

# DESIGN AND BENEFITS GUIDE (ROCHDALE - PHASE 2) ROCHDALE AND LITTLEBOROUGH FLOOD RISK MANAGEMENT SCHEME





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### **FOREWORD**

Communities across Greater Manchester have repeatedly experienced the devastating effects flooding has on lives and livelihoods and I have seen first-hand the immediate and longer-term impacts that flooding has for communities such as Rochdale and Littleborough. Our changing climate is already giving us wetter winters, greater intensity summer storms - and the risk of flooding is set to increase over time. We need to act now and plan for a future that makes the communities in the Roch catchment better protected and more resilient to climate change.

The Flood Risk Management Scheme will reduce the risk of flooding and improve the resilience of Littleborough and Rochdale. In developing the scheme, which will better protect 723 homes and 489 businesses from flooding, we considered over 60 different design options. This approximately £150m investment in the Roch catchment will not only bring an improved level of flood protection but will see improvements to community spaces, key infrastructure and the environment.

Looking to the future, collectively we will need to do more across the Roch catchment that allows us to adapt further to our changing climate. This includes better catchment planning, protecting lives and livelihoods from flooding and enhancing the ability to recover quickly. For example, Natural Flood Management (NFM) works led by Rochdale Borough Council and the National Flood Forum have been delivered upstream of Littleborough in partnership with the Environment Agency. NFM has also recently been delivered at the Moorland Children's Home as part of the Rochdale Borough Council-led Resilient Roch programme of works, part of the Environment Agency's Flood and Coastal Resilience Innovation Programme (FCRIP).

The Environment Agency cannot do this alone and we want to work with communities and a wide range of partners to deliver a better place and future for people in the Rochdale borough, Greater Manchester and wider North West region.

Nick Pearson – Environment Agency, Greater Manchester Area Flood Risk Manager







# SECTION 1 BACKGROUND

This document provides an overview of Phase 2: Rochdale of the Rochdale and Littleborough Flood Risk Management Scheme, how the scheme will be delivered, and what the community can expect during this time.

The Environment Agency are progressing with the design of the Rochdale Phase 2 of the Flood Risk Management Scheme which, when complete, will provide better flood protection to 386 homes and 304 non-residential properties. This will follow on from the work of Littleborough Phases 1a and 1b which, when complete, will provide better flood protection to 337 homes and 185 non-residential properties in Littleborough.

Rochdale Phase 2 seeks to reduce the high level of flood risk to Rochdale town centre, Wardleworth community and surrounding residential areas bordering the River Roch and Buckley Brook. Historically, these communities have been flooded numerous times with significant flood events in 1991, 1995, 2008, 2015, 2019 and 2020. On the 26<sup>th</sup> and 27<sup>th</sup> December 2015, 324 properties were flooded in the area during Storm Eva.

Rochdale sits within the River Roch catchment which is characterised by steep valleys and multiple tributaries which cause the River Roch to respond rapidly to rainfall with river levels rising quickly. The urbanised river valley has an industrial heritage with a legacy of modified channels, bridges, culverts and weirs which further exacerbate the flooding problem.

The construction of flood defences through Rochdale and Littleborough will not only reduce the risk of flooding, but will create a lasting benefit for the community and environment, through reducing the risk of blockages, carbon emissions and promoting biodiversity net gain. Our plans for the whole scheme will result in an overall improved environment for wildlife, the local community, and visitors to the town.

# **Managing Flood Risk**

### **Environment Agency:**

The Environment Agency have a strategic overview of all sources of flooding and are responsible for flood risk management activities on the main rivers within communities, with the main aim of helping people and wildlife adapt to climate change and reduce its impacts. The Environment Agency's ambition to help the country not only survive a changing climate but thrive in it, ensures that areas of current flood risk, such as Rochdale, are resilient, managed and prepared for future flood events.

