

Flood Prevention update

investing in our community

Winter 2010



WATER OF LEITH

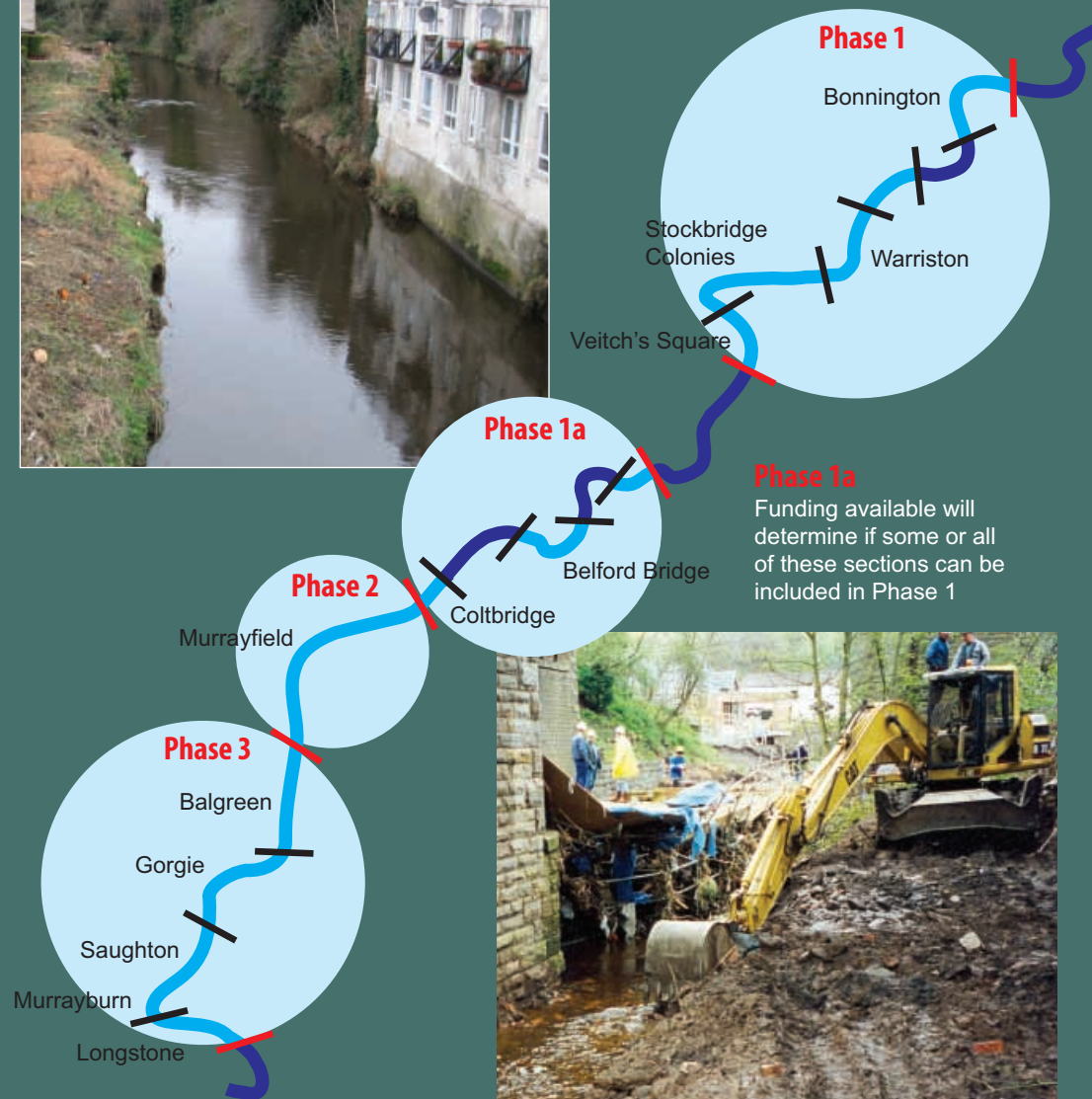
Bonnington and Warriston
Haughead
Harperrig
Murrayfield
Threipmuir and Harlaw Reservoirs

BRAID BURN SCHEME

Adelphi Place
Blackford Glen
Cameron Toll Gardens
Colinton Mains and Greenbank Crescent
Duddingston
Gilmerton Road
Greenbank
Inch Park and Peffermill
Mid Liberton
Nether Liberton
Redford Culvert

Water of Leith Flood Scheme

Discussions are ongoing with the Scottish Government with a hope to secure the necessary funding for completion of the Water of Leith flood prevention scheme. The shortfall in funding is due, in part, to changes in the way that Government funding is made available for flood prevention schemes and to changes to the scheme following a public inquiry which included design changes and extensive work to the Murrayfield playing fields.



