

Report of Director of City Development

Report to Executive Board

Date: 8th February 2017

Subject: Storm Eva Flood Investigation Section 19 Report

Are specific electoral Wards affected? If relevant, name(s) of Ward(s):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are there implications for equality and diversity and cohesion and integration?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the decision eligible for Call-In?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Does the report contain confidential or exempt information? If relevant, Access to Information Procedure Rule number: Appendix number:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Summary of main issues

1. On 26 to 27 December 2015 Storm Eva caused unprecedented flooding, having a significant impact on residents, communities, business and infrastructure across the district.
2. Under the Flood & Water Management Act 2010, Section 19 there is a requirement for Lead Local Flood Authorities to carry out investigations on the flooding and publish the results.
3. The council's Flood Risk Management section were out in attendance during the flood event and have since carried out investigations into the flooding incident and have produced the Storm Eva Flood Investigation Section 19 Report looking at the areas affected, the main causes and the responsible Risk Management Authorities concerned.

Recommendations

4. Executive Board is recommended to:
 - i) approve the Storm Eva Flood Investigation Section 19 Report;
 - ii) agree a copy of the approved Section 19 report is sent to the Secretary of State for DEFRA, drawing particular attention to the recommendations; and

- iii) note the Chief Officer Highways and Transportation will be responsible for actioning recommendation (ii) above.

1 Purpose of this report

- 1.1 The purpose of this report is to provide information with regard to the flooding that occurred during Storm Eva in December 2015 and give approval for the Storm Eva Flood Investigation Section 19 Report to be published.

2 Background information

- 2.1 On 26 to 27 December 2015 Storm Eva caused unprecedented flooding across the whole district of Leeds, having a significant impact on residents, communities, business and on infrastructure.
- 2.2 Members are asked to note the content of the report but in addition also be aware that in taking into account the numbers of properties impacted during Storm Eva it was important to properly collate and report numbers based on the criteria set out in two separate pieces of guidance. One set out by DCLG with reference to helping people and businesses recover and the other set-out by DEFRA under Section 19 of the Flood and Water Management Act designed to capture the nature and extent of a flood event. This report has been compiled based on the DEFRA guidance, as this is the principal guidance for the collation of S19 reports.
- 2.3 This has resulted in the total number of properties reported to central Government under the terms of the DCLG EVA scheme as flooded and flood affected (including severely) in Leeds to be 3368, with these figures being finalised as of June 2016. However, within this report (following the DEFRA guidance) once finalised in late September 2016, the figure for all flooding (internal and external) incidents reported across the metropolitan district of Leeds stands at 4712.
- 2.4 The event led to widespread disruption and flooding of major transport links and affected critical infrastructure including:
- Closure of the A65 Kirkstall Road a major route into the city centre;
 - Structural damage and closure of Linton Bridge linking Collingham to Linton and Wetherby;
 - Closure of Network Rail, Airedale Line at Kirkstall;
 - Northern Power Grid electricity sub-stations at Kirkstall with the electricity supply to 27,000 properties being temporarily disrupted from 20:11 hours on the evening of 26 December 2015;
 - Information Technology, communications and data centres.
- 2.5 During the immediate aftermath many communities with volunteers from across the country supported those affected and helped in the recovery process.

2.6 The Council by working together with these local communities, volunteers, and partners, responded to a range of recovery actions in affected areas using a citywide Strategic Recovery Plan. Most actions from the strategic recovery plan, which has been reported to Executive Board previously, are now completed and the focus will now be on the development of long term infrastructure projects.

3 Main issues

3.1 Flood & Water Management Act 2010 Section 19 Report

3.1.1 The Flood & Water Management Act 2010, under Section 19, requires the Lead Local Flood Authorities:

(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.

3.1.2 The scope of the report include:

- Background information on the location
- A summary of the event
- Consideration of the likely causes
- An indication of the roles and responsibilities of each risk management authority and action taken or proposed
- Recommendations arising from the investigation

3.1.3 The Section 19 report at Appendix 1 focuses on the flooding that occurred in the Leeds district on the 25 to 29 of December from the Rivers Aire, Calder and the Wharfe using a range of data collected from affected residents, site visits, surveys of the area, and data collected by other stakeholders and river and rainfall telemetry during the flood event. It identifies the flow routes and the causes of the flooding where sometimes informal flood defences and even formalised flood defences on occasion were overtopped or bypassed.