### Lead Local Flood Authorities and Councils:

Lead Local Flood Authorities are county councils and unitary authorities that lead in managing local flood risks. These include risks of flooding from surface water, groundwater or ordinary (smaller) watercourses. District and Borough Councils, such as Rochdale Borough Council, are Risk Management Authorities and key partners in planning local flood risk management and management of minor watercourses.

### **Collaboration of Responsibilities:**

Lead Local Flood Authorities, the Environment Agency and all other Risk Management Authorities must work together to ensure risks are managed effectively and that local and national plans are interconnected.







# THE FLOOD RISK MANAGEMENT JOURNEY

Through a process of public consultation, engineering analysis, environmental assessment and economic appraisal, over 60 design options were tested against four criteria leaving a preferred set of options to take forward for Phase 2 of the Rochdale and Littleborough Flood Risk Management Scheme.



#### Potential design options included:

- Flood storage
- Linear defences
- Increase conveyance
- Removal of weirs
- Improved culverts
- Replacement of bridges
- Property level protection
- Natural Flood
  Management

Options were then shortlisted depending on:

- Technical suitability
- Environmental impact
- Economic viability
- Social acceptability

Shortlisted options were appraised in further detail using the four tests. A preferred option was then selected.



# SECTION 2 DELIVERING A FLOOD RISK MANAGEMENT SCHEME FOR ROCHDALE

## **ROCHDALE TIMELINE\***

\*dates are indicative and subject to change

	2025	2026	2027	2028	2029	2030	2031	2032	2033	$\square$
С	Initial Design Review and ontract Awards									
F c f c c c i	Review initial design locations and river models Award contracts or detailed design and ground nvestigation	Detailed Design      Confirm locations, orientation and structures of new flood defence assets Undertake environmental surveys to understand constraints      Ground Investigation      Intrusive site investigations to determine ground conditions across the proposed works area    Apply for Planning Permission      Production of full Environmental Impact Assessment for the planning application    Production and Approval of Full Business Case								
				Obt app proj con	opert into operation stage	Construction Construction of 2 new flood storage reservoirs Amendment of existing flood risk assets to achieve current design and climate change standards Construction of new linear flood defences				Project Completion

# **CATCHMENT BASED APPROACH**



The Rochdale Flood Risk Management Scheme will seek to improve flood risk management along the River Roch. Rochdale Phase 2 combines the following measures:

- Linear flood defences (e.g. flood walls and embankments) along the River Roch and Buckley (Hey) Brook will provide a localised level of protection that will provide homes and businesses with greater reassurance.
- Creation of two flood storage reservoirs (on land upstream of Albert Royds Street and land downstream of Smithy Bridge Road).
- The first reservoir (labelled Reservoir 1 on the scheme overview) has a proposed capacity of 353,000m<sup>3</sup> and the second (Reservoir 2) has a proposed capacity of 121,700m<sup>3</sup>. Both reservoirs combined, totals 474,700m<sup>3</sup> of flood storage.

# **FLOOD STORAGE BASIN**

### What is a Flood Storage Basin?

Flood storage is the use of an outlet structure which holds flood water then returns it to a river at a controlled rate, once the flood peak has passed. These structures provide a spillway and are especially useful in extreme events when there is more water than the watercourse can hold.

#### **Benefits:**

- Reduces flood risk by retaining overflow that the river cannot hold.
- Ponds and wetlands can be landscaped to provide aesthetic and amenity value.
- Provides wildlife benefits to habitats and biodiversity.

### **Rochdale Flood Storage Basins:**

• Proposed 474,700m<sup>3</sup> storage to be provided.



# **ROCHDALE FLOOD RISK MANAGEMENT SCHEME KEY FACTS**



# **The Resilient**

# **Roch Project**



### Overview

The Resilient Roch Project is targeted on Littleborough and Wardleworth and will be completed in March 2027. It is developing an integrated approach to climate and flood resilience focusing on delivering improved property level flood resilience, measures to better manage surface water and rainwater and making homes more energy efficient. This initiative is part of the government's National Flood and Coastal Erosion Risk Management Strategy for England, funded by the Flood and Coastal Resilience Innovation Programme (FCRIP) and where properties are eligible, links with further Government and local initiatives to deliver warmer, energy efficient homes.

