



# Broadland Flood Alleviation Project

## Protecting



## Broadland

### Rivers Chet, Yare and Waveney Consultation Document

#### Introduction

In May 2001 Broadland Environmental Services Limited (BESL) was awarded a long-term contract by the Environment Agency 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 to improve defences mainly by bank strengthening and erosion protection, and reducing the risk of banks breaching. BESL is presently working to update this strategy and this will set the scene for how future improvement schemes will be designed, programmed and carried out.

Recent detailed surveys and monitoring confirm that improvements to flood defences for the Rivers Chet, Yare and Waveney between Loddon and Burgh St. Peter are urgently needed. (These locations are also referred to as Compartment 22). BESL has therefore decided to bring forward its plans for this work.

#### Consultation

BESL will need to obtain approval from statutory bodies including planning permission from the Broads Authority. 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 and explain why this is BESL's preferred option in each case
- ▶ Invite your views on these proposals;
- ▶ Make sure, from the responses we receive, that we are aware of any specific local issues that ought to be considered as we go on to develop the proposals in greater detail.

BESL will carefully consider any comments it receives, seeking clarification and incorporating changes 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 planning application documents.

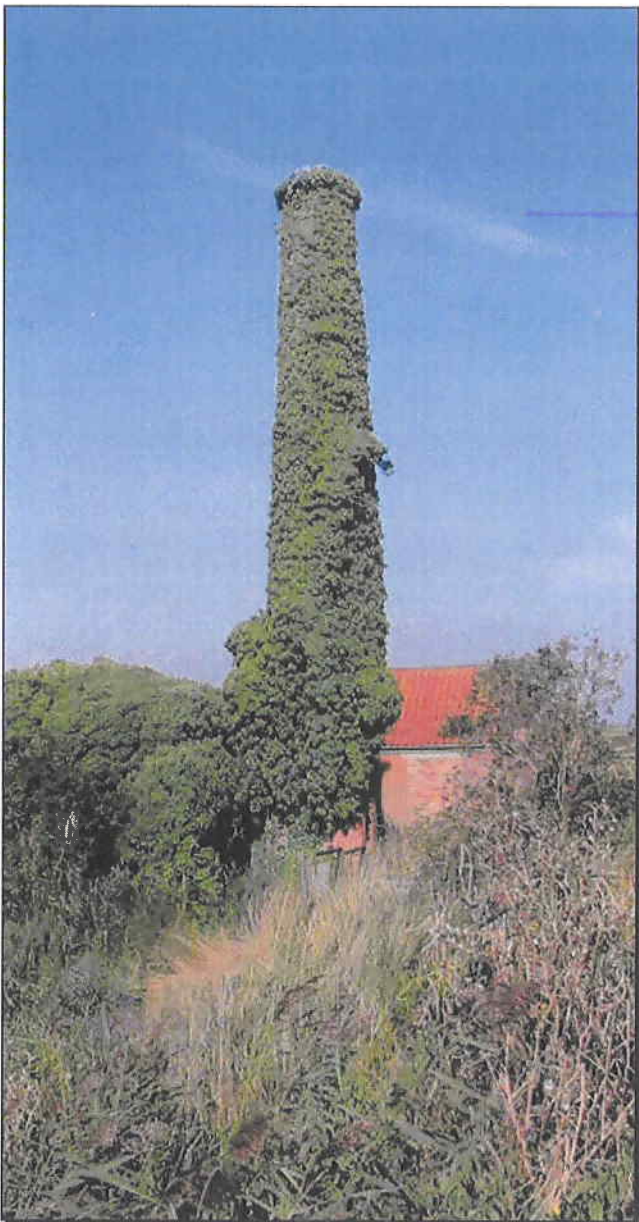


## The need to improve existing flood defences

The existing flood defences in the lower reaches of the Rivers Yare, Waveney and Chet are continuous clay floodbanks with a mixture of reed ronds. Some are harder defences, such as timber and sheet metal piling, that act as erosion protection and/or physical support along their front (river) edges. The ronds vary in width and the piling was installed in areas where excessive erosion had destabilised the floodbank.

The overall standard of flood defence has progressively reduced due to settlement, age and the combined effects of erosion, corrosion and sea level rise. In some areas the original floodbanks are too narrow and the banks too steep, making them vulnerable to breaching during very high tides when floodwater overtops them. Sea level rise and tidal surges add to this vulnerability.

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 specific detailed proposals here and across Broadland.



Black Mill - River Waveney

## What options are BESL considering for improvement work in this compartment?

The range of flood alleviation solutions BESL is proposing for the Rivers Chet, Yare and Waveney follows the Environment Agency's overall strategy for flood alleviation in Broadland. The options are:

- ▶ Floodbank strengthening - involving strengthening the existing clay embankment in its present location, raising the crest if necessary;
- ▶ Floodbank setback - involves building a new clay embankment inland from the river's edge and providing a new folding and soke dyke;
- ▶ Erosion protection - stabilises the riverbank and the edge of the rond and is used where erosion may threaten the floodbank. Several types of erosion protection exist including asphalt matting, coir and reed rolls and alder poles.

