

General information

Name of navigation
or waterborne
transport
infrastructure project

The restoration of Salhouse Spit

Country United Kingdom

**Project location
(nearest town or city)** Salhouse, Norwich, Norfolk

Key project objectives Erosion over the last 60 years caused the spit of land between Salhouse Broad and the river Bure to become significantly narrow threatening the integrity of the river bank and its riverside mooring. Now four geotextile bags of a total length of 170 metres retain 10,000 m³ of dredged sediment, forming 7,000m² of reedbed that protects the spit. The final outcome is improved navigation and a healthy reedbed, which is essential to wildlife however also form effective erosion protection

Contact Person William Coulet

Contact E-mail william.coulet@broads-authority.gov.uk

Contact Phone 01603 756038

Position Prisma Project Manager

Organisation Broads Authority

Project data

Characteristics of environment

Inland waterway

Rural

Temperate

Protected areas

Key project dates

Project is not in the
planning phase. Date
project planning
started 00-10-2011

Project has
consents/approvals.
Date approval was
obtained

15-8-2012

Project construction
started. Date
construction started 8-10-2012

Project not yet
completed

Type of project

New construction or development

Maintenance program or initiative

Inland

Waterway

Aquatic relocation/disposal of dredged material

Beneficial use of dredged material

Other

Maintenance dredging of inland waterways and constructing a breakwater and reedbed with dredged sediment.

Brief description

The Broads Authority is restoring a lost reed bed and eroded strip of land at Salhouse Broad, Norfolk. (A Broad is a shallow manmade lake, conventionally dug for peat) Erosion over the last 60 years has caused the land between Salhouse Broad and the River Bure to become significantly narrow –down to 2 metres in places-- threatening the integrity of the river bank and its riverside mooring. Now 7,000m² of reed bed is being constructed using dredged sediment retained by four giant geotextile bags. The geotubes© are fixed to locally sourced alder poles; cut from river banks near Salhouse Broad. The geotubes are being filled with 3000m³ of sediment dredged from the River Bure to provide a 170m retaining bank. The geotubes, which are 8.5 metres wide and have a circumference of 18.6 m are big enough to drive a car through! Once filled, they will sink below the waterline and the void behind the bags will be filled in with 8000m³ of dredged sediment to restore the reed bed as it was in 1946. Dredging of the river Bure is required for navigational purposes, shoals have accumulated on the inside of bends and other slow flowing areas. Dredging to a depth of 2.00 metres below mean low water is required, allowing pleasure cruisers and sailing vessels to navigate the river. Sediment from the river Bure is being carried to Salhouse by barge where it is unloaded into a pump by an excavator. The pump, conventionally used for concrete, fills the bags via a pipeline. The use of a concrete pump is required because the sediment pumped is undiluted, in-situ sediment. Geotubes have been filled with sediment before, however not with in-situ (solid) sediment with a concrete pump under water! The surface of the geotextile bags will be planted with reed seed and rhizomes sourced from vegetation scrapes, carried out as part of reed bed management on an adjacent site this winter to help restore it as a natural reed bed.

Indicative size

Less than 0.5 million US\$

Working with Nature philosophy

Were steps taken to understand the environment before any work was started on the development of the design of the project?

Yes

A detailed environmental assessment was carried out prior to the works focussing on the specific works area. The Broads are manmade and require specific management to ensure high quality habitats. The aim is to enhance biodiversity by re-creating reedbed, a habitat type that has diminished locally as well as nationally.

Were stakeholders or potential partners involved from the very beginning in the initial process of identifying potential options or solutions and agreeing on a preferred option (i.e. instead of being consulted on already defined options)?

Yes

Stakeholders; landowner, local site managers, the Environment Agency and Natural England as well as the navigation committee were involved from the start of the project. This was achieved by liaising with them during individual meetings. The project was also flexible enough to make minor changes where required during the whole process as it is highly innovative. This is done on several occasions.

Was a solution identified which provided a clear 'win-win'?

Yes

The project focussed on reusing dredged sediment in a beneficial way. Silty clay was used to form a new reedbed habitat. Resources were found locally like alder poles and reed rhizomes. The alder poles were coppiced as part of the management of the local woodlands, prolonging the trees life and allowing light into the woodland. Reed rhizomes were scraped from a nearby reedbed, improving conditions for pionering species and providing adult and fully established 'mats' of vegetation

Was the project designed to work with and make use of natural processes (e.g. 'letting nature do the work')?

Yes

Did the project include benefits for nature or other environmental enhancements beyond what was legally required?

Yes

Yes, as described above; much material will be sourced locally reedbed will be established with significant marginal zones biodiversity will be enhanced with reedbed (nationally declining)

Did the project follow, in order, the steps described in the Working with Nature Position Paper?

Yes

The project followed the steps described, of particular difficulty was to keep 'all' stakeholders pleased. When one works in a dynamic environment like the broads with many different stakeholders sometimes it takes significant effort to please everyone.

Reasons/motivation for taking this approach

The Broads Authority is part of the National Park family and we act as the stewards of Broads. Besides this duty we also require to maintain navigation. By combining the two aspects we can carry out our work more effectively. Win-win situations are essential for operational as well as economic reasons. We aim at the same time to improve the natural environment.

Cost implications

Costs were not lower than the conventional approach to this type of project (i.e. no cost savings were made)

No additional funds were provided from third parties

No extra costs compared to conventional approach

Sourcing local materials is sometimes not competitive in relation to 'on the shelf' products, however because of the win-win situations and the reduction of transport no extra cost were incurred.

Costs were not marginally or significantly higher than a conventional approach to this type of project

Did existing legislation help or hinder your application of the Working with Nature philosophy?

The approach adopted did not help to meet legal obligations

What was done did not exceed legal requirements

No problems were experienced with existing legislation

The approach was not taken despite legal requirements

Legal requirements prevented (some of) the Working with Nature philosophy being applied

Sediment is still regard as a waste in legislation, 'building' with sediment is therefore particularly difficult. Because we used sediment within the same waterbody, no hinder was incurred.

Further information

Please contact William Coulet for further information, video's, photo's reports and other information is available.