### Aim of the Project

- Develop a holistic approach to flood and climate resilience, improving both flood and climate resilience of housing in the borough of Rochdale focused on Littleborough and Wardleworth.
- Deliver a step change in community participation.
- Increase people's capacities to prepare for and respond to flooding.
- Improve flood resilience for community facilities.
- Enhance surface water management, create a culture of rain gardening and increase biodiversity.
- Develop better financial resilience for homes and businesses including increased insurance take up.
- Compliment the project being carried out by the EA to alleviate flooding from the River Roch between Littleborough and Rochdale Town Centre.
- Implement natural flood management and sustainable drainage measures in the wider Roch catchment.
- Help the whole community improve water quality and storage through these measures.
- Involve the whole community as every resident has a part to play in reducing flood risk across the borough of Rochdale.
- Develop neighbourhood plans to encourage delivery of additional benefits for climate and flood resilience beyond the close of the FCRIP funded programme.
- Develop and disseminate best practice.

### **Services Provided**

- Subject to available funding, a flood resilience survey and installation of recommended measures such as flood doors can be provided free of charge for qualifying properties. Subject to assessment, properties may also be eligible for a free energy efficiency survey and a subsequent package of measures.
- Advice, information and training regarding flood resilience including specific events for residents, property owners and businesses.
- Opportunities to participate in local activities including training and volunteering.



# SECTION 3 NATURAL FLOOD MANAGEMENT

### INTRODUCTION

**Introduction to Natural Flood Management (NFM):** NFM forms part of our proposals for reducing flood risk and is complementary to traditional engineered flood defence measures.

The steep catchment and multiple tributaries cause the River Roch to respond rapidly to rainfall with river levels rising quickly. Therefore, NFM options will not provide the level of flood protection needed without working together with more traditional flood defences.

The NFM options will assist upland management to slow the flow of the watercourse and help to reduce flood risk from fluvial flooding.

The combined approach of traditional engineered flood defences, such as flood walls and flood storage areas, alongside NFM measures, was preferred. This hybrid strategy ensures effective flood risk reduction while also promoting sustainable, long-term water management and ecological benefits.

### Natural flood management techniques



1. In stream structures for example woody debris

- 2. Blocking of moorland drainage channels
- 3. Woodland planting
- 4. Land and soil management practices, cover crops, hedgerows, suitable crops
- 5. River morphology and floodplain restoration for example removal of embankments and remeandering
- 6. Inland storage ponds and wetlands
- 7. Protecting riverbanks for example stock fencing
- 8. Sustainable urban drainage systems for example swales, wetlands in urban areas, green roofs, permeable pavements, detention ponds, filter strips
- 9. Saltmarsh restoration
- 10. Coastal managed realignment
- 11. Coastal change management

Taken from the National Flood and Coastal Erosion Risk Management Strategy for England

# NATURAL FLOOD MANAGEMENT (NFM)

**The Rochdale Children's Moorland Home** - NFM measures installed through Rochdale Borough Council's Resilient Roch Project. This has delivered approximately 0.4Ha of NFM benefit, 0.8Ha overall habitat benefit with additional tree planting and wetland creation that the home will be able to utilise as an educational resource for pond dipping etc and approximately 5,000m<sup>3</sup> flood volume storage estimated in terms of extreme events (see photos on the next page).

**Littleborough** - Tree trunks that were collected from the construction activity have gone from the Littleborough site to other local areas around Littleborough, providing NFM benefits.