The decision about which solution to use in any one place is based on a number of factors. These include up-to-date survey information (to assess the condition of the existing floodbanks, erosion protection etc.), an evaluation of the level of flood defence currently provided, cost and other factors, such as local environmental issues or legal designations and technical feasibility.

In this instance, BESL's proposals to improve the floodbanks for the Rivers Chet, Yare and Waveney are based on strengthening and setting back floodbanks. At this stage there are no proposals to install erosion protection, although this may be required on new ronds after setback if monitoring shows it to be necessary. Particular attention has been paid to the feasibility and logistics of constructing new clay floodbanks on top of existing soft, peat-based ground in the Chet valley.

In order to make the improvements to the floodwalls it is necessary to find a clay material source. BESL's approach to material sourcing is to use a local source and the preferred option is to use material from existing soke dykes and internal drains by widening them. The use of dredgings is an alternative option if there is a suitable source close by. However if there are no other reasonable alternatives local borrow pits would need to be considered.



Frogbit (*Hydrocharis morsus-ranae*)

## What are BESL's specific proposals for the Rivers Chet, Yare and Waveney from Loddon to Burgh St Peter?

The plan on the opposite page shows what solution BESL is proposing where for different lengths of floodbank in the compartment. Banks will be raised by enough to maintain 1995 heights and allow for settlement and future sea level rise. The increase in bank heights will generally be about 300mm. A summary of these works is as follows:

### River Chet:

The right (south) bank of the River Chet, adjacent to Norton Marshes and Loddon Common

- ▶ 2250m of bank to be setback on the River Chet from the end of the section that was piled in 1998 (OS Grid. Ref. TG 402008 to TM387997) (pink)
- ▶ 180m of bank strengthening (OS Grid. Ref. TM 385995 to TM 383994) (yellow)
- ▶ 1560m of bank to be setback (OS Grid. Ref. TM 369991 to TM 383994) (pink) (Ground investigation is currently taking place to prove the viability of this proposal.)

### River Yare:

The right (south) bank of the River Yare protecting Norton Marshes and opposite Reedham Village (OS Grid. Ref. TG 407015 to TG423016)

- ▶ 1250m of bank strengthening (yellow)
- ▶ 210m of bank to be setback (pink)
- ▶ NB The floodbank opposite Reedham will not be constructed higher than the one about to be built in Reedham village.

### River Waveney:

The left (west) bank of the River Waveney, surrounding Wheatacre and Burgh Marshes (OS Grid. Ref. TM 475963 to TM 495935)

- ▶ Strengthen approximately 1700m of floodbank in five sections (yellow)



Marshmallow (*Athaea officinalis*)

## What is the proposed phasing and timing of this work?

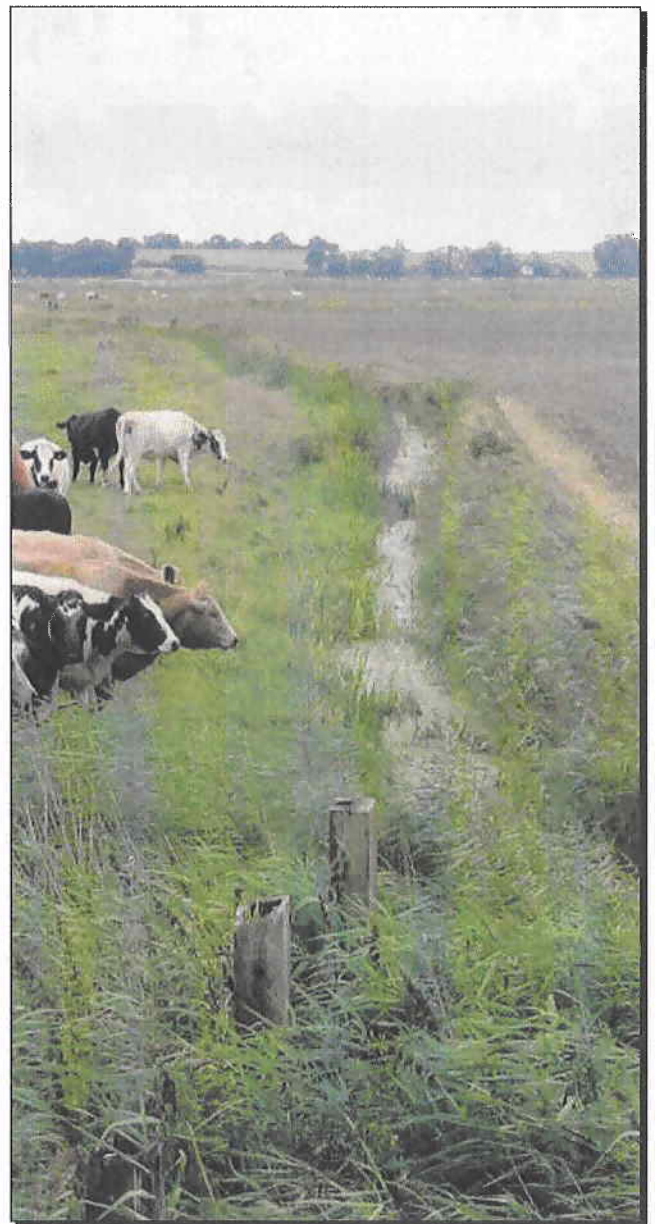
The improvement works described in this document are part of a larger programme of works for the area. The map overleaf shows where the current proposals will take place and where further improvement works will be proposed. Detailed proposals for these future works have not yet been developed and BESL will consult on them separately.

