

# Broadland Flood Alleviation Project

## Protecting



## Broadland

### Flood alleviation improvements for Limpenhoe Marshes and Cantley Sugar Beet Factory (Compartments 12 and 13)

Public Consultation February 2007

#### Introduction

In May 2001 Broadland Environmental Services Limited (BESL) was awarded a long-term contract by the Environment Agency (EA) to improve and maintain flood defences in Broadland. The Agency's approach to flood alleviation in Broadland was adopted in the 1990's and is based on a strategy consisting mainly of bank strengthening, erosion protection and reducing the risk of banks breaching. BESL and the EA updated this strategy and is now carrying out improvement works throughout 40 individual flood compartments in Broadland.

The major improvement works will be undertaken during the first 10 years of the Project; thereafter the banks will be subject to regular condition monitoring and maintenance works as required.



*Cantley sugar beet factory*



*Cattle grazing on the marshes*



*Limpenhoe Drainage Mill*

#### Consultation

This leaflet has been prepared as part of an ongoing process of consultation to inform you about BESL's proposals and to seek your views on them.

The purpose of this consultation document is to:

- Explain the range of flood defence options that BESL can consider;
- Outline our preferred flood defence proposals at this stage;
- Invite your views on these proposals, and
- Ensure, from the responses we receive, that we are aware of any specific local issues that should be considered as the proposals are developed in greater detail.

BESL will carefully consider any comments it receives, seeking clarification and incorporating changes where necessary before finalising its plans.

The results of this consultation will play an important part in BESL's planning application for the proposals. General feedback on this consultation will be contained in the planning application documents.

A questionnaire is provided with this leaflet. If you have not received one, or if you would like an electronic copy of the questionnaire by email, please contact Angela Rowe at the address given at the end of this document. Alternatively, all consultation documents produced by BESL can be downloaded from the BFAP project website ([www.bfap.org](http://www.bfap.org)).



## Site description

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Compartments 12 and 13 are located on the left bank of the River Yare between Reedham and Cantley sugar beet factory.

Compartment 12 is currently protected by approximately 5 km of earth floodbanks with reeded rond and small lengths of piling providing erosion protection. The majority of the compartment comprises grazing marsh but there is also a residential property; the Reedham Ferry Inn and camp site, and the Norwich to Yarmouth railway line that are protected by the defences. By Cantley sugar beet factory settling lagoons lie behind the floodbank at the upstream end of the compartment.

Compartment 13 flood defences are a combination of concrete walls, earth bank and piling. These protect Cantley Village and the sugar beet factory.

### Need to improve existing flood defences

The effectiveness of the flood defences in Broadland have progressively reduced over time due to bank settlement and the combined effects of erosion and deterioration of piling. On the Limpenhoe Marshes some reaches of floodbank crest are low and the bank too steep. This makes the bank vulnerable to over topping (as happened in November 2006) and possible breach during times of very high river level. BESL aim to minimise the risk of breach by strengthening the banks and improving the erosion protection.



*Length that overtopped,  
November 2006*

### What options did BESL consider for improvement works in this compartment?

The range of flood alleviation solutions that BESL considered for these works follows the Environment Agency's and BESL's overall strategy for flood alleviation in Broadland. Specific solutions are based on up-to-date survey data (assessing the condition of the existing floodbank and erosion protection), an evaluation of the level of flood defence provided and local issues including environmental considerations.

The options BESL have considered are illustrated and explained in the enclosed flyer. A brief outline of some of the decision criteria leading to a particular option as the preferred solution is also given.

BESL has taken every effort to ensure that the solutions presented here are technically feasible, cost-effective, and environmentally sound. It is the combination of these principles for a 'sustainable' project that underpin BESL's detailed proposals here and across Broadland.



