Item 4a

Report of the Executive Director Core Services
and the Executive Director Place,
to the Overview and Scrutiny Committee (OSC)
on 12th October 2021

Barnsley Flood Recovery

1.0 Introduction

1.1 This report provides the Overview & Scrutiny Committee with an update regarding activity across the borough following the November 2019 floods which directly affected 100 properties and 11 businesses.

1.2 The report covers progress on the following key areas:-

- remedial works undertaken by the Council and partner organisations to date to reduce the likelihood and impact of further flooding
- measures being undertaken by the Council to bolster the response to any future flooding incidents
- the "Section 19" report which identifies whether the relevant flood risk management authorities discharged their statutory duties or not
- the proactive steps being taken in conjunction with Sheffield City Region Combined Authority (SCR) to raise the profile of the lack of investment into flood mitigation in South Yorkshire

1.3 Although the response to the COVID pandemic has caused delays with recovery activities, a significant amount has still been achieved and the report demonstrates that:-

- even in the midst of the response and recovery effort to the COVID emergency the Council has retained focus on improving and investing in the areas most susceptible to the impact of flooding
- Barnsley has been working at regional and national levels to raise the profile of the additional investment needed to protect the most vulnerable communities in Barnsley and across South Yorkshire

1.4 To support the report, Item 4b (attached) outlines the investigation carried out by the local authority of the flooding event in Barnsley on 7th and 8th November 2019, as required under Section 19 of the Floods and Water Management Act 2010.

2.0 Background

2.1 Flooding can be caused by:-

- Run-off water from fields and over-full rivers, usually following heavy rainfall
- Blocked drains
- Cracked or burst water pipes

2.2 The local authority is responsible for managing flood risk in Barnsley from surface water, groundwater and ordinary watercourses; the Environment Agency is responsible for managing flood risk relating to rivers and streams; Yorkshire Water is responsible for cracked or burst water pipes and public sewers.

2.3 Following the widespread and serious flooding in England during June and July 2007, an independent review was carried out. Following this the Flood and Water Management Act was implemented, and Councils took on additional duties as Lead Local Flood Authorities. The Council, as a Lead Local Flood Authority has a statutory duty to investigate (under Section 19 of the Floods and Water Management Act 2010) on becoming aware of a flood in its area.

2.4 Between November 2019 and February 2020 severe flooding affected many parts of the United Kingdom, commencing with South Yorkshire in November 2019. The Met Office HAD-UK dataset shows it to be the wettest 5-month period ending October for the River Dearne and River Don catchment since 1891.

2.5 Storms Erik, Freya, Gareth, Hannah and Lorenzo brought strong winds and heavy rains prior to the November flood event with the Met Office reporting South Yorkshire as the wettest county across the

country in autumn 2019, compared to the long-term average (1981-2010) with more than double its average rainfall for the season (425.4mm compared to an average of 208m).

2.6 On 7th November 2019, persistent and intense rainfall fell across many parts of North England arising from a weather front that was stationary across the region from the early hours of Thursday 7th November for approximately 24 hours. The most intense band of rain was located over the four South Yorkshire Authority areas which had devastating effects on communities in those areas who are at flood risk. The November flood event has been estimated as 1:100 – 1:150 year event.

2.7 Although the Council is required to carry out a Section 19 investigation following a flooding event, it has discretion in terms of the depth of investigation undertaken and the degree of follow up. Item 4b (attached) details the investigation carried out following the events in November 2019. In addition, area specific investigations into the unique causes of flooding at specific locations have been progressed as part of individual work packages but these are not contained within the Section 19 report, for example, the specialist technical reports that have been prepared for the Lundwood Flood Alleviation Scheme (FAS) and Worsbrough reservoir.

3.0 Current Position

3.1 Following the November 2019 floods a number of high-risk locations were identified and plans for remedial works established to improve future flood mitigation. Key work being carried out is as follows:-

Lundwood Flood Alleviation Scheme (FAS)

3.2 The Authority had previously carried out a number of pro-active steps to protect properties including the installation of 282 flood vents, 25 door guards and 15 waste pipe locks following the floods of 2007, all of which offer a level of protection for internal areas.

