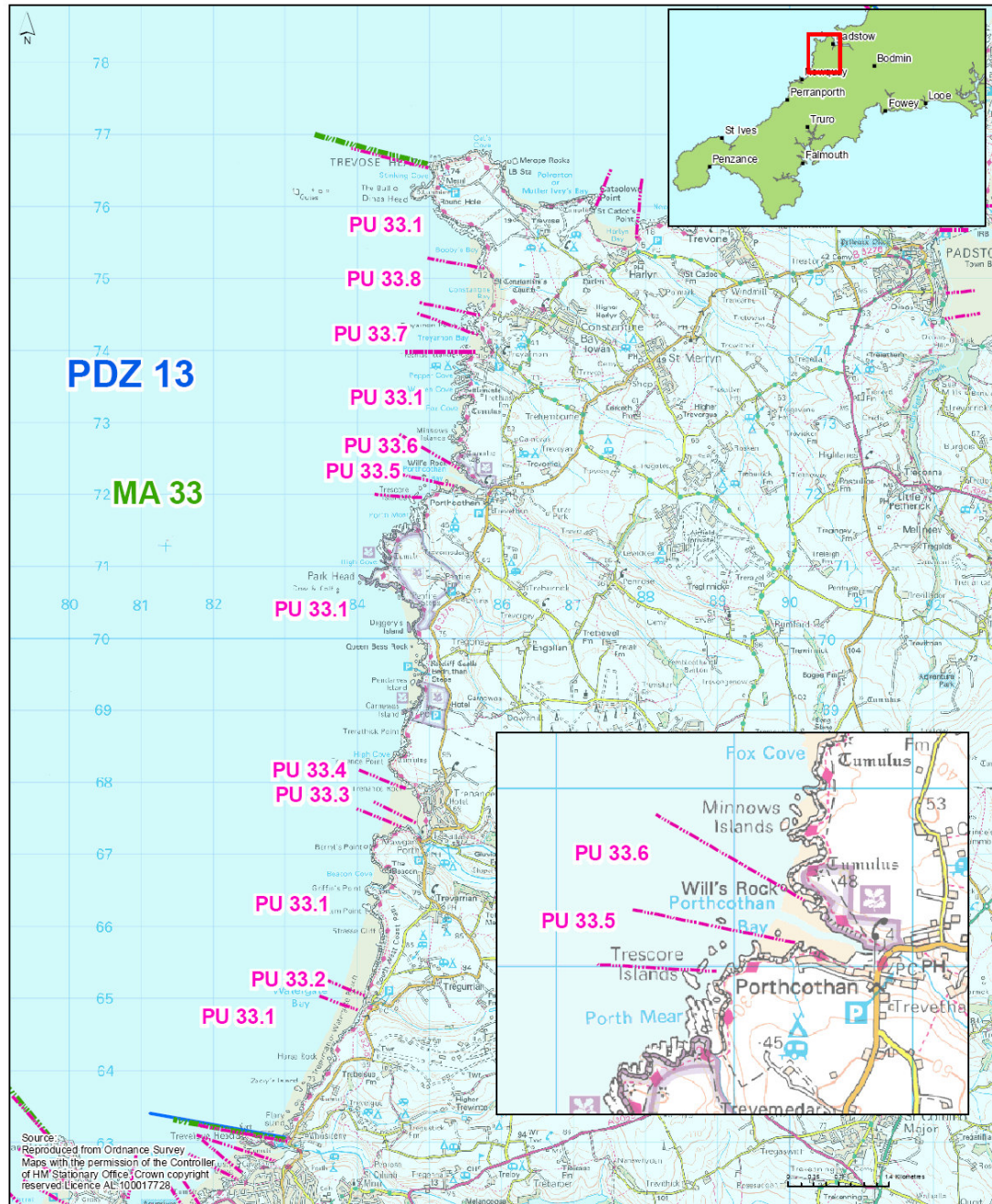


**Location reference:** Trelvegue Head to Stepper Point  
**Management Area reference:** MA33  
**Policy Development Zone:** PDZ13

Policy Development Zone 13 - Trelvegue Head to Stepper Point  
 Management Area 33 - Trelvegue Head to Trevoze Head



