



## Investigation Report into the flooding in Cannerby Lane

Report Reference: FIR037

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### **(a) Flooding incidents and causes**

This report includes the internal flooding of 2 commercial properties on Cannerby Lane on 9<sup>th</sup> February 2020.

The flooding that occurred was caused by

- An overloaded drainage system
- Surface run-off from roads
- Surcharging of the drainage system

This led to the internal flooding of two commercial properties.

### **(b) Key recommendations**

Our conclusion is that:

Risk Management Authorities should:

- Review the appropriateness of their response to flooding
- Determine the integrity and/or capacity of their assets where they have contributed to the flooding of properties to understand the systems role in accommodating rainfall events as well as mitigating flooding

Property owners of affected properties should:

- Determine if it is appropriate for them to protect their buildings through flood protection measures
- Seek their own legal advice if they are concerned about the responsibilities and liabilities of themselves and/or others
- All property owners should remove any inappropriate surface water connections to the foul sewer system and direct flows to alternative points of discharge where it doesn't increase flood risk

Norfolk County Council should:

- Work with partner organisations to identify funding for flood mitigation. This would include assessing the potential to install property level protection measures, reduce run-off and increase the attenuation of flood water to reduce the impacts of flooding
- Review and monitor the delivery of recommendations within this and other relevant flood investigation reports
- Work with partner organisations to identify the potential for managing the amount of surface water entering their drainage system in flood events

## **Justification for Flood Investigation**

The purpose of this report relates to Section 19 of the Flood and Water Management Act 2010. This legislation sets out that the County Council, in its role as Lead Local Flood Authority for Norfolk, should investigate the role and response of organisations to significant flooding incidents. Significant flooding is deemed to be those incidents that impact upon people, property and infrastructure.

The Norfolk Local Flood Risk Management Strategy Policy UC2 (Flood Investigation) sets out the thresholds the Lead Local Flood Authority will apply to its formal flood investigation role. This states an investigation will be undertaken where it is determined that;

- (a) There is ambiguity surrounding the source or responsibility for a flood incident, and/or;
- (b) There is cause to investigate the flood incident, due to either its impact, or consequence

In judging the impact or consequence of a flood event Norfolk County Council uses the criteria set out below;

- Any risk to loss of life or serious injury.
- One or more residential or business property flooded internally.
- One or more critical services/installations and vulnerable person's properties flooded internally; and/or rendered inoperable or their functions severely compromised due to the access to the premises being impassable; and/or resulting in a loss of service impacting on the local community.
- Any section of a national category 3 road or above made impassable due to flooding; and/or flooding to priority 1 and 2 gritting routes.
- Flooding adversely impacting a rail link by making it impassable.

It was deemed necessary to complete a formal Investigation Report into the flooding in Cannerby Lane as:

- multiple residential properties were internally flooded.
- multiple commercial properties were internally flooded.

This impact met Norfolk County Council's threshold for triggering the undertaking of a formal flood investigation.

The flood investigation report aims to:

- provide a transparent and consistent review of recent flooding.
- identify those organisations and individuals who have responsibility to manage the causes of the flooding.
- identify what their response has been or will be to the flooding.
- make recommendations as to how the flood risk could be mitigated or reduced.
- provide new evidence of the level of risk faced by communities in Norfolk that can be used in current funding bids in support of flood mitigation schemes.

Mitigation measures include property level protection: reinstating lost drainage features: reviewing or increasing maintenance regimes and increasing the capacity of the drainage network.

The flood investigation report cannot:

- Resolve the flooding issues or provide designed solutions.
- Force authorities to undertake any of the recommended actions.

### Flood incidents in Cannerby Lane

Within this area 1 incident of internal flooding has been assessed as part of this investigation. This incident is detailed in the table below.

Date of Incident	Incident as reported	What was the response to the flood incident
09/02/2020	On the 9 <sup>th</sup> February 2020, 2 commercial properties were internally flooded on Cannerby Lane, Sprowston. This incident was reported by: Business owners via flood questionnaire forms on the 13 <sup>th</sup> February 2020, (2220) and the 12 <sup>th</sup> March, (2261).	<ul style="list-style-type: none"><li>Norfolk County Council visited affected residents to offer advice and to gather information.</li><li>Norfolk County Council carried out maintenance works to the highway drainage system.</li></ul>

### Recent rainfall within the catchment

This report seeks to draw on rainfall data to ascertain the intensity of the rainfall events experienced in the catchment that led to the flooding. This analysis is useful in assessing (in broad terms) if the design capacity of drainage systems within the affected areas was exceeded.