3.3 As a follow-up, in June 2020, 70 properties on Lang Avenue (previously affected by flooding) were visited to check that the property flood defences installed continued to be fully functional and identify any further works required. To ensure that the issues had been fully addressed, a Berneslai Homes led task and finish group was established to determine the long-term options for the area.

3.4 In October 2020, Yorkshire Water completed a number of maintenance activities to a 500m stretch of the local drainage ditch which removed over 50 tonnes of debris, improving watercourse flow.

3.5 All highway gullies in the immediate area have been inspected and maintained.

3.6 An independent environmental consultancy agency was engaged to carry out a flood threat assessment, including a solution/options appraisal and cost benefit analysis. The Stage 1 report was received in August 2020 with the draft Stage 2 report received in December 2020. Work is now ongoing to refine the Stage 2 proposals and final options are being reviewed, including refined costings. The recommended resilience work has an initial estimated cost of £525,000 with an upper limit of £1 million.

3.7 Business cases have been prepared and submitted to the Capital Oversight Board and categorised as an immediate priority (ref Project C22 – BMBC Priority Investment Schemes).

3.8 The Lundwood Flood Alleviation Scheme has been identified as one of 9 regional accelerator programmes put forward by Sheffield City Region (Nov 2020), and has been allocated £150,000 to progress the development of the scheme. The scheme is also part of Barnsley's programme put forward to the Environment Agency for a grant funding contribution in the medium-term plan which was finalised in March 2021.

3.9 Proactive engagement has been on-going with local residents and elected members, the most recent of which was a virtual round table discussion and update on 16th March 2021 with Dan Jarvis MP, Cllr Chris Lamb, representatives from Highways and Engineering, Berneslai Homes and local residents.

Bulling Dike – Low Valley

3.10 Categorised as a Flood Zone 2 location, the dike forms part of the River Dearne catchment. During the events of 2019, the River Dove overtopped its banks, some of the flood waters then entered Bulling Dyke.

This combined with the flows in Bulling Dyke caused the Dyke to overtop, flooding properties on Station Road, Cotterdale Gardens and surrounding streets.

3.11 The Danvm Drainage Commissioners Internal Drainage Board (IDB), who elect to maintain the watercourse, following consultations with BMBC, have carried out approximately £0.1m remedial works along its length, during February 2020.

Worsbrough Reservoir

3.12 Worsborough reservoir was built in 1793 and has a capacity of 266,000m3. This reservoir is flood categorised as 'A', a "High Risk" reservoir due to its size and potential for flooding 20 properties and businesses downstream.

3.13 Prior to the November flood events, the concrete spillway was identified as requiring investigation and possibly requiring works to be carried out. At the request of the All Reservoirs Panel Engineer (DEFRA appointed civil engineer who performs periodic safety inspections), a site visit took place on 7th November 2019. The report from this inspection has been used to form the basis of specifications and activity schedules of work for the various spillway components.

3.14 Despite taking mitigating actions to reduce the reservoir levels, the heavy rainfall meant that water was still flowing over the spillway. The Engineer's recommendation was to undertake the structural survey promptly without delay and to prevent, as far as possible, the use of the spillway. Given the levels of rainfall experienced over the 7/8th November 2019 it was anticipated that extensive re-construction work would be required.

3.15 Following the initial visit from the All Reservoirs Panel Engineer, a number of technical reports have been commissioned and delivered. The repair works are highly specialist and complex and there are a number of considerations, including, fish stocks; fish breeding season; potential for compensation claim from the anglers; water levels in the river Dove / flooding; displacement of invasive crayfish; loss of commercial income to the Council; access issues for plant / equipment / ballast; working on dangerous structure / height; and reputational issues.

3.16 An inspector visited the site on 28 October 2020 to undertake the annual inspection and was satisfied that the plans to undertake the repairs to the Spillway were progressing and would address the identified issues. Following discussions with the inspector and procurement colleagues, it was determined that specialist support would be enlisted to create a schedule of works and contract documentation that could then be used by BMBC to competitively appoint a rope access specialist contractor to carry out the spillway repair works. Availability of all parties to complete this procurement exercise means a contractor was not expected to be appointed until late Spring/Summer 2021. Works commenced in late August 2021 and are expected to be completed in November 2021, weather permitting. In addition, advice was sought from the Environment Agency's Fisheries team in respect of timings to conduct the repairs so as to minimise impact on fish stocks/breeding activity.