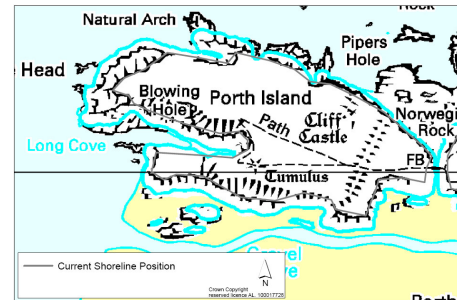
Cornwall & Isles of Scilly  
Shoreline Management Plan Review





## DISCUSSION AND DETAILED POLICY DEVELOPMENT

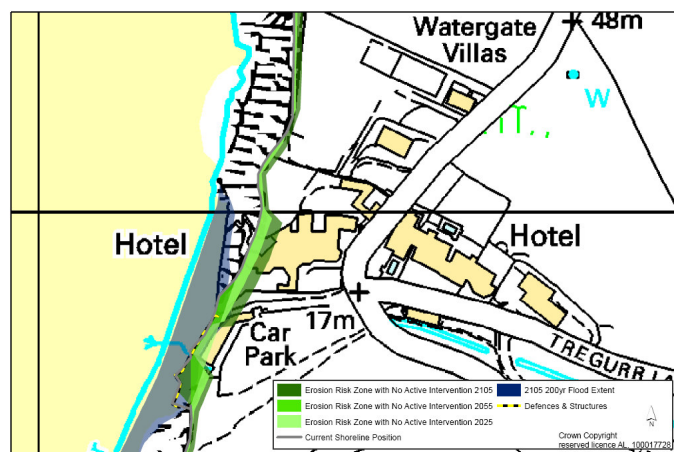
**Along the undefended cliffs** and covers a no active intervention policy should meet the high level SMP objectives and support AONB and heritage coast designations. There are two notable features along the undefended coast covered under this policy unit, namely Trevelgue Cliff Castle at Trevelgue Head and Bedruthan Steps, just north of Mawgan Porth. Trevelgue Cliff Castle is an important pre-historic settlement site (see inset map, right) and there have been some erosion concerns for this feature prior to the SMP review. The erosion mapping does not indicate that extensive risk from erosion is anticipated for the feature, but that does not discount the fact that isolated, discrete cliff falls may affect the site in the future, as they are a feature of this section of cliffed coastline. Bedruthan Steps are a geological feature of the coastline (although Redcliff Cliff Castle is also present at the site). The Steps are



a popular visitor attraction throughout the year (owned and managed by the National Trust). Although erosion risk per se is low, there are likely to be impacts on the foreshore Steps features, due to rising sea levels causing greater depth and wave height closer to the base of the cliffs. Although these natural risks are identified for both features, no active intervention is still considered the suitable policy choice through all three epochs.

adjacent to Hotel and Car Park at **Watergate Bay**. Although the geology is generally hard and resistant along this stretch of coastline, there are relatively frequent examples of cliff falls at discrete locations throughout the Bay from Trevelgue Head, Whipsiderry Beach, Watergate Beach and through to Beryl's Point. Very limited assets are thought to be at risk (see inset map right) but the no active intervention approach should not preclude the privately funded maintenance of the short section of defences (recently upgraded/improved) which are present adjacent to the access point onto Watergate Beach. The importance of these to the local economy is recognised. Studies (Haskoning, 2009) have concluded that they would not be detrimental to the wider beach and cliff processes given their relative insignificant length within the

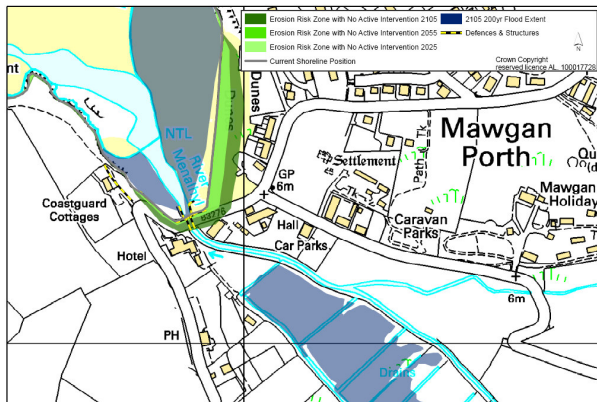
There is a possibility of some cliff recession





overall extensive Watergate Bay frontage. Flood inundation is not an issue at Watergate due to the steeply rising topography.

