## Greatham Managed Realignment Scheme

The Environment Agency is creating a managed realignment scheme near Greatham on Teesside in the north east of England. The project will create 22ha of intertidal habitat and a further 18ha of brackish, freshwater and terrestrial habitats. The project will compensate for predicted coastal squeeze habitat losses associated with the Redcar Flood Scheme and flood schemes arising from the Tidal Tees Flood Risk Management Strategy.

Despite being a project designed to deliver clear environmental benefits, there were nevertheless environmental sensitivities and potentially significant effects which required Environmental Impact Assessment, Habitats Regulations Assessment, and management of environmental and technical issues during the construction phase.

The managed realignment site is located on farmland immediately north of Greatham Creek near Hartlepool and forms part of the extensive areas of land reclaimed from intertidal zone in the 19th and 20th centuries through the construction of flood embankments and bunds. Prior to the project the site was grazing pasture but had previously been used for industrial salt production dating back to the 1880s. The salt was extracted by injecting water into saltheads via a series of boreholes across the site.

Evidence of this salt extraction remained in the form of brinewells and brinewell heads, which were sealed and capped in a remediation process as part of the scheme. A series of ‘salters’, remnants of salt extraction dating back to medieval periods, and forming important archaeological features, are also present and will be retained within the new site.

The project involved the construction of 1.2km of new set-back embankments to protect existing industry and commercial assets using material won on site. The land beyond the new flood embankments has been improved to create 18ha of complementary brackish, freshwater and terrestrial habitats.

Part of the project involved capping the brinewells to prevent hyper-saline water impacting on the site and also to protect the underlying sandstone aquifer from saline intrusion. The final stage of the project will be to breach the existing embankment in two locations to allow the tide to inundate 22ha of the site and create intertidal saltmarsh and mudflat.
Sensitivities at the site included critical infrastructure such as a high-pressure water main and electricity pylons, the adjacent Teesmouth and Cleveland Coast Special Protection Area (SPA), and a public footpath which crossed the site; all of which needed careful consideration during the EIA and design process. The public footpath will be permanently severed as a result of breaching the flood embankment; this required sensitive consultation and formal footpath diversion to compensate for the effect on the local community and footpath users.

A number of issues were encountered during construction. Part of the EIA process involved commissioning an archaeological desk-based assessment to determine the former use of the site and need for further investigation and mitigation. This concluded the site to be low risk, but a watching brief was implemented as mitigation for certain excavation elements, in case of any finds. During construction, Bronze and Iron Age artefacts were uncovered and the remains of a former Roman settlement discovered. These were unexpected finds and required detailed excavation and recording, which resulted in unavoidable delays to construction. However, it did present an opportunity to raise the profile of the project with the local community, interest groups and the media.

Another issue arising from the site investigations was the discovery of contaminated material in the spoil heap immediately adjacent to the realignment site, which presented a contamination risk to the site and waters of the Tees Estuary. As a result the spoil heap will require capping to contain and remove this contamination risk.

‘Ecological Niche Modelling’ was used to determine whether levels on site were conducive to creating saltmarsh, and was critical to ensure the project created the right type and amount of habitat required as compensation.

A series of shallow scrapes have been created to provide brackish and freshwater habitat for wader species, amphibians and invertebrates. Some of the terrestrial habitat areas on site were seeded with a seed mix to target particular bird species (such as Widgeon) whilst marginal and aquatic areas were left to natural colonisation.

Habitat creation projects, such as at Greatham, have the potential to deliver huge benefits for the environment but also present environmental and technical issues that need to be addressed. EIA presents an effective method of assessing and agreeing the mitigation and management of those issues. Unforeseen issues present projects with challenges which require proactive management by the project team to ensure that the environment is safeguarded without compromising the objectives of the project.

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