*The Ferry Inn, Reedham*

## What are BESL's specific proposals for the bank of the River Yare in Compartments 12 and 13?

### Compartment 12

The plan on the enclosed insert shows the solutions that BESL are proposing for individual lengths of floodbank. A summary of these works is as follows:

Proposed Works	Length (m)
Online strengthening	4207
Maintain existing defences	187
Setback bank	841

The primary aim is to provide defences that will resist breach in the event of a high level flood event occurring. The actual level of defence against over-topping remains similar to that which existed in 1995 so there will be negligible change to water levels either within these compartments or elsewhere in the Yare valley.

Material for the earthworks will be sourced from the excavation of a new soke dyke on the grazing marshes. The existing dykes cannot be widened as the new bank would be too close to the edge of the dyke to ensure stability. The exception is around Reedham Ferry where additional material may have to be found by enlarging marsh dykes locally.

### Compartment 13

The defences form the frontage to the sugar beet factory and the proposals are to maintain and repair the existing concrete wall. Additionally, a short section of piling will be replaced at the upstream end of the compartment. This partly coincides with the location of the proposed Cantley Parish Council slipway, which the project is assisting with the development of.

### Other options

Compartment 12 contains an area identified for potential wetland enhancement (see the solutions plan). The construction of a new floodbank on a retired line would provide an opportunity to reinstate part of the original floodplain within part of the compartment. Discussions will be held with the relevant landowners. If they are interested in the proposal, and there is support from stakeholder groups, then it will be developed and consulted on further.

<p><b>Will the proposals have any impacts on flora and fauna?</b></p>	<p>Surveys for water voles, reptiles, scarce plants and dyke vegetation have been undertaken to identify measures needed to avoid or minimise impacts. These include vegetation clearance to remove potential nesting sites and water draw down in the soke dykes to displace water voles. There will be a slight loss of grazing marsh but increases in rond and soke dyke habitat following construction. Full details of the environmental assessment will be submitted with the planning application.</p>
<p><b>What changes to the local landscape will the work cause and how will historic built structures be protected?</b></p>	<p>Apart from the washland option there will be little permanent change to the views across the compartment however, temporary impacts, such as the view of bare areas until vegetation re-establishes on the floodbank, folding and within the soke dykes cannot be avoided. The works will require that some of the overhead electricity cables on the marshes between the village and Reedham Ferry are put underground. We are currently in discussion with landowners as to whether all cables can be buried, working in conjunction with EDF electricity and the Broads Authority. The design and construction will take account of the sensitivity of drainage pumps within the works corridor based on condition assessments.</p>
<p><b>To what extent will the proposed work affect navigation?</b></p>	<p>The majority of the construction works will be carried out from land. Any water-based work such as erosion protection will be completed in the winter months. The Project is working with the Broads Authority and Cantley Parish Council to help with the provision of a new slipway in Compartment 13. Navigation should not be significantly effected by any of the proposals.</p>
<p><b>What impacts will there be on other informal recreation?</b></p>	<p>A public footpath runs along the entire length of the floodbank in both compartments with the section between Reedham Ferry and Reedham village forming part of the Wherryman's Way. As the floodbanks will have to be closed during the works BESL will seek to provide signed alternatives routes where possible through consultation with landowners and relevant stakeholders such as the Broads Authority and Norfolk County Council.</p>
<p><b>What are the implications for landowners and businesses as a result of the proposed improvement works?</b></p>	<p>During the works there will be some loss of land for grazing and access. BESL contact landowners early in the design process to ensure their views are taken into account. There will be a small net loss of grazing land on completion for which compensation payments will be made. Programming of works will take account of the need to minimise disturbance at locations such as Reedham Ferry Touring Park.</p>
<p><b>What other flood defence works are planned for this part of the Yare valley. What is the proposed timing of these works?</b></p>	<p>Compartment 14 (Cantley Marshes) was submitted for planning approval in November 2006 with the intention of construction starting in 2007. On the opposite side of the river works to Compartment 21 (Hardley Marshes) will be completed in 2007 and improvements at Langley Marshes are programmed to start in 2009.</p>



Reedham Ferry Inn and the Red Mill



*Looking upstream from Cantley*

## What are the potential issues associated with this work?

The Strategic Environmental Framework (SEF) process, developed by BESL with extensive stakeholder input, sets out environmental standards for maintenance, flood defence improvements and first-time defences for undefended communities. The scheme details are consistent with these environmental standards. The table on the previous page identifies some of the key issues associated with these proposals. We would welcome your comments on these. Please let us know any other issues that you think should be considered.

