

Village installs local flood alarm system



A village in Nottinghamshire has installed an advanced river monitoring system from OTT Hydrometry that automatically issues text (sms) message alarms so that residents can implement flood protection measures. Oxton has a history of flooding problems and with an increased frequency of flood events, Parish Councillor Dr. Ian Kilpatrick says: “The monitoring system is designed to provide sufficient advance notice to enable the village’s emergency response flood team to try to protect the properties that are most at risk.”

Extreme rainfall events are leading to more localised flooding, and whilst the effects of climate change on rainfall are still unclear, it is likely that the UK will experience more frequent extreme weather events including the prolonged and intense rainfall that results in flooding.

Flood warnings in England are issued by the Environment Agency (EA) which records rainfall and operates a network of monitoring stations that measure river and sea levels. Data from this network are used to generate flood warnings and the EA aims to issue these at least 2 hours in advance of flooding. Millions of people in the UK live and work in properties that are at risk of flooding from rivers or the sea, and the cost of flooding has been estimated to be in excess of £1billion so substantial investment is necessary for building and maintaining flood defences.

The problem in Oxton

Oxton village has a long history of flood-related problems caused in large part by the local geography which during times of high rainfall, funnels land, road surface and lake water into a stream (known locally as the Oxton Dumble) which passes through the village and eventually flows into the Dover Beck. The construction of a flood relief channel in 1984 was



designed to take much of this excess water around the village perimeter and whilst this has undoubtedly been beneficial, the channel needs to be regularly maintained and kept clear of bushes, trees and other debris if it is to be given a chance to cope with the more extreme rainfall events.

Subscription to the EA's flood warning system can provide timely alerts to those in flood-susceptible areas. Occasionally and for various reasons, however, even the flood relief channel in Oxton cannot cope and in both 2007 and 2009, flooding caused devastation to a number of residents' homes and local businesses; 14 homes were damaged in 2007. In December 2012 and January 2013, properties narrowly escaped flooding although roads in the village became impassable and water levels rose to doorsteps.

Flooding in Oxton is related to the river levels and rainfall, but because of local conditions, flooding can occur in Oxton when the EA has not issued a warning.

The solution

Recognising a need to be able to monitor water level in the village stream with an ability to raise an alarm when certain conditions arise, Oxton's Parish Council obtained a monitor from OTT Hydrometry which has been installed in the water course and now monitors and logs water temperature and level continuously. An alarm level has been set and when this is reached, the instrument automatically issues an alarm text message to members of Oxton's volunteer emergency response flood team and to those residents whose properties are most susceptible to flooding. After receiving an alert, the flood team assembles at its resilience store to begin the deployment and building of temporary flood defences, including Aqua-Sacs, to prevent the rising waters from reaching residents' homes.



Explaining the advantages of Oxton's early flood warning system, Dr. Kilpatrick says, "As a result of recent events, the residents of Oxton are more sensitive to water levels than most. However, we cannot watch the stream every day of the year and certainly not at night, so a continuous automatic monitor is the ideal solution.

"The instrument has raised several flood alerts since its installation in July 2012 and thereby helped us to prevent similar disasters to those experienced in 2009, 2007 and earlier."

Clearly, Oxton's flooding potential is affected by a number of local conditions. However, OTT Hydrometry's Managing Director, Nigel Girmsley, believes that many more communities suffer from a similar susceptibility and would therefore benefit from this technology.

"Both sensor and telemetry technology have advanced considerably in recent years, so we are now able to supply low cost, easy to use, 'off the shelf' equipment that can provide residents with vital advance notice of local flood conditions," he says, adding: "This does not in any way replace the flood warnings that are issued by the Environment Agency, but it does enable local people to build a reliable low-cost warning system that is dedicated to their specific needs."

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