



**Poole and Christchurch Bays Shoreline  
Management Plan Review Sub-cell 5f**  
Section 4. Policy Development Zone 4

Bournemouth Borough Council

2011

Report V3

9T2052



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## 4.5 PDZ 4 Swanage

Handfast Point to Durlston Head - Chainage 123.6km to 131km.



### SMP 1 Management Units

UNIT	LOCATION	CHAINAGE	POLICY
SWA5	Handfast Point to Ballard Point	123.6 to 125	Do Nothing
SWA4	Ballard Point to Sheps Hollow	125 to 126.8	Do Nothing
SWA3	Sheps Hollow to Outfall Jetty	126.8 to 128	Hold the Line
SWA2	Outfall Jetty to Swanage Pier	128 to 128.7	Hold the Line
SWA1	Swanage Pier to Peveril Point	128.7 to 129.3	Selectively Hold the Line
DUR3	Durlston Flats to Peveril Point	129.3 to 129.9	Do Nothing
DUR2	Durlston Cliff Flats	129.9 to 130.1	Hold the Line short term, Do Nothing long term
DUR1	Durlston Head to Durlston Cliff Flats	130.1 to 131	Do Nothing with long term retreat

Note: SMP1 policy was set over a 50 year period. Short term refers to immediate approach to management of defences with long term policy being set for the 50 years.

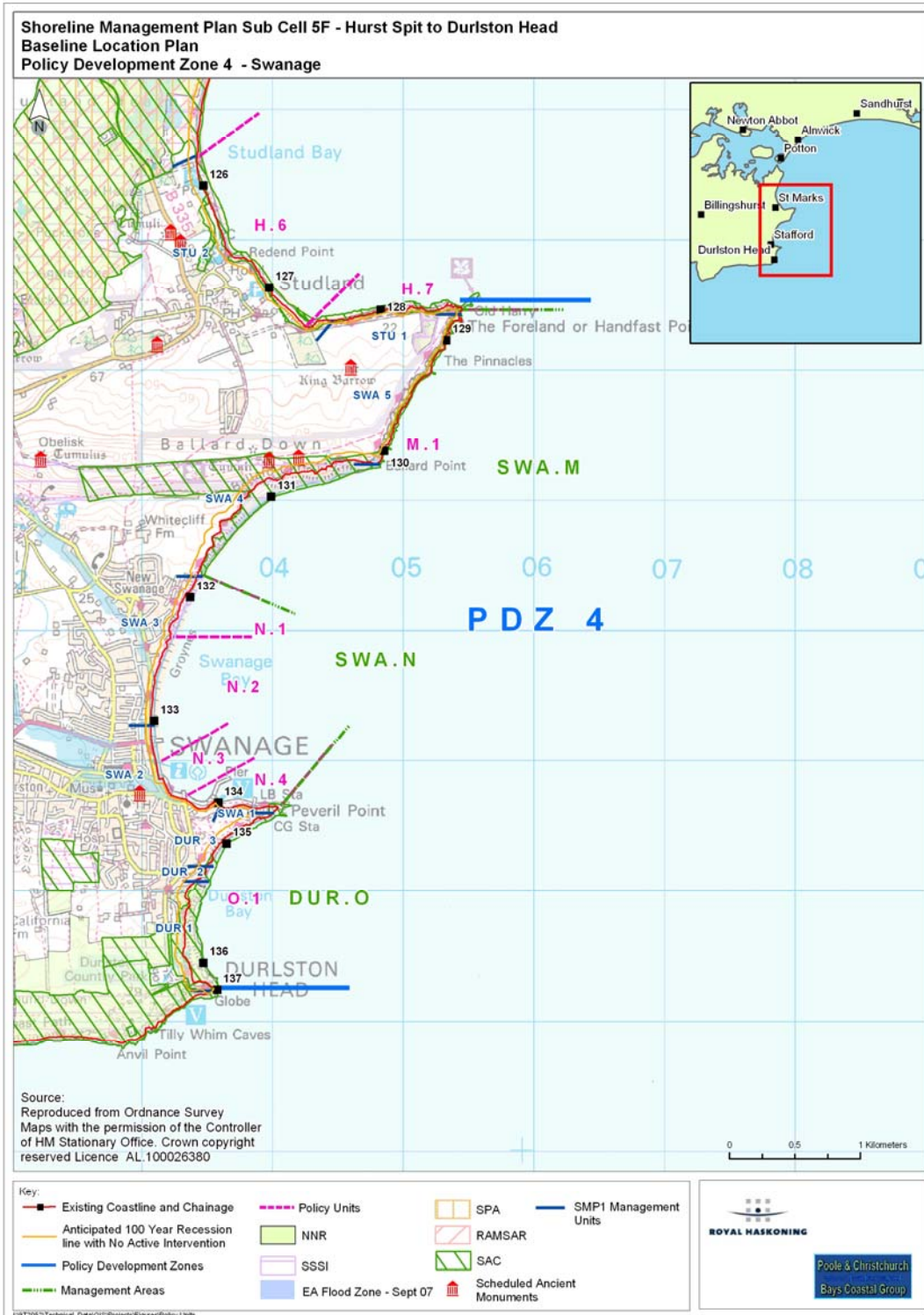


Figure 4.5.1



#### 4.5.1 OVERVIEW

##### **PRINCIPAL FEATURES** (further details are provided in Appendix D)

###### **Built Environment:**

The main settlement is the town of Swanage. The town has developed within the Swan Brook valley to the west of Swanage Bay, with development along the shoreline to the north to New Swanage and across the Peveril headland and behind Durlston Bay to the south. The main A351 road in to the town is down the main valley, the road along the sea front links areas of the town. The railway line also follows the valley and the railway station is set back from the sea front. There is a small jetty constructed across the foreshore. On the northern side of Peveril Point there is a small boat launching area and associated with this the RNLI station. There is a sewage treatment works in the area of Peveril Point with a main sewer running along Shore Road and an outfall pipe extending from Peveril Point itself. Swanage Pier has recently been restored. Durlston Head Castle lies to the south of the town on the Cliffs of Durlston Head.

###### **Heritage and Amenity:**

There are a number of Grade I and II Listed Buildings within the area in addition to a Conservation Area at Swanage. A major enhancement scheme has also been proposed for Swanage seafront to restore and maintain its special and unique historic character. Scheduled Monument's in this area consist of two barrows on Ballard Down and the old prison and pump in Swanage. The entire area from South Haven Point to Durlston Head also falls within one of known 'high archaeological potential', as detailed in the Purbeck District Local Plan. Swanage is popular for boating, fishing, diving and climbing, and the area draws a number of visitors. The beach is an important attraction and there are a number of huts along the beach to the northern end of the town. The castle is currently being renovated to house the Jurassic Coast Visitor Centre.

###### **Nature Conservation:**

The coastal cliffs and fossiliferous rocks around Durlston Bay are of international geological importance; specifically, the Purbeck Beds at Durlston Head have yielded one of the most important collections of Mesozoic mammals found anywhere in the world. Durlston Bay is also the most important late Jurassic-Early Cretaceous fossil insect site in Europe. Due to its high importance for geological conservation the area has been designated an SSSI and is part of the World Heritage Site for Jurassic and Cretaceous geology. The coastline between Handfast Point and Durlston Head is considered to be of national landscape importance and lies within the Dorset AONB. The entire coast, with the exception of Swanage, is designated World Heritage site. The coastline was awarded the coveted Diploma for landscape, awarded by the Council of Europe, in 1984. The coastline between Handfast Point and Durlston Head is designated for its nationally and internationally important habitats. The coast from Studland Cliffs to Durlston Head (and beyond) is a SAC (Isle of Portland to Studland Cliffs SAC). Studland Cliffs and Purbeck Ridge (East) have been designated a SSSI. The subtidal area from Handfast Point to Durlston Head is contained in the Poole Bay to the Isle of Purbeck SMA for its marine ecology. The subtidal zone of Durlston Bay (Peveril Point to Durlston Head) is part of a VMNR, which has been designated due to the presence of diverse marine communities and relatively common cetacean sightings, particularly of bottle-nosed dolphins.

