Seaton Beach Management Plan

#eddchaveyoursay

1

Welcome to the Seaton Beach Management Plan Public Exhibition

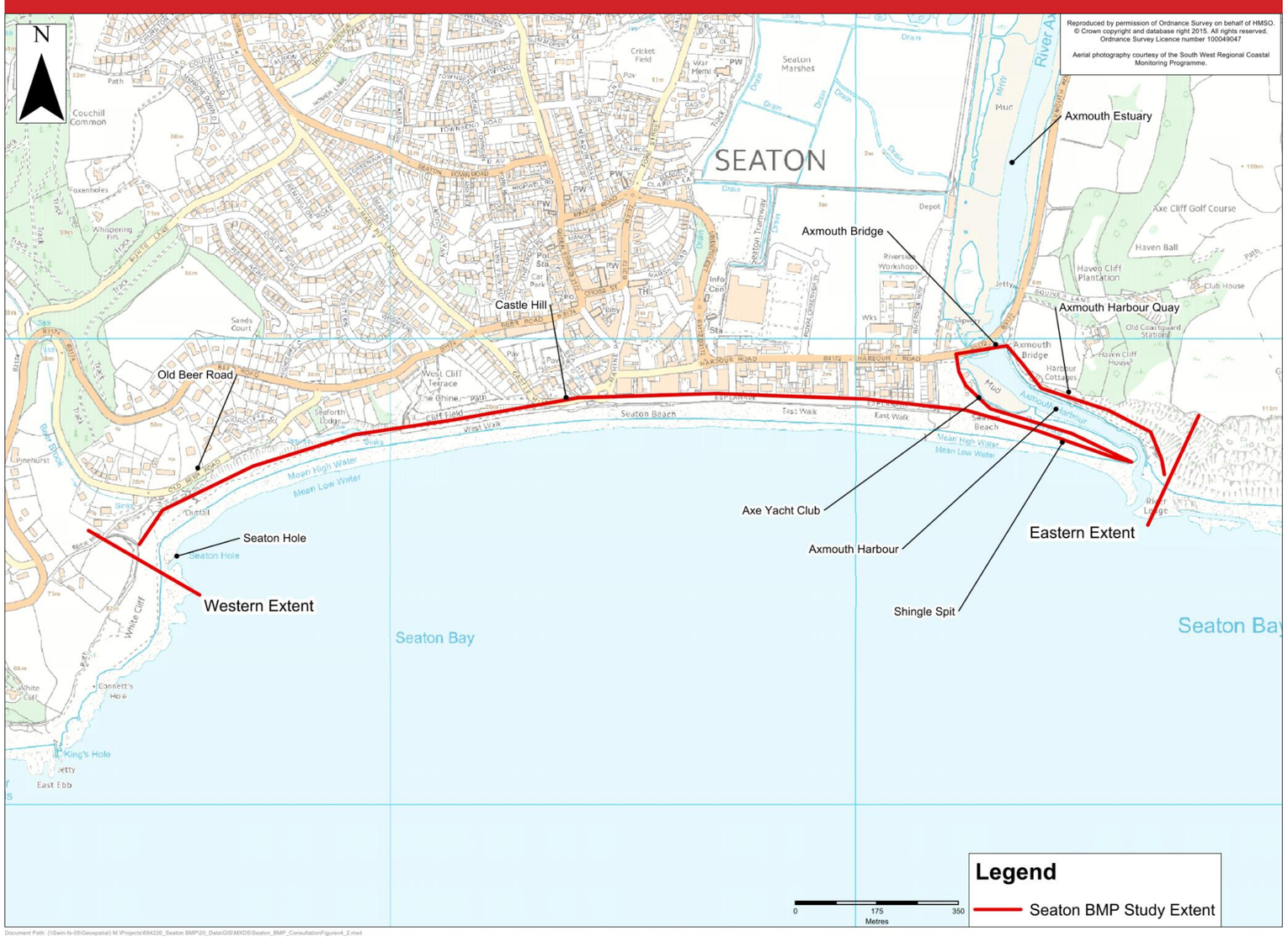
The purpose of this exhibition is to provide you, as a member of the local community, with:

- Information about the purpose of this project
- Share our progress since the project started in May 2017
- Bring you up–to–date on the recommendations of the project
- Update you on the next steps
- Ask for your views

Project Introduction

East Devon District Council, working in partnership with the Environment Agency, are developing a Beach Management Plan (BMP) for Seaton, from Seaton Hole in the west to Harbour Wall on the East side of the River Axe and the Axe River up to the Axe Bridge. Consultants CH2M HILL have been appointed to work with East Devon District Council to produce this management plan.

The Seaton BMP Study Area



What is a Beach Management Plan?

Beaches have many uses and functions. These include amenity, recreation, commercial and community uses, and coast defence, habitat and earth science functions; all of which have social, environmental and economic value.

BMPs are a non–statutory method of providing a plan for managing a beach at a local level that takes into account and, where possible, promotes or enhances the other uses and functions of a beach.