Norfolk County Council has sought to use data from rain gauges where incidents of flooding are located within a 2.5 km radius of the instrumentation. This distance meets the requirements of British Standards and aims to capture localised rainfall patterns. Where there is no available data within this radius this will be stated.

There are no rain gauges within 2.5km of Cannerby Lane.

### Historic flooding incidents within the catchment

The following table lists flooding incidents within the catchment that have been recorded:

Date of incident	Impact	Rainfall intensity
Various	There have been several historical flood events along Cannerby Lane. The Lane falls inside of a flow path.	

Properties in Cannerby Lane have experienced repeat flooding. Previous reports of flooding to these properties were included in the Flood Investigation Report for Norwich and Broadland 2014 (FIR008), which can be found at: <https://www.norfolk.gov.uk/-/media/norfolk/downloads/rubbish-recycling-planning/flood-and-water-management/flood-investigation-reports/norwich-and-broadland-2014.pdf>

In response to the recommendations contained within the flood investigation report in 2014, the following actions have taken place:

Norfolk County Council included the lane in the Norwich Fringe Drainage Project. Using funding from this project, two large aquacell surface water storage systems were installed to increase the available capacity of the existing drainage system.

### Causes of flooding within the catchment and recommendations

The findings of the investigation are detailed on the following pages. There is a map for each address affected. The map detail the causes that led to flooding within the catchment as well as when and

where they were experienced. It also sets out which Risk Management Authorities have responsibility to help manage the causes of the flooding. The maps set out recommendations to mitigate the causes and impacts of the flooding experienced within this catchment.

Following flooding to people, property and infrastructure;

- Risk Management Authorities should
  - communicate with affected residents where their assets have given rise to the flooding of properties.
  - review the appropriateness of their response to flooding.
  - Determine the integrity and/or capacity of their assets where they have contributed to the flooding of properties to understand the systems role in accommodating normal rainfall events as well as mitigating flooding.
- Property owners of affected properties should seek their own legal advice.
- NCC should
  - incorporate all relevant information of actual flooding into the review of the Norfolk Preliminary Flood Risk Assessment (“PFRA”).
  - review and monitor the delivery of recommendations within this and other relevant flood investigation reports