#### **KEY VALUES**

These values are brought together as an interrelated set of management objectives developed from the above, but more specifically from the individual objectives identified in Appendix D and E.

The dominant characteristic of the area is its international, national and regional importance for landscape; its natural cliff line, with associated geology and nature conservation interests, the open ground to the crest of the cliffs and its marine heritage values. It is important to note that this important landscape is maintained from the ongoing erosion processes along the coastline. At a more local level, but still of significant importance and adding to the general character of the area, is the town of Swanage, with its unique historical context, its open beaches and recreational land. Enjoyment of the exceptional quality of the area is supported by the facilities offered by the town and by aspects such as the intention to renovate the Castle as the Jurassic Coast visitor centre. Maintaining the unspoilt and semi-rural character of Swanage and Durlston Bays is important in providing support to cohesion of the community and as an asset to the region as a whole.

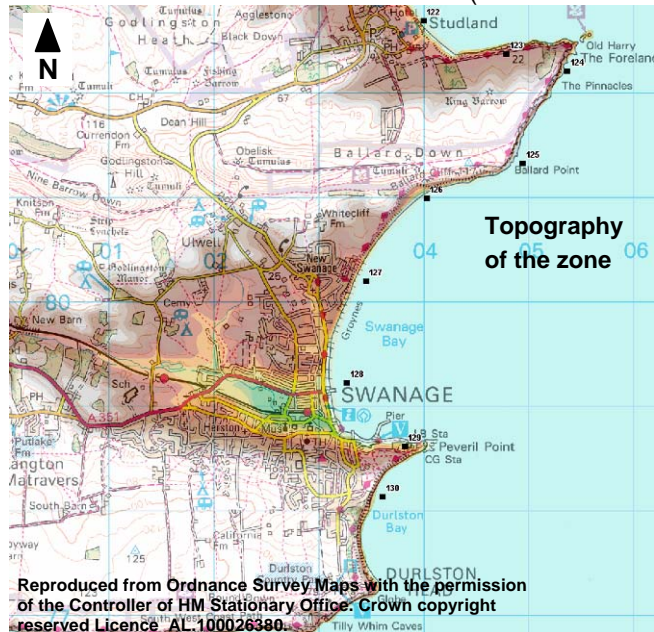
**OBJECTIVES** (the development of objectives is set out in Appendix D based on objectives listed in Appendix E.

- Protect the economic viability of Swanage;
- Protect core values & character of the centre of Swanage;
- Reduce flood risk to Swanage;
- Maintain beach widths and beach use;
- Manage risk to properties due to erosion and flooding where sustainable;
- Minimise net loss of species/habitat (identify compensatory habitat if any net loss occurs);
- Maintain geological exposures, in relation to World Heritage and SSSI status;
- Maintain the outstanding landscape and the views and appreciation of the varied coastal environment;
- Support adaptability of coastal communities;
- Reduce reliance on defences.

## DESCRIPTION

The zone covers a distance of some 7km and includes the two bays of Swanage and Durlston. The bays are formed between the headlands of Ballard Point (with Handfast point to the northeast) to Peveril Point and Peveril Point to Durlston Head, forming the southwest limit of the SMP area.

Handfast Point through to Ballard Point and continuing along the southern flank of Ballard point comprises high, relatively erosion resistant Chalk cliffs. Erosion does occur along this frontage with irregular cliff falls characteristic of the chalk, particularly on this southern flank to the headland, where the Chalk is overlain with Upper Greensands and Gault Clay. Between Ballard and Handfast points the cliffs are near vertical with virtually no intertidal foreshore. To the southern flank of the headland is a narrow boulder strewn beach, beneath the sloping cliff line.



To the south of the headland the nature of the coastal slope changes, reflecting its lower level, softer composition of Wealden Clays, infilling the main valley of Swanage Bay. The change in cliff also marks the change in coastal form, beginning the more



Image/Data courtesy of the Channel Coastal Observatory.

unconstrained spiral of Swanage Bay through to its updrift (southern) control headland of Peveril Point. Over half the length of this northern section of the spiral bay remains undefended, with a relatively wide intertidal beach; the greater erosion of the softer cliffs having created a width and alignment such that finer sediment can be



retained. Over the southern section of this northern end of the bay, the beach is maintained by a series of groynes, with then a length of sea wall to the back of the beach protecting the cliffs in front of New Swanage. There is a low lying platform of intertidal rock towards the northern end of the sea wall. An entire row of properties are situated close to the crest of the steep coastal slope and there are beach huts situated along the platform of the sea wall.

Further south, the level of the coastal slope continues to drop to the south of New Swanage, where the Ulwell Road and Ulwell Valley arrive at the coast. From here the road runs south just to the back of a more formal promenade and sea wall. The beach to the front of the promenade is groyned, with the recently recharged beach forming a narrow strip above normal high tide.

The typical level of the road is between 3m to 4m ODN. Behind the road the land rises slightly, with properties to the north and then open space and the recreation ground and memorial to the south.

The A351 joins the Shore Road just north of the Memorial and there is a substantial jetty cutting across the foreshore at this point.



**Outfall Jetty**

Both the beach and promenade continue south beyond the Jetty, which appears to have only limited influence on the width and shape of the beach, although retaining some additional upper beach on its southern side. It is noted that the jetty had a more prominent effect prior to the construction of the new groynes and beach recharge.

Some 300m south of the jetty the shore road cuts slightly away from the coast into the centre of the town. Properties infill the area between the road and the seawall over this section and the general line of the defences is slightly advanced preventing the development of an upper foreshore. There is a wide promenade here, in the area of the Mowlem, with car parking above the sea wall.

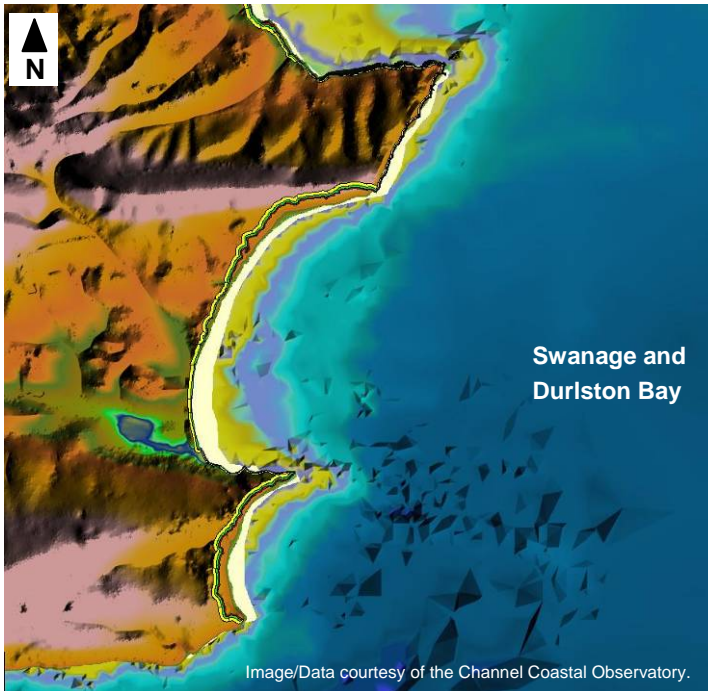
The defence line curves around to the east towards a small headland and jetty (locally known as Stone Quay). The intertidal beach becomes stonier in the lee of the Jetty. To the east of the jetty is a small bay, curving around to a further headland from which extends the Swanage Pier. Beyond the Pier the defences round out to the hard limestone Headland of Peveril Point. A sewage outfall runs beyond the headland. The shoreline between the pier and the point has a narrow stony foreshore, except immediately to the east of the Pier, where there is a small beach. The length of coast has several slipways, including that for the RNLI. The area is also important locally for boat use.



**Peveril Point**



The nearshore sea bed around the whole of Swanage Bay falls away quite steeply to deep water, particularly at the northern end and offshore from Ballard Point.



deep water, particularly at the northern end and offshore from Ballard Point. The Peveril Point ridge runs out as an extended feature of irregular sea bed that also lies seaward of Durlston Bay.