BMPs provide a framework for more cohesive management of a beach that may be regulated and used by different parties, all with their own agendas. They establish a means to control the physical form of beaches and the general beach environment, and to promote good practice within the environment.

A BMP should provide a detailed plan for the short (c.10 years), medium (c.50 years) and long (c.100 years) term management of a beach to achieve an agreed aim and objectives.

In this context, beach management is defined as a process for physically managing the beach by such things as simple interventions, nourishment and recycling of beach material, the construction and maintenance of beach control structures (e.g. groynes and breakwaters) and monitoring.

What is the Purpose of the Project?

The purpose of the BMP is to provide a plan on how the coastline will be managed over the next 20–30 years, and from that define a management regime for the next 5 years.

The plan will identify solutions to manage flood and coastal erosion risk in the context of the longer terms policies for Flood and Coastal Erosion Risk Management from Axe Harbour to Seaton Hole, as defined by the Shoreline Management Plan (SMP), and the need to ensure the long–term sustainability of the harbour for fishing and recreation.

With that, the BMP has four main aims:

1. Ensure Seaton's coastal defences provide an appropriate standard of service;
2. Determine an appropriate management regime for Axmouth spit;
3. To compliment Seaton Town Council's vision for the Seafront; and
4. To carry out (1), (2) and (3) in an integrated, justifiable and sustainable way.

Your views

Why your comments are important to us

- We want to maximise the benefit to the local community so it is important that we understand your views and perspective.

Please ensure feedback reaches us by:

January

2

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2

What are the Problems Facing Seaton?

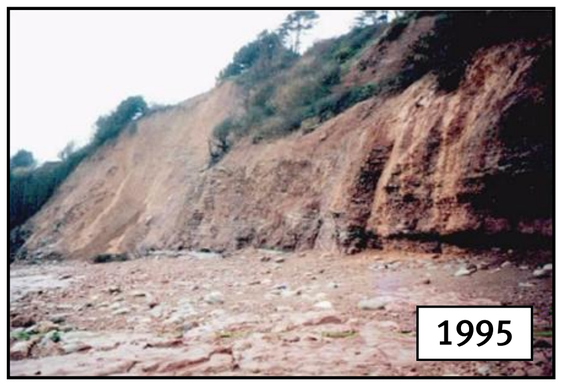
Cliff Erosion

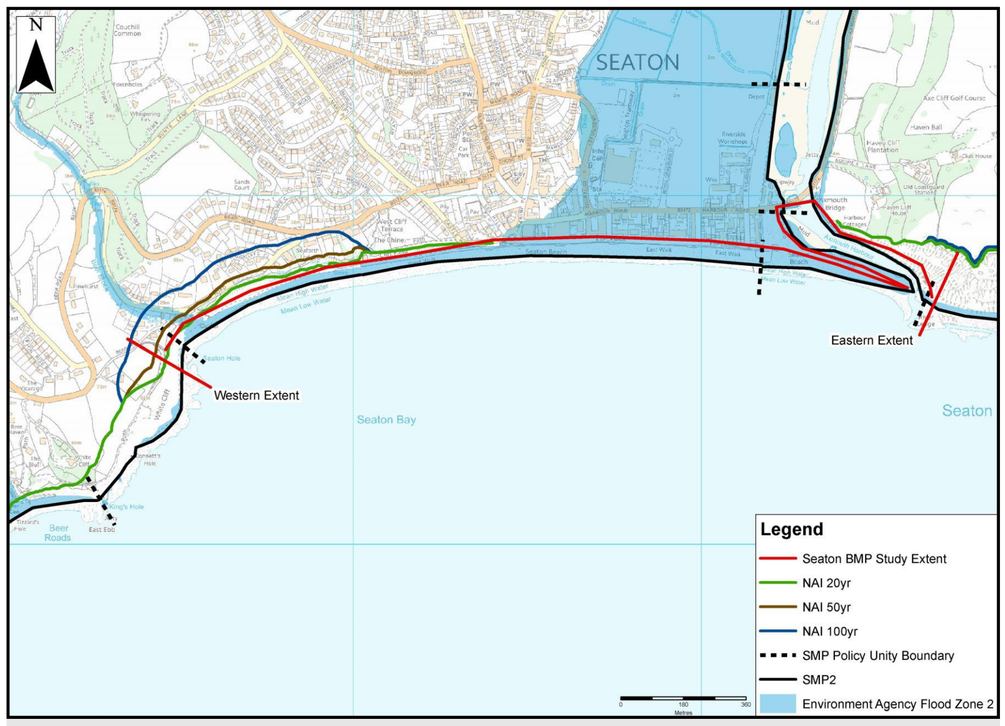
The cliffs at the western end of Seaton between Beer and Seaton are eroding via two key processes:

- Marine erosion at the toe
- Groundwater saturation from the top–down

Rock armouring put in place in 1989/1999 has reduced the rate of marine erosion at the toe, but erosion from the top–down has continued with episodic events occurring since then. They include:

- Land slip at Seaton Hole 2000
- Land slip at Old Beer Road 2012/13





In the absence of defences, the South Devon and Dorset SMP2 predicts that erosion of the cliffs could continue via simple landslides and toe erosion. The image shows predictions for 0–20, 20–50 & 50–100 years.