At **Mawgan Porth**, erosion and flooding risk place significant future pressure on the



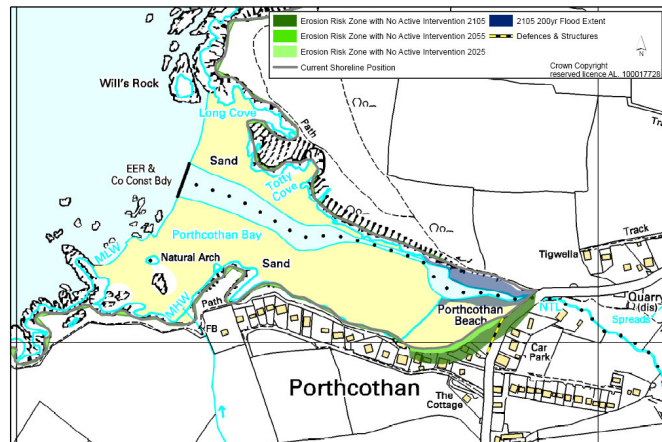
frontage and as such drive the preferred plan and policy. Erosion extent by 2105 could be as much as 35-40 metres and flood extents will increase up to the normal tidal limit of the River Menalhyl which discharges onto Mawgan Porth beach (see inset map, left). Assets at the rear of the beach are presently already subject to high flood risk due to wave overtopping action and this will only increase into the future. The B3276 road is a local through route, but it

also is vulnerable. Given the present days risks, it is prudent that the preferred plan looks to initiate a managed realignment approach from epoch 1 onwards. The coastal changes will therefore be significant to this community, requiring re-routing of the B3276, and possible relocation of the commercial hub of the community. As such Land Use Planners should consider identifying this as a Coastal Change Management Area. This approach would assist in managing future erosion and flood risks to the dune frontage as well (see inset map, above). Around 150m of defence would need to be assessed for realignment as part of an overall management strategy. In the long term (beyond 50 years), managed realignment would be expected to give way to no active intervention as a sustainable shoreline position is established, without the requirement for any engineered defences.

The majority of the Mawgan Porth frontage (around 275m) is fronted by dunes (these are marked as 'defences' within the mapping). There are a number of properties lying around 75-100m to the rear of the dune front. As indicated above, up to 40m of erosion may be experienced by 2105. The preferred plan is that the shoreline should be allowed to respond naturally to sea level rise and adjust its form and profile accordingly, through a no active intervention policy. As with other locations along the north coast, the magnitude of roll back and the extent to which the shoreline responds by changing position will relate to the actual sea level rise experienced and the amount of new sediments which are available to the beach, primarily from offshore sources (mostly marine shell). Naturally mobile and dynamic dunes will provide the most cost effective robust defence against future flood and erosion risks along this section of the Mawgan Porth frontage.

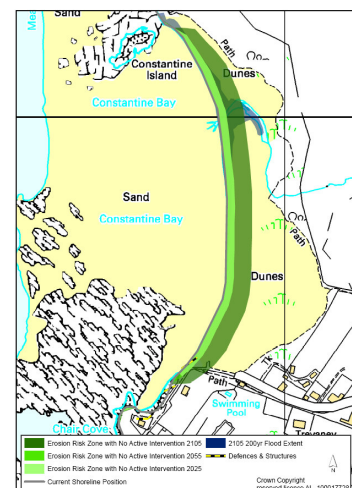
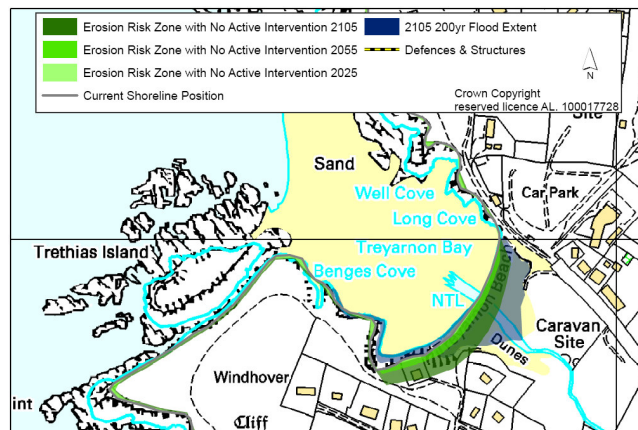
The managed realignment policy employed along the road section at Mawgan Porth will assist in not constraining any part of this frontage and in minimizing coastal squeeze impacts. Where the dune area rolls back significantly there may be impacts on properties immediately behind. The extent of this will depend on the position of the hard geology and the actual relict cliff line – the dunes here are climbing dunes and the actual position of the hard rock underneath will dictate the amount of recession which is experienced along this part of the frontage. Depending on the results of monitoring along the frontage and improved knowledge on the cliff line position a managed realignment approach could be introduced to assist with enhancing the dune area on the basis of meeting Government outcome measures relating to UK BAP habitat (coastal sand dunes).

