

**A Tidal Mitigation Barrier for Sutton Saltmarsh on the River Deben:
A project by the River Deben Association 2008/9**



Background:

Consideration of a project of this type started as a response to the consultation for the Posford Duvivier Estuarine Strategy for the Deben Estuary of 1999. We realised then that we were as unfamiliar with the terms of reference for the report as the consultant and the Environment Agency were insufficiently experienced in the process of effectively managing public consultation.

I was representing the River Deben Association in this process and felt that we needed to establish our own initiatives on the river to raise the level of knowledge of estuary processes and to generate an enhanced sense of ownership and responsibility within the community. Since a great deal of the discussion stressed the need to create saltmarsh habitat but did not accommodate the need for a habitat management programme, we decided to identify a saltmarsh area that was under stress from tidal action and explore ways in which it might be managed.

Foremost amongst the sites we examined was the marsh originally protected by the causeway that gave access to the Ferry Hard at Sutton opposite Woodbridge Quay. Since the demise of the ferry service in the 1970's this had been allowed to

deteriorate to the extent that by 2004 when we first considered this as a project, it had breached, the tide was running through and starting to wash out the marsh behind. We started thinking seriously about a proposal to stabilise the site in 2006, and put in an application for Sustainable Development Fund support from the Suffolk Coast and Heaths AONB.

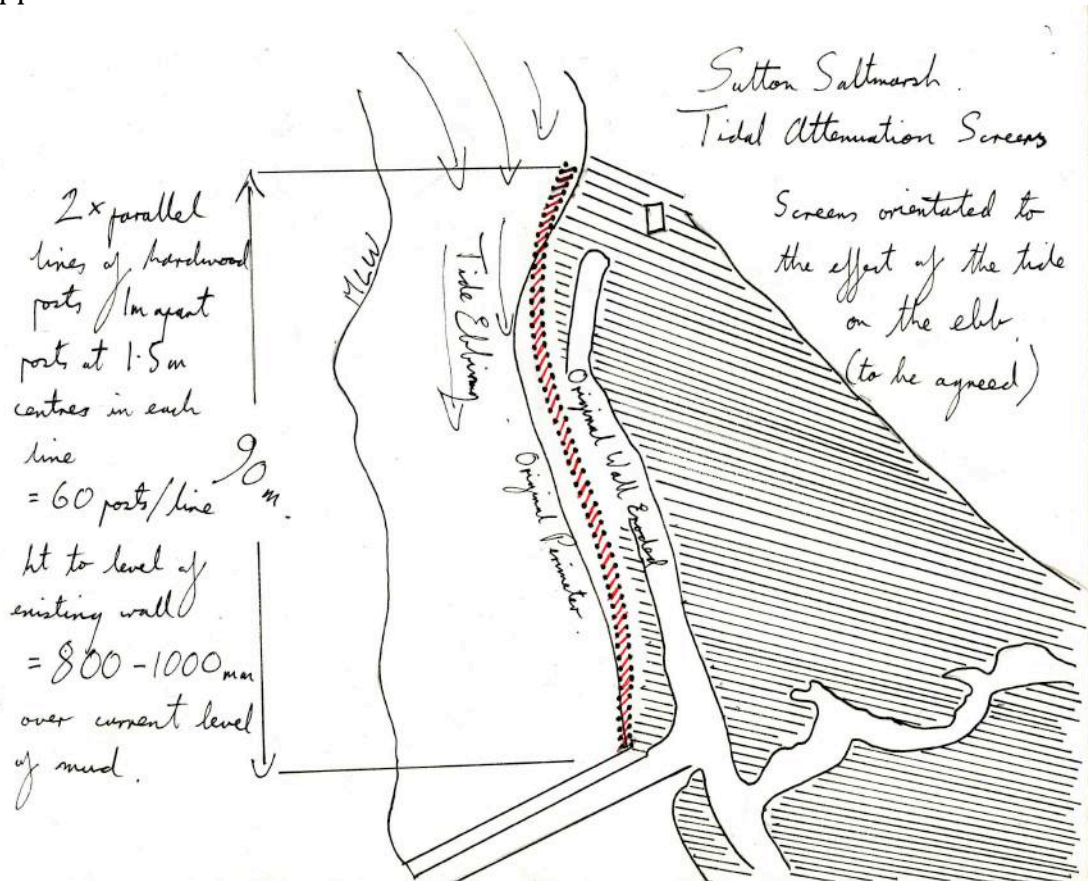


Sutton Saltmarsh looking towards Woodbridge Tidemill



Derelict river wall at Sutton Saltmarsh

Approach:



In the first instance our aim was a combination of a structure to arrest further erosion of the site and encourage deposition of silt and a renewed access to the ferry landing. Our initial discussion of the project was met by scepticism from both English Nature (Natural England) and the Environment Agency over the advisability of interfering with estuary processes. However there was an agreement that with certain caveats our plan could be permissible. We were informed however that we would need to carry out an environmental impact assessment, get a FEPA licence for a structure below mean high water and planning permission for a structure that could not be a like for like repair (one condition for the project was that we should adopt a “soft engineering” approach of a brushwood groyne variety rather than repeating the original rubble and clay with a timber revetment solution).