A History of Flooding

Significant historic flooding events include:

- Flooding November 1924 and January 1925
- Flooding December 1978
- Flooding to 43 residential and 28 businesses February 1979

Wave Overtopping and Flood risk

During storms the beach and seawall is subject to wave overtopping.

February 2014 Storms

2017 Storms

Defence Condition

A number of flood and coastal erosion defences exist along the Seaton frontage, varying in state and condition

Mass concrete protecting a rock armour core
Failure at slope toe leading to loss of fill

Intermittently placed rock armour protecting cliff
Large voids present within the structure

Composite defence comprising rock and concrete gabions
Deformation of gabion baskets and loss of fill material

Sprayed concrete seawall
Spalling of surface concrete resulted in exposure of underlying steel

Steel sheet pile wall
Corrosion of sheet piles

Fluctuating Beach Levels

Seaton beach is very dynamic, especially in response to storms, as levels fall and subsequently increase again.

The beach between Seaton Hole and Seaton has since built back–up again and over the period 2007 to 2017 (period covered by beach monitoring data).

- In the past, loss of beach material has occurred between Seaton Hole and West Walk, notably in 1989/1990, 1992 and 1993 when beach levels dropped significantly.
- In 2005, the beach at the eastern end of Seaton cut–back dramatically.
- In 2014, storms the spit was flattened and required reprofiling to return the beach to pre–storm levels.
- The distal end of the spit has experienced significant cut–back in the past, particularly between November 2016 and February 2017.

Dredge Disposal

Ongoing dredging over the years prevents siltation of the harbour, but disposal of the dredge material within trenches dug into the spit and beach have changed the composition of the beach and is likely to have affected its permeability. This has the impact of increasing the rate of erosion and potentially threatening the ability of the spit to respond naturally to storms.

Today, the upper beach is defined by a steep cliff face and compacted interstitial sand and silts are exposed on the foreshore

Existing Management

Cliff Toe Defences

A combination of rock revetment, concrete wall and blockwork wall (West Walk) protects the cliff toe between Seaton Hole and West Seaton from marine toe erosion.

Seawalls

A concrete seawall protects Seaton Town from flooding. The wall is subject to overtopping.

Street Scene

StreetScene undertake beach reprofiling for the installation of beach huts every spring, along with cliff inspection and maintenance to the rear of West Walk to clear loose debris in advance of the Summer season.

Shingle Re–profiling

Reprofiling of the shingle beach has taken place in the past and continues to be undertaken on an annual basis:

- 1993: Following overtopping of the spit and flooding in the estuary shingle material was removed from the harbour and estuary entrance.
- 2014: Following the February 2014 storms, the spit was overtopped and later re–profiled.
- Annually: The top of the beach is levelled to a height approximately 1m below the height of the seawall for placement of the beach huts on the beach.

South West Coastal Monitoring Programme

Beach levels are monitored on a bi–annual basis for the South–West Regional

Monitoring Programme. Post–storm profiles are also undertaken.