3.17 In May 2021, the inspector returned to undertake his five yearly inspection which is more detailed. Worsborough Reservoir is designated as a High-Risk Reservoir by the Environment Agency and Section 10 of the Reservoirs Act 1975 places a statutory obligation on the Council to have a High-Risk Reservoir inspected from time to time by an independent qualified civil engineer and to obtain from that engineer a report of the result of the inspection. The draft report has now been received and is under review by officers to understand the implications of its findings. Many recommendations are covered off by the above referred to works but the Council should expect further significant spend requirements in coming years to satisfy all aspects of the report's recommendations. £250,0000 has already been released by the Senior Management Team to progress the investigation and commence the required repairs.

3.18 As well as the spillway repairs, there is a requirement to undertake further analysis of embankment erosion and options for repair thereof. As that piece of work has more impact on site visitors/anglers, rather than posing a flood risk, it has been determined that all aspects of that work should be competitively procured. An arm of North Yorkshire County Council, have been appointed under a framework agreement to support with the initial options appraisal, organisation of necessary surveys and production of a design solution. The embankment is split across two portions of the north bank (known locally as Kip's wall and the shallows). The banking along the shallows area is the main focus in this financial year as it has greater risks to general public safety than does the Kip's wall area. It is estimated (though actual costs may change

once the final design is known and site access restrictions are taken into account) a further £400k will be required to repair the shallows area and this should be done within the 2021/22 financial year to minimise risks to the public

Barnsley Culvert Replacement Programme

3.19 Barnsley has a large number of watercourses which have been culverted (a structure that allows water to flow under a road etc), many of which date back hundreds of years. Most of the culverts are of unknown structural condition, ownership and in some cases location.

3.20 Barnsley has put forward a programme of culvert identification, assessment, and repair into the Environment Agency's Medium-Term Programme and to Sheffield City Region to secure funding to carry out structural and hydraulic surveys on some of these watercourses. Around £6 million over 4 years is required to complete the programme.

3.21 The watercourses which will be investigated will be prioritised based upon potential risk of flooding to properties and businesses. The project is at an early stage and recently secured £250,000 of initial investment to commence investigations in the 2021/22 financial year.

Enhanced Highway Maintenance Programme

3.22 In 2020, the Council invested an additional £1M to proactively investigate, repair and improve the drainage asset to accelerate the recovery from flooding. A program of enhanced maintenance and investigation has been carried out, prioritised by road classification and history of flooding.

3.23 This programme of work has been very successful and has allowed some 5,200 problem locations to be investigated. This investigation programme has resulted in a significant number of non-operational gullies restored to working order and a further 230 schemes completed to improve resilience across the drainage network

Section 19 Report

3.24 The final full draft report summarising the impact of the November 2019 floods, the underlying cause of the flood event and, the identification of all Risk Management Authorities with relevant flood risk management functions can be found at Item 4b.

4.0 Future Plans and Challenges

Revised Operational Flood Response Plan

4.1 The local authority's Operational Flood Response Plan sets out the actions they will take during a flood event based on the resources they have available.

4.2 The plan sets out the strategy in three key areas:-

1. Routine maintenance activities to drainage assets under our control
2. The level of response we will provide to support communities at risk of flooding during a flood event
3. The level of response we will provide to support the recovery process following a flood event

4.3 The plan also sets out the locations of key assets and high-risk locations, including, detailed plans for each location, trigger river levels, flood store locations and flooding history and has been revised with input from BMBC's Heath, Safety & Emergency Resilience Service and Highway Drainage Engineers to better reflect the lessons learned following the November 2019 flood event. Further revisions will take place following the lessons learned from the February 2021 Storm Christoph event.

