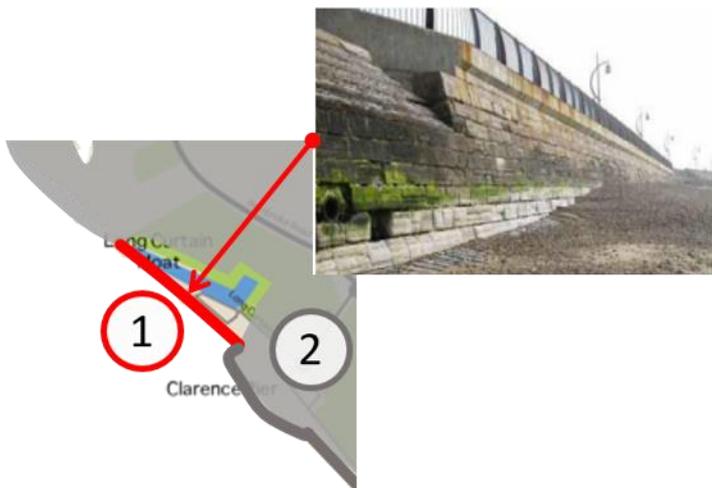


## Failure of Defences

The current defences along Southsea Seafront have a residual life of less than 10 years – this is discussed in the ‘Current Standard of Protection’ resource in the ‘Resources’ section of this website. The end-of-life conditions of the defences mean that there has been an increase in failures along the frontages in Southsea following winter storm events.

The current asset management protocol, which is in line with the Shoreline Management Plan, is to maintain and repair Southsea’s flood and erosion defences. Annual inspections of the condition of all flood and erosion assets are undertaken following the Environment Agency’s guidance. Due to the poor condition of many of the assets, they are required to undergo a quarterly inspection. Additionally, following any storm event, a ‘post-storm survey’ is undertaken to inspect the assets. This records any damages or changes to their condition and remedies any defects. Some assets are fronted by shingle beaches, which are reducing in volume, causing significant risk of undermining the defences (as seen at the Pyramids in winter 2015). Beach shingle deposited on Southsea’s promenades, slipways and roads are also recycled on to the beach. No current Beach Management Plan is developed, however Beach Management studies have been undertaken through the Shoreline Management Plan, the scoping stage of the project, and the Regional Monitoring Programme. Annual asset inspection and maintenance costs for Southsea are approximately £75,000. Emergency repairs between 2012-2016 have cost in excess of £900,000.



### Frontage 1 – Long Curtain Moat

Characterised by historic fortifications that make up the Scheduled Ancient Monument (SAM) of Long Curtain Moat, Kings Bastion, and Spur Redoubt (built c.1665). The defence in this area is primarily masonry facing battered back at a slight angle with a concrete toe beam visible in places.

During the Winter 2013/14 storms the frontage suffered extensive damage that led to the critical failure of a section of the defence.

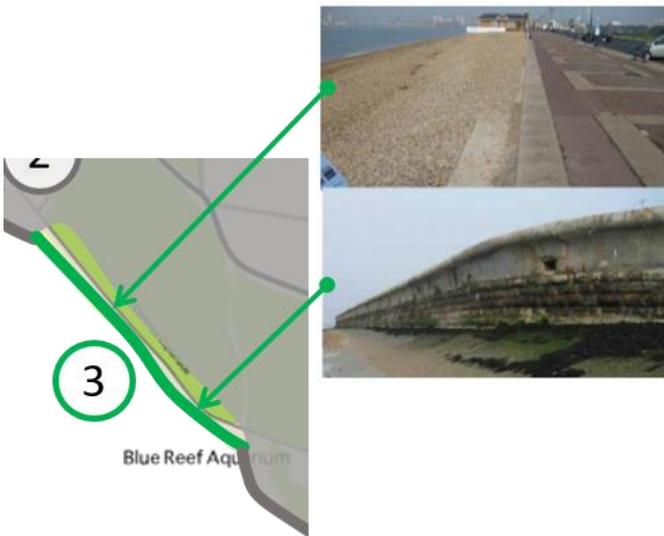
Maintenance and emergency works to date		Cost
2009	Pointing work was undertaken to the Stone Masonry wall at Clarence Beach immediately west of Clarence Pier	£19,000
2014/2015	Major works to repair a 10m breach in the seawall and damage to the west of Clarence Pier	£61,500



Frontage 2 – Clarence Pier

This frontage includes amusements, funfair, a hotel and the Southsea Hoverport. The Pier itself was built in 1861 as a promenade and landing place for steamers, but it is now a funfair leased long-term from Portsmouth City Council. The defences beneath the Pier are in an unknown condition as they have not been accessible.