At **Porthcothan** there are isolated properties and a section of the B3276 road at risk from erosion in the long term (see inset map, right). Two policy units cover the Porthcothan frontage to deliver the preferred plan. Along the cliff section and south-western section of the dunes, there is felt to be little justification for any protection measures. No active intervention is the preferred policy. Hold the line is not justified and there is no scope (or requirement) for managed realignment.



A non-interventional approach is considered best to manage the dune and beach area at Porthcothan and to allow the shoreline to respond naturally to sea level rise and adjust its form and profile accordingly. It is considered justifiable however to hold the line along a short section of defences (around 120m) which front the B3276 road adjacent to the rear of the beach. This may be satisfactory over all epochs but possible realignment routes for the road appear feasible and may prove more sustainable in the long term.

At **Treyarnon** the risks from erosion are limited to the possible loss of one property during epoch 3 (see inset map, right). Flood risks are low. A no active intervention approach is therefore felt to be suitable as it allows natural coastal processes to prevail without compromising the use of the area for recreational pursuits and general amenity, nor does it put any assets at great risk. The possible loss of one property in the longer term provides no justification for a managed realignment approach or for hold the line to be adopted. Some roll back of the upper beach may be expected – this will assist in mitigating coastal squeeze due to sea level rise.



The primary concern at **Constantine Bay** (Booby's Bay) is covered under the undefended coast policy unit 33.1) would be to avoid any intervention or constraint of natural processes in order to maintain a healthy dune system (designated as a SSSI) and to prevent coastal squeeze. The preferred plan would implement this through a no active intervention policy. This would not preclude local, privately funded maintenance of the existing defences adjacent to the southern end of

Constantine Beach, however as sea level rises and places more pressure on this area, attempts to extend the defended area in either direction should be avoided.

The preferred plan is that the shoreline should be allowed to respond naturally to sea level rise and adjust its form and profile accordingly, through a no active intervention policy. The erosion mapping has indicated that up to 50m of recession could occur along the entire dune frontage by 2105 (see inset map, above). As with other locations along the north coast, the magnitude of roll back and the extent to which the shoreline responds by changing position will relate to the actual sea level rise experienced and the amount of new sediments which are available to the beach, primarily from offshore sources (mostly marine shell). Recent studies (Haskoning 2007) have concluded that in the previous 30 to 40 years there has been some slight advance of the dune system, rather than recession, although some evidence of erosion can be seen in more recent years particularly adjacent to the beach access point (see inset photos, below).



Naturally mobile and dynamic dunes will provide the most cost effective robust defence against future flood and erosion risks along this section of the frontage. Even where erosion achieves the upper limits possible by 2105, no property assets will be at risk. The significant importance of Constantine beach as a tourist amenity and local community asset would be supported under the preferred plan. Importantly, retaining natural processes will support its recreational use as a high quality surf beach.

Hold the line and managed realignment policies are both considered unsuitable or unnecessary for this policy unit (33.4).

The economic assessment for Management Area 33 provides a below unity benefit / cost ratio of 0.52 (refer to Economics Appraisal Summary Table below and Appendix H). This indicates the requirement to look to more economically sustainable approaches to manage the coastline in this area and generally supports a move away from holding the line in Mawgan Porth and at Porthcothan. If road losses were included however, in addition to property, the B/C ratio would improve, this should be acknowledged.