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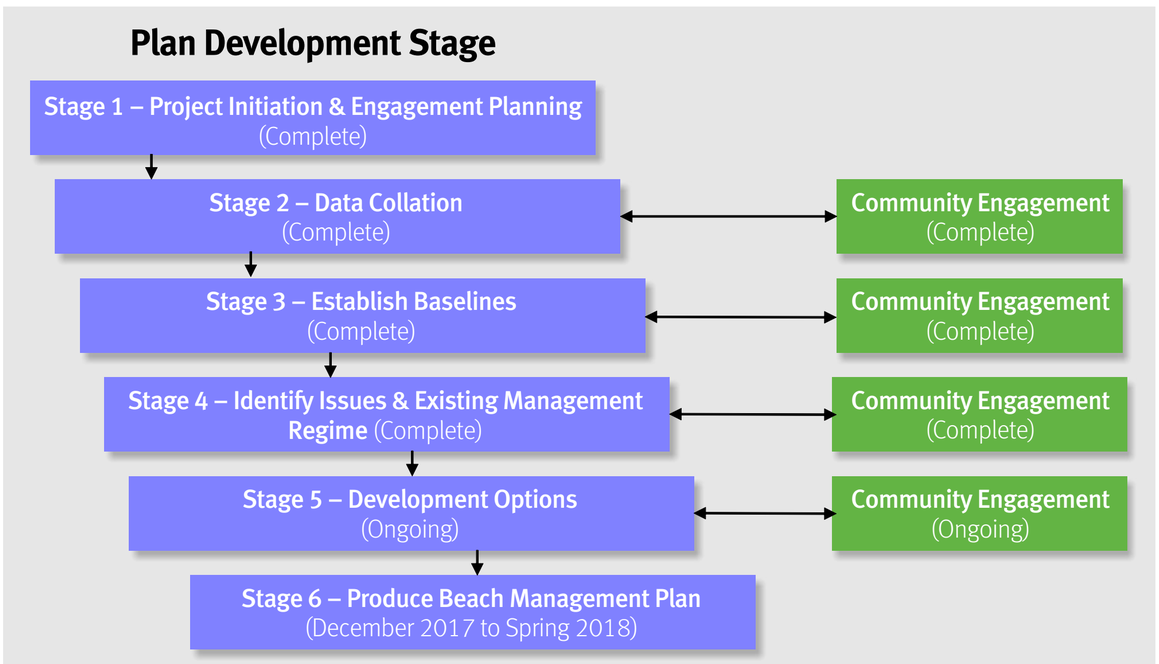
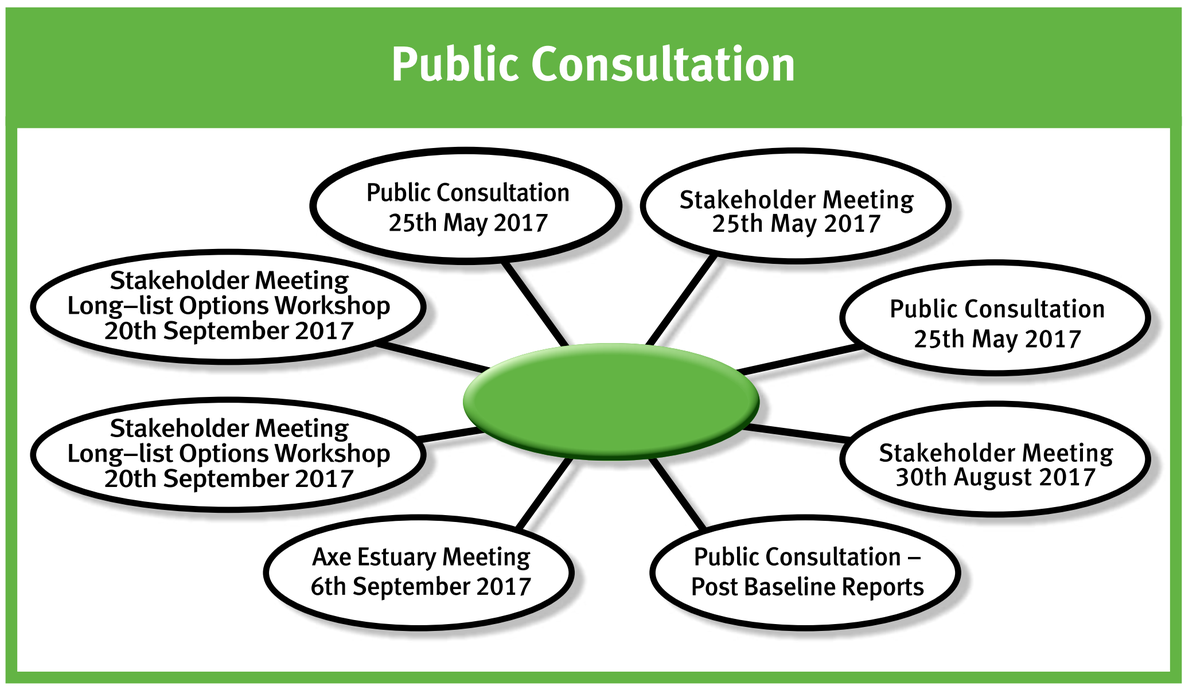
3

The Beach Management Plan Process

How the BMP is Being Developed

Development of the BMP involves a number of stages. These are shown in the flow diagram below along with dates when each stage has been or will be undertaken.





Options Appraisal Process

The purpose of the options appraisal process is to identify a preferred list of options for managing flood and coastal erosion risk within the BMP study area.

The options will:

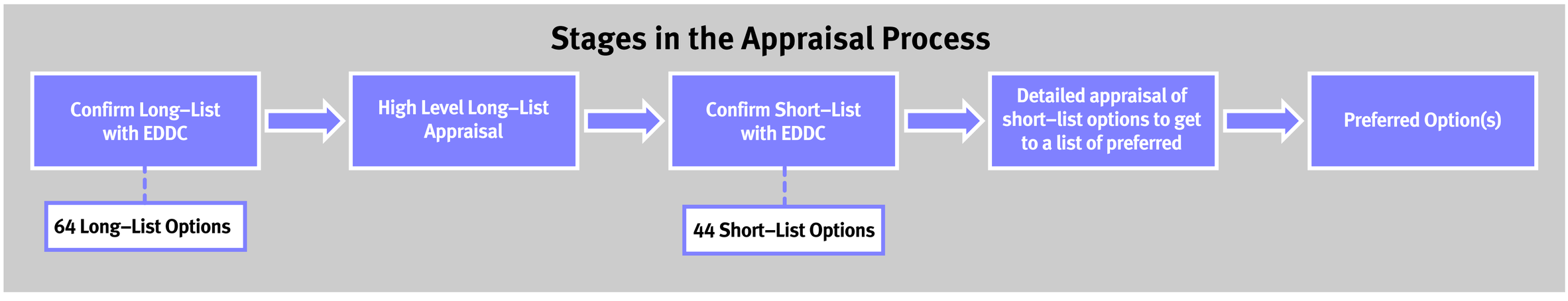
- Define the management regime for the coastline for the next 5 years
- Guide activities for the next 20–30 years
- All within the context of the longer–term 100 year SMP2 policy

In developing the options, it was important to:

- Take account of potential related opportunities and consider constraints.
- Work with coastal processes and nature and not against it.
- Have a realistic view of what is possible with the funding that can be achieved.
- Consider the views of key stakeholders and the local community.