3.1.4 In preparing the Section 19 report, members of the Council Review Team have examined evidence from thousands of reported incidents. The team has also attended a number of community meetings and visited many parts of the district

affected by the flooding, spoke to people involved and witnessed damage to homes and businesses to further inform the report's findings.

3.2 Section 19 Report Findings

- 3.2.1 Prior to the 26 to 29 December 2015 flood event, the River Aire, Calder and Wharfe catchments had already experienced a number of heavy and prolonged periods of rainfall throughout November and December 2015 leading to saturated catchments and periodic flooding.
- 3.2.2 Further heavy rainfall over the Christmas period falling on this already saturated ground led to almost instant run off, and therefore rapid river rise with many river level stations reaching their highest levels ever recorded.
- 3.2.3 The flow in the River Aire in Armley on the 27 December 2015 was the highest ever recorded, resulting in flood levels in some locations that were approximately 1.2m higher than that recorded during the Great Leeds Flood of 1886 as set on a plaque at Armley Mills.
- 3.2.4 Storm Eva resulted in a fluvial event that has been estimated to be in excess of a 0.5% (1 in 200) Annual Exceedance Probability (AEP) event.
- 3.2.5 This phenomenon resulted in widespread fluvial flooding from Main Rivers which overtopped due to channel capacity being exceeded. The flooding was exacerbated in all cases by high river levels surcharging conventional surface water drainage systems, preventing free discharge from the surface water network and consequently backing up through road gullies, manhole chambers, private drainage systems and such like.
- 3.2.6 The Flood Risk Managing Authority responsible for Main Rivers is the Environment Agency.
- 3.2.7 The Environment Agency working in partnership with the Met Office issued by the evening of 26 December 2015 a total of nine Severe Flood Warnings. The effect of a saturated catchment from previous storms and how it would impact on the severity and the speed of the flooding may not have been fully appreciated.
- 3.2.8 The Environment Agency had their emergency control room manned during and after the event and put measures in place to support immediate and long term recovery.
- 3.2.9 It is recognised that any solutions to mitigate flooding in the future has to be looked at catchment wide with measures that could vary from higher barriers to upstream water management. Leeds is working in partnership with the Environment Agency and other stakeholders to identify and support mitigation work across the Aire and Wharfe catchment areas.

3.3 River Aire Upper Catchment

- 3.3.1 The River Aire upper catchment covers the area upstream from Woodlesford to its source which includes the City Centre to Kirkstall.

- 3.3.2 The previous estimates by the Environment Agency were that over 4,500 residential and commercial properties were at risk, with approximately £400m of direct damage, if there were to be a major flood from the River Aire in Leeds. There were relevant reports to Executive Board between 2009 and 2014 on this matter with the Leeds (River Aire) Flood Alleviation Scheme report dated 10 February 2012 informing Members that the proposed £188m flood defence scheme, providing a 1 in 200 year standard of flood protection, would not be funded in the near future. The £188m scheme had previously been subject to significant preparatory work and had been included in the Environment Agency's work programme, subject to further discussions on funding.
- 3.3.3 In light of that, a phased approach had to be adopted and a report to Executive Board on 4 September 2013 proposed implementation of Phase 1 of the Leeds (River Aire) Flood Alleviation Scheme which had the aim of defending the City Centre against a 1 in 75 year flood event. The £45m scheme has since commenced development with advance mitigation works in Woodlesford having been completed and the main scheme in the city centre projected to complete in 2017.
- 3.3.4 Following a meeting of the Leader of Council and the Leeds MPs with the Secretary of State for Environment, Food and Rural Affairs, a commitment was received from the Secretary of State to fund the feasibility study for the next phase of the Leeds (River Aire) Flood Alleviation Scheme which aims to provide Kirkstall with the same level of protection as the Phase 1 scheme being constructed for the City Centre.
- 3.3.5 On 20 April 2016 Executive Board agreed that the Council would work with the Environment Agency and other partners and spend £3m to develop proposals in efforts to secure funding for an upstream flood alleviation scheme and programme of flood defence measures.
- 3.3.6 A contract was procured and awarded in September 2016 appointing BMM Joint Venture Ltd to undertake Feasibility and Preliminary Design.
- 3.3.7 The scope of the works includes looking at the whole catchment to look for schemes that could be delivered quickly, identify upstream storage options and to consider innovative solutions. The modelling work and option appraisals will take time and outline proposals is planned to be available in 12 months' time.
- 3.4 River Aire Lower Catchment and the River Calder**
- 3.4.1 The Environment Agency has commissioned a consultant to produce a model of the Lower Aire Catchment; that is the area downstream from St Aidan's including the confluence of the River Calder.
- 3.4.2 This model will identify the area at risk of flooding since the St Aidan's was commissioned. St Aidan's is a large area of former opencast and coal mining land area between Swillington and Methley located adjacent to the River Aire that provides storage during extreme river flows.
- 3.4.3 The new model will enable Leeds and the Environment Agency to identify the areas at most risk and which measures could potentially mitigate these risks.