Location: **Sprowston**

**Cannerby Lane**— Report of internal flooding to two properties on the 9<sup>th</sup> February 2020

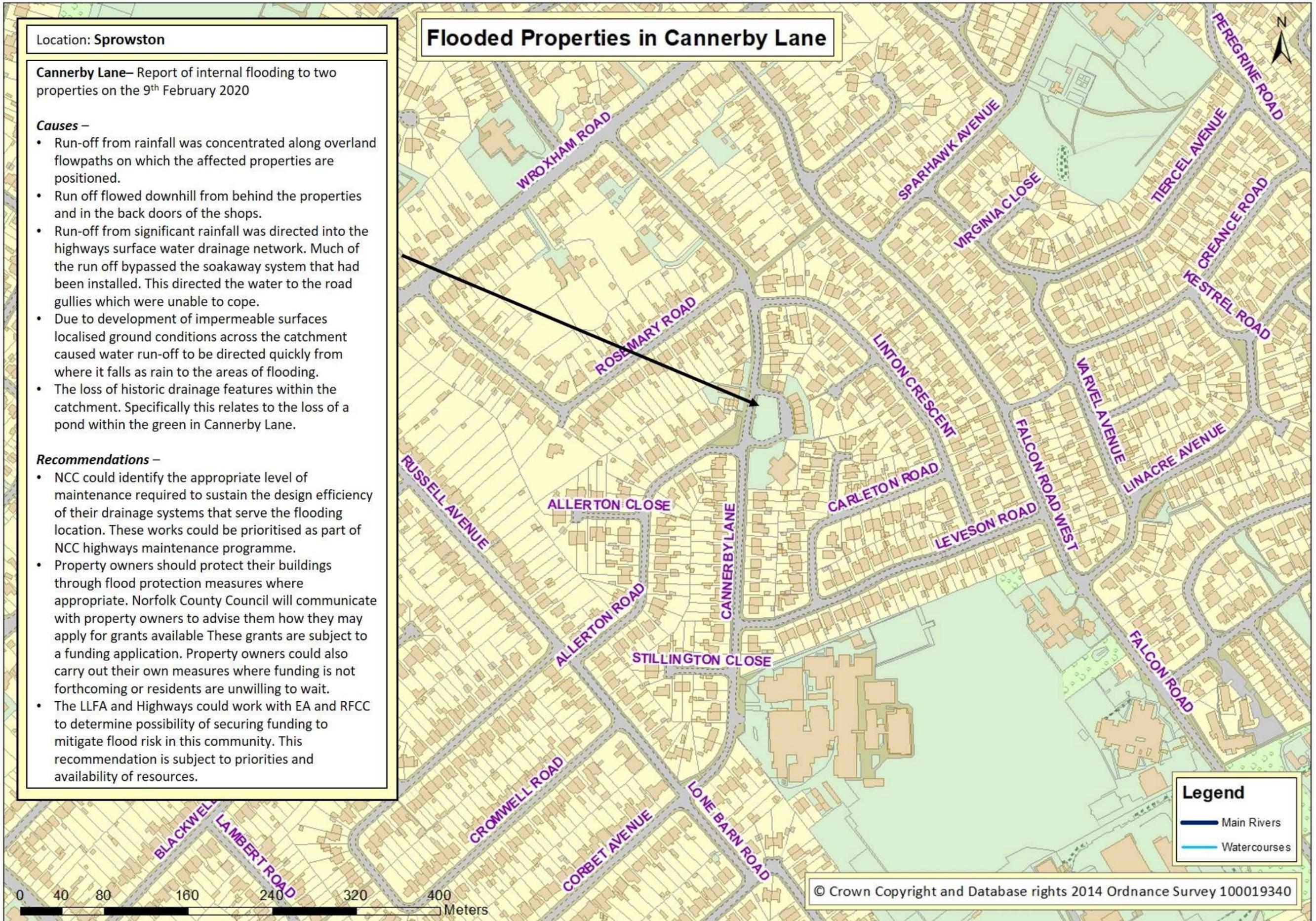
**Causes** –

- Run-off from rainfall was concentrated along overland flowpaths on which the affected properties are positioned.
- Run off flowed downhill from behind the properties and in the back doors of the shops.
- Run-off from significant rainfall was directed into the highways surface water drainage network. Much of the run off bypassed the soakaway system that had been installed. This directed the water to the road gullies which were unable to cope.
- Due to development of impermeable surfaces localised ground conditions across the catchment caused water run-off to be directed quickly from where it falls as rain to the areas of flooding.
- The loss of historic drainage features within the catchment. Specifically this relates to the loss of a pond within the green in Cannerby Lane.

**Recommendations** –

- NCC could identify the appropriate level of maintenance required to sustain the design efficiency of their drainage systems that serve the flooding location. These works could be prioritised as part of NCC highways maintenance programme.
- Property owners should protect their buildings through flood protection measures where appropriate. Norfolk County Council will communicate with property owners to advise them how they may apply for grants available. These grants are subject to a funding application. Property owners could also carry out their own measures where funding is not forthcoming or residents are unwilling to wait.
- The LLFA and Highways could work with EA and RFCC to determine possibility of securing funding to mitigate flood risk in this community. This recommendation is subject to priorities and availability of resources.

## Flooded Properties in Cannerby Lane



## **Disclaimer**

Although every effort has been taken to ensure the accuracy of the information contained within the pages of the report, we cannot guarantee that the contents will always be current, accurate or complete.

This report has been prepared as part of Norfolk County Council's responsibilities under the Flood and Water Management Act 2010. It is intended to provide context and information to support the delivery of the local flood risk management strategy and should not be used for any other purpose.

The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by Norfolk County Council when preparing this report, including, but not limited to those key assumptions noted in the Report, including reliance on information provided by third parties.

Norfolk County Council expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with any of the assumptions being incorrect.

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The implications for producing Flood Investigation Reports and any consequences of blight have been considered. The process of gaining insurance for a property and/or purchasing/selling a property and any flooding issues identified are considered a separate and legally binding process placed upon property owners and this is independent of and does not relate to the County Council highlighting flooding to properties at a street level.

