

# Roath Flood Scheme Frequently Asked Questions

April 2017

## 1. When has the Roath Brook flooded?

The Roath Brook burst its banks most recently during high river flows in 2007 and 2009 and during high tidal events in 2010 and 2012.

The likelihood of flooding will only increase over time, as a rise in sea levels and more frequent and intense heavy rainfall are predicted as a result of climate change.

## 2. What is the fluvial flood risk to the area?

There are areas of high, medium and low risk in Roath:

Risk	Risk definition	No. of properties at risk
<b>High</b>	A chance of flooding of greater than 1 in 30 (3.33%) each year	Up to 200 residential & 10 commercial properties
<b>Medium</b>	A chance of flooding of between 1 in 100 (1%) & 1 in 30 (3.33%) each year	Up to 380 residential & 50 commercial properties
<b>Low</b>	A chance of flooding of between 1 in 1000 (0.1%) & 1 in 100 (1%) each year	Up to 780 residential & 165 commercial properties

## 3. What flood protection will the scheme provide?

The scheme will increase the level of protection for the community and over 400 properties up to a 1 in 75 year fluvial flood event (1.3% chance of flooding in any given year) and a 1 in 150 year tidal flood event (0.67% chance of flooding in any given year).

## 4. What is the chosen solution?

Our investigation identified that the most appropriate food risk management approach would be to contain floodwater within the river corridor. Sensitive designing on this scheme will see modifications to the river channel, works on the road bridges and raised embankments and flood walls in the area.

## 5. Why not dredge?

During times of flooding most of the water flows across the floodplain adjacent to the river channel. Dredging would slightly increase river capacity but not enough to reduce the food risk in Roath or to prevent flooding in areas at risk of high tides. The brook is however to be modified in area around Roath Brook Gardens; in widening the channel here, the height of the food defences can be reduced.

## 6. Why not hold out the high tides?

Installing a tidal flap valve would reduce the height of the food defences from Morrisons to Sainsbury's, however the defences required upstream of Waterloo Gardens would be unchanged. There would be a significant operational risk as large pumps would be needed to prevent river flows backing up.

## 7. Can we store river flows upstream?

We considered the benefits of storing water in open spaces including St Peters RFC, Roath Recreational Grounds and in the Llanishen area but found there to be little benefit. The Roath Lake was investigated as a means of retaining water during high river flows. This option would require major work to the lake, including strengthening the dam and raising its level to ensure public safety was maintained. Even then this would only reduce the level of the food defences required in Waterloo Gardens by 0.3m and have no benefit to areas at risk of high tides.

## **8. Could a diversion or bypass channel be used?**

There is insufficient space to create an adequate artificial channel or culvert.

## **9. Could temporary defences be used?**

Due to the speed, depth and extent of flooding, there would not be sufficient time to assemble temporary defences. The depths of flooding predicted in some locations would also exceed the heights of temporary defences.

## **10. Would clearing street drains solve the flooding problem?**

Clearing street drains will reduce local surface water flood risk, especially in less intense periods of rainfall. However some of the fluvial flooding is due to the Brook conveying water from upstream, which is unaffected by the drains in Roath. Elevated water levels in the Brook will prevent surface water discharging in extreme floods and will therefore not solve the flooding problem during extreme floods. Clearing street drains will not reduce the tidal flood risk.

## **11. Could individual property protection be used?**

Individual property protection (such as flood barriers and air-vent covers) are not appropriate for the large numbers of properties at flood risk and the depth of flooding. Flood depths and velocities pose a risk to life in some locations.

## **12. What is the height and width of the flood walls? How was this determined?**

The maximum height of the walls will be 1.2m above existing ground level. The width of the walls will be between 0.5m and 0.8m.

The height of the walls was determined by the water levels during a 1 in 75 year fluvial flood event and a 1 in 150 year tidal flood event, plus an allowance for uncertainties called “freeboard”, which is standard practice. The thickness of the walls was by structural requirements.

## **13. What will the flood walls be made from?**

The walls will be constructed either of steel piles or reinforced concrete, with stone and/or brick cladding and a reconstituted stone coping, to reflect the character of the area.

## **14. Could the flood walls go around the perimeter of the gardens instead of alongside the Brook?**

This would prevent views into the park and would have a severe impact upon the Conservation Area. More *Category A* trees would be lost if the walls were aligned around the parks’ boundaries rather than within the gardens.

## **15. Why can't access to the Brook in Waterloo Gardens be retained?**

The alignment of the flood walls in the garden has been set by the need to retain key trees. If access over the wall was to be provided the length of ramps required would be significant, which would result in further visual clutter in the park and may encourage anti-social behaviour in hidden areas of the park. Access to the brook will be maintained in Railway Gardens, the upstream end of Roath Mill Gardens, and in Roath Brook Gardens.

## **16. What public consultation has been undertaken?**

Through consultation with local residents, businesses and stakeholders, we've listened to the local community who've helped us shape the final design, including minimising tree removal and reduction in walls across the scheme. Public consultation activities include:

- **Door knocking and meetings to raise flood awareness and produce Community Flood Plan:** from 2012 to 2014
- **Public drop-in sessions:** May 2014, October 2014, July 2015, January 2017

- [Stand at Waterloo Gardens Fete](#): August 2014, July 2015, July 2016
- [Walkover of site with local residents](#): September 2015
- [Press adverts, site notices and consultation letters to properties that border the gardens](#)
- [Regular updates via newsletters, posters, the Roath Flood Scheme webpage and social media](#)

### **17. What closures may affect me?**

- Areas within Railway Gardens (the Sandies), Waterloo Gardens and the downstream end of Roath Mill Gardens will be closed for the majority of the works. Roath Brook Gardens and the upstream end of Roath Mill Gardens will be closed later on in the works, when the other gardens re-open.
- It is likely that further areas of Waterloo Gardens will be closed for a few weeks whilst a utility diversion is undertaken.
- Waterloo Road bridge will be shut for approximately 10 months whilst the bridge is replaced. A vehicle diversion will be put in place, but pedestrian access across the Brook will be maintained.
- The footbridge from Newminster Road to Waterloo Gardens road will be closed for approximately 5 months to replace it and construct the adjacent flood walls.