The Government's contribution was based on earlier estimates and did not take into account changes following the inquiry or make sufficient allowance for certain project risks. After the scheme was tendered late last year it became apparent that the funding allowance was insufficient to allow us to award the work and this led to the need to carry out the work in smaller sections. Inevitably, this means that the final cost will increase as any benefit of economy of scale has been lost.

This lack of funding has prevented the Council from accepting a tender to build all of the flood defences with work starting in autumn 2009 as originally intended. Instead the work is now to be carried out in stages and will be delayed for at least a year.

A variety of options were explored for a phased construction to deliver the scheme. Using the limited budget available to keep the project moving and giving protection to some homes is seen as favourable to delaying the whole scheme entirely while waiting for the necessary funding. However, European regulations require the project to be re-tendered, unavoidably delaying the start of the works until autumn 2010.

A report on phasing of the works and recommending the way forward was submitted to the Transport, Infrastructure and Environment Committee on 24 November 2009.

For further information visit www.edinburgh.gov.uk



Above left:
View upstream from Newhaven
Bridge, Bonnington.



Theipmuir and Harlaw Reservoirs

Despite facing a substantial funding shortfall, advance works at Threipmuir and Harlaw Reservoirs will get underway this winter offering some protection to all residents along the Water of Leith.



Murrayfield stadium

Following the public inquiry, revisions to the plans for the scheme were required at Murrayfield. This change was necessary as the scheme encroached on the pitches nearest to the river. Four new rugby training pitches have now been laid after planning consent was received for the flood scheme modification. This work was done in advance of the two major infrastructure projects here – the flood scheme and the tram project. These advance works were supervised by transport initiatives edinburgh (tie) on behalf of the Council.

Bonnington and Warriston

Other advance works were carried out throughout Bonnington and Warriston, where trees were felled before the bird nesting season began. Landscaping to offset trees lost in these areas, including replanting, will be carried out after the main flood defence work is complete. A number of diversions of public utilities in the same areas were also carried out so that flood defences can be built quicker when the main works start.



Harperrig Reservoir, Haughhead Ford

Advance works at Harperrig Reservoir and Haughhead Ford have already been carried out. At Harperrig, alterations have been made to the reservoir and a notch has been built into the spillway. This simple device maintains flood water storage automatically by controlling the water level. Presently this gives some benefit to the flood risk areas in the city and this protection will be further enhanced when the work downstream is completed.

The ford at Haughhead, downstream of Harperrig Reservoir has been replaced with a bridge. An increase in water levels at Harperrig Reservoir will now be automatically controlled by the new notch. Without much warning, the normal water level at the ford could rise quickly during a flood event, previously making it impassable. The new bridge will maintain access at all times.

Above left:
Notch at Harperrig Reservoir.

Left:
New training pitches at Murrayfield.

Above:
Harlaw Reservoir.



Outdoor education for Colinton Primary

At Colinton Primary School work began last autumn to develop embankments and flood walls that now form the perimeter of the school.

Due to the scale of the operation within the playground, the contractor joined forces with the school, the army and local volunteers to work on the schools Room to Grow project, developing an outdoor classroom. The new purpose-built area is now used by teachers as an alternative outdoor learning environment. Students can also enjoy the garden in warmer months for play and reflection.

The garden has since won a competition run by the BBC and featured in a one hour special on the Beechgrove Garden.



What the Council does during potential flood events

The Council's flood prevention team regularly inspect watercourses across the city, monitoring water levels and clearing minor blockages.

We have in place plans and procedures for preparing for action to manage flood risk during periods of heavy rainfall. These procedures are contained in a flood incident plan and are put into action when heavy rainfall is predicted. Flood action packs list areas where flooding is likely and what temporary defences are required in each case.

The Council's emergency response team is co-ordinated from a central control room where information gathered from staff monitoring the watercourses is used in the deployment of temporary flood defences so that they can be directed to protect vulnerable properties at risk of flooding.

When deciding how to deal with potential flood events, several factors are taken into account including weather forecast, reservoir levels, river levels and state of any debris screens or other known sites where blockages are likely to occur.

When there is a high risk of flooding the Council can provide temporary defences such as sand bags and/or pallet barriers to contain floodwater and reduce damage to properties at risk.