Constraints to the Development of Options and What We Can Influence

Fixed Requirements (your views are welcome but we need to follow national guidance on assessment)
Cost-benefit of the option: We must undertake cost benefit analysis for each proposed option, which will influence the scale of the preferred option(s).
Standard Protection: Flooding from the sea affects properties not just locally but further inland along the Axe Estuary. We have a duty to reduce flood risk to these properties.
Funding: While there is a relatively high flood and erosion risk at Seaton, funding cannot be guaranteed as it will be assessed amongst national priorities.
Consents and planning: Any option may need planning permission, a marine licences and environmental consents Negotiable (the view of residents and professional partners will guide the option selection process)
Scale of defences: The cost benefit solution will give a preference for the scale of defences and when they are built, but we will listen to your views on the acceptability of solutions on access, visual impact etc.
Alignment of defences: There are technical constraints that influence the alignment of any defences, however we are willing to listen to alternatives.
Funding: While there is a relatively high flood and erosion risk at Seaton, funding cannot be guaranteed as it will be assessed amongst national priorities.



The Long–List was Formed From:

- Baseline reports (coastal processes, defences, economics and environmental)
- Outcomes of a workshop held with the Axe Yacht Club to identify options for the dredging and disposal of the harbour – 6th September 2017
- Feedback provided from a BMP public consultation events held on the 25th May 2017 and 30th August 2017
- Outcomes of a Stakeholder Workshop to identify long–list options held on the 20th September 2017
- Feedback provided directly to East Devon District Council (EDDC)
- Work being undertaken by Mott MacDonald for the Environment Agency to determine alternative options in the vicinity of the Axe Yacht Club to reduce flood risk

Then the Long–List and the Short–List was Appraised:

- Does the option address flood and coastal erosion risk?
- Technical appraisal considering option viability:
  - Impacts on coastal processes and shoreline interaction
  - Buildability (considering construction, maintenance and life-span of the relevant structure)
  - Costs of the options
  - Environmental impacts of option
- Can the option achieve sufficient funding?

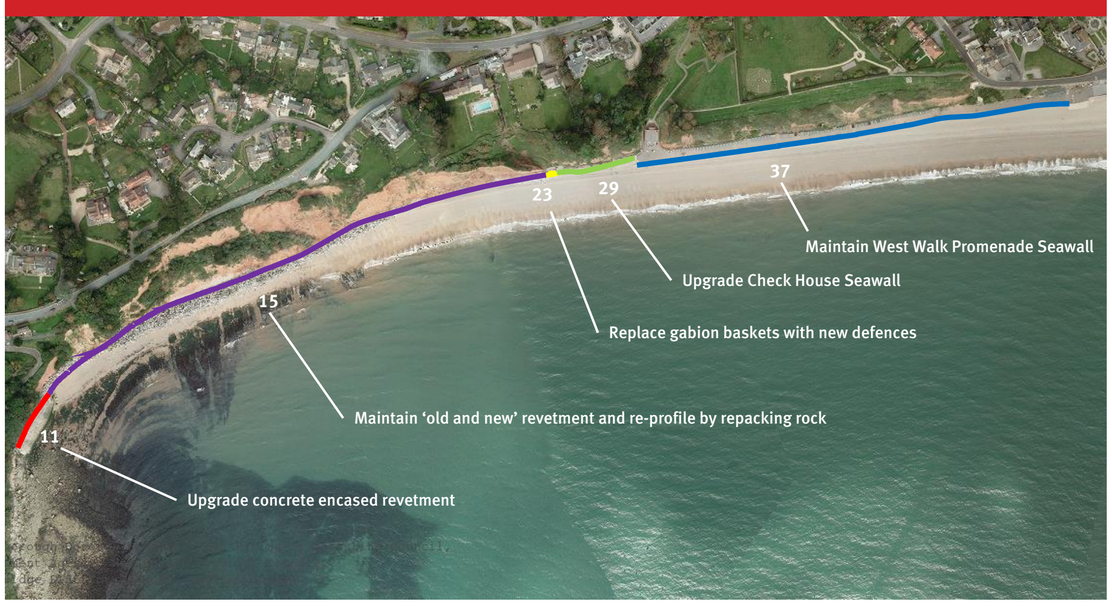
The Findings of the Beach Management Plan