**Slow the Flow Rochdale Project** - Delivered in partnership with Rochdale Borough Council and Mersey Forest, with funding from the Environment Agency and the Council, the scheme worked with landowners in the upper River Roch catchment to deliver innovative solutions to reduce the risk of flooding. This included storage basins and natural bunds which when full will hold 12,200 cubic metres of flood water as well as slow-release dams, 13.9 hectares of wetlands and 14,900 trees planted.



Example from Littleborough: Cleared areas of trees retained for NFM use.



Example from Littleborough: Trees cleared from site being used for NFM works.



Previous NFM works which passes normal and low flows, but attenuates peak flows during storms.

Using trees as NFM will not only protect the local communities from flooding impacts but also bring positive benefits for wildlife, water quality and climate regulation.



# SECTION 4 ENVIRONMENTAL, COMMUNITY AND SOCIAL BENEFITS

## LINKING-IN WITH ROCHDALE'S PAST

### Archaeology and History:

Rochdale lies at the confluence of the River Spodden and River Roch at the foot of the western spur of the Pennines, with historical records tracing back to the Doomsday Book in 1086. Rochdale was a medieval settlement and market centre before becoming the centre of cotton textile manufacturing throughout the 18<sup>th</sup> and 19<sup>th</sup> centuries. The Rochdale Canal was built to improve transportation, aid the advancement of manufacturing and help Rochdale become the early powerhouse of the industrial revolution. Rochdale was the birthplace of the Cooperative Movement whereby organisations were owned and used for the benefit of those using the service.

Rochdale's historical legacy is closely connected to the River Roch and as such, our schemes will help preserve the towns historical heritage while minimising flood risk along the urbanised river valleys. Our scheme has been influenced by this understanding and appreciation of the town, but also by its developing needs in the 21<sup>st</sup> century.



### Historic Environmental Assessment:

A Historic Environment Assessment has been undertaken which draws together the understanding of the historic development and significance of Rochdale. This can be viewed online at:

### https://thefloodhub.co.uk/rochdal e-and-littleborough/

This assessment has highlighted gaps and areas of opportunity for more of Rochdale's history to be told. Working with the Archaeologists at Rochdale Borough Council, an archaeological strategy for investigations both prior to and during construction has been developed.

### PRESERVING ROCHDALE'S HERITAGE

### **Protection of Historic Buildings**

Efforts to preserve Rochdale's heritage buildings focus on maintaining the architectural integrity and historical significance of key structures. Buildings such as the Rochdale Town Hall, a prime example of Victorian Gothic architecture, have undergone extensive restoration to preserve their original features while upgrading structural elements to meet modern safety standards. Rochdale Borough Council has been instrumental in identifying and listing buildings of historical importance, ensuring they are protected under local conservation regulations.

### **Adaptive Reuse and Restoration Projects**

Adaptive reuse of historic buildings in Rochdale involves repurposing old structures for new functions while preserving their historical essence. This approach allows heritage buildings to remain functional and relevant in the modern context. For example, old mills and industrial buildings have been converted into residential units, offices, and cultural spaces, blending historical preservation with contemporary use.

### **Community Engagement and Education**

Engaging the local community in heritage preservation efforts is crucial for the longterm protection of Rochdale's historic assets. Educational programs, heritage walks, and public consultations help raise awareness about the importance of preserving historical buildings. Community-led initiatives and volunteer programs support the maintenance and promotion of heritage sites, fostering a sense of ownership and pride among residents. The Council collaborates with local heritage organizations to organise events and activities that celebrate Rochdale's rich history and cultural heritage.



## **ACCESS FOR ALL**

It is important that the Rochdale and Littleborough Flood Risk Management Scheme is inclusive, and that the principles of inclusive design are considered throughout the design process, during construction and during operation.

The design teams have worked carefully to ensure that the needs of people are considered and that the principles of The Equalities Act 2010 are followed.

### **Examples include:**

- Providing new tree, grass, wetland, wildflower, perennial, and shrub planting to promote mental health and wellbeing.
- Providing seating in key locations where possible.
- Avoiding stepped access where possible and creating new "up and over" ramped access.
- Avoiding awkward level changes that may cause trip hazards, and ensuring visual contrast is designed into any necessary level changes.
- Ensuring that during construction, pedestrian diversions are well communicated, sign posted, and safe to use.