Armed with the understanding that a project of this type would be acceptable to the various authorities, we set about establishing the nature of the ownership of the site and commissioning an engineering design for the defence work. Ownership proved as tortuous as all other aspects of the work: the owner of the land adjacent to the saltmarsh claimed ownership of the marsh itself, National Trust had registered ownership of the foreshore to the riverbed, Crown Estates consider that they own the channel system within the saltmarsh. The wall itself and access to the ferry had been given to the people of Woodbridge by the original landowner, to be managed by Woodbridge Urban District Council and later transferred to Suffolk Coastal District Council. Here the trail stopped

because the solicitor for Suffolk Coastal District Council can find no documents relating to ownership of the site.

With some negotiation over the nature of a barrier, should it be a continuous structure or a series of screens to facilitate the passage of wading birds through it, we went ahead with an application. This was for the whole budget including labour and came to £12,500. The bid was unsuccessful on the basis that we had not identified suitable match-funding, that there was no guarantee that our interest would not have a negative on estuary processes and that our aims appeared to be ambiguous, in that it was unclear whether the proposal was to make a new ferry access that incorporated tidal attenuation screens or whether the defence work and public access a secondary consideration. However the feedback we received did encourage us to submit a revised proposal.

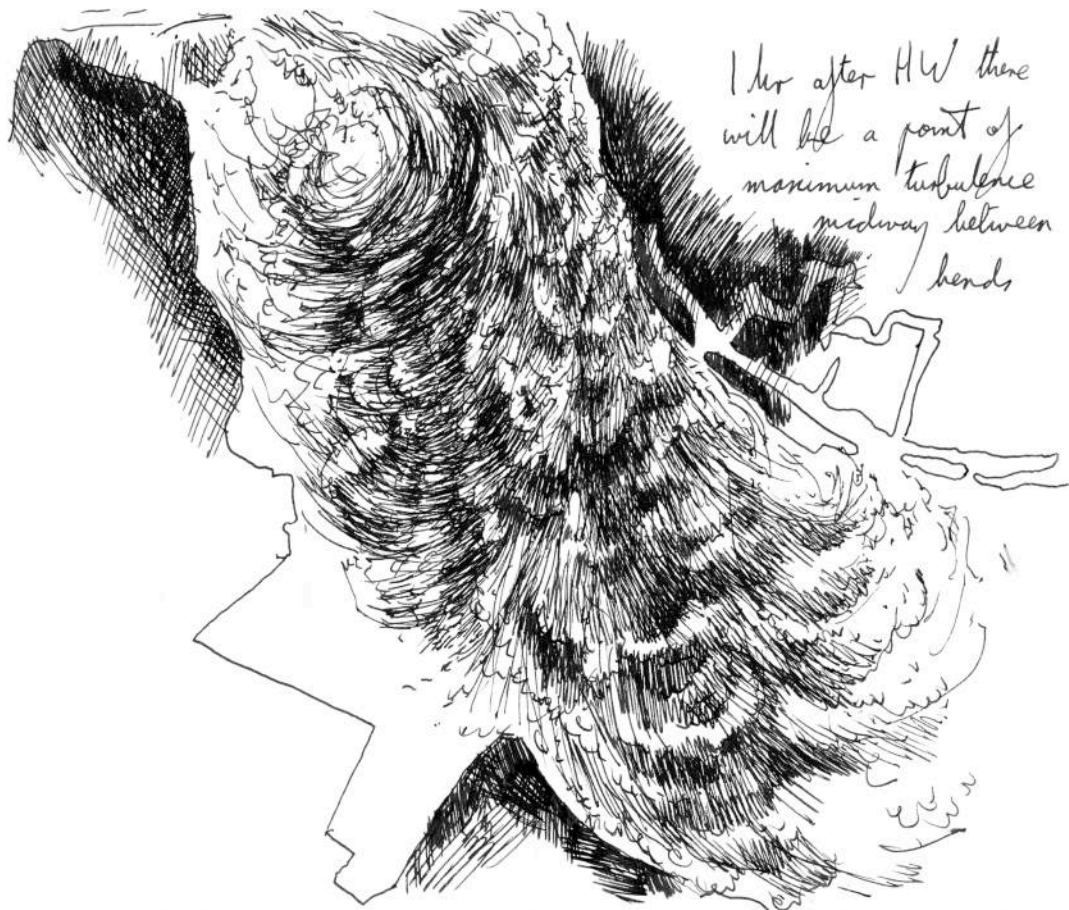
In the meantime Bill Parker, then Estuaries Officer for Suffolk Coast and Heaths, drew our attention to the work of Steve Colclough, senior technical fisheries specialist with the Environment Agency, who has been carrying out extensive research upon the way that mature saltmarsh can act as a fish nursery to native species such as bass, plaice, flounder and mullet. With Bill's encouragement we invited Steve to have a look at the Sutton Saltmarsh and he readily agreed to a visit to sample the species present by netting it through a single tide. This was done in Spring 2008 when one haul took 72 specimens of young bass, flounder, dab, plaice, mullet, gubby and stickleback. Armed with a report by Steve, we felt able to justify our project to stabilise the saltmarsh on habitat grounds.