Preferred Options – West Seaton

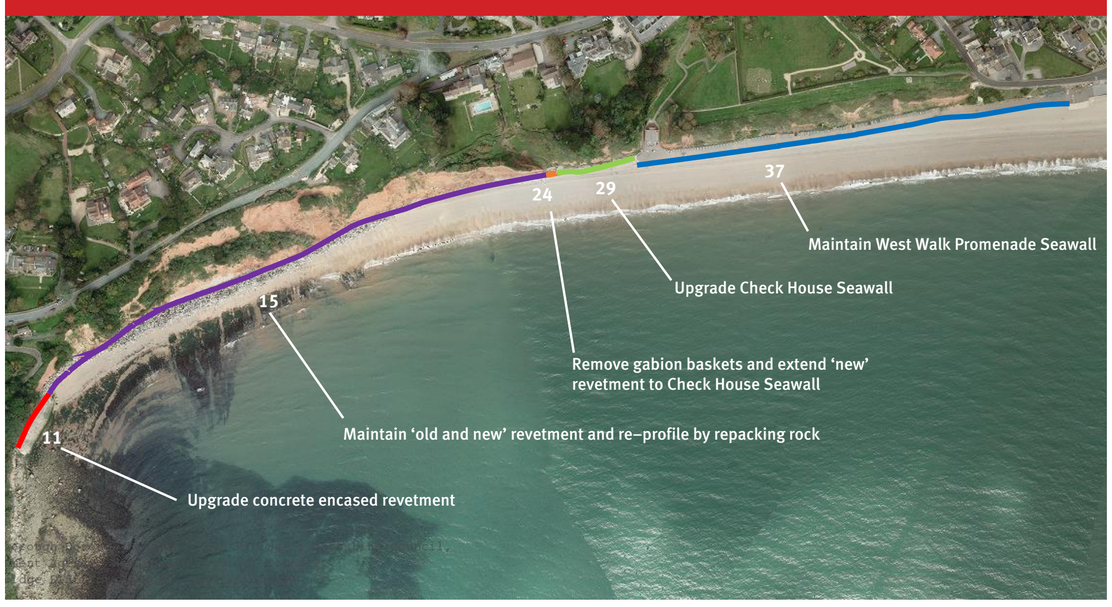
Location	Option Number	Option Description	In Combination 1	In Combination 2	In Combination 3	In Combination 4
Seaton Hole	11	Upgrade concrete encased revetment (tie into adjacent rock revetment) or replace with a new structure (i.e. improve/significantly extend the working life of the asset beyond its original design)	11	11	11	11
Seaton Hole/ Old Beer Road	15	Maintain 'old and new' revetment and re–profile by re–packing rock (i.e. improve/significantly extend the working life of the asset beyond its original design	15	15	15	15
The Pillar	23	Replace gabion baskets with new defences (e.g. a more substantial wall structure)	23	-	23	-
The Pillar	24	Extend 'new' revetment to Check House Seawall (replace former gabion baskets)	-	24	-	24
Check House Seawall	29	Upgrade Check House Seawall (e.g. add a thicker concrete layer) or replace with a new structure (i.e. improve/significantly extend the working life of the asset beyond its original design)	29	29	29	29
Seaton Spit (seaward face)/Seaton Seaton Hole/ Old Beer Road	33	Recycle material from east to west to increase beach volume (and make wider). An access route may need to be created to allow plant access through the seawall; this is only likely to be required if access cannot be achieved through the existing Fisherman's Gap. Note control structures may also be required, with associated implications on coastal processes, shoreline interactions and costs).	-	-	33	33
West Walk Promenade	37	Maintain the concrete/stone blockwork seawall.	37	37	37	37

	Seaton Hole	Seaton Hole/ Old Beer Road	The Pillar	The Pillar	Check House Sea Wall	Seaton Spit (seaward face) /Seaton/ Seaton Hole Old Beer Road	West Walk Promenade				
	11	15	23	24	29	33	37	Cost	Benefit Cost Ratio	Raw Partnership Funding score	Third party funding required
In Combination 1	£487,278	£338,550	£84,374	-	£86,381	-	-	£996,584	5.53	52%	**£483,104**
In Combination 2	£487,278	£338,550	-	£71,761	£86,381	-	-	£983,970	5.60	52%	**£470,490**
In Combination 3	£487,278	£338,550	£84,374	-	£86,381	£920,613	-	£1,917,196	2.87	27%	**£1,403,716**
In Combination 4	£487,278	£338,550	-	-	£86,381	£920,613	-	£1,904,583	2.89	27%	**£1,391,103**