### **18. Who is doing the work and what are the site hours?**

The construction works are being completed by Dawnus on our behalf. Dawnus are one of our framework suppliers and are experienced civil engineering contractors. Our site hours are from 8am to 6pm Monday to Friday, and 8am to 1pm on Saturdays.

### **19. Why is tree removal necessary?**

Unfortunately tree removal is necessary for construction of the new flood scheme. It was not possible to save every tree within the gardens, but we have tried to get the correct balance of protecting the conservation area and the heritage features of the park, whilst still being able to construct the scheme and meet the required standard of flood protection.

### **20. What new trees will be planted?**

We shall be replanting 105 trees within the gardens (the majority of which will be between 2.5m and 5m high) and up to 200 saplings within Roath recreation ground. Tree types have been specifically selected to support the existing character of the gardens. The quantity of tree planting within the gardens is dictated by the space available, as sufficient space is needed for the planted trees to grow. Railway Gardens was identified as a location where denser planting could have been delivered, but this proposal was objected to by the community in light of their wish to maintain open space for recreation.

### **21. What environmental issues have been considered as part of the scheme?**

Ecological surveys have been undertaken which showed the potential for the presence of bats, nesting birds, dormice, reptiles and otters in the area. A series of measures have been introduced to protect and enhance this wildlife, and that of the Brook, during and after the works. We have appointed an environmental supervisor to monitor and protect wildlife during construction. Root protection zones have been set-up during the tree removal process to protect the remaining trees. An archaeologist will be present to supervise and record excavations in the area of the Roath mill.

### **22. Why is there a new paved area in Roath Mill Gardens?**

The design for this area was developed in order to create a slightly elevated section of path, adjacent to the flood defence, which would provide views over the brook. The space available provides an opportunity to incorporate seating and an artwork feature.

### **23. Why install new artwork in Roath Mill Gardens?**

During an early consultation event a community art group enquired whether an item of public art could be incorporated into the scheme. Likewise a local archaeology group asked whether the scheme could promote the history of Roath Mill Gardens. A proposal was subsequently developed to commission an artist to create an item of art that would promote the history of Roath Mill Gardens, which gained positive support from the community.

## 24. How was this artwork developed?

Welsh artist Rubin Eynon was commissioned to deliver the item of art. Rubin has undertaken a number of public art projects across Wales, including a bronze model of Blackfriars Friary in Bute Park. Rubin attended our public drop-in session on 11 January 2017 where various options were discussed with members of the public. This was subsequently followed by a flyer drop in the community and regular updates circulated on Rubin's dedicated Facebook page ([www.facebook.com/Millgardensculpture](http://www.facebook.com/Millgardensculpture)) and the Roath Flood Scheme webpage and newsletter.

## 25. Why install a raised dais area & pergola in Waterloo Gardens?

In this area in Waterloo Gardens it is necessary to join the new food walls from either side to the raised bridge. Design reviews held with Cardiff Council, the public and the Design Commission for Wales over summer 2015 resulted in the addition of the pergola area, from the idea of the old bandstand in the park and to make a feature. The idea came from an Edwardian garden (Hestercombe House in Somerset), designed by Gertrude Jekyll and Sir Edwin Lutyens, who both had major influences on the landscape design during the period.

We have received feedback from the community regarding the pergola structure located on the raised dais area in Waterloo Gardens and are currently reviewing design options for this area. We welcome further comments from the public on the four options.

## 26. What about home insurance?

Information regarding home insurance is available from the National Flood Forum and the Flood Re websites ([www.nationalfloodforum.org.uk](http://www.nationalfloodforum.org.uk) & [www.floodre.co.uk](http://www.floodre.co.uk)). NRW can provide information through an Insurance Related Request to any property protected by the scheme to support an application for household insurance, however it will be up to each individual insurance company whether they decide to accept that the scheme adequately reduces the risk of flooding for them to provide insurance.

## 27. Will the NRW Flood Map be updated?

It is likely that the NRW Flood Map will be changed to show that Roath will be an *Area Benefiting from Defences*, but these will be below the indicative standard of protection that we usually specify for fluvial and tidal defences, i.e. below 1% and 0.5%, respectively.

## 28. Who can I contact if I have questions regarding the scheme?

For construction related queries please contact Dawnus's Community Officer, Matthew Frewer, who provides a point of contact for local residents throughout the construction works. He can be contacted on: 07880 358541 or [roath@dawnus.co.uk](mailto:roath@dawnus.co.uk).

For any other queries please contact NRW's Roath Flood Team via email: [Roath@naturalresourceswales.gov.uk](mailto:Roath@naturalresourceswales.gov.uk); or by post at: [Roath Flood Scheme, Floor 1, Natural Resources Wales, 29 Newport Road, Cardiff, CF24 0TP](#).

## 29. Where can I access information and updates?

Please visit our webpage - [www.naturalresources.wales/roath](http://www.naturalresources.wales/roath) - or follow us on social media - Twitter: [@natreswales](https://twitter.com/natreswales), Facebook: [NatResWales](https://www.facebook.com/NatResWales)