3.4.4 Leeds have identified and are in the process of delivering a scheme in 2017 adjacent to Pit Lane in the Methely/Mickletown area which will increase the resilience from flooding for the majority of the properties that experienced internal flooding during Storm Eva.

3.5 **River Wharfe Catchment**

3.5.1 With Environment Agency support a Wharfe catchment partnership team has been established with representatives from Leeds City Council, City of Bradford Metropolitan District Council, North Yorkshire County Council, the Environment Agency, Yorkshire Water and the Yorkshire Dales Rivers Trust, the intention being the team will work collaboratively to look at whole catchment solutions.

3.5.2 The first phase of work to review the current documentation and data associated with the River Wharfe catchment and to recommend the scope for the subsequent stages is nearly complete.

3.5.3 A number of communities were affected along the River Wharfe throughout the Leeds district, meaning the next steps need to include securing funding to take forward the solutions identified from the above work.

3.5.4 The extreme river flows experienced in December 2015 caused the undermining of the support structures to Linton Bridge, which is a listed structure connecting the communities of Linton, Collingham and Wetherby. This resulted in 200mm of settlement closing the bridge to all traffic and pedestrians. Temporary stabilisation works are being undertaken and will be completed by Christmas, with the permanent repair and strengthening works following immediately in January 2017. These repairs will enable the bridge to be re-opened to its original 40T rating in the summer of 2017. The repair method has been developed with the support of Historic England which will retain the bridge's visual appearance. It is anticipated that the total cost associated with stabilising and repairing Linton Bridge will be approximately £4.1m.

3.6 **Watercourses and Surface Water Flooding**

3.6.1 Although Storm Eva caused fluvial flooding from Main Rivers it must be noted that other communities across the district were also affected by flooding during 2015 and the 2015/2016 winter by pluvial (surface water) flooding from either intense rainfall or ground that was saturated with very high water tables.

3.6.2 The council has supported a number of flood mitigation schemes over recent years, such as the recently completed Glebelands Storm Water Attenuation Scheme at Garforth and given approval to deliver the Killingbeck Meadows Natural Flood Management Scheme that not only benefits the local community by mitigating the risk of flooding, they also attenuate and delay the flow from the catchment to the main rivers.

3.7 **Summary**

3.7.1 Flooding is a natural process and according to the National Assessment of Flood Risk around one in six properties are at risk of flooding nationally. More than 5

million people live and work in 2.4 million properties that are at risk of flooding from rivers or the sea, one million of which are also at risk of surface water flooding. A further 2.8 million properties are susceptible to surface water flooding alone.