Maintenance and emergency works to date		Cost
-	Shingle is cleared annually from the Hovercraft slipway at the western end and moved to the eastern end of this frontage to help maintain the Standard of Protection.	This costs Portsmouth City Council £6,000 a year, with costs being shared with Hover Travel



Frontage 3 – Southsea Common

This frontage extends from the Hovercraft Terminal to the Blue Reef Aquarium, characterised by its open nature and proximity to the Grade II listed Park and Garden of Southsea Common. To the west, the defence is a reinforced concrete wall with a wide promenade at the same level as the top of the defence. The wall is often covered by shingle but became fully exposed during the Winter 2015/16 storms. Towards the east, it becomes a vertical masonry wall with a concrete apron and wave return wall. During the 2014/15 storms the beach material

accretion at Hover Travel’s slipway caused disruption to a vital part of Portsmouth’s transport infrastructure.

Maintenance and emergency works to date		Cost
2008	Failure occurred in the lower block work wall which allowed rotation of the concrete bull nose above. Works were undertaken to repair this section of the wall.	£4,000 in addition to numerous re-pointing works have been undertaken to the block work section of seawall; this is undertaken on a reactive basis triggered by regular asset inspections.
2013	Extensive patching repairs were undertaken.	£21,000

2014/2015	During the 2014/2015 winter storms damage to the promenade at the Royal Navy Memorial and substantial shingle build up at Hover Travel slipway occurred. The promenade was damaged due to depletion of beach levels over multiple storms.	The costs were shared between Portsmouth City Council PFI Highways Contractor and Hover Travel.
Ongoing	Beach recycling material is typically brought from the Eastney area by road and deposited into the eastern end of this frontage unit which regularly shows signs of depletion. This was last undertaken in 2011, where approximately 4000m <sup>3</sup> of shingle was imported.	2011 operation cost £24,000



#### Frontage 4 – Southsea Castle

The castle was built in 1544, and is now a Scheduled Ancient Monument. This forms the high ground to the rear of the defence. The defence consists of a sloping revetment of ad-hoc masonry units and concrete blocks with a sloping concrete apron fronted with rock armour.

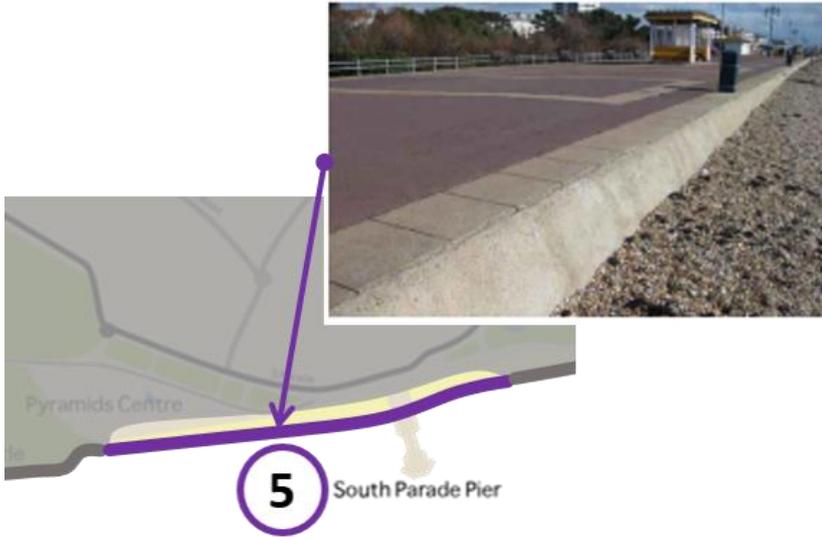
Maintenance and emergency works to date		Cost
-	Numerous re-pointing works have been undertaken to the block work section of seawall; this work is undertaken on a reactive basis triggered by regular asset inspections.	-
2014/15	During the Winter storms of 2014/15 a block work panel failed following damage and wash out of the ballast fill below. Further repairs between the Blue Reef Aquarium and Band Stand and to revetments at Southsea Castle were also needed after the event.	£42,000
2015	During the 2015 storms the revetment in front of Blue Reef Aquarium collapsed leading to emergency works.	-

Frontage 5 – South Parade

To the rear of this defence it is mostly residential and is known as the Great Morass. The ground levels fall away from South Parade towards the Great Morass and, at the lowest point, it is 4m below crest level.