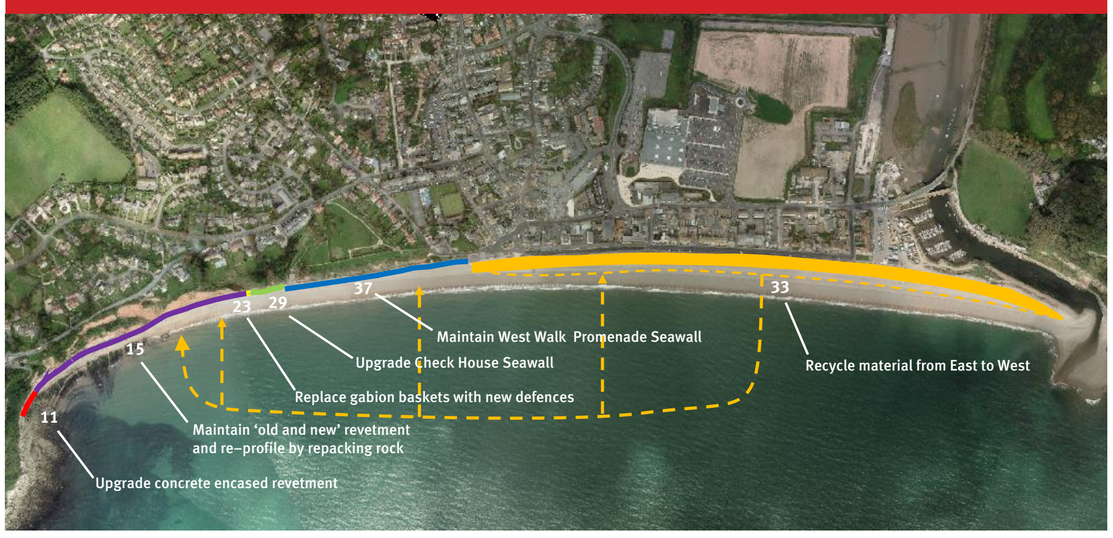
West Seaton – In Combination 1



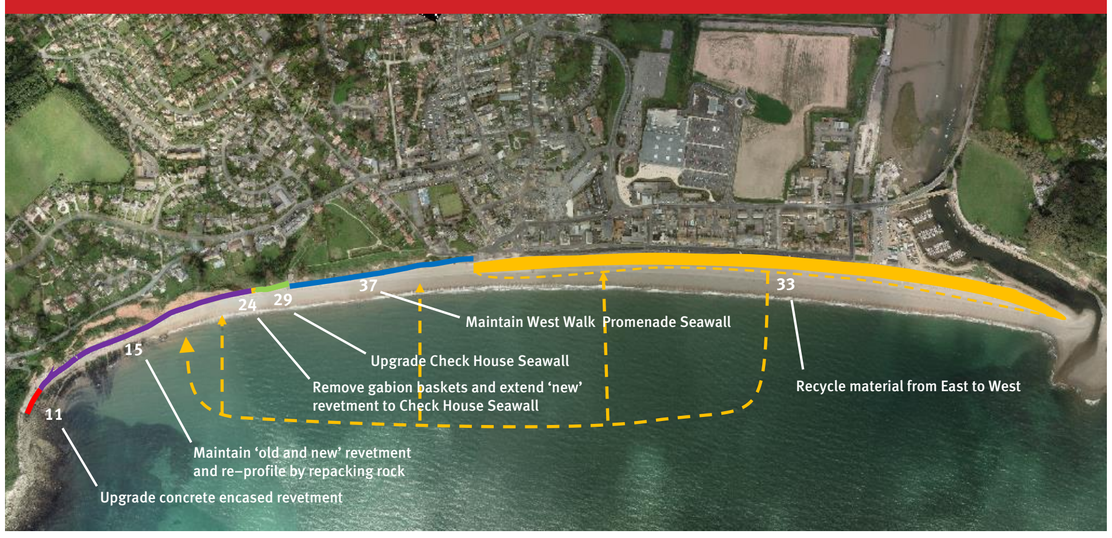
West Seaton – In Combination 2



West Seaton – In Combination 3



West Seaton – In Combination 4



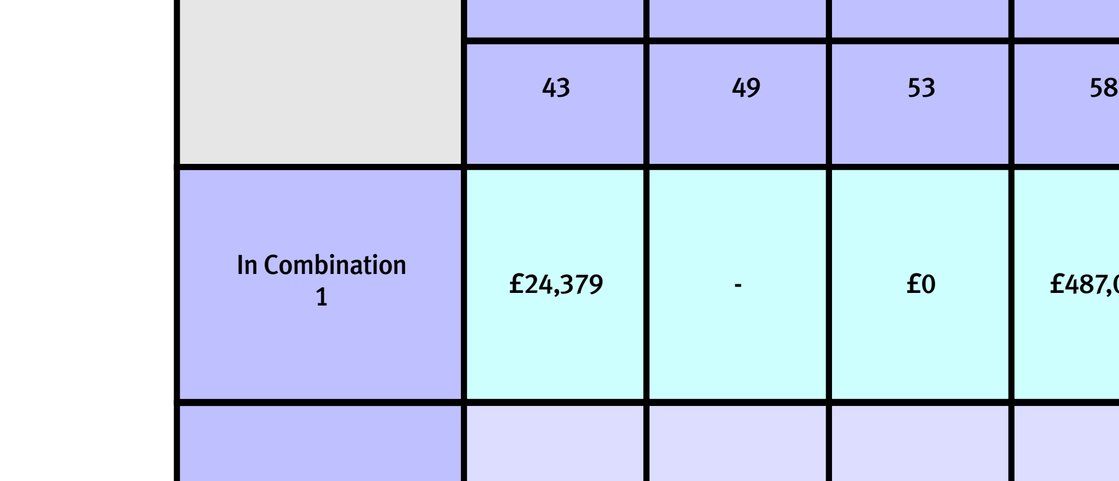
The Findings of the Beach Management Plan