- 3.7.2 Whilst it will never be possible to fully prevent all flooding happening, tackling flooding is therefore more than just defending against floods. It means understanding the complex causes of flooding and taking co-ordinated action on every front in partnership with other agencies and stakeholders to reduce flood risk by optimising the benefit from every pound spent on flood risk management, given the premise that there will never be enough national funding to address every need.
- 3.7.3 The legal position regarding flooding is that it is not the Council's or the Environment Agency's responsibility or duty to protect private and commercial property against the risk of flooding. Notwithstanding this, the Council and the Environment Agency both recognise the fundamental importance of safeguarding the wider community, and, in doing so, the economic, social and healthy wellbeing of the people of Leeds.
- 3.7.4 It is therefore important that Leeds work closely with the Environment Agency and other stakeholders including community groups to identify and deliver measures that would mitigate the risk and impact of flooding.
- 3.7.5 The Government has recently published two reports; 'National Flood Resilience Review' and 'Future Flood Prevention'. The content and recommendations of these reports will need to be considered and reviewed with any actions we or other stakeholders bring forward to mitigate the risks from flooding.

4 Corporate Considerations

4.1 Consultation and Engagement

- 4.1.1 Community engagement events have taken place across the district and liaison with community groups and flood groups will continue to take place.
- 4.1.2 Flood Risk Management officers have visited or engaged with a number of businesses and infrastructure stakeholders to gain information on how they were impacted by the flooding.
- 4.1.3 Specific proposals to further mitigate the risk of flooding and its impacts upon residents, businesses and communities have been and will continue to be discussed, subject to specific consultation and engagement arrangements.

4.2 Equality and Diversity / Cohesion and Integration

- 4.2.1 The Equality and Diversity, Cohesion and Integration screening document has been completed to ensure due regard to equality issues and is attached for reference at Appendix 2. This has indicated that there would be no specific implications for equality groups.

4.2.2 It should be noted that by carrying out the flood management works the Council will be ensuring the safety of the local community and in particular more vulnerable residents such as those who are elderly or have a disability and may struggle to get to safety if flooding occurred.

4.3 **Council policies and Best Council Plan**

4.3.1 Under the council's renewed Best Council/Best City ambition Leeds aspires to be a compassionate city with a strong economy, supported by an efficient and enterprising local authority that works effectively with partners and communities. The response to December's flooding in Leeds was a testament to this compassion and joined-up working while the commercial effects highlight the importance of managing the risk of flooding for individual businesses affected (owners and employees) and the wider economy of Leeds.

4.4 **Resources and value for money**

4.4.1 The risk of flooding cannot be eliminated but measures can be taken to mitigate the impact and frequency of flooding but it is unlikely that there will be sufficient funding available to implement all measures. This Flood Investigation report will potentially enable stronger cases to be built for future funding by stressing the need for secured investment in flood alleviation schemes to help prevent a repeat of the devastation experienced in December 2015.

4.5 **Legal Implications, Access to Information and Call In**

4.5.1 There are no specific legal implications arising from this report.

4.5.2 Under Section 19 of the Flood & Water Management Act 2010 there is a statutory requirement on the Council as the Lead Local Flood Authority to produce a report investigating the reasons for major flood events, and identified measures that could be taken by the appropriate Flood Risk Authority in order to mitigate such events in the future.

4.6 **Risk Management**

4.6.1 The council recognises that major flooding occurring in Leeds has a significant impact on homes, business, land and infrastructure and has identified this as a very high corporate risk. The Council as a Lead Local Flood Authority manages these risks through the Leeds Local Flood Risk Management Strategy that was adopted by Full Council on 26th March 2014 and reviewed at Scrutiny Board annually.

5 **Conclusions**

5.1 The Storm Eva Flood Investigation Section 19 Report (Appendix 1) has been produced following consultations with residents, businesses, infrastructure stakeholders and other flood agencies and gives a comprehensive view on the information that could be gathered. The results of these findings should be published in accordance with the Flood & Water Management Act 2010.

6 Recommendations

6.1 Executive Board is recommended to:

- i) approve the Storm Eva Flood Investigation Section 19 Report;
- ii) agree to a copy of the approved Section 19 report is sent to the Secretary of State for DEFRA, drawing particular attention to the recommendations; and
- iii) note the Chief Officer Highways and Transportation will be responsible for actioning recommendation ii) above.

7 Background Documents¹

7.1 None.

8 Appendices

8.1 Appendix 1: Storm Eva Flood Investigation Section 19 Report

8.2 Appendix 2: Equality and Diversity, Cohesion and Integration screening document

¹ The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.