



ENVIRONMENT AGENCY



Aerial photograph taken May 1995. Bear Brook flood storage area in centre

AYLESBURY FLOOD ALLEVIATION SCHEME



Typical flooding in Aylesbury prior to works

Aylesbury a rapidly expanding town has a history of flooding, most significantly in 1947 and most recently in 1987, when large parts of the town were flooded, particularly around the Stocklake area.

Responsibility for the primary river flood defences was passed to the Thames Region of the Environment Agency on 1st April 1996. The Agency is an independent public body charged with safeguarding and improving the natural water environment.

In association with the Aylesbury Vale District Council (AVDC) and following an extensive study of flood records, local geography and land development, a scheme to protect Aylesbury from flooding was instigated.

Following extensive research and the preparation of a computer model, a flood relief scheme was prepared to cater for future development and provides protection from a 1 in 100 flood event.

Each flood event is analysed using current and historic flood records and is given a 'return' period. A 1 in 100 flood event will occur on average once every 100 years with a 2% chance of a flood of that intensity happening in any one year.

To avoid extensive and highly disruptive works within the town a strategy was developed to intercept flood waters before they actually reached the town. To help promote the scheme and keep concerned local residents informed of developments regular newsletters were issued, public displays and meetings were held. The main elements of the scheme consisting of two large flood storage ponds, were incorporated into the Aylesbury local plan.

Completed in October 1994, the works were jointly funded by the Agency and AVDC together with grant-in-aid from the Ministry of Agriculture, Fisheries and Food. The total cost exceeded £2m including a £0.16m contribution from AVDC.

AYLESBURY FLOOD ALLEVIATION SCHEME



Bear Brook flume view looking downstream

BEAR BROOK AND FLOOD STORAGE

Flood storage ponds constructed were the key to the success safely contained by the channels to 3.8 and 0.7 m³/s respectively.

The reduction is achieved by 30,000m³ of flood storage. The ponds hence will be subject to regulation.

The flows are regulated by concrete embankments. The diversions are for the pond on the Bear Brook.

The Agency are committed to the natural environment in all their works.

The opportunity was taken to enhance and create a natural environment for conservation and amenity. Dragonflies, Bats, Water Voles.



Bear Brook storage pond during flood

BEAR BROOK SYPHON



Upstream Inlet

STOCKLAKE BROOK STORAGE AREAS

located in the east of the town on the Bear Brook and Stocklake Brook
of the scheme. They are designed to only pass on flows which can be
channels through Aylesbury. In the 1 in 100 year event, flows are reduced
only, this representing reductions in peak flows of 27% and 53%.

by providing clay embankments which provide up to 105,000 and
the size of the ponds is such that both are classified as Reservoirs and
require regular inspection.

by specially designed flumes contained within the downstream
and extension of the surface water drainage system was necessary
for the Brook.

led to improving wild-life habitats and conserving the natural
resources.

with the Bear Brook storage pond to carry out extensive landscaping
temporary and permanent wetlands. This significantly improved the
value of the land and has already created valuable habitats for
fishes, Frogs, Grey Herons, Black Headed Gulls and many others.



Brook flood
the area
minor
flood

BEAR BROOK REGRADING



Typical view prior to works



Similar view after regrading
and lowering of water level

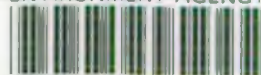
Problems had long been encountered where the Bear Brook passes under the Aylesbury Arm of the Grand Union Canal. Known as the Bear Brook syphon and permanently submerged, the syphon (or culverts) were difficult to inspect and prone to blockage with a build up of flood debris preventing the watercourse flowing freely.

The work involved constructing a new Portland stone overfall upstream of the structure which, in combination with the Bear Brook regrading, provides for clear passage of water. The opportunity was taken to fully refurbish the syphon and the approach and exit channels. This is believed to be for the first time since the canal was built.

Historically a weir associated with a disused mill downstream of the syphon acted as a major obstruction to flows often resulting in high water levels in the adjoining industrial estates. By removing the weir and regrading 500 metres of the Bear Brook the flood capacity was greatly increased. During the works the bed was lowered by approximately 1.5 metres, however, great care was taken to recreate the original environment which is clearly demonstrated on the accompanying photographs.