4.4 The plan was presented to the Local Resilience Forum in September 2020 for ratification and inclusion, as an appendix, into South Yorkshire's LRF Flood Plan. Further collaborative working is required across partner agencies to develop a comprehensive catchment & investment plan linking up the LRF and SCR activities

Leveraging Investment

4.5 Following the November 2019 floods, the City Region Mayor and South Yorkshire Local Authorities Leaders jointly submitted a Business and Infrastructure Resilience Flood Priority Programme for South Yorkshire with an investment ask of £271m to protect over 2,800 businesses and 10,300 homes. The Programme was shaped by lessons learned from flooding in November and was designed to invest in new infrastructure and natural flood management measures to mitigate this type of flood event.

4.6 On May 5th 2020, the Secretary of State responded indicating that it was "contrary to funding policy to fill funding gaps" and instead redirected the Partnership back towards the annual funding cycle for flood investment administered by the Environment Agency and DEFRA (Department for Food and Rural Affairs).

4.7 The Government announced a doubling of investment for flood schemes in its March 2020 budget. Nationally this equates to £5.2 billion of investment over the next six-year programme between April 2021 and to March 2027. In light of this, the Environment Agency (EA) has been working with local authorities to refresh its spending programme for South Yorkshire. The Programme will take account of changes in local projects and reflect South Yorkshire's Flood Priority Programme as closely as possible.

4.8 Current proposals would see around 100 flood schemes implemented in total in South Yorkshire, with an estimated value of around £420 million. Projects range from small scale drainage works and property level protection measures to large scale flood defence schemes such as Rotherham to Kilnhurst (£24 million) and the Upper Don (£38 million). The schemes included in this Programme specific to Barnsley and led by the local authority are:-

- Lundwood Flood Alleviation Scheme(£1M)
- Bansley Culvert Programme (£6M)
- Worsbrough Reservoir (TBD following further investigation)
- Church Street, Darton (TBD following further investigation)

4.9 In addition to those led by the local authority, the Environment Agency will lead on:-

- A Nature based Solutions Programme in the Mid-Don (Barnsley and Rotherham) area
- The National Environment Agency investment programme (including the South Yorkshire regional element) was agreed and published at the end of March 2021, with annual reviews scheduled thereafter
- The development of the South Yorkshire flood priority programme providing a strong basis for further planning and development of joined up flood mitigation and adaptation activity at the South Yorkshire scale.

4.10 Working in partnership with the Environment Agency, local authorities and other stakeholders developed a new Catchment Wide Flood Plan for South Yorkshire, having been approved by the South Yorkshire Chief Executives in January 2021. The launch date of the catchment plan is scheduled for December 2021. The plan sets out an integrated holistic policy and investment approach to addressing future flood risks across South Yorkshire, and the collective actions to respond to the climate and environment emergency. It will provide a strong, strategic level ambition to not only tackle the causes of flooding, but also the symptoms, and will aim to do this in a way that benefits all communities in South Yorkshire. The Plan provides an opportunity to do things differently and become a national example of innovation and excellence.

4.11 The plan is being driven by both the Sheffield City Region (SCR) and the South Yorkshire Flood Partnership and the Council is well represented on both groups. In addition, the Yorkshire regional Flood and Coastal Committee environmental sub-group is investigating a source to sea approach, evaluating a package of Natural Flood Management and hard engineering options.

4.12 Discussions have also taken place between the SCR Mayor, Leaders and the Government which culminated in a South Yorkshire Flooding roundtable hosted by the Secretary of State on October 8th 2020. Following the round table discussion, the Mayoral Combined Authority wrote to the Secretary of State for Environment, Food and Rural Affairs on November 6th 2020 requesting additional funding support for priority projects.

4.13 In addition, the Mayoral Combined Authority (MCA) set out a proposal to make £5.5M of SCR funding available for a list of 9 accelerator projects, two of which (Lundwood FAS and Barnsley Culvert

Programme) are named projects within the Barnsley area. Subsequent discussions have now culminated in an allocation of £400,000 to accelerate the delivery of both the Lundwood FAS (£150,000) and the Barnsley Culvert Programme (£250,000).

Recent Flood Events- Lessons Learned

4.14 Government restrictions and COVID secure ways of working have introduced additional complexities for the deployment of resources in a flood response scenario.

4.15 Storms Alex (2-4 October 2020), Aiden (31st October 2020), Bella (26-27 December 2020) and Christoph (18-20 January 2021) were all high risk, heavy rain events that brought with them the potential for increased flood risk for the Yorkshire and Humber region.