## What is the proposed timing of the works?

A planning application for Compartment 12 will be submitted Spring 2007 with a view to the main construction works beginning Summer 2007. It is expected that the works will be substantially completed within 12 months. Some scrub clearance and other vegetation cutting will be required before works commence to remove potential nesting habitat from the works corridor.

## What are the next steps?

Thank you for taking the time to read through this information leaflet and answering the associated questions in the accompanying questionnaire. BESL is keen to find out what you think of these proposals. We will collate your replies and will then consider all comments made, these will help to inform us as we develop the proposals in more detail. If you have any queries regarding either these proposals or those elsewhere in Broadland, please phone Angela Rowe, (BESL Project Administrator) on: 01603 226161

If you wish to reply we would encourage you to email your reply to Angela Rowe at

[Halcrow@edmund-nuttall.co.uk](mailto:Halcrow@edmund-nuttall.co.uk)

Please mark the subject line of your email with:

**Compartments 12 and 13 Consultation**

Alternatively, our freepost address is:

**Broadland Environmental Services Limited**

**Freepost ANG20504**

**Norwich**

**NR1 1ZW**

Both the consultation document and accompanying questionnaire can be downloaded from the project website at:

[www.bfap.org](http://www.bfap.org)

BESL would like to reduce the amount of paper we consume. In future can we email you to notify you of the consultation documentation being on the web? If you are happy for us to do this please confirm, via email, the best address for us to send the notification to.

