

case studies & other articles



LINCOLNSHIRE DRAINAGE BOARD DEPLOYS SARIAN MOBILE TECHNOLOGY TO PROTECT RESIDENTS FROM FLOODING

Cougar Automation telemetry system used to meet monitoring needs and improve workforce efficiency.

South Holland Internal Drainage Board (SHIDB), one of the UK's key flood-management organisations, is deploying Sarian's mobile routing technology to assist with water-level management activities across some of the most fertile arable land in the world.



Sarian's DR6410 routers are being used by SHIDB to monitor 16 pumping stations and three gravity controlled tidal sluices across 38,443 hectares of land in the South Holland district of Lincolnshire. South Holland, named so because it is an area of low-lying land akin to Holland, is one of the UK's principle agricultural zones. However, due to its flat landscape the district is at constant risk of flooding, making SHIDB's work vitally important to the local community and its 60,000 residents.

Phase one of the deployment, which is being carried out by systems integrator Cougar Automation, sees the DR6410 routers being used for both fixed line and mobile communications, enabling SHIDB to monitor and control its 16 unmanned remote pumping stations entirely from the central office at Holbeach. Where possible, BT broadband connections have been deployed, however in some of the more isolated locations mobile networks are being used in the form of dual Vodafone and T-Mobile SIM cards to provide failover in the event of downtime. Industrial wireless access points (APs) are also present at selected sites to ensure that engineers can still access the pumping stations in the event of bad weather.

Transmitting data every 10-15 seconds, Sarian's routers not only enable SHIDB to monitor the district's water levels and status of each site's equipment in real-time, but also permit the engineers to remotely switch pumps on and off, as well as adjust the target water levels and pump sequences. Such remote capabilities mean that the Board can easily scan and assess a site from the central office first, before making the decision whether to dispatch a team to deal with any issues.

"The routers are literally our eyes and ears across the South Holland district – with almost 40,000 hectares of land, including large residential and industrial areas, the local community depends on us to manage water-levels effectively to prevent permanent flooding and water-logging," said Karl Vines, SHIDB district engineer. "Central to our telemetry system, Sarian's technology allows us to prioritise situations and deal with potential issues before they arise, while giving us the foresight to allocate manpower accordingly and guarantee that our engineers are in the right place at the right time."

Cougar Automation has configured SHIDB's telemetry system to allow the Sarian routers to establish a secure virtual private network (VPN) tunnel back to the master router from each remote location. There is also a PLC control for acquiring data, and at some sites there is even an IP camera which feeds images back to the central office via the Sarian device. This function gives SHIDB real-time visual images of water levels, as well as acting as a valuable intruder detection system and safety monitoring device when engineers need to remotely control pumps on an automatic basis.

"CCTV gives SHIDB much needed visibility as well as control over South Holland's drainage network, permitting engineers to monitor each site closely without impacting on manpower," said Stuart Gaunt, principal project engineer at Cougar Automation. "Sarian's flexible and robust cellular technology, teamed with Cougar Automation's advanced telecommunications system, means that the Board can uphold its exceptional level of service to a community reliant on its work for survival."

Looking to the future, phase two of the Sarian deployment will involve installing additional specialised features to allow SHIDB to record and archive water levels and pump run hours, as well as any action taken by the engineers, for hydrological modelling purposes. Such functionality will allow SHIDB, and other internal drainage boards, to compare and contrast rainfall in the district with the amount of water discharged from the catchment area, among other details.

"Real-time technology proves vital for organisations like SHIDB as the consequences of their actions have a direct – and quite possibly devastating – impact on masses of people, not to mention the effect on the local agricultural economy," said Duncan Ellison, business development director at Sarian. "With so many extreme conditions associated with the nature of telemetry, a reliable mobile solution is needed to ensure that data is transferred safely and securely between sites. Firms are increasingly realising that a cellular wireless solution can now provide much more stability than the usual wired connections – add to this the versatility of the core technology itself and organisations will find they have a valuable asset built for the long haul."

www.sarian.co.uk
www.digi.com