4.16 Thankfully, these storms were of a size and scale that could be managed by the council's in-house resource, supported by the traditional standby and winter rosters. The events demonstrated that the revised safe systems of work for response are effective.

4.17 The impacts of these storms were not of a significant enough scale or duration to put the council's full capacity and capability to the test, however a number of lessons learned were captured and referred back to the Senior Management Team for review. As a result, a number of recommendations for improvement have been made, which include:-

1. Expansion of the Corporate Emergency Resilience Team with additional roles of on-call Silver Officers
2. Further development of vulnerable persons intelligence arrangements and information sharing between response agencies (i.e. Fire and Rescue and South Yorkshire Police)
3. Review the Operational Food Plan with the learning from the Storm Christoph flood response activities
4. Reviewing flood information webpages and flooding key messages for inclusion in the Operational Flood Plan
5. Strengthen links with community volunteers to further develop community-based response resources and engagement

Impact on Communities

4.18 Flooding in Barnsley has affected people from a range of communities, ages and backgrounds. However, long-term impacts are exacerbated by pre-existing disadvantages, for example health problems, isolation and poverty. A strong focus on continued flood recovery and renewal in Barnsley by its very nature seeks to protect our most vulnerable populations from the disproportionate impact of future flooding on their wellbeing and life chances.

4.19 Flooding has a significant impact on public health. The November floods generated a number of physical risks for people, from the direct risk of the incident itself to the contamination risk associated with clean-up activities. The November 2019 event also had a considerable impact on the emotional wellbeing of affected people, families and communities.

4.20 It is therefore crucial that focus remains on flood recovery and mitigation works to minimize the risks of significant future flooding and secure improved health and wellbeing outcomes for the residents of Barnsley.

5.0 Invited Witnesses

5.1 The following witnesses have been invited to answer questions from the Committee:-

- Matt Gladstone, Executive Director Place, BMBC
- Paul Castle, Service Director Environment and Transport, Place Directorate, BMBC
- Matt Bell, Head of Highways and Engineering, Place Directorate, BMBC
- Ian Wilson, Service Manager, Highway Delivery, Place Directorate, BMBC
- Daniel Crossley, Head of Repairs, Maintenance & Building, Berneslai Homes
- Nicola Staniforth, Project Manager, Place Directorate, BMBC
- Councillor Pauline McCarthy, Cabinet Support Member (Environment and Transportation), BMBC

6.0 Possible Areas for Investigation

Members may wish to ask questions around the following areas:-

- What does success look like and how will you know if it has been achieved?
- What are the barriers to achieving success and how do you plan to overcome them?
- What specific risks are associated with the plans?
- What is the system for monitoring & evaluating progress?
- How do you plan to gain the necessary investments to carry out the plans?
- Are there sufficient resources to carry out periodic maintenance to prevent future flooding events?
- How have you communicated these plans with residents and how have you managed their expectations?
- How have you worked with partners to ensure a multi-agency approach to flood recovery plans?
- How will you engage community volunteers to support community-based responses?
- When will investigations start on the Worsbrough Reservoir and Church Street, Darton schemes?
- What risk assessments have been carried out across the borough to identify other possible areas of flooding in the future?
- What considerations have been given to climate change when making plans to prevent future flooding events?
- What can members do to support the Barnsley flood recovery plans?

7.0 Background Papers and Useful Links

- Item 4b (attached) Flood & Water Management Act 2010: Section 19 Statutory Report
- Flood and Water Management Act 2010
  https://www.legislation.gov.uk/ukpga/2010/29/pdfs/ukpga_20100029_en.pdf
- Met Office HAD-UK Datasets
  https://www.metoffice.gov.uk/research/climate/maps-and-data/data/haduk-grid/datasets

8.0 Glossary

DEFRA	Department for Environment, Food & Rural Affairs
FAS	(Lunwood) Flood Alleviation Scheme
MCA	Mayoral Combined Authority
SCR	Sheffield City Region
EA	Environment Agency
IDB	Danvm Drainage Commissioners Internal Drainage Board

9.0 Officer Contact

Jane Murphy, Scrutiny Officer, Scrutiny@barnsley.gov.uk
4 October 2021