted into an alternative network. **(Thames Water)**