



4 Existing shoreline management

4.1 Introduction

A review of past shoreline management practice and existing structures provides important information for future management. Past schemes may have provided good service and may still have a considerable useful life. Alternatively they may have been unsatisfactory, either locally or due to their effect on adjacent frontages, or they may be nearing the end of their useful life and a new approach may be appropriate.

Unlike the open coast, the harbour shorelines are not dominated by high energy processes acting over long lengths of frontage. As a result, management operations are undertaken on a more piecemeal basis, normally in response to gradual deterioration of defence standards or to changing land use requirements. Although this approach does not normally have hydraulic implications for adjacent frontages, as it would on the open coast, it does mean that the landscape value of the shoreline is often compromised, and it may have a negative impact on the natural environment.

The following section outlines the existing defences and management practices. Information has been derived from site visits, consultations with the responsible authorities and a review of the MAFF Coast Protection Survey, the NRA (Environment Agency) Sea Defence Survey and various documents held by the Local Authorities. The site visits and consultations were particularly useful in providing an updated review of the present state of the shoreline.

Appendix 2 presents information on each sea defence element, including location, length, maintaining authority, structure type, condition and residual life. This information is based on the MAFF and NRA surveys, updated during the SMP process.

Figures 15 and 16 summarize the extent of different defence types. It should be noted that for classification purposes walls and timber breastwork are vertical, while revetments include all sloping structures whether concrete, timber or rock except gabions which are classified separately. Complex structures including both vertical and sloped elements have been classified according to their dominant element. Embankments are earth banks raised above the hinterland level, with no armouring on their seaward face. Regraded slopes are formerly eroding natural or reclaimed frontages that have been artificially graded and/or vegetated to improve the landscape or reduce a possible safety hazard. Unprotected frontages have been left to respond naturally to coastal processes.

4.2 Review

Portsmouth Harbour

The Portsmouth Harbour shoreline comprises a mixture of erosion and flood defences, harbour walls, structures built to enclose land reclamation areas and some natural coastline. Some parts of the shoreline benefit from protection due to saltmarshes, but not to the extent found in Langstone or Chichester. Much of the natural harbour area has been reclaimed to allow development of naval and port facilities, residential areas, road construction, landfill sites and public recreation areas.

The major management operations are:

- ongoing maintenance, improvement or replacement of ageing defences
- extension of naval and port facilities
- planned raising of crest levels to achieve appropriate future standards of defence.

The following text sets out these operations in detail.

Gosport Borough Council have surveyed the full length of the built defences along their shoreline including those owned or maintained by others (Gosport, 1996). The survey identifies numerous lengths of wall in need of repair and the areas subject to flooding due to defences being below extreme water levels, notably within Haslar and Forton Lakes. Extensive lengths of the Gosport frontage have been under MoD control, but are now being released for redevelopment. Consideration is being given to the benefits of different sorts of future land use and appropriate shoreline management will be needed by the developers to ensure adequate and sustainable defences.

Work is planned for raising the seawall near the Portsmouth ferry terminal to prevent overtopping. Recent work has been completed north from Hardway where private frontagers have improved their seawalls in an ad hoc fashion, resulting in a lack of cohesion to the appearance of the shoreline. Further north the shoreline of the MoD property at Fleetlands remains largely unaltered, providing the only substantial length of natural coast around Portsmouth Harbour.

Fareham Borough Council have also completed a survey of their defences (Fareham, 1992). Since publication work has been undertaken along several priority lengths, and other works are under consideration, as follows:

- the wall fronting low lying public open space on the west shore of Fareham Lake south of the Town Quay has been repaired in places, but requires more general refurbishment to prevent undermining and collapse, particularly as the hinterland area is being redeveloped for housing and industry
- the Fareham Town Quay has been recently rebuilt to a high standard
- the north shore of the upper reaches of Fareham Lake has been recently protected by a revetment of small armour stones
- the shoreline fronting the private and public open space between Cam's Hall and Wicor is formed of building rubble in the west and collapsing walls to the east. Erosion of the lower foreshore has increased wave exposure along the shoreline. Although there is no risk to developed land, further erosion of the shoreline will result in a loss of amenity areas and possible release of contaminants from the backshore landfill, so reinstatement of the collapsing defences may be necessary
- from Wicor to Portchester the shoreline is formed by an eroded embankment. The footpath is deteriorating and flooding of the backshore is likely. Part of this length is controlled by Hampshire County council as a nature reserve, so managed retreat may be considered a practical approach
- the south frontage of Portchester suffers erosion and is low lying in parts. Recent and post-war residential and commercial areas are at risk. Part of the frontage protection has been recently upgraded by a blockwork mattress revetment to prevent erosion and flooding. Regrading and stabilizing of grass slopes along other parts has not prevented further erosion of shorefront open space and further work may be necessary. Private seawalls of varying types have been built along the east section. A lack of cohesion to the shoreline appearance has resulted
- the seawall surrounding Portchester Castle is low and subject to overtopping. Immediately to the north the privately maintained wall is in poor condition, and a breach could result in widespread flooding. A new sheet pile wall has been built further north; although this is an effective defence, it is an unsightly addition to the landscape and would benefit both hydraulically and aesthetically from a sloping face. A sloping revetment, partly topped by a raised earth embankment, extends further north.

Portsmouth City Council have published a coast defence plan covering all of their at risk areas (Portsmouth 1991). The plan includes outline design details to bring all City maintained frontages up to a high standard of service for the future, as follows:

- Southampton Road at Paulsgrove is subject to regular overtopping and the area could suffer extensive flooding under extreme conditions. A higher wall has been recommended as a priority
- the Port Solent development and the Horsea Island landfill site are protected to a high standard by a recent revetment
- Horsea Island MoD site is protected by a recent gabion revetment



Figure 16 (section a) Existing shoreline defences – Chichester Harbour
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Figure 16 (section b)

- the M275 and M27/A27 revetments are generally in reasonable condition, but require maintenance. Areas with original filled textile mattress armouring will eventually need upgrading to a suitable flexible block system



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- the south bank of Ports Creek is an area of some concern. The wall was built of a variety of low quality materials which are now both unstable and too low. Regular repair and maintenance is required. Outline plans for a new wall and walkway have been proposed as a matter of priority
- the Hilsa/Tipner Lake frontage comprises a vertical seawall around the public open space and a range of revetments and unsightly building rubble slopes around the landfill site. The seawall needs maintenance and its crest level needs raising to prevent flooding. The remaining area needs a cohesive approach once the planned landfill is complete
- Tipner north shore defences include eroding slopes along the MoD ranges, stone faced walls in front of the sailing clubs and an assortment of unsightly builders waste revetments around the reclaimed land of the breakers yard. These walls need to be refurbished and raised to prevent flooding and the unprotected areas need appropriate defences once reclamation work is complete. As the reclamation areas are in a prominent position relative to the M275, then consideration should be given to the appearance of the area
- the remaining shoreline south of Tipner comprises jetties, motorway embankments or MoD frontage. Work is required to maintain the structures and crest levels need to be raised in some areas to prevent flooding.

In addition to these works, the area around the Vosper Thornycroft Shipyard needs to be upgraded. North of the shipyard the shoreline comprises an unsightly range of revetments and dumped building rubble, all in need of raising and refurbishment to a reasonable standard to prevent widespread flooding of areas beyond the frontagers property.

Langstone Harbour

The Langstone Harbour shoreline is defined mainly by flood and erosion defences, and walls or revetments built to enclose landfill sites. However parts of the western shoreline of Hayling Island are undefended. There are also several jetties and marinas. Saltmarshes provide some protection to the north shore and to the southern part of the Hayling Island shore.

Recent, ongoing and planned operations are summarized below.