The cliff line to the back of Durlston Bay remains high over the whole frontage rising typically from 15m to 40m at the southern end. The nature of the back shore slope varies in composition between the two limestone headlands of Peveril Point and Durlston Head, being formed of sections of outcropping

limestone and mudstone. At the southern end areas of overlying clay are also present.

There are several areas where there have been landslides and rock falls and the narrow foreshore is strewn with boulders and smaller talus at the toe of the cliff.

There are two areas where property comes close to the crest of the cliff; at Belle Vue Road and further south at Durlston Road. A short section of rock revetment has been placed beneath Belle Vue Road and the slope behind has been partially reconstructed.



Durlston Castle lies close to the point of Durlston Head and the Country Park and its existing visitor centre is located some distance in land.

**PHYSICAL PROCESSES** (further details are provided in Appendix C)

**TIDE AND WATER LEVELS (mODN)**

Location	LAT	MLWS	MLWN	MHWN	MHWS	HAT	Neap range	Spring range	Correction CD/ODN
Swanage		-0.9	-0.2	0.2	0.6		0.4	1.5	-1.4

**Extremes(mODN)**

Location:	1:1	1:10	1:25	1:50	1:100	1:200	1:500	1:1000
Swanage	1.41	1.65	1.75	1.82	1.90	1.97	2.07	2.14

**WAVE CLIMATE**

The dominant wave direction is from the south to south-west, which corresponds with the direction of longest fetch and longer period swell waves originating in the Atlantic Ocean. However due to its south-east facing nature, this section of coast can be subject to significant shorter period wind waves originating from the south-east, being generated over a fetch of some 250km. These can be influential in terms of short-term sediment movement.

Due to diffraction of waves around Durlston Head and Peveril Point, the dominant south-westerly waves also tend to approach the Swanage Bay shoreline from the southeast. Durlston Bay is less protected than Swanage Bay from the south-westerly wave climate and has an inshore wave direction more aligned to the south.

**TIDAL FLOW**

Generally tidal flows are low inshore along the Swanage Bay frontage. Slightly greater flows are experienced inshore along Durlston Bay. There are, however strong, rip currents, particularly on the ebb past Handfast Point, Peveril Point and Durlston Head. There is generally a strong south west dominant flow field over the deep water offshore of Durlston Bay during the ebb.

**PROCESSES**

**Control Features:**

The main control features are the major headlands at Ballard Point and the southern flank of this headland, Peveril Point and Durlston Head. However, although each of these headlands anchor the coast to north and south and influence wave climate, neither of the down drift headlands (Ballard point in the case of Swanage Bay and Peveril Point in the case of Durlston Bay), due to their respective orientations really act to retain sediment fully within the bays. As such the beaches tend to run out to an intersection of the hard cliff and the softer coastal slope at the northern end. The bays tend, therefore to leak sediment, to the offshore zone.

Within Swanage Bay there are local control features at the Pier and just to the west of the Pier. Rocky outcrops present in the southern part of the bay known as the Tanville Ledges and Phippards Ledge exert some local control on foreshore sediment distribution.

**Existing Defences:**

Individual defences are identified in Appendix C. The general description of defences is provided in the description above. This is summarised below.

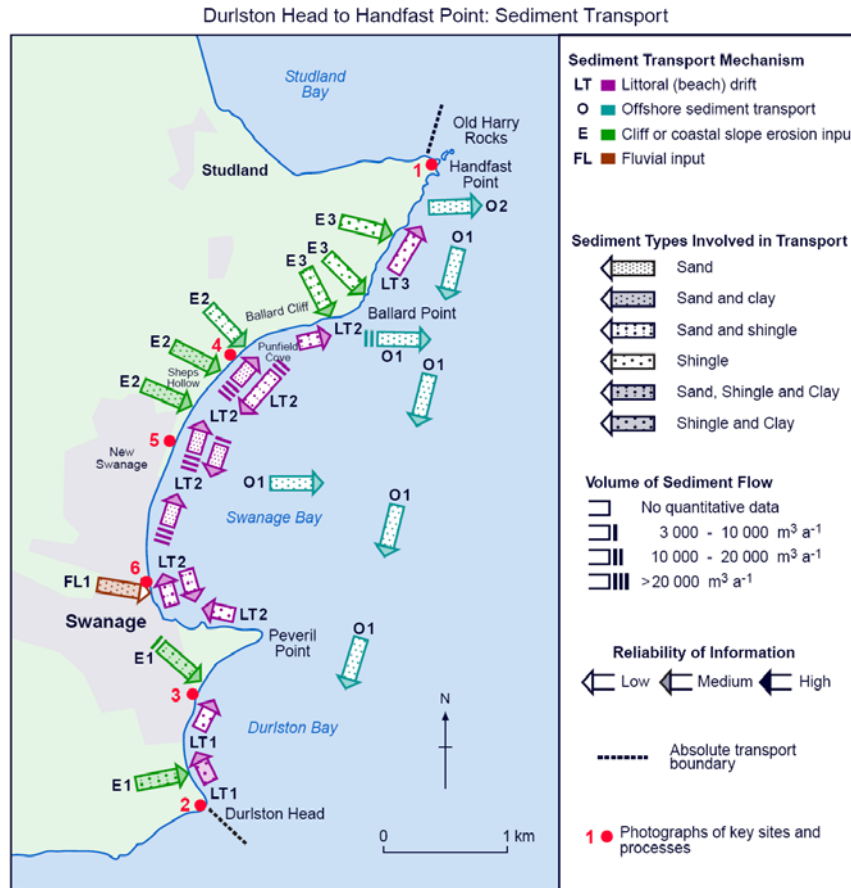
Defences commence part way along the soft coastal slope at the northern extent of Swanage Bay. The defence comprises a groyned beach with a sea wall starting at the southern end of the first groyne system. The main section of Swanage Bay has a recently replaced timber groyne field and recharged beach with a promenade behind. This is considered to be in good condition. To the south of Swanage Bay defences comprise a series of varied seawall sections in reasonable condition. Defences along all sections of the bay can be severely overtopped on extreme water levels.

There is only one section of defence in Durlston Bay, this being the rock revetment below Belle Vue Road. This is in a moderate condition although subject to some loss of rock and with the potential to be

outflanked.

**Processes:**

The general processes are summarised in the following diagram.



**Figure 4.5.2** Map courtesy of SCOPAC, 2004 ([www.scopac.org.uk](http://www.scopac.org.uk)).

Modelling has identified a net sediment drift from south to north along both bays. In the case of Swanage Bay this drift tends to work along a fairly narrow section of the intertidal beach. There is also considered to be some drawdown of the upper beach. The Swanage Bay Strategy study suggests that there can be sediment feed to the bay from the offshore (at the southern end of the bay in particular) with this then being fed along the frontage in a northerly direction. This occurs on major storms capable of mobilising sediment from the deep offshore area. This, it is suggested, may explain periods in the past when there has apparently been accretion along the frontage.

Due to the near continuous northerly drift, sediment from the cliffs to the north is unlikely to provide significant sediment input to the frontage.

The slightly advanced position of the hard defences at the southern end of the bay constrain any opportunity for retaining sediment along the southern shoreline. However, the slightly deeper bay to the east of the Pier does trap sediment as a beach.

In Durlston Bay there is no opportunity for sediment to build along the shore. Any material eroded from the cliffs is carried along shore by wave action. Only larger boulders are retained on the narrow intertidal foreshore. It would be anticipated that the southern end of the bay will benefit from some

greater degree of protection from wave action and although sediment movement would still occur the drift here would be less.

*Unconstrained Scenario:*

Although unrealistic, because of the residual impact of defences, this scenario considers how the coast would evolve in the absence of defences.

At present there is no control fully retaining sediment within either bay. The bays would tend therefore to erode back further until a fully swash aligned shape is achieved. In the case of Durlston Bay the harder coastal slope acts to resist this to a degree, meaning that erosion along this frontage is relatively slow.