For tips on what to do in a flood visit www.edinburgh.gov.uk/floodprevention or www.sepa.org.uk/flooding

Or write to:
Water of Leith Flood Prevention Scheme
Freepost SCO 7434
Box 12474
EH1 OBR

Braid Burn Scheme

In many parts of the scheme flood defences are now in place protecting many properties along the route of the burn, leaving some landscaping and replanting to be done to complete these sections. Currently, construction is on-going in the following areas, Redford Road, Colinton Mains to Greenbank, and Gilmerton Road. Carrying water from the Pentland Hills, the Braid Burn enters Edinburgh at Redford and weaves its way north east to the coast at Portobello.



Although in normal flow the burn seems harmless, on five occasions in the past 18 years it has overflowed its banks, damaging over 250 homes and businesses. On the 7 August 2008, after an astonishing 65mm of rain, the burn again proved its might as the average monthly rainfall forced its way through the city in just one night.

A number of areas were once again put under pressure when the burn overflowed its banks in notorious trouble spots. Since that event, work has continued at a good rate of progress and we expect that all homes and businesses previously at risk of flooding from the Braid Burn will have protection in place by the summer of 2010.

The flood scheme, which is jointly funded by the City of Edinburgh Council and the Scottish Government, is being constructed by Carillion Civil Engineering under the supervision of consultants AECOM.



Redford Culvert

A contributing factor to past flooding in this area was a narrow culvert beneath the road, beside Covenanters Wood and Dreghorn Barracks, which in a major flood event could not cope with the storm flows overflowing onto Redford Road and putting local properties at risk. Back in April 2000 areas near Colinton village were flooded as the overflowing water followed a damaging course to the Water of Leith. A tunnelling machine has been brought in to make a larger tunnel with minimum disruption to traffic on Redford Road. The works in this area are expected to be fully complete during spring 2010.



Colinton Mains to Greenbank Crescent

The flood defences along the Braid Burn comprise approximately 6km of walls and embankments, of which almost half are required between Colinton Mains and Greenbank Crescent.

Work began in autumn 2008 at Colinton Primary School, where embankments and flood walls now form the perimeter of the school. In May 2009 the contractor took temporary occupation of some private gardens and public spaces to construct new flood walls. In the Firrhill Drive area the flood defences are now provided by clay embankments. It was necessary to restrict public access for safety reasons while vast quantities of material were brought in to form the embankments. In Greenbank the solution involved the use of steel piles driven into the ground to reduce the risk of flood water undermining the defences.

The work between Colinton Mains and Greenbank also involved the diversion of some utilities, the installation of new drainage, the upgrading of several footpaths and street lighting. It is hoped that the new floodwalls will be complete by the end of winter leaving landscaping and replanting to get underway in the spring.

Top:
Tunnel boring machine arriving Redford Road.
Left:
Tunnelling at Redford Road.



Gilmerton Road

This is one of the most complex elements of the scheme, presenting both technical and logistical challenges to the team. The old stone bridge at Gilmerton Road has been extended several times over the past 200 years to accommodate road widening and new housing developments. It currently restricts the flow of the burn during a flood and therefore needed to be replaced. This work is being carried out in two stages. The first stage started last summer, and half of the new culvert has now been built, with traffic moving over it. Work on the remainder began in October and should be complete by the spring of 2010.

A system of one-way traffic with signal control is in operation on this part of Gilmerton Road for the duration of the work. The team is grateful for the public's cooperation and understanding during these essential works.

Blackford Glen

This section of the scheme was completed in the summer and floodwalls now protect the Council's maintenance depot at the head of the Glen. Downstream from the depot the design was altered and the flood defences have been provided by raising the road locally rather than by building a new wall. The golf course at Craigmillar Park will continue to provide valuable storage capacity for floodwater at times of higher flows.

Inch Park and Peffermill Reservoirs

Two temporary flood storage reservoirs have been constructed at Inch Park and Peffermill. These will now hold the water back in flood events and allow it to later flow back into the burn, as flood water levels fall. Together these areas provide temporary storage for up to 190,000 cubic metres of flood water. Peffermill was completed early in 2009 and now that Inch Park is fully functional as a temporary reservoir, the task of restoring the area to a public park is well underway. It will be autumn 2010 before all the replanting is finished and the park is completely opened again to the public.



Mid Liberton

The flood defences here were completed in the autumn of 2008. The closeness of the work to the public presented a number of challenges and the team were thankful for the support and co-operation of residents which led to completion of the work with minimal disruption.

