

## Flood & Coastal Risk Management

Managing flood risk

# Managing flood risk with a long-term contract

**Broadland is a 22,000 hectare area of broads in Norfolk and Suffolk, most of which is below sea level. It is economically valuable largely due to farming and recreation – in particular water-based activities such as boating, sailing and angling. The area also has important roads and railways, including those that link Norwich with Great Yarmouth.**

The area has a status equivalent to that of a national park and is overseen by the Broads Authority. This unique and environmentally-sensitive area is home to plants and animals found in few other places in Britain. It incorporates 28 Sites of Special Scientific Interest amounting to over 7,000 hectares in total. Each one benefits from protection under European law as either a Special Protection Area or a Special Area of Conservation and we are now legally required to protect them. There are also two wetland areas designated as being of international importance.

In 2001 we placed a twenty-year, £117.6 million contract with Broadland Environmental Services (BESL) for the management of flood risk in Broadland. BESL is a collaboration between Halcrow Group Ltd, with design and planning expertise, and Edmund Nuttall Ltd, with construction expertise. This solution provides better value for money than the conventional approach of tackling the needs with lots of individual projects.

BESL will prevent breaches by maintaining and restoring flood risk management structures. It also aims to restore to 1995 levels the protection against over-topping from the sea and to cope with rising sea levels caused by climate change – but not to *improve* the standards of protection. At the end of the project BESL will hand back to us each

flood risk management structure with a specified residual life.

BESL protects the area through 240 kilometres of flood risk management solutions. Most structures are ‘soft’ – small clay embankments – which naturally deteriorate over time. The underlying geology is also soft, which constantly creates a settling of these structures which in turn can reduce their level in relation to the sea. This makes them more susceptible to breaching: water breaks through them causing flooding behind. Seventy kilometres of the structures are supported by sheet steel piling which saline conditions aggressively corrode.

As well as being responsible for maintaining existing defences, BESL has also established a standby arrangement to respond to emergencies and forecasted flooding.

In the first two years BESL assessed in detail what was necessary and developed its programme of works. Annually BESL provides us with a comprehensive report demonstrating that it is meeting the service levels and confirming that the outstanding project work remains achievable and affordable. Every five years BESL must conduct a comprehensive survey of the levels of the defences, to assess their residual life.

Giving the contractor a longer-term commitment enables them to plan and deliver the required work more effectively, and we can share in the savings and efficiencies and spread costs more evenly over the contract period. This project may not have been affordable through usual procurement methods.

BESL regards part of its role as ‘custodianship’ of the broads, demonstrating a genuine interest in the defences and the natural environment. Members of its conservation management team have kept plant species protected in their own gardens during winter before being able to reinstate them in the wild. As water voles must be protected during construction works, BESL has researched vole behaviour using micro-chipping and radio transmission technology. It has recently completed an academic paper on the water vole habits and is conducting similar research on the habits of common lizards.

Members of the team are often called upon to contribute their expertise and local knowledge to wider broads issues such as the development and management of the Broads Biodiversity Action Plan. During the summer team members lead public walks with a nature conservation or cultural heritage theme along newly-constructed features.

Other areas of innovation include the use of plastic sheet piling to avoid the corrosion problem. This is a relatively new approach and we now have the opportunity to monitor how well these work, with BESL bearing the risk.

It is worth noting that original and creative solutions can be encouraged into a contract such as this, particularly if invited early in the process and ideally before the contract is awarded. Once a contract is under way and time and money are all accounted for there is little opportunity to deviate from the original plan and tested techniques.

When a contract requires the delivery of a specific service or product this can be relatively straightforward, but in this case what was required was the avoidance of something – flooding. Forecasting what was required over a twenty year period was complex. We needed the contractor to look after structures of which the current condition was not always clear. Additionally there were, and are, uncertainties about climate and legislative change and environmental sustainability.

A long-term contract commitment reduces flexibility, and we needed to be as sure as possible that this project would remain a priority throughout the 20-year term. Additionally, constraints on our annual budgets meant that successive years' investments were difficult to agree with the bidding contractors, who might otherwise have chosen to invest more money in the earlier years.

A contractor can, however, choose to invest early even though it might not recoup its costs until later. BESL has already invested in geographic information systems (GIS) and a state-of-the-art hydraulic model which we could not have justified had we continued to maintain and improve these structures on a scheme-by-scheme basis.

The more potentially risky the contract (including contract length) the greater the contingency that contractors will include in their pricing. We opted for limited risk transfer; reasonable penalties for non-performance; and improvement works with target prices.

Managing relationships with other interested parties is important in contracts of this nature – and many different groups have an interest in Broadland. These include statutory bodies such as the Broads Authority and Natural England. They also include non-statutory organisations such as RSPB; Broads Society; parish councils; angling groups; boating associations; sailing clubs; and specific nature conservation groups such as the British Dragonfly Society. We and BESL are working with a long-term view, which helps the overall process. To get the best value for money we have created a 'conveyor-belt' of approvals for new packages of work, to enable future efficiencies.

“The most significant feature of this project is the packaging arrangements. What we've got is forty packages of work, twenty years and over £100million to deliver it. The Broadland contract simply made it possible.”

Paul Mitchelmore,  
Project Manager,  
Environment Agency

The long-term view of what is needed and when it will happen has enabled the Broads Authority to develop its own long-term dredging and mooring programme. It takes advantage of opportunities such as large-scale dredging disposal on construction worksites and the creation of public mooring sites at new pilings. At one site BESL modified its programme so it could use materials excavated by the Broads Authority from a habitat creation site to construct a new flood embankment.

This type of long-term contract needs a different style of management to a traditional contract. The contractor has made a significant commitment for a long period and the agreement does not allow a high level of interference from the client. This can be difficult for a client to appreciate when it is new to such contracts. We have a full-time project team co-located with BESL and, after some teething problems, the relationship is now working well. This was evident recently when a variety of high-value commercial issues were resolved amicably while maintaining the contract price well within its original limits.

The more complex the contract, the more it will cost to set up. Establishing future contracts within an existing framework, using standard contract terms, could be cheaper – especially if they were of shorter duration.

Further information about this project is available at [www.bfap.org](http://www.bfap.org).