Outline of Suggested Phase 3 Works for Elford Village

Introduction

In the village Flood Plan prepared in 2012 a further recommended Phase 3 was suggested for the Environment Agency (EA) to consider. The aim of the further phase was to:

- Reduce Pumping Station (PS) operational revenue costs
- Reduce replacement costs / works at end of life for the PS
- Improve operational effectiveness of the PS
- Potentially improve the level of flood protection for the village
- Maximise the benefits of the PS and associated structures for the long term future.

I will not rehearse the basis of the works done as detail can be extracted from the Flood Plan for anyone wanting more depth. However I will explain what works are required to achieve the above longer term benefits.

Scheme Elements for Phase 3

The works consist of:

- A new drainage ditch running from The Green to link to the drainage ditch half way across the field approaching Brickhouse Lane (Approx. 400m)
- The construction of an automated penstock structure (gate) at The Green to allow flows in the Green Brook to be diverted around the village at time of flood thereby not requiring pumping into the river at times of high river levels.
- The downgrading of pumping capacity in the village to the benefit of running costs and operational effectiveness of the PS.

Flood Hydraulics

The main centre of the village floods fundamentally two ways:

- High river levels pushing water back into the village
- High flows in The Green Brook trapped in the village by high river levels

The Green Brook catchment extends back to Harlaston and at times of heavy rain on saturated grounds generates considerable flows of water which are passed though the village in a culvert (large pipe) starting adjacent to 61 The Beck and out-falling to the river through an outfall on the Osiers. The culvert has a limited capacity and when flood waters in the brook exceed the culvert capacity water flows on the surface of The Beck threatening property.

Many years ago there was a ditch with very tenuous route that connected the brook to the ditch which crosses Brickhouse Lane avoiding the village centre. When this was in place there were more ditches in fields and landowners, who have riparian responsibility for the drainage of their land, were aware of the ditches importance and they kept them operational. Over time ditches in general and this ditch route in particular have been lost making flows more intense as storage capacity for flood water has been lost. The replacement of this facility on a more effective route and by

increasing ditch capacity water can be diverted around the village allowing it to be discharged by gravity, removing the need to pump it and thereby relieving the threat to the village.

The high river flows are controlled a penstock (gate) which is automatically closed when flood levels reach a depth that threatens the village. The impact of this mechanism is that all water flowing down The Green Brook has to be over pumped into the river as the free outfall is closed. If we can control the Green Brook flows we can control pumping rates and hence pump size in the PS and operational effectiveness and cost. There are benefits to pump operation with an ability to divert flows round the village which will in turn create the potential to improve the level of flood protection to the village.

There are several reasons why we do not want to divert all the Green Brook flows permanently from the culverted section the key one being related to not allowing the culverted section to become silted and stagnant. The basic flows keep the whole system cleansed and healthy at times of low flow. A second issue is the inevitable fact that in older developed areas foul water connections were made onto storm water systems and the system draining via The Beck Culvert is no exception. As it is impractical to search for, find and fund the works to separate these odd miss-connections it is easier to flush and dilute the problem as has been the case for many decades.

Reasons for the Phase 3 Works

The PS was located in a sump (wet-well) that already existed on the Green Brook culvert route which was unfortunately far too small to take the size of pump required to take the full flow from the Green Brook. However the costs of a new wet well and finding a location to build one killed the cost benefit of the works. Consequently the less than ideal sump was used and a system made to work by skilled EA engineers but not without considerable complications.

The station maintenance costs and operational costs are very high, during one flood event over half a million tonnes of Green Brook water was pumped into the river during a severe storm. Consequently the engineers are tasked with trying to optimise / minimise the cost of running the PS and future replacement costs as the PS reaches its end of life.

Summary

If we are to continue to benefit from the flood relief works indefinitely into the future it is adviseable that the EA seek to reduce operational / replacement costs to the minimum. One key way to reduce operational / replacement cost is to reduce the pumping capacity which can only be achieved by either regulating (attenuating) flows or diverting flows away from the PS. As part of the development of our Flood Plan and thanks to the loan of a survey team from the EA we established that it was (topographically) feasible to divert water from the Green Brook around the village at time of flood, hence the above listed Phase 3 works.

The EA have invested considerable money (over £500k) and much technical expert time to get a flood protection system to work for the village. The actual responsibility for the work is far from clear but the EA picked up the challenge when other bodies like Lichfield DC, STW and the Highway Authority could not justify doing a comprehensive scheme. Each body has been involved in some capacity working through the coordinating effort of the EA.

I explain this to clarify and put into context the current EA stance which is to note our recommendations for a Phase 3 but to defer active consideration until other matters like PS refurbishment, excessive operational costs or system failures dictate more action is required.

We have benefitted greatly by the EA listing the lower section of Green Brook as 'Main River' without which the works carried out to date would not have been possible. The village has had a substantial part of what are very limited resources for flood protection nationally and we are better protected from flooding than it has ever been since the first brick was laid for the first property. Obviously more can be done but set in the context of resources available the village has been very well protected. The EA stance to continue to support and maintain our existing flood protection works but keep the recommended Phase 3 works in mind for the future is, I contend, very fair and reasonable. The Phase 3 works should however never be lost to future consideration.

Recommendations

1. That the Parish Council accept the current EA position.
2. That the Village Flood Wardens keep the EA aware of the Phase 3 proposal and continue to monitor the long term position.