In the case of Swanage Bay, the net alignment of the frontage is quite stable but with the loss of sediment continuing to the north. The frontage still therefore has pressure on it to erode.

**POTENTIAL BASELINE EROSION RATES**

Base rates have been assessed from monitoring and historical data. The range of potential erosion is assessed in terms of variation from the base rate and sensitivity in potential sea level rise. Further detail on erosion rates is provided in Appendix C. The base rates provided below are taken as an average based on historical records. The rates are a composite value based on erosion of the toe and recession of the crest of the cliff and reflect the erosion rates following failure of defences.

*(Sea Level Rise assumed rates: 0.06m to year 2025; 0.34m to year 2055; 1m to year 2105. Baseline date 1990)*

Location	Base Rate	Notes	100yr. Erosion / Recession (m)
Handfast Point	0.3m/yr	General erosion of the chalk cliff	30m
Ballard Down	0.7m/yr	Erosion and cliff recession	70m
Central Swanage	0.6m/yr	Erosion and cliff recession held be defences	40m
South Swanage	0.2m/yr	Held by defences	20m
Durlston Bay	0.65m/yr	Erosion and cliff recession	65m



## 4.5.2 BASELINE MANAGEMENT SCENARIOS

### PRESENT MANAGEMENT

Present Management is taken as that policy defined by SMP1, modified by subsequent strategies or studies. It should be noted that both in the case of SMP1 and that of many of the strategies undertaken before 2005, the period over which the assessment was carried out tended to be 50 years.

SMP1			MODIFIED POLICY		
MU	LOCATION	POLICY	REF	LOCATION	POLICY
SWA 5	Handfast Point to Ballard Point	Do Nothing	S6	Handfast Point to Sheps Hollow	No active intervention.
SWA 4	Ballard Point to Sheps Hollow	Do Nothing			
SWA 3	Sheps Hollow to Outfall Jetty	Hold the Line	S6	Sheps Hollow to Outfall Jetty	Hold the Line with groynes and recharge.
SWA 2	Outfall Jetty to Swanage Pier	Hold the Line	S6	Outfall Jetty to Swanage Pier	Do minimum Hold the Line.
SWA 1	Swanage Pier to Peveril Point	Selectively Hold the Line	S6	Swanage Pier to Peveril Point	Do minimum Hold the Line.
DUR 3	Durlston Flats to Peveril Point	Do Nothing	S7	Peveril Point (3c)	No active intervention.
			S7	Swanage Town Park (3b)	No active Intervention.
			S7	Durlston Wall (3a)	Limited invention in the form of local maintenance works (i.e. patch up works)
DUR 2	Durlston Cliff Flats	Hold the Line short term, Do Nothing long term	S7	Durlston Cliff Flats	No Active Intervention.
DUR 1	Durlston Head to Durlston Cliff Flats	Do Nothing with long term retreat	S7	Purbeck Heights (1f)	No active intervention.
			S7	Pinecliff Walk (1e)	Localised works to stabilise cliff, without hard engineering and investment into long term slope defence.
			S7	Old Slip (1d)	No active intervention.
			S7	Durlston Road (1c)	No active intervention.
			S7	Country Park (1b)	No active intervention.
			S7	Durlston Head (1a)	No active intervention/ with potential reactive stabilisation in the long term.

#### References:

S6

*Poole Bay and Harbour Strategy Study Swanage (Purbeck DC 2004)*

S7

*Durlston Bay Coastal Strategy (Purbeck DC 2004) \* Strategy work did not deviate greatly from SMP1 policies, rather, it identified areas within the lengths of coastline (covered by a 'Do Nothing' policy) where localised maintenance works could be undertaken.*

## BASELINE SCENARIOS FOR THE ZONE

### Introduction

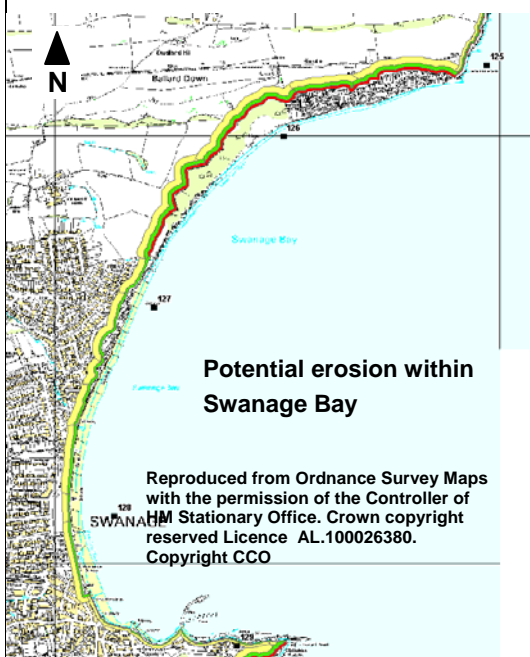
Two baseline scenarios are developed below: assuming that no further action is taken to defend the coast, No Active Intervention, and that developing the With Present Management approach defined by SMP1 and subsequent strategies. In the latter case the approach defined for the next 50 years is extended over the next 100 years.

In examining these scenarios the SMP2 has initially considered the whole frontage as one, considering how management and behaviour of different sections of the coast may influence one another (e.g. if one section of the coast is held by defence, how will this impact upon the development of other sections of the frontage. This establishes the various links between sections of the coast and provides a context for examining more specific sections of coast in greater detail.

#### **No Active Intervention (Scenario 1):**

Under this scenario no works would be taken to maintain existing defences along the frontage. Because of the residual impact of structures, evolution of the unconstrained scenario would be modified although in the longer term the development of the coast would be similar.

Defences within Swanage Bay are in reasonable condition. However, over the main beach frontage the basic integrity of the sea walls are maintained through having a certain width of beach maintained by recharge. It would be anticipated that over the first epoch this would reduce and effectively expose the walls to direct wave attack. There would be increased overtopping such that both the seawalls and the road would suffer damage. To the northern end of the beach, overtopping would tend to impact on the coastal slope such that this would erode further and become unstable. Uncontrolled failure of this slope would cause potential failure of the sea wall below. During the second epoch, defences would have failed and wholesale erosion of the frontage would occur.



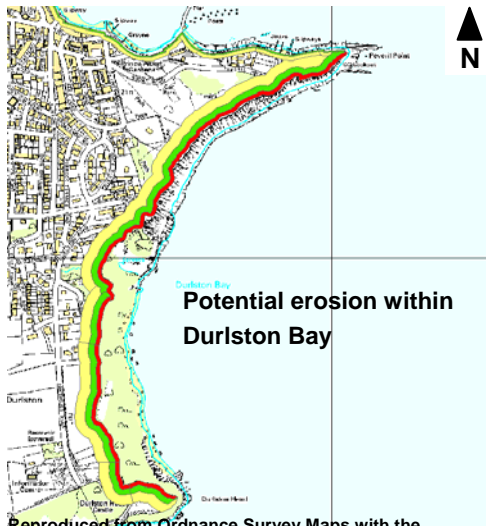
The cliff line to the north would continue to erode back.

To the southern end and along the defence to the centre of the town, failure of the defences, without maintenance would occur over the same sort of period and, although erosion may be less, it would more directly affect properties and assets within the town. Typical erosion lines are shown on the figure.

Although there is little threat of flooding to the centre of the town due directly to sea level, there would be substantially greater overtopping at the shoreline, resulting in significant damage to assets adjacent to it. This could impact on properties and shops. Only where flooding affected the whole town centre would the station and railway line be

affected.

The potential erosion within Durlston Bay is shown in the following figure.



Reproduced from Ordnance Survey Maps with the permission of the Controller of HM Stationary Office. Crown copyright reserved Licence AL.100026380. Copyright CCO

Erosion rates taken for this frontage are quite generalised. Potentially rates at the southern end of the bay, specifically in the area of Durlston Castle are considered to be high.