Please try to ensure that all replies are received by

**15th March 2007**

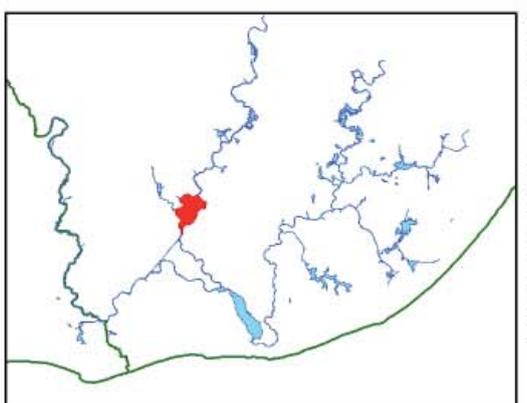
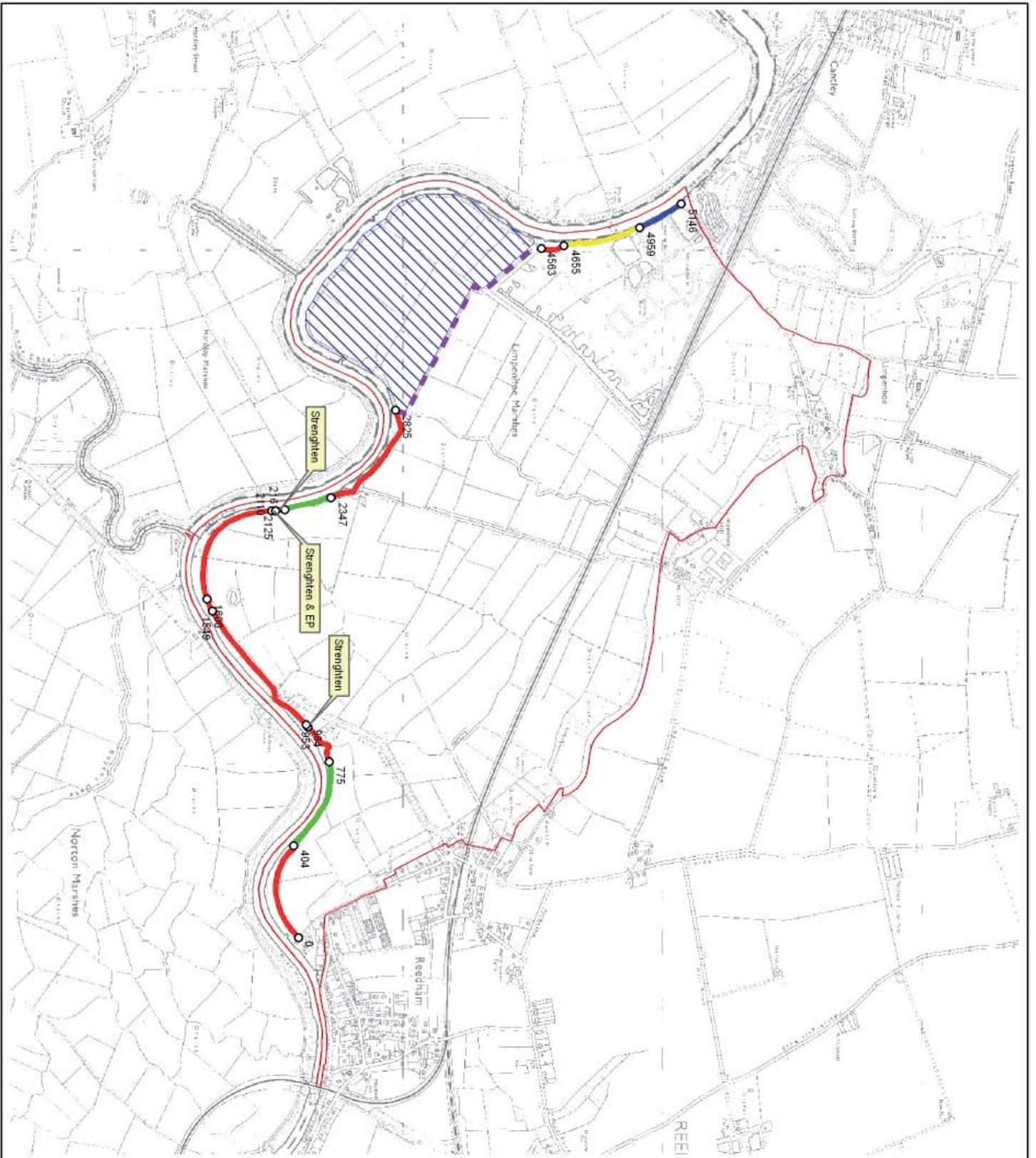
Replies can be considered after this date but please contact us first if you need an extension.

## List of consultees

In addition to landowners we will contact:

British Dragonfly Society  
Broads Angling Strategy Group  
Broads Authority  
Broads Hire Boat Federation  
Broads Society  
Broadland District Council  
Cantley Parish Council  
CPRE Norfolk  
Environment Agency  
Langley and Hardley Parish Council  
National Association of Boat Owners  
Natural England  
Norfolk and Suffolk Boating Association  
Norfolk Anglers Conservation Association  
Norfolk Area Ramblers  
Norfolk County Council  
Norfolk Landscape Archaeology  
Norfolk Wildlife Trust  
Reed and Sedge Cutters Association  
Reedham Parish Council  
RSPB





Notes:  
1. Changes are in metres, unless specified otherwise.

**Legend**

- Maintain & EP
- Setback & Remove Piles
- Strengthen
- Strengthen & EP
- Potential Crosswall
- Potential Washland Area



**Broadland Environmental Services Limited**  
 46, Victoria Road, Norwich, Norfolk, NR1 3JF  
 Tel: 01603 254000  
 Fax: 01603 254001  
 Email: info@broadland-es.com

**BROADLAND FLOOD ALLEVIATION PROJECT**  
 Flood Compartment No 12 - Limpenhoe Marshes  
 Washland Option

**Halcrow**  
 Date: Jan 2007  
 Scale: 1:20,000  
 Figure No.: 12.09.02