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## **Appendix A - Key definitions and responsibilities**

### **What is flooding?**

Section 1 of the Flood and Water Management Act 2010 states that: "Flood" includes any case where land not normally covered by water becomes covered by water. In addition, this section adds the caveat: "But "flood" does not include – (a) a flood from any part of the sewerage system, unless wholly or partly caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system, or (b) a flood caused by a burst water main (within the meaning given by Section 219 of the Water Industry Act 1991)."

### **What is internal and external flooding?**

For the purposes of this report, properties that have internally flooded are those where it is considered that water has entered the fabric of the building;

- Basements and below ground level floors are included.
- Garages are included if in the fabric of the building. Garages adjacent or separate from the main building are not included.
- Occupied caravans are included but not tents.

External flooding included those properties where water has entered gardens or surrounding areas which restricts access, affects the highway or where flooding has disrupted essential services to the property such as sewerage. For businesses this includes those where the flood waters are directly preventing them trading as usual.

### **What is Local Flood Risk?**

Local Flood Risk is defined by the Flood and Water Management Act 2010 as being flood risk from surface runoff, groundwater and ordinary watercourses.

- 'Surface runoff' means rainwater (including snow and other precipitation) which is on the surface of the ground (whether or not it is moving) and, has not entered a watercourse, drainage system or public sewer.
- 'Groundwater' means all water which is below the surface of the ground and in direct contact with the ground or subsoil.
- 'Ordinary Watercourse' means a watercourse that does not form part of a main river and includes a reference to a lake, pond or other area of water which flows into an ordinary watercourse.

### **Roles and Responsibilities of Risk Management Authorities**

Below is a short summary of those groups and Risk Management Authorities ("RMAs") that have a role in managing flooding within Norfolk. The listing of responsibilities includes those duties or powers that directly relate to managing the flood incidents or consequence. All RMAs have a duty to cooperate with other RMAs.

#### **1. Norfolk County Council (as Lead Local Flood Authority)**

- Duty to investigate significant flooding from any source.
- Duty to maintain a register of structures or features which affect flood risk from all sources.
- Power to undertake works to manage flood risk from surface run-off and groundwater.
- Powers to regulate activities on ordinary watercourses outside of Internal Drainage Board areas.
- Duties as a Category 1 Responder for Emergency Planning and the Fire & Rescue Service.

#### **2. District Councils**

- Powers to undertake works on ordinary watercourses outside of IDB areas.

- The Local Planning Authority for their District area and determine the appropriateness of developments and their exposure and effect on flood risk.
- Duties as a Category 1 Responder for Emergency Planning.

### **3. Internal Drainage Boards (“IDBs”)**

- A duty to act in a manner consistent with the national and local strategies and guidance when exercising FCERM functions.
- Duty to act in a manner consistent with Local Flood Risk Management Strategies when exercising other functions that may affect flood risk.
- Powers to regulate activities on ordinary watercourses within IDB areas.
- Exercise a general power of supervision over all matters relating to the drainage of land within their district.
- Powers to undertake works on ordinary watercourses within IDB areas.

### **4. Highway Authorities (Norfolk County Council / Highways England)**

- Powers to undertake works to manage water on the highway and to move water off the highway.
- Enforcement powers to unauthorised alterations, obstructions and interferences with highway drainage.
- Have responsibilities for culverts vested in the highway. Currently NCC discharges its responsibilities associated with bridges and culverts (whether as owner or highway authority) through the inspection of condition (undertaken by the Bridges team) and through maintenance activity (delivered on a as needs basis by the relevant Highways area team).

### **5. Water Companies**

- Undertake cost beneficial capital schemes to alleviate or eliminate flooding where the flood event is associated with a failure of their assets.
- Duty to provide, improve, maintain and operate systems of public sewers and works for the purpose of effectually draining an area.
- Are responsible for flooding from their foul, combined and surface water sewers, and from burst water mains.
- Maintain ‘At Risk Registers’ for Ofwat that record properties that have flooded from public foul, combined and surface water sewers and that are at risk of flooding again.
- Water companies respond to reports from the public of flooding associated with their assets and determine an appropriate response in line with their standards or customer service.
- Duties as a Category 2 Responder for Emergency Planning.

### **6. Riparian Owners**

- Duty of care towards neighbours upstream and downstream, avoiding any action likely to cause flooding.
- Entitled to protect their properties from flooding.
- May be required to maintain the condition of their watercourse to ensure that the proper flow of water is unimpeded.