The existing rock mound at the foot of the cliff in front of Belle Vue Road is likely to act to stabilise this slope over the first epoch. Deterioration and potential outflanking would eventually reduce the effectiveness of this defence. Over much of the central and southern part of the bay, cliff instability is associated with drainage from the cliff crest and within the cliff, due to erosion having removed the pre-existing cliff.

Even so, loss of property during the second and third epochs would be anticipated.

The damages assessed by the SMP are shown in table 1 at the end of this subsection. These damages do not reflect fully the potential disruption to the town centre due to wave overtopping

The potential impacts on the area are assessed in table 2 at the end of this subsection. These are discussed below.

The important geological exposure and the objective to maintain overall natural response of the coastline would be maintained. There would, however, be very significant loss to the town centre of Swanage and to use of the coast. Without defence the main transport routes would be severely affected, together with loss of the main sewer running along the promenade. Possibly more significant would be the loss due to erosion and regular wave overtopping at the core of the town. This would in effect destroy the character of the town.

To the northern end of the town, a significant number of newer properties would be affected, causing significant economic loss as well as loss of hotels supporting the town's attraction as a tourist centre for the whole of the Purbeck area.

Along Durlston Bay, a substantial number of properties might be lost over the three epochs. Although very important to individuals, this area is less associated with the overall value of the town as a regional centre. The impact locally would however be significant.

Overall the scenario fails to meet the objectives reflecting the combined aspirations for the area.

**With Present Management (Scenario 2):**

The present management scenario is based on that set by SMP1 and updated through the development of the recent draft strategy. Although in draft, this strategy is taken as reflecting the intent of Present Management within this baseline scenario. In particular, the recommendations within the draft strategy have been taken forward as a scheme for groyne replacement and beach recharge and as such are confirmed as being the With Present management approach.

Within Durlston Bay, the draft strategy recommends limited intervention to stabilise the cliff line. This would include significant sheet piling work to the area adjacent to the existing revetment. Additional works would be undertaken further along the frontage to stabilise the cliff. At the southern end the intent would be to defend the Castle in the long term if this were found to be necessary.

With increasing sea level, it would be anticipated that there would be a need for increased frequency for beach recharge within Swanage Bay, to maintain the beach or a need to impose greater control of sediment movement along the frontage. Under this scenario, this would suggest that more substantial



**Swanage  
Beach  
Recharge**

defences would be extended along the frontage to the north. The recent recharge scheme provided beach material over the full length of the beach extending beyond the extent of the existing sea wall, beneath the cliff in front of properties to the northern end of New Swanage. If this approach were taken in the future, with the anticipated need for greater control of sediment loss, particularly at this northern end, then the influence of defence works could significantly infringe on to the natural coast impacting on the geological value of the area. In addition, with any

increase in scale of structures controlling a recharged beach may start to affect the overall landscape quality of the bay.

In front of the main town, the approach to maintaining the existing walls would appear sustainable, given the protection already afforded to this area by the headland and existing structures. There would be a need to increase the height of the walls in line with the increased wave height due to sea level rise. This would have some impact on the area but may not be considered to be excessive.

In assessing damages under this option, it has been assumed that schemes would be put in place to resist erosion to all property in Swanage Bay. In Durlston Bay, minor intervention is assumed to only delay the loss of property and damages are recorded as for NAI. These economic damages are shown in table 1 and the impacts are assessed in table 2.

In terms of these impacts, the major affect is on the nature conservation value associated with the internationally important geological interest of the area. The ecological value of the area is not seen as being a major issue, accepting gradual natural change to the designated habitats of the Handfast Point headland.

**Table 1. Economic Assessment**

The following table provides a brief summary of damages determined by the SMP2 analysis for the whole PDZ. Further details are provided in Appendix H. Where further, more detailed information is provided by studies, this is highlighted. The table aims to provide an initial high level assessment of potential damages occurring under the two baseline scenarios. The damages for each epoch are current values. These are discounted to give present values in the final column. It is important for the reader to note that the loss figures quoted only refer to domestic dwellings and no account has been taken of commercial, industrial or infrastructure property values.

**ASSESSMENT OF EROSION DAMAGES**

Epoch		0 -20 year		20 – 50 years		50 – 100 years		Present Value Damages (£x1000)
No Active Intervention	SMP1 MU	Number of properties	Value x £1000	Number of properties	Value x £1000	Number of properties	Value x £1000	
<i>Location</i>								
New Swanage	SWA 3	0	0	5	1252	97	24292	3,092
Town Centre	SWA 2	0	0	13	3256	44	11,019	2,357
Peveril Point North	SWA 1	0	0	10	2504	3	751	971
Peveril Point South	DUR 3	0	0	0	0	24	6010	655
Durlston Flats	DUR 2	0	0	2	501	3	751	260
Durlston Head	DUR 1	0	0	28	7,012	20	5009	3,035
<b>Total for PDZ4</b>								<b>10,370</b>
With Present Management	SMP1 MU	No.	x £1000	No.	x £1000	No.	x £1000	Present Value Damages (£x1000)
<i>Location</i>								
New Swanage	SWA 3	0	0	0	0	0	0	
Town Centre	SWA 2	0	0	0	0	0	0	
Peveril Point North	SWA 1	0	0	0	0	0	0	
Peveril Point South	DUR 3	0	0	0	0	24	6010	655
Durlston Flats	DUR 2	0	0	2	501	3	751	260
Durlston Head	DUR 1	0	0	28	7,012	20	5009	3,035
<b>Total for PDZ4</b>								<b>3,950</b>
Notes								
Poole Bay & Harbour Draft Strategy-Technical Annex 8 identifies damages over a 50 year period of £24 million for Swanage.								



**ASSESSMENT OF POTENTIAL FLOOD RISK**

		Flood risk total tidal and fluvial 2008		Flood risk total tidal and fluvial 2102		
No Active Intervention	SMP1	Number of properties	Value x £1000	Number of properties	Value x £1000	Averaged PVD (£x1000)
Location	MU					
Town centre	SWA 2	4	1000	4	1000	1000
<b>With Present Management</b>						
Location	SMP1	Number of properties	Value x £1000	Number of properties	Value x £1000	Averaged PVD (£x1000)
Town centre	SWA 2					

**OTHER INFORMATION:**

It has been taken that under NAI property would be written off due to regular flooding. No account is taken of persistent overtopping damages affecting the town centre under NAI.

**Table 2. General Assessment of Objectives**

The following table provides an overall assessment of how the two baseline scenarios impact upon the overall objectives agreed by stakeholders. These objectives are set out in more detail within Appendix E. The table aims to provide an initial high level assessment of the two baseline scenarios, highlighting potential issues of conflict. These issues are discussed in the following section, examining alternative management scenarios from which SMP2 policy is then derived.

OBJECTIVE	NAI				WPM			
	Neutral	Fails	Partial	Positive	Neutral	Fails	Partial	Positive
Protect the economic viability of Swanage								
Protect core values & character of the centre of Swanage								
Reduce flood risk to Swanage								
Maintain beach widths and beach use.								
Manage risk to properties due to erosion and flooding where sustainable								
Minimise net loss of species/habitat (identify compensatory habitat if any net loss occurs),								
Maintain geological exposures, in relation to World Heritage and SSSI status.								
Maintain the outstanding landscape and the views and appreciation of the varied coastal environment,								
Support adaptability of coastal communities								
Reduce reliance on defences.								



#### 4.5.3 DISCUSSION AND DETAILED POLICY DEVELOPMENT

In assessing the two baseline scenarios, the main area of conflict is seen between the wish to maintain the full length of defence over the Swanage frontage, compared to the equally important aim of maintaining the exceptional landscape and geological value of the area. In economic terms, the value of assets at risk and the socio-economic impact of No Active Intervention on sustaining the town of Swanage would justify continued defence of the main Swanage frontage. The problem arises at the northern extent of the developed hinterland, with the potential threat of extending an ever more robust defence to the north.

Following the general intent of defending the northern end under With Present Management, there would be the need to increase both the extent of defence and potentially the height of defence. The trend might potentially be to replace the existing timber groynes with rock structures, terminating the defence with a significant end structure to retain sediment along the beach to the south.

