Assessment of Options

The decision process

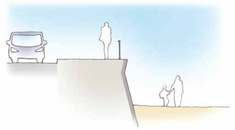
We presented a shortlist of five options for the refurbishment of coastal defences at Yaverland during our engagement activities in autumn 2023. Each option was assessed against a range of considerations including those shown in the table below. The leading options presented during the consultation process were options 3, 4 and 5.

	Flood and erosion protection	Health, safety and wellbeing	Sustainability, environmental and carbon impacts	Technical feasibility	Economic viability	Stakeholder aspirations	**Combined rank**
Option 3	1	1	1	1	1	3	1
Option 4	2	1	2	2	2	2	2
Option 5	2	1	3	2	2	1	2

We completed a multi-criteria analysis to consider how each option would meet the required considerations. The analysis resulted in a score for each consideration and enabled the options to be compared against each other. The scores were then used to calculate a combined rank. A rank of 1 is the best.

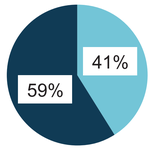
Economic viability and funding considerations

Option 3 - Keep the existing defence level

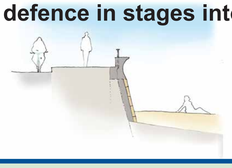


Benefit cost ratio **6.1**

Approximate scheme cost **£40.6 million**

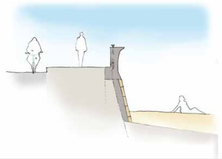


Option 4 - Raise the level of the defence in stages into the future



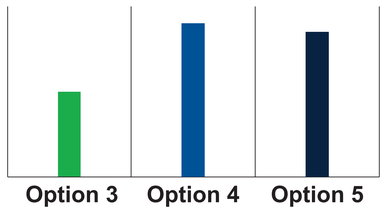
Benefit cost ratio **4.2**

Option 5 - Raise the defence level now



Benefit cost ratio **3.2**

Scheme cost comparison



Economic viability

For a coastal defence scheme to move forward to construction, it must be economically viable. This is determined by calculating the Benefit Cost Ratio (BCR), which compares the total costs of building and maintaining the scheme to the financial benefits it will provide. A BCR greater than 1 is required for a scheme to progress. The higher the ratio, the greater the economic justification for the scheme.

Funding

The amount of central government funding available for a coastal defence scheme is linked to the financial benefits that a scheme would bring. Standard procedures are used to calculate this element and the remaining contributions (funding shortfall) must be sought to progress the scheme to construction.

Selected option: Keep the existing defence level

We have selected Option 3 as the preferred approach. This option involves maintaining the current level of coastal defence while strengthening the existing coastal defence infrastructure. The scheme will provide enhanced protection against coastal erosion and defence failure for the next 50 years. Funding from the Environment Agency will support the detailed design phase of the project.

Why Option 3?

Option 3 was chosen because:

- It meets all project objectives.
- It has the highest Benefit Cost Ratio.
- The estimated benefits exceed £230 million, benefiting local residents, properties, and the environment.
- The construction cost is significantly lower than that of Options 4 and 5.
- While additional funding contributions are required to proceed with construction, the amount needed for Option 3 is considerably less than for Options 4 and 5. The Environment Agency and Isle of Wight Council are actively working together to secure the necessary funding.

Why not increase the height of the sea wall?

Public consultation highlighted interest in raising the height of the existing sea wall. However, increasing the height nearly doubles the project's cost, making Options 4 and 5 financially unfeasible. The primary risk to Yaverland and Sandown is the potential failure of existing defences due to their deteriorating condition. Option 3 effectively addresses this risk. Raising the sea wall height would not offer additional protection against erosion - it would only reduce flooding caused by waves overtopping the sea wall. Our computer models indicate that the damages from wave overtopping are minimal. During the detailed design phase, we will explore opportunities to incorporate design adjustments that may help reduce wave energy and minimise overtopping impacts.

ISLE OF WIGHT COASTAL DEFENCE SCHEMES

Environment Agency · Isle of Wight Council · VolkerStevin · JBA consulting

Scan the QR code to find out more about the assessment process.

Get in touch 03708 506 506 IOW_FDschemes@Environment-Agency.gov.uk

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