The defence to the west, and fronting the Pyramids Leisure Centre, have been temporarily repaired after a critical failure during the winter 2015/16 storms.

The defence is a stone work seawall with a concrete capping beam along its crest. A promenade runs behind the seawall at crest level.



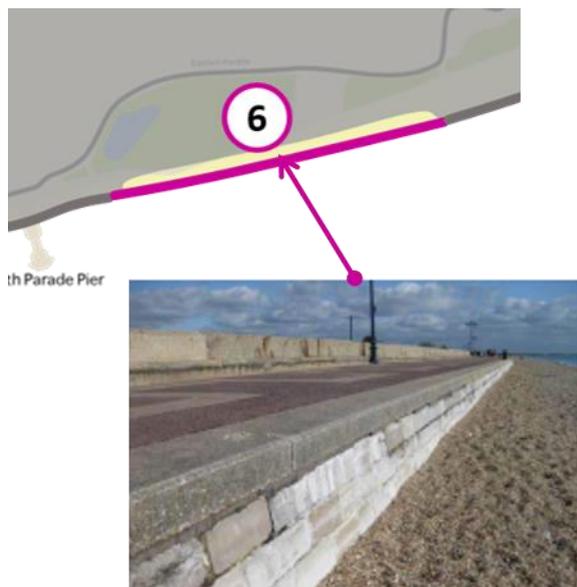
beam along its crest. A promenade runs behind the seawall at crest level.

Maintenance and emergency works to date		Cost
2014	Repairs and resurfacing to the ageing promenade along this frontage are regularly undertaken. Flooding to the Pyramids Leisure Centre and swimming pool plant room occurred due to wave overtopping. The cost was in excess of £1million of flood damage (met via insurance claims), including the addition of flood boards to the plant room.	In excess of £1million of damage
2015	During the 2015 winter storms, 30m of the defences in front of the Pyramids failed. Emergency works were undertaken.	£660,000
2016	Overtopping and flooding either side of the Pyramids during Storm Katie resulted in damage to the infrastructure and operation of the building.	-

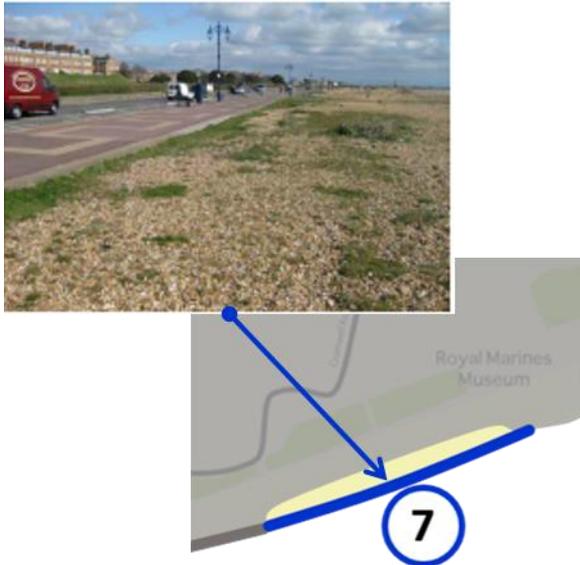
Frontage 6 – Canoe Lake

The frontage is a promenade fronted by a wide shingle beach which narrows in the west due to a change in defence. Canoe Lake provides valuable open space and recreational/tourist facilities – it is low-lying with a densely developed urban area behind.

The defence here is a stone work seawall with a concrete capping beam. A promenade runs behind the seawall at crest level and is approximately 8m in width. To the rear of the promenade is a curved concrete splash wall approximately 1m in height rising above the adjacent road.



Maintenance and emergency works to date		Cost
2010	Work has been undertaken to apply a render coating to the splash wall at the rear of the promenade.	-
2014	Wave overtopping and loss of beach materials has led to road closures and the need for shingle clearance.	The cost is met by the PFI Highways contract.



### Frontage 7 – Eastney Barracks

The promenade is fronted by a wide open shingle beach which can be accessed via the ‘Cockleshell Heroes’ D-Day slipway. There are a number of historically important Royal Marines military establishments and Grade II listed lamp columns.

The defence is comprised of a stone work seawall with a concrete capping beam. A promenade runs behind the seawall at crest level and is approximately 8m in width. The beach here has an extensive (and buried) cellular groyne structure retaining the shingle.

Maintenance and emergency works to date		Cost
-	Shingle clearance and recycling operations are undertaken and historically the removed shingle has been placed at Frontage 3.	-

**Last updated: 31 March 2017**