Without such an escalation of defence in this area, with sea level rise, there would be increased beach loss and increased wave exposure on the back sea wall, which in turn is likely to give rise to increased slope instability and endanger property at the crest of the cliff.



At present, there is an apparent slight realignment of the coast towards the centre of this northern frontage, possibly caused by the outcrops of rock (Phippards Ledge and the Tanville Ledges) at this location. The coast is held slightly forward at the point of the Tanville Ledges. With the intent of reducing visual impact on overall landscape value of the area, there seems scope to define this overall area as a transition zone between Hold the Line to the south and the obvious No Active Intervention in front of Ballard Estate. The aim would be that defences might be developed over this section of the coast, centred on the Tanville Ledges area of rock outcrop, developing the slight headland, possibly by use of reefs or similar less obtrusive structures.

The approach outlined above would still be reliant on beach recharge to sustain protection of the cliff. The cliff immediately behind this extended headland, however, may come under increased pressure during extreme events. As such there may be a need, locally to reinforce the toe and splash protection to the coastal slope. In effect the approach might be seen as increasing the foreshore width, and providing control to the sediment drift. However, this would have to accept that the beach levels may not be sufficient to maintain full protection against extreme wave attack. The corollary of this would be that there would be increased erosion further north as sediment drift is

reduced. The intent would be to allow erosion to occur to a greater extent, without direct protection of the coastal slope in this final section. The SMP is only able to provide a basic conceptual approach defining a policy of Hold the Line as far north as the point where the northerly part of the Tanville Ledges intercept the shoreline. Beyond this location a policy of realignment would apply to the end of the properties. The realignment would typically provide protection over much of the length currently defended by the sea wall, but then reducing protection beyond the area of rock outcrop. This might result in loss of potentially 10 properties over the period of the SMP2. In terms of planning, the area could be defined within a coastal change management area and detailed examination of possible impacts would need to be undertaken to advise residents of property likely to be affected.

Further south over the main frontage of the town, the intent of the shoreline management plan would be to maintain the standard of defence and protect the coast from erosion. Over the existing beach area, this would typically be seen as through an approach of continued beach recharge and groynes and to other areas as maintenance of existing sea walls. It should be noted that current residual life of defences along this frontage is generally low (this is based upon local knowledge and visual inspection) and therefore there is a cost implication. However the overriding justification for the intent of management is the perceived sustainability of managing the frontage and importantly in protecting the core values of Swanage.

Along the area of the Mowlem through to the Pier there are current concerns about the level of overtopping, with water flowing down the road in to the town. There is likely to be a need to provide additional defence, especially as overtopping would increase with sea level rise. This would be consistent with a policy of Hold the Line. There may also be scope for considering reinforcement of the small headlands to the south, to provide increased wave protection to the core of the town and to assist in maintaining the small beach area to the east of the Pier. This would protect the various usage of the frontage and potentially enhance boat use in terms of protection to moorings and launching facilities.

Within Durlston Bay, both the SMP1 and the draft strategy recommend only minor intervention. In effect this might delay the loss of property, but would be very similar to the No Active Intervention scenario. The performance of the existing limited extent of rock protection to the cliff toe in the centre of the bay highlights the difficulty of providing any sustainable approach to long term management of the erosion risk. While the existing structure has been quite effective in reducing the risk to the property behind, it is showing signs of loss of integrity. Furthermore, as the coast to either side continues to erode, the structure will become outflanked. In addition, the



degree of protection necessary to stabilise the slope, highlights the risk this approach to defence would have on the important geological value of the area.

Over the long term, to continue to protect properties, both here and in other adjacent sections of the bay, would require a far more comprehensive approach to management extending over a significant length of the bay. This encroachment on the nature conservation and geological value would be unacceptable.

The strategy study does suggest that less intrusive management could be achieved through improved drainage and management of the stream issuing to the south of the revetment. Such management approaches may be acceptable. However taking this further forward to undertake physical stabilisation of the slope is still likely to be ineffective in the long term, without erosion protection.

In terms of policy for coastal defence, the baseline recommendation of the SMP would be for no active intervention. However, even though surface water drainage is unlikely to attract coast protection funding the SMP2 recognises that management of drainage could delay loss of assets without significant impact on the overall natural value of the area. This policy could be expressed as managed realignment over the first 2 epochs. Potential cliff-top drainage measures dictates the difference between managed realignment and no active intervention within Durlston Bay but such measures could be considered non-strategic and are likely to be assessed at virtually individual property level. As such, providing realistic costs for these measures is outside the scope of the SMP. Inclusion of the measures is felt to be important in assisting with delivery of the SMP at the local level and particularly in assisting property owners with adaptation. This managed realignment policy would apply over the whole frontage and as such the previous distinction between different lengths of the bay is not felt to be valid. Management needs to include addressing the concerns of individuals with property in the area. Part of this would be to improve monitoring of erosion and cliff instability, as recommended by the strategy study.



## **PDZ4**

### **Management Area Statements**

**SWA M – Handfast Point to and including Ballard Common** (CH. 124 TO –CH 127 KM.)

Covering previous SMP1 management units SWA5 and SWA 4

**SWA N – Ballard Common to Peveril Point** (CH. 127- TO –CH 129 KM.)

Covering previous SMP1 management units SWA3 to SWA1

**DUR O – Peveril Bay to Durlston Head** (CH.129 - TO – CH 131 KM.)

Covering previous SMP1 management units DUR1 to DUR3




<b>Location reference:</b>	<b>Handfast Point to and including Ballard Common</b>
<b>Management Area reference:</b>	<b>SWA M</b>
<b>Policy Development Zone:</b>	PDZ4


\* Note: Predicted shoreline mapping is based on a combination of monitoring data, analysis of historical maps and geomorphological assessment with allowance for sea level rise. Due to inherent uncertainties in predicting future change, these predictions are necessarily indicative. For use beyond the purpose of the shoreline management plan, reference should be made to the baseline data.


The following descriptions are provided to assist interpretation of the map shown overleaf.

### 100 year shoreline position:


The following maps aim to summarise the anticipated position of the shoreline in 100 years under the two scenarios of "With Present Management" and under the "Preferred Policy" being put forward through the Shoreline Management Plan.


-  In some areas the preferred policy does not change from that under the existing management approach. In some areas where there are hard defences this can be accurately identified. In other areas there is greater uncertainty. Even so, where the shoreline is likely to be quite clearly defined by a change such as the crest of a cliff the estimated position is shown as a single line.
- Where there is a difference between With Present Management and the Preferred Policy this distinction is made in showing two different lines:


-  With Present Management.
-  Preferred Policy.

-  In some areas, the Preferred Policy either promotes a more adaptive approach to management or recognises that the shoreline is better considered as a width rather than a narrow line. This is represented on the map by a broader zone of management:

### Flood Risk Zones

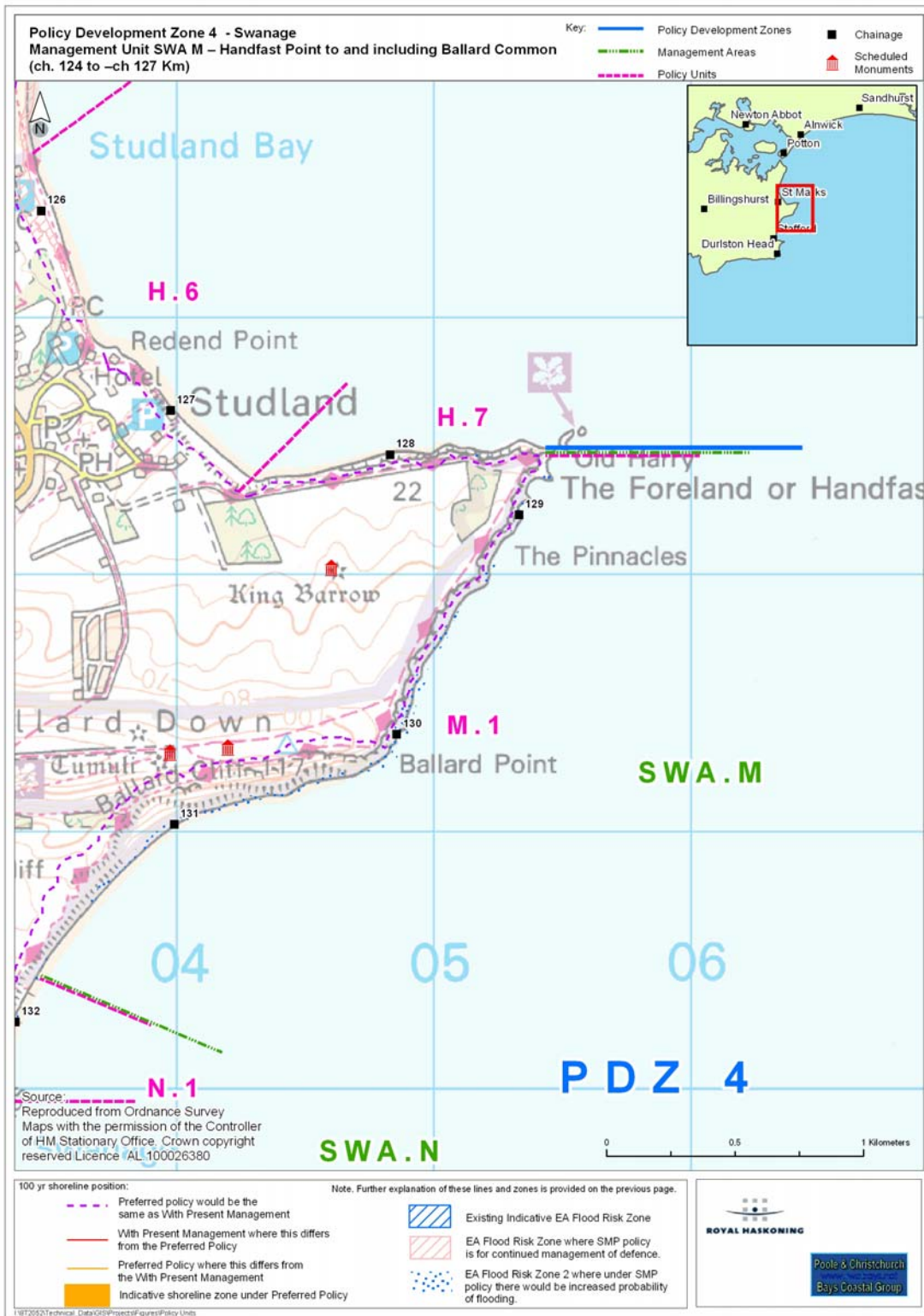
 General Flood Risk Zones. The explanation of these zones is provided on the Environment Agency's web site [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). The maps within this SMP document show where SMP policy might influence the management of flood risk.

 Indicate areas where the intent of the SMP policy is to continue to manage this risk.

 Indicate where over the 100 years the policy would allow increased risk of flooding.

The maps should be read in conjunction with the text within the SMP document.







## SUMMARY OF PREFERRED PLAN RECOMMENDATIONS AND JUSTIFICATION

### PLAN:

The overriding intent of the plan is to maintain the important nature conservation, and geological and exceptional landscape quality of the area. The policy for the frontage is for No Active Intervention. There are no issues that conflict with this approach.

PREFERRED POLICY TO IMPLEMENT PLAN:	
<b>From present day</b>	No Active Intervention
<b>Medium term</b>	No Active Intervention
<b>Long term</b>	No Active Intervention

### SUMMARY OF SPECIFIC POLICIES

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
SWA.M.1	Handfast to Ballard Estate	NAI	NAI	NAI	
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

### CHANGES FROM PRESENT MANAGEMENT

No Change.

### IMPLICATION WITH RESPECT TO BUILT ENVIRONMENT

Economics		by 2025	by 2055	by 2105	Total £k PV
<b>Property</b>	Potential NAI Damages/ Cost £k PV	0	0	0	0
	Preferred Plan Damages £k PV	0	0	0	0
	Benefits £k PV	0	0	0	0
	Costs of Implementing plan £k PV	0	0	0	0




<b>Location reference:</b>	<b>Ballard Common to Peveril Point</b>
<b>Management Area reference:</b>	<b>SWA N</b>
<b>Policy Development Zone:</b>	<b>PDZ4</b>


\* Note: Predicted shoreline mapping is based on a combination of monitoring data, analysis of historical maps and geomorphological assessment with allowance for sea level rise. Due to inherent uncertainties in predicting future change, these predictions are necessarily indicative. For use beyond the purpose of the shoreline management plan, reference should be made to the baseline data.


The following descriptions are provided to assist interpretation of the map shown overleaf.

### 100 year shoreline position:


The following maps aim to summarise the anticipated position of the shoreline in 100 years under the two scenarios of “With Present Management” and under the “Preferred Policy” being put forward through the Shoreline Management Plan.


-  In some areas the preferred policy does not change from that under the existing management approach. In some areas where there are hard defences this can be accurately identified. In other areas there is greater uncertainty. Even so, where the shoreline is likely to be quite clearly defined by a change such as the crest of a cliff the estimated position is shown as a single line.
- Where there is a difference between With Present Management and the Preferred Policy this distinction is made in showing two different lines:


-  With Present Management.
-  Preferred Policy.

-  In some areas, the Preferred Policy either promotes a more adaptive approach to management or recognises that the shoreline is better considered as a width rather than a narrow line. This is represented on the map by a broader zone of management:

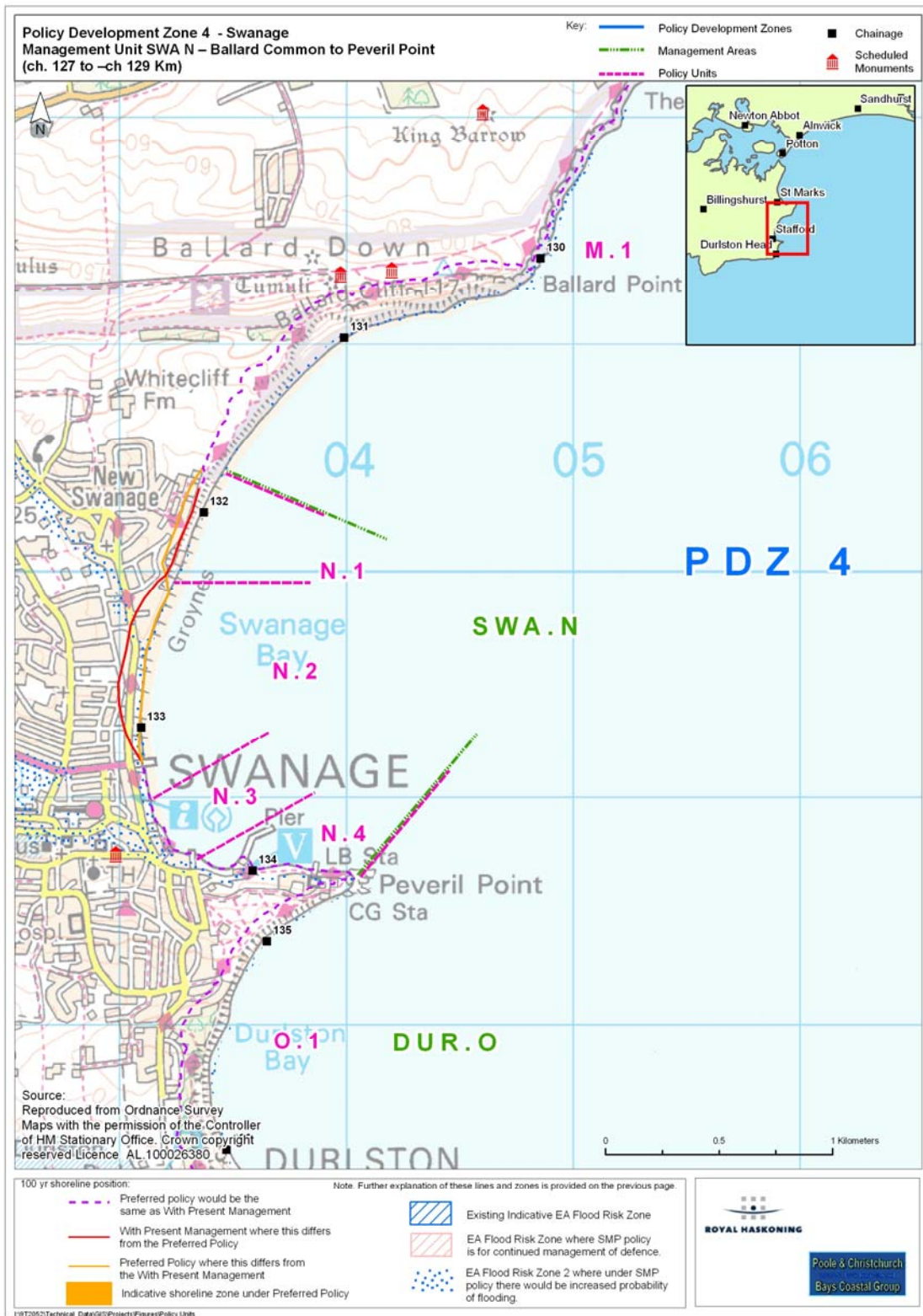
### Flood Risk Zones

 General Flood Risk Zones. The explanation of these zones is provided on the Environment Agency’s web site [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). The maps within this SMP document show where SMP policy might influence the management of flood risk.

 Indicate areas where the intent of the SMP policy is to continue to manage this risk.

 Indicate where over the 100 years the policy would allow increased risk of flooding.

The maps should be read in conjunction with the text within the SMP document.



## SUMMARY OF PREFERRED PLAN RECOMMENDATIONS AND JUSTIFICATION

### PLAN:

The intent of the plan is to maintain the viability and important heritage and community aspects of Swanage. This includes reducing flooding and providing protection to the town centre, maintaining access along and use of the coastal road, promenade and beach and sustaining important local use of the headland to Peveril Point. This includes all essential infrastructure. However, this has to recognise the important landscape setting of the town and seafront and the important geological value of the coast. To this end, the intent of the plan is to limit further extension of defences, particularly further north along the shore and to recommend approaches which may minimise landscape impact. Within this intent therefore, the recommendation is that the northern section of the existing defence line (north of the Tanville Ledges – SWA.N.1)) is managed more as a transitional area between a firmer policy to Hold the Line of defence to the south and the No Active Intervention policy within MA SWA.M

PREFERRED POLICY TO IMPLEMENT PLAN:	
<b>From present day</b>	Maintain all defences
<b>Medium term</b>	Maintain all existing defences but to develop a scheme for transitional management of the northern frontage.
<b>Long term</b>	Maintain all defences, with the implementation of the above transitional approach and to consider the possible benefits in reinforcing the local headlands between the town and Peveril Point

### SUMMARY OF SPECIFIC POLICIES

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
SWA.N.1	New Swanage	HTL	HTL	MR	Approach to provide suitable transition to NAI in policy unit SWA.M.1
SWA.N.2	Promenade	HTL	HTL	HTL	
SWA.N.3	Town Centre	HTL	HTL	HTL	Potential need to raise defences
SWA.N.4	Town Centre to Peveril Point	HTL	HTL	HTL	Potential opportunity to reinforce local headlands
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

### CHANGES FROM PRESENT MANAGEMENT

Change in policy unit frontages and adoption of a managed realignment approach to the northern end.

### IMPLICATION WITH RESPECT TO BUILT ENVIRONMENT

Economics		by 2025	by 2055	by 2105	Total £k PV
<b>Property</b>	Potential NAI Damages/ Cost £k PV	10	2522	3961	6493
	Preferred Plan Damages £k PV	0	0	0	0
	Benefits £k PV	10	2522	0	6493
	Costs of Implementing plan £k PV	948	382	382	1712




<b>Location reference:</b>	<b>Peveril Bay to Durlston Head</b>
<b>Management Area reference:</b>	<b>DUR O</b>
<b>Policy Development Zone:</b>	PDZ4


\* Note: Predicted shoreline mapping is based on a combination of monitoring data, analysis of historical maps and geomorphological assessment with allowance for sea level rise. Due to inherent uncertainties in predicting future change, these predictions are necessarily indicative. For use beyond the purpose of the shoreline management plan, reference should be made to the baseline data.


The following descriptions are provided to assist interpretation of the map shown overleaf.

### 100 year shoreline position:


The following maps aim to summarise the anticipated position of the shoreline in 100 years under the two scenarios of "With Present Management" and under the "Preferred Policy" being put forward through the Shoreline Management Plan.


-  In some areas the preferred policy does not change from that under the existing management approach. In some areas where there are hard defences this can be accurately identified. In other areas there is greater uncertainty. Even so, where the shoreline is likely to be quite clearly defined by a change such as the crest of a cliff the estimated position is shown as a single line.
- Where there is a difference between With Present Management and the Preferred Policy this distinction is made in showing two different lines:


-  With Present Management.
-  Preferred Policy.

-  In some areas, the Preferred Policy either promotes a more adaptive approach to management or recognises that the shoreline is better considered as a width rather than a narrow line. This is represented on the map by a broader zone of management:

### Flood Risk Zones

 General Flood Risk Zones. The explanation of these zones is provided on the Environment Agency's web site [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). The maps within this SMP document show where SMP policy might influence the management of flood risk.

 Indicate areas where the intent of the SMP policy is to continue to manage this risk.

 Indicate where over the 100 years the policy would allow increased risk of flooding.

The maps should be read in conjunction with the text within the SMP document.





## SUMMARY OF PREFERRED PLAN RECOMMENDATIONS AND JUSTIFICATION

### PLAN:

The overriding intent of the plan is to maintain the geological value through allowing natural coastal evolution. It is recognised that there will be property at risk in the medium to long term along the frontage and the plan acknowledges the contribution that basic drainage systems can provide in slowing the recession of the cliff line. This would be assumed to be simple drainage which addresses run off at the cliff top, preventing excessive flow over the crest and down the slope. Acknowledging this dictates the difference between managed realignment and no active intervention at this policy unit. However this is seen as a non-strategic measure which needs to be assessed at local level (virtually at individual property level) and therefore associated costs are specific to those circumstances. Following local assessment this would only be recommended under the overall plan if it could be demonstrated that it did not impact significantly on the opportunity to maintain the natural coastal change. The more strategic intent of the plan at this location would be not to remove existing defences or slope stabilisation measures but to allow such works to deteriorate over time.

Measures need to be considered as how best to assist individuals with property at risk through discussion and through the planning process. To inform this, it is essential that monitoring of the frontage is continued and improved. The long term aim is to be in a position during the final epoch to adopt more fully a policy of No Active Intervention.

PREFERRED POLICY TO IMPLEMENT PLAN:	
<b>From present day</b>	Undertake no maintenance of existing defences. Support consideration of improved cliff-top drainage measures. Develop adaption plans with property owners.
<b>Medium term</b>	Undertake no maintenance of existing defences. Support consideration of improved cliff-top drainage measures. Develop adaption plans with property owners
<b>Long term</b>	No Active Intervention

### SUMMARY OF SPECIFIC POLICIES

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
DUR.O.1	Durlston Bay	MR	MR	NAI	This policy would not preclude local drainage improvements.
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

### CHANGES FROM PRESENT MANAGEMENT

Change in policy unit frontages and adoption of a managed realignment approach to the northern end.

### IMPLICATION WITH RESPECT TO BUILT ENVIRONMENT

Economics		by 2025	by 2055	by 2105	Total £k PV
<b>Property</b>	Potential NAI Damages/ Cost £k PV	0	2667	1283	3950
	Preferred Plan Damages £k PV	0	2667	1283	3950
	Benefits £k PV	0	0	0	0
	Costs of Implementing plan £k PV	0	0	0	0

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