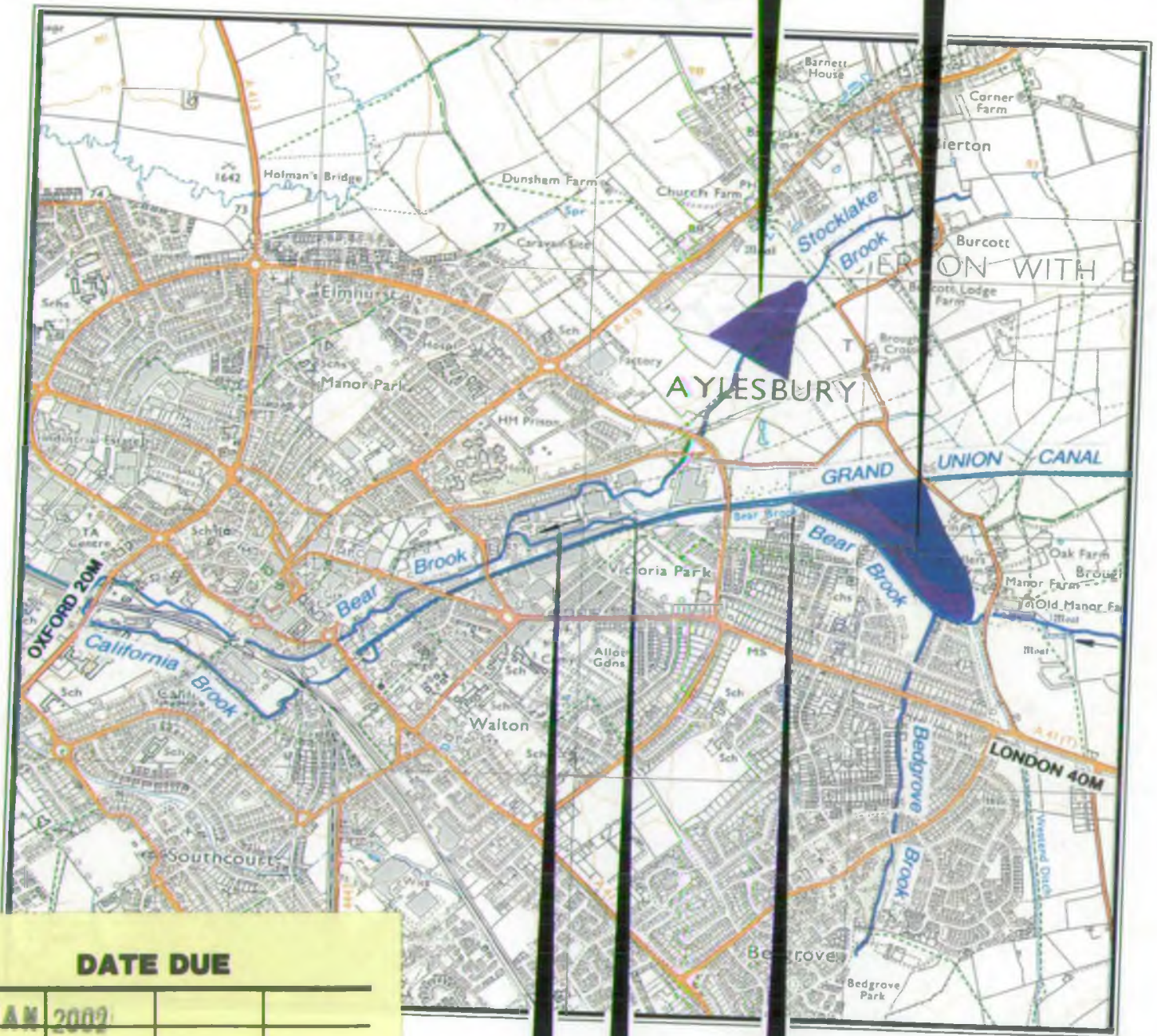
Miscellaneous Works

Although extensive channel works within the town were not possible the following local improvements were carried out. Local dredging, removal of obstructions and the provision of splitting weirs which prevent the canal from draining during period of low flow in the brook.



**STOCKLAKE BROOK
FLOOD STORAGE AREA
WITH FLUME OUTLET**

**BEAR BROOK
FLOOD STORAGE AREA**



DATE DUE

2 JAN 2009

GRADING

FLUME AND SPILLWAY

BEAR BROOK SYPHON

FLOOD ALLEVIATION SCHEME



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