Together with Rochdale Borough Council, we are identifying locations where we can improve, or connect into footpaths and cycleways as part of the scheme.



### LANDSCAPE AND PLANTING

### **Tree Planting**

Unfortunately, some trees will have to be removed to allow a safe working space for construction to take place.

New trees will be planted to create a habitat rich river corridor.

Different size trees will be planted in order to serve different functions and to best suit certain locations.

For example, native species will be planted in more rural locations where habitat creation is important, and in the town centre locations, ornamental trees that are suitable for urban planting, may be selected to suit the character of the town.

Tree survival rates depend on many factors, including planting, soil condition and aftercare. If good practice is followed and weather conditions are normal, then a 95% survival rate is expected in the first year.

To help the trees establish, they will be planted during the dormant season (November to March).



#### This table shows examples of various replacement trees that may be planted, depending on the location:

- "Transplants" are a name for young trees that get "transplanted" from the seed bed.
- "Feathered trees" have multiple branches from the base of the tree, as opposed to "standard" trees, which have a clear stem up to a specific height.
- "Extra Heavy" and "Semi Mature" refer to the size of the trees these are more established trees giving more immediate impact in the landscape and often used in the town centre locations.

For every tree we remove we aim to plant five replacement trees

### **BIODIVERSITY AND HABITAT CREATION**

Below are some of the native trees and seed mixes that will be potentially planted by the scheme. These species will complement the natural setting and provide food and shelter for wildlife. We aim to increase the biodiversity by 10% in line with statutory planning guidance.



## **CARBON & SUSTAINABILITY**

### **Carbon Reduction**

The Environment Agency has a 45% carbon reduction target for its capital schemes .

Our initial estimate of scheme carbon emissions was identified within our business case. This is termed the "carbon baseline".

We are working to reduce our carbon emissions through:

- 1. Use of electric vehicles & solar powered site cabins
- 2. Low carbon materials in our construction
- 3. Optimisation of construction processes
- 4. Material reuse where possible

Carbon decisions will be monitored and the scheme's carbon emissions will be recalculated at regular intervals.

The Environment Agency have a plan to achieve the following three long term goals:

- 1. a nation resilient to climate change
- 2. healthy air, land and water
- 3. green growth and a sustainable future

Find out more by searching for 'EA2025'

### BREEAM Assessment

BREEAM is the leading international evidence-based sustainability assessment and awards scheme for civil engineering, infrastructure, landscaping and works in public spaces.

The assessment is an ongoing process throughout all aspects of the scheme from business case stage to construction completion.

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The Environment Agency minimum BREEAM sustainability target is 65% ("very good").

We will be aiming to reach a higher score of 75% ("excellent



# SECTION 5 Communication

# **COMMUNICATION AND PUBLIC ENGAGEMENT FOR PHASE 2**

We will be undertaking the following activities:

- Rochdale community drop-ins
- Initial customer meetings held with residents and developers/landowners
- Flood group meetings and links with the National Flood Forum
- Flood hub updates
- Frequent communication and collaboration with Rochdale Borough Council and the Resilient Roch project
- Quarterly newsletters
- Pre-planning application consultation

Project updates posted via: https://thefloodhub.co.uk/rochdale-and-littleborough





# **KEEPING YOU INFORMED**

Visit our online information hub at <a href="https://thefloodhub.co.uk/rochdale-and-littleborough/">https://thefloodhub.co.uk/rochdale-and-littleborough/</a>

Follow us on Twitter @EnvAgencyNW

Get in touch by Emailing: <u>RochdaleAndLittleborough.FAS@environment-agency.gov.uk</u>

Visit Rochdale Borough Council's website for flood risk information: <u>www.rochdale.gov.uk/flooding</u>

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