Fish Survey

Therefore in 2008 we submitted a modified proposal without a boardwalk, but structurally able to accommodate one should there be an inclination to add it in future. The bid was for £2500 from the Sustainable Development Fund, which we undertook to match from our own funds, we received a promise of a further £200 from the Woodbridge Society. We undertook that all the labour should be voluntary from our own membership and friends and we received support from HMP Hollesley Bay Colony who arranged for two volunteers to help with the heavy work on a daily basis for a month. In the event of the bid succeeding we agreed to carry the work out over the winter months after summer migrants had left and before nesting season in the spring.

Design:



The site is 90 metres long and is curved following a bend in the river downstream from the base of Ferry Cliff. Our perception of the problem was that the protection afforded to the saltmarsh at Sutton had declined with the decay of the causeway wall giving access to the ferry landing. It was significant that the greatest damage was on the upstream end, indicating that the greater amount of erosion happened on the ebb. Andrew Hawes Associates of Aldeburgh developed the principle for the design. This was then adapted according to the particular dynamic of the site. 124 oak posts were driven in as pairs 1 metre apart, 1.5

metres between each pair. These posts form a grid that allows a range of choices along the length of the work for stretching heavy-duty geogrid plastic panels filled with brushwood. There are 62 of these panels all orientated diagonally facing upstream with the intention of mitigating the effect of the ebb tide. Each screen is in the form of an envelope, stuffed with brushwood and sewn over at the top to make a stable form. To ensure that the tide does not continue to flow through the original breach unimpeded I have additionally built a brushwood fence across it. In order to facilitate monitoring, I have driven in markers between the derelict wall and our structure and I have included some boardwalk sections to enable basic access.

Execution:

The bid was successful and I started work in early November 2008 and completed March/April 2009. We repaired the existing but derelict ferry hut so that there would be shelter and somewhere dry to keep kit and equipment. The transport between the site and Hollesley Bay Colony was supplied as a favour by a long-suffering well-wisher, but all materials and equipment were ferried across by boat. Of necessity we had to regulate the work according to the availability of labour, the state of the tide and to the weather: materials and equipment could only be delivered at high tide but work could only be carried out at low water. The brushwood for the groyne work came from a variety of sources, hedge trimmings from a local farmer, Leylandia from the trout farm at Bromeswell, all of the Christmas Trees from the Woodbridge Thoroughfare and any other trimmings or windfalls that I could scavenge.

Monitoring:

It is yet less than a year since the completion of the work, so it is not likely that any change will be obvious, but over this period I have monitored the behaviour of the flow around the structure and carried out some minor adjustments. It is clear that the major impact of erosion on the ebb has been halted on the section of wall facing upstream and there has been some accumulation of silt within the saltmarsh itself. The gap between the structure and the original wall has not appreciably accreted but it must be appreciated that there was bound to be some wear caused by footfall in the process of building the structure that had to be made up. The reedbed immediately upstream of the structure has crept down to colonise the first three upstream sections of the structure. This could be seen as a direct result of the shelter that it affords.

The downstream half of the work gives some cause for further thought since the orientation of the screens to the ebb exposes the bank to wash from boats and to south westerly storm driven wave action. This could prompt the inclusion of some further panels along this section orientated downstream, however at present I am monitoring it and am staking in brushwood faggots against those sections of earth wall that are most under threat.

From this work, it is obvious that a soft engineering option, although not costly, does necessitate more intensive monitoring and maintenance. On this basis it is probably more appropriate for a community driven initiative. It is indeed becoming clear that there is a feasible division between those works that lend

themselves to be managed at a local level where continuous management is needed and those that demand a high level of technical resource and funding that can only be carried out as a local application of a national strategy through a government agency.

Observations:

This project has coincidentally spanned a period of change in the relationships between communities and national agencies, where there is a realisation that support and a sense of ownership of projects at a grass roots level is vital for the progression of estuarine and coastal strategies. The discussion over habitat has to be very carefully handled in order to gain support at a local level. Certainly the question that we wished to pose through this project of the importance of management and retention of existing habitat in relation to the creation of new habitat by the expedient of abandoning or setting back defences, is gathering credibility where it was dismissed out of hand when we formally broached the topic six years ago.

There continue to be difficulties that often stem from a rigid interpretation of guidelines by agency officers that are indicators of a reluctance to accept responsibility in the decision making process often making it a far simpler solution to nip initiatives in the bud by claiming higher authority. There only needs a slight shift of standpoint to an enabling one, to ensure that publicly driven strategies are both understood and wholeheartedly adopted by those communities for whom they are intended.

Although this particular project is an extremely modest one, carried out by a small community organisation, it has precipitated wider questions in relation to the management of habitat that are now being seriously entertained at a policy level and has become a model for further saltmarsh stabilisation initiatives.

Simon Read