**SUMMARY OF PREFERRED PLAN RECOMMENDATIONS AND JUSTIFICATION PLAN:**

<b>Location reference:</b> <b>Trevelgue Head to Trevose Head</b>	
<b>Management Area reference:</b> <b>MA33</b>	
<b>Policy Development Zone:</b> <b>PDZ13</b>	
<b>PREFERRED POLICY TO IMPLEMENT PLAN:</b>	
<b>From present day (0-20 years)</b>	NAI along undefended cliffs. NAI at Porthcothan (with allowance to HTL along short road section). NAI at Treyarnon. NAI at Constantine Bay. NAI at Mawgan Porth dunes. HTL along Mawgan Port Road and Portcothan beach (north)
<b>Medium term (20-50 years)</b>	NAI along undefended cliffs. NAI at Porthcothan (with allowance to HTL along short road section). NAI at Treyarnon. NAI at Constantine Bay. NAI at Mawgan Porth dunes. HTL along Mawgan Port Road and Portcothan beach (north)
<b>Long term (50 -100 years)</b>	NAI along undefended cliffs. NAI at Porthcothan (with allowance to HTL along short road section). NAI at Treyarnon. NAI at Constantine Bay. NAI at Mawgan Porth dunes. HTL/MR along Mawgan Port Road and Portcothan beach (north)

**SUMMARY OF SPECIFIC POLICIES**

Policy Unit		SMP1 Policy	SMP2 Policy Plan			Comment
		50 yrs	2025	2055	2105	
33.1	Undefended cliffs	Do nothing	NAI	NAI	NAI	Will meet high level objectives and satisfy AONB and heritage coast criteria
33.2	Watergate Bay	Not previously considered individually in SMP1	NAI	NAI	NAI	NAI approach should not preclude the privately funded maintenance of the short section of recently improved defences
33.3	Mawgan Porth – road section	Hold the line	MR	MR	NAI	Pressure on this frontage dictates that a MR approach is required to address the risks to the road and rear-of-beach development.
33.4	Mawgan Porth - dunes	Hold the line	NAI	NAI	NAI	Dunes should be allowed to respond naturally to sea level rise and continue to provide natural defence.
33.5	Porthcothan cliff	Do nothing	NAI	NAI	NAI	No economic or environmental justification for defending cliff toe.
33.6	Porthcothan beach	Hold the line	NAI/(with localised HTL)	NAI/(with localised HTL)	NAI/(with localised HTL)	A non-interventional approach is best to manage dune area but it would be acceptable to HTL along short section of road adjacent to the rear of the beach.

33.7	Treyarnon	Do nothing	NAI	NAI	NAI	Very little in way of property / assets at risk.
33.8	Constantine Bay	Hold the line	<b>NAI</b>	<b>NAI</b>	<b>NAI</b>	Prevent any constraint of natural processes to maintain healthy dune system and prevent coastal squeeze. NAI would not preclude local, privately funded maintenance of defences adjacent to the southern end of Constantine Beach.
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment						



## ENVIRONMENTAL ASSESSMENT

### Strategic Environmental Assessment (SEA):

Between Trevelgue Head and Trevoze Head, the long-term policy is for NAI along the undefended cliffs and estuary banks which will benefit both the geological and biodiversity interests including Trevoze Head & Constantine Bay SSSI, Bedruthan Steps & Park Head SSSI, Trevoze Head heritage coast and Whipsiderry Beach RIG site. However under this policy the following historic sites may be impacted upon in response to erosion and disturbance of the sites and their settings including: Trevelgue Promontory Camp And Two Barrows (SM); and Later Prehistoric Cliff Castle With Hut Circles On Griffin'S Point (SM).

At Porth Island and Watergate Bay, the NAI policy may result in potential loss of community assets or reduced footprint through erosion, however the second long-term policy of HTL for this policy unit will continue to maintain current standards of defence.

### Habitat Regulations Assessment (HRA):

HTL is proposed in Epochs 1 and 2 followed by HTL/MR at Mawgan Porth (road section), with selected areas suitable for HTL at Porthcothan Beach for all Epochs, whilst HTL is proposed in the first Epoch followed by MR at Harlyn, and finally MR is proposed in the first two Epochs at Trevone Beach. These policy locations are at least 17km from the nearest Natura 2000 Site boundaries; therefore no direct or indirect effects are expected.

## IMPLICATION WITH RESPECT TO BUILT ENVIRONMENT

Economics Summary		by 2025	by 2055	by 2105	Total £k PV
<b>Property</b>	Potential NAI Damages (£k PV)	0.0	0.0	92.3	92.3
	Preferred Plan Damages (£k PV)	0.0	0.0	55.4	55.4
	Benefits of preferred plan (£k PV)	0.0	0.0	36.9	36.9
	Costs of Implementing plan £k PV	47	24	0	72
Benefit/Cost ratio of preferred plan					0.52

### Notes

Below unity B/C ratio likely to be significantly improved if road losses also included