### April – November 2003

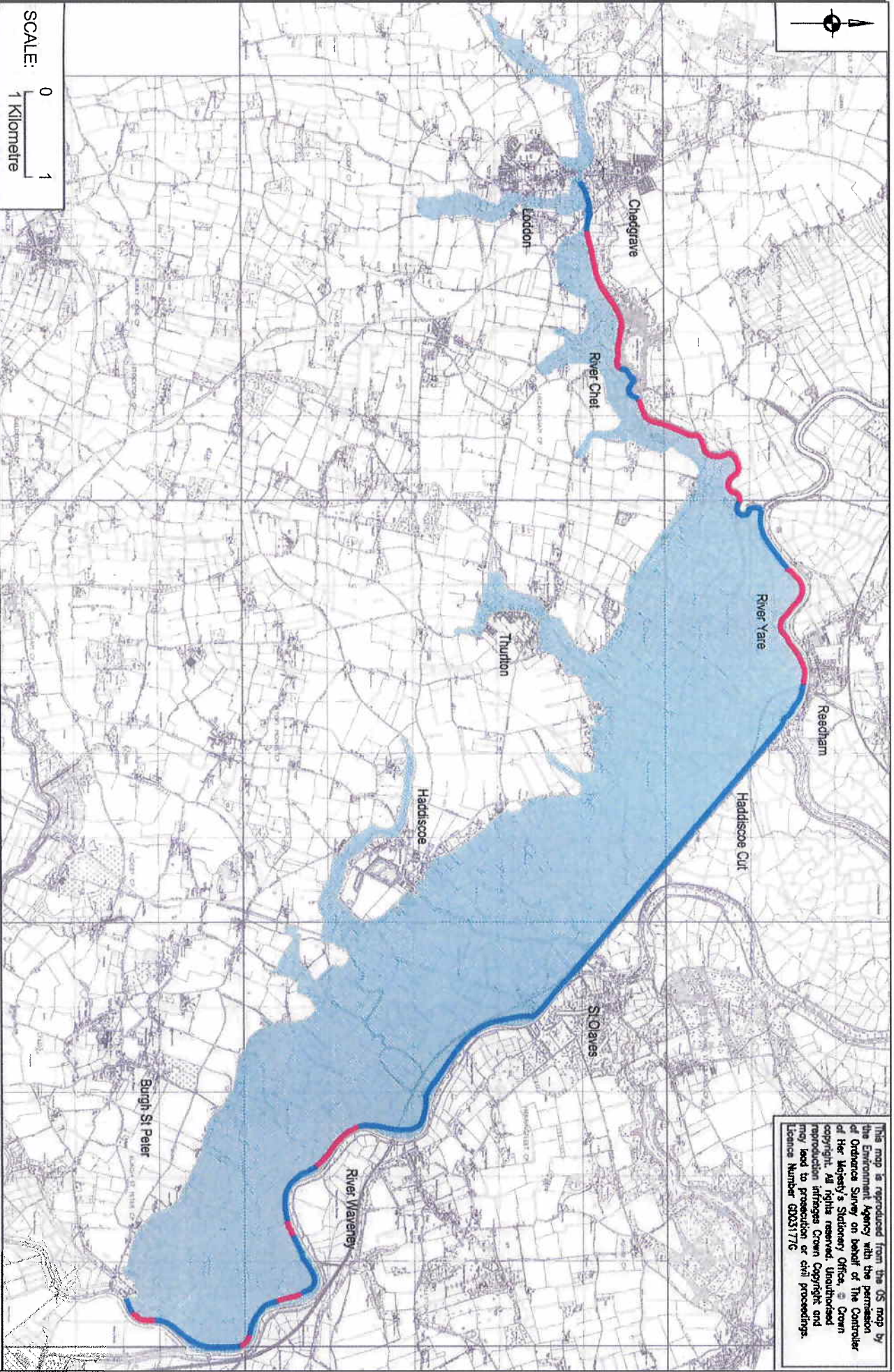
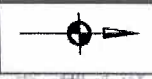
- ▶ first stages of all setback

### April – November 2004

- ▶ all bank strengthening
- ▶ final stages of setback including removal of existing floodbanks when the new setback floodbanks are stable



Internal drain separating arable land and grazing marsh



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SCALE: 0 1  
1 Kilometre

- = Proposed Works
- = Future Works

Flood defence proposals for the Rivers Chet, Yare and Waveney between Loddon and Burgh St. Peter