Nether Liberton

Between Gilmerton Road and the Cameron Toll shopping centre, the flood defences were designed to protect the adjacent properties whilst making the best use of the available land to temporarily store storm water.



Cameron Toll Gardens

The flood defences here were completed in 2008 and withstood the flooding in August of the same year when the burn burst its banks but the new wall protected the properties, to the relief of local residents.

Duddingston

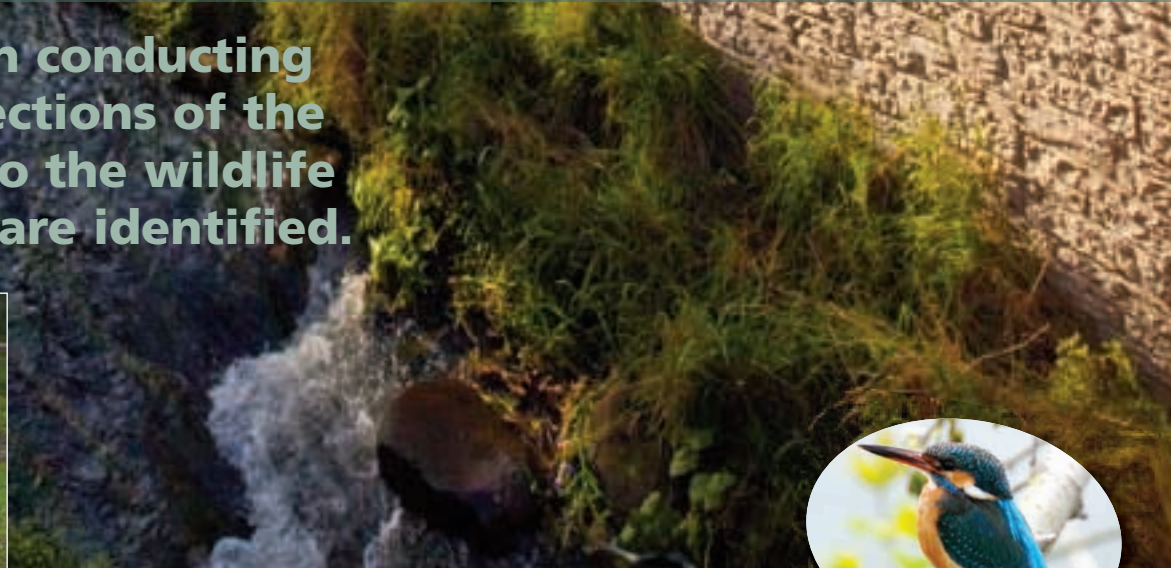
The work at Duddingston was completed this summer. The burn here has been improved by the formation of more natural meanders and the area between the burn and the Peffermill industrial estate is being landscaped. The golf course at Prestonfield also provides essential flood water storage and drainage improvements will allow the area to drain more quickly after flood waters subside.

Adelphi Place

During 2009 an underground bypass culvert has been constructed running from Rosefield Park rejoining the burn downstream of the properties which were at risk of flooding. When the burn reaches a set height, water overflows through the culvert and continues downstream to the Firth of Forth. With the main work now complete the landscaping and replanting is already underway.

ecostory Braid Burn

The Environmental Supervisor has been conducting ecological surveys along the various sections of the new works to help avoid disturbance to the wildlife and ensure that any protected species are identified.



In certain areas it has been possible for the design of the flood defences to provide some lasting habitat improvements. At Inch Park and Duddingston, more natural and winding channels have been created through the introduction of meanders. Meanders replace sections of the burn that were straight, with steep or concrete sides and of limited interest to wildlife. The inclusion of wetland plants will also provide natural surroundings that are becoming increasingly rare in urban environments.



Prior to the start of the works at Comiston, the burn was overgrown with trees and littered with building rubble. With the removal of this material, the amount of light reaching the burn has increased. A number of plant varieties have already naturally sprouted around the burns' edges including crowsfoot – a species of plant which only grows in good quality highly oxygenated water. Otters have quickly re-established this area as part of their territory and dippers can be seen diving into the water to catch grubs and other food. A dipper nesting box will be placed to provide an additional home for these intriguing little birds.

The team works closely with the Scottish Environment Protection Agency (SEPA) to ensure that high standards are met and to avoid the risk of pollution from the works that might cause damage to the burn environment. It's gratifying to learn from SEPA that they're very satisfied both with the way in which the work is being carried out and for how significant improvements to the wildlife habitat has been achieved in many areas.



Further information

e-mail: flood.prevention@edinburgh.gov.uk
or go online at:
www.edinburgh.gov.uk/floodprevention

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