Preferred Options – Seaton & West Bank Axe Estuary

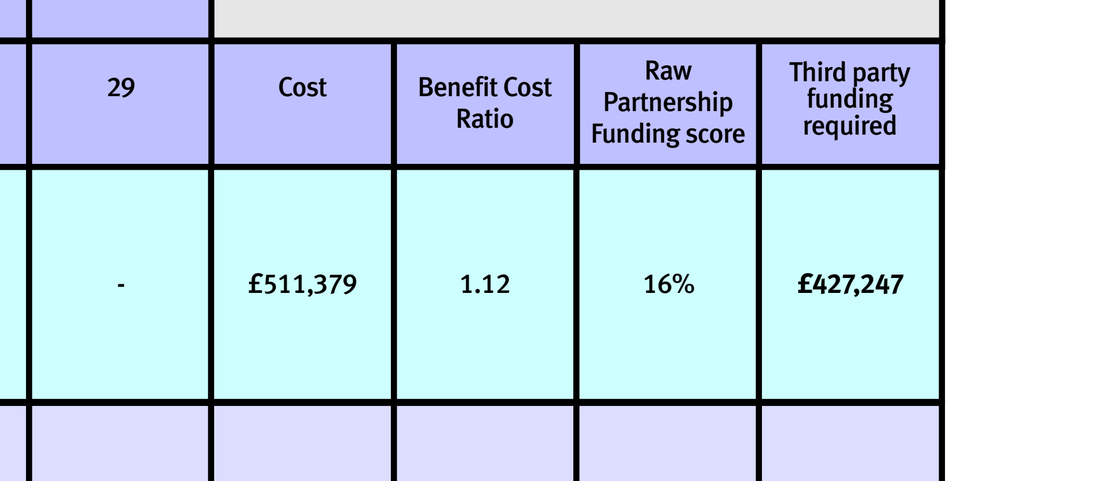
Location	Option Number	Option Description	In Combination 1	In Combination 2
Seaton	43	Improve drainage behind the seawall to encourage water that has overtopped the defences to flow back to sea.	43	43
Seaton Spit (seaward face) /Seaton	49	Recycle material from east to west to increase beach volume (and make wider). An access route may need to be created to allow plant access through the seawall; this is only likely to be required if access cannot be achieved through the existing Fisherman's Gap or via the Axe Yacht Club. Note control structures may also be required, with associated implications on coastal processes, shoreline interactions and costs).	-	49
Seaton Spit (seaward face)	53	Do nothing.	53	-
Axe Estuary (west side)	58	Flood Management of the Axe Estuary (Mott MacDonald Option).	58	**58**
Seaton	40	Maintain the existing concrete seawall.	40	**40**

	Seaton	Seaton Spit (seaward face) / Seaton	Seaton Spit (seaward face)	Axe Estuary (west side)	Seaton				
	43	49	53	58	29	Cost	Benefit Cost Ratio	Raw Partnership Funding score	Third party funding required
In Combination 1	£24,379	-	£0	£487,000	-	£511,379	1.12	16%	**£427,247**
In Combination 2	£24,379	£920,613	-	£487,000	£86,381	£1,431,992	0.40	6%	**£1,347,859**

Seaton & West Bank Axe Estuary – In Combination 1



Seaton & West Bank Axe Estuary – In Combination 2



The Findings of the Beach Management Plan

Preferred Option – East Bank Axe Estuary

Location	Option Number	Option Description	In Combination 1	Cost	Benefit Cost Ratio	Raw Partnership Funding score	Third party funding required
Axe Estuary (east side)	60	Maintain existing walls (stone wall 1, sheet pile wall, stone wall 2) (this includes related monitoring, surveys etc and measures to address ALW Corrosion, such as timing replacement of sheet piles) (i.e. improve/significantly extend the working life of the asset beyond its original design)	£763,990	£763,990	0.47	5%	£723,692

East Bank Axe Estuary – In Combination

Unlimited Funding Options

Should more funds be available in the future (e.g. lobbying or increased funding pots); the following options could be reconsidered

1. Cliff drainage and stabilisation
2. Extend the West Walk promenade
3. Beach control structures
4. Upgrade wall on east bank Axe Estuary

Recommendations for the BMP

1. Maintain or replace existing outfall protection works (to address issues of undermining and outflanking).
2. Maintain the concrete/stone blockwork seawall.
3. Maintain the existing concrete seawall.
4. Beer groyne study.
5. Lyme Bay Coastal Flood Forecasting sensitivity testing.
6. Control structure sensitivity test.
7. SMP Group Paper No–Active Intervention.

Next Steps

- Finalise preferred options (December 2017)
- Options Appraisal Report (December/January 2017)
- BMP document (January 2018)

For background information on the project, or to view this material again, visit:

www.eastdevon.gov.uk