Portsmouth City Council's management plan (Portsmouth, 1991) sets out the areas at risk and the proposed schemes to bring all of the City maintained frontages up to a high standard of defence:

- Eastney Lake frontage occasionally suffers some flooding. Some work has been carried out recently and further revetments and walls have been recommended
- Milton Bund has suffered erosion since its construction and now needs to be rebuilt and armoured as a matter of priority
- Eastern Road seawall requires refurbishment along the remaining sections of old wall and raising along its full length to prevent overtopping and disruption to traffic along this major transport link
- Farlington Marshes revetment has undergone recent repair to prevent flooding of sensitive wetland habitats and destruction of the popular public coastal path.

The remaining frontage is within Havant Borough, but most of the required management relates to floodable areas of concern to the Environment Agency or to landowners:

- defences along the South Moor area to the west of Langstone are in need of refurbishment to retain public access, prevent erosion of the landfill area and prevent flooding of the low lying area
- some minor works have been undertaken along the shoreline from Langstone south along the west face of Hayling Island to prevent erosion and to protect public trails. The abutments for the disused rail bridge are being left to collapse. Some work on the southeast shore of the harbour may be necessary to maintain public safety
- redevelopment plans have been carried out for the oyster beds off north west Hayling Island to improve public safety and enhance the environment and the landscape.

Chichester Harbour

The Chichester Harbour margins are generally less developed than the other two, but there are still substantial lengths of shoreline needing management. Although there are several eroding areas, the consequences of erosion of low cliffs

are generally not serious due to the lack of development. Management of defences in front of potential flood areas and maintenance of the environment and the landscape are more pressing issues. Recent, ongoing and planned management operations are outlined below:

- all of the east shore of Hayling Island is subject to flooding, and management plans are under discussion (Atkins, 1996; HR Wallingford, 1996). Breaching of defences along several critical frontages could result in widespread flooding of agricultural land, holiday and recreation developments, some residential areas and main roads. Consideration has been given to maintenance of the existing defences, creation of new saltmarsh by managed retreat, abandonment of the existing line, and to the construction of a surge barrage across the harbour entrance channel (Lewin, 1996). Particular concerns are for the Tournier Bury and North Hayling frontages. Tournier Bury has been particularly controversial due to the conflicting interests of the landowner, English Nature and the Environment Agency. The frontage has now been protected by a bank of building rubble, extending over particularly sensitive designated nature conservation areas. The bank is not a sustainable defence and will need armouring if it is to survive for any length of time
- works have been undertaken along the Langstone - Emsworth frontage to prevent minor erosion and flooding, including protection of Conigar Point where breaching had allowed a new area of saltmarsh to develop
- Emsworth has been identified as a risk area due to overtopping and work is required to improve defences
- the Emsworth Mill Pond wall acts as a partial defence to low lying areas along the Pond, but is overtopped during high water conditions allowing some flooding of roads and properties. The long term future of the wall is uncertain
- the MoD have completed design proposals for improvements to the revetments along their frontage on Thorney Island. At Marker Point on the southwest corner the MoD have agreed to allow the existing defences to deteriorate naturally, with the intention of allowing a limited area of saltmarsh to develop on what is currently low grade farmland. Some of the proposals are being re-examined due to environmental and landscape issues
- a breach of the embankment at Thornham Point along the Thorney Channel has created a small new area of saltmarsh in an area of low grade pasture. The area is managed as a retreat scheme by the Harbour Conservancy
- the Environment Agency have undertaken major works along the Prinsted-Nutbourne frontage to prevent flooding. The existing embankment has been armoured with rock to ensure no future damage, but the works have attracted criticism for the impact on the landscape of the area
- the west shore of Chidham Peninsula is suffering erosion of flood embankments and breaches are likely if maintenance is not undertaken. Flooding may extend over adjacent farmland. Erosion of higher ground at the tip of the peninsula is not causing a significant problem
- the shoreline of the upper reaches of Bosham and Chichester channels are subject to some potential flooding due to embankments being below required levels, but no works are planned apart from footpath maintenance
- between West Itchenor and West Wittering the shoreline is subject to some flooding and erosion. Minor works have been undertaken to prevent further damage and loss of the footpath
- East Head spit is managed by the National Trust. Works have been undertaken to enhance the dunes, thereby improving the shelter offered to the lee side saltmarsh area.