

File Note

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Subject SMP2 Context and Policy Direction for Barmouth North Promenade

1 Introduction

Ove Arup and Partners (Arup) have been appointed in September 2018 by YGC, part of Cyngor Gwynedd Council (CGC) to deliver an Outline Business Case (OBC) for coastal risk management for the Barmouth North Promenade frontage. Barmouth is located in Gwynedd on the west coast of Wales, north of the Afon Mawddach estuary. The North Promenade is the northmost section of the Barmouth developed frontage, extending from residential housing estate at Heol y Llan to the northern extent of the promenade wall.

This note sets out the SMP2 context and policy direction for Barmouth North Promenade, with reference to the development of the OBC and the associated options for Flood and Coastal Erosion Risk Management (FCERM). It is envisioned this document will support or form part of the main OBC document within the ‘Strategic Case’.

2 SMP2

The West of Wales Shoreline Management Plan 2 (SMP2) (2011) sets out the policy for coastal risk management across the region. Barmouth North Promenade is located within the SMP2 Management area 24 (MA24) and Policy Unit 15 (Barmouth North) of SMP Sub Cell 9 and Policy Development Zone (PDZ) 11.

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Figure 1. Location of policy extents for Barmouth North Promade (SMP2, 2012)

The current policy (epoch 1) for the urban frontage of Barmouth North Promenade is to continue to ‘hold the line’. The SMP2 identifies significant pressures on the shoreline defences to the north of Barmouth. With the additional implications of climate change and sea-level rise, it suggests the present alignment is likely to become increasingly difficult to sustain. As such, for the medium and long term (epochs 2 and 3 respectively) the SMP2 recommends a change in approach to ‘managed realignment’¹. To the south the SMP2 policy for the area of southern Barmouth, Barmouth harbour and the access road to Barmouth is to ‘Hold the Line’ across the defined epochs.

Table 1. Summary of specific policies (SMP2 PDZ11, 2012)

MA 24 BARMOUTH: From Porth Aberamfrra to Llanaber Point

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
11.14	Barmouth South	HTL	HTL	HTL	
11.15	Barmouth North	HTL	MR	MR	This may include relocation of properties
11.16	Llanaber	HTL	HTL	HTL	This needs to be considered in term of management to the above policy unit.
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

The rationale and context from the SMP2 is repeated below.

To the south the SMP2 policy for the area of southern Barmouth, Barmouth harbour and the access road to Barmouth is to Hold the Line. To the north the general policy at Llanaber Point would also

¹ SMP2 Definition of Managed Realignment (MR): by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences). The intention of a policy of MR is to either create or allow the conditions for the coast to realign and/ or retreat. (West of Wales SMP2, 2012)

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be to Hold the Line. However, to the north end of Barmouth the SMP1 policy of Hold the Line is going to become increasingly difficult to sustain.

Consideration should be given to widening the overall defence system in this area. This may require nearshore or shore connected structures to reduce wave energy but is also likely to require some future realignment of the defences, quite probably with the loss of property. This would require a more integrated approach to management, considering how the northern seafront could be developed to better advantage both in term of use and shoreline management. The SMP2 policy for the northern end of Barmouth would be to Hold the Line during epoch 1, but to change to one of Managed Realignment over epochs 2 and 3.

Whilst the Barmouth frontage through to Llanaber would be defined as three policy units, the policies need to be progressed as one overall area. The manner in which Llanaber Point is managed influences the way in which the north Barmouth frontage and the manner in which the apex between north Barmouth and south Barmouth is approached needs to be integrating management to both north and south. In all probability works will be needed to the north Barmouth frontage towards the end of Epoch 1. Planning for a more adaptive approach to management, therefore, needs to be undertaken during Epoch 1.

2.1 Policy implications and proposed approach

Hold the line generally comprises maintaining or improving defences and beach management activities to provide protection from coastal flood and erosion to important assets or features along the coastline. Activities may include local adjustments to the alignment of defences, replacement of existing structures or new defences constructed.

Managed Realignment can take a wide variety of forms, within the context of a defended frontage this can include:

- Setting back defences to a more sustainable location – e.g. moving a linear flood defence back from the active coastal zone, providing a more secure position while the shoreline re-adjusts.
- Breaching of existing defences to allow flooding up to higher ground
- Realignment of defences to reduce length maintained or to improve performance

Other approaches, at high-level, generally involve:

- One section of the coast is fixed so that adjacent areas may be managed more naturally without loss of value.
- Where no sensible fixed line to realign to, there is an intent to allow the coast to retreat in a fixed manner.

A Defra study (Halcrow et al., Managed Realignment Review, FD2008, 2002²) looked to identify the constraints and incentives related to the Managed Realignment of flood defences, both on rivers and on the coast. Conclusions of this study, indicated a number of significant challenges associated with policy, and that Managed Relignment projects ‘are always likely to be more complex and time consuming than “classical” defence schemes’.

² http://randd.defra.gov.uk/Document.aspx?Document=FD2008_537_TRP.pdf

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In general, in a populated area with existing hard defences, a walkaway ‘do-nothing’ scenario is likely present unacceptable hazards. Managed Realignment requires ‘decommissioning/relocation’ which carry significant risks/costs that need to be managed carefully over the long-term.

The SMP2 provides limited detail in terms of the suggested approach at Barmouth North Promenade, i.e. proposals should ‘consider widening the overall defence system’ and may ‘require a nearshore or shore connected structures to reduce wave energy but is also likely to require some future realignment of the defence’. It also notes proposals should consider how the northern extents of frontage can be better developed in recognition of both usage and shoreline management. Significantly, the SMP2 acknowledges that of Managed Realignment is likely to incur the loss of properties at North Promenade to allow width for a sustainable flood and coast risk management.

The OBC will explore opportunities for the implementation of the SMP2 policies, as part of the option appraisal process. Considerations of short to medium term adaptive options to the frontage will also be proposed. Any solutions proposed will look to recognise the long-term aspirations of the SMP2.

2.2 Timescales and uncertainties

The DEFRA SMP Guidance (Volume 2: Procedures) (2006) outlines the timescales for the SMP2 analysis and associated policies as:

‘The analysis needs to provide an understanding of coastal evolution within 3 epochs of approximately 0-20 years, 20-50 years and 50-100 years, in response to each baseline scenario. It is recommended that for consistency between SMPs [i.e. SMP1 and SMP2], the output for both baseline scenarios be provided for years 2025, 2055, 2105’

The SMP2 adheres to this guidance, presenting policies for 2025, 2055 and 2105, with the economic assessments for both erosion and flooding damages occurring over the three epochs described. There is a slight discrepancy from these timescales in the SMP2 (Policy Development Coastal Area D: Section 5) which assesses the potential of tidal flood risk in terms of 2010, 2060 and 2110.

However, the SMP2 notes there are ‘uncertainties in terms of the timings of the proposed changes’ for the policy area for Barmouth (M.A. 24 – PDZ11). This is further recognised generally within the SMP2, which identifies ‘in terms of policy change over time, the epochs are necessarily indicative’ and dependant on the rate of sea-level rise. Again, supported by the DEFRA (2006) SMP guidance which states ‘The timing of any change is shoreline management policy, in most cases, cannot be defined precisely’.

Table 2. Preferred Policies (SMP2 PDZ11, 2012)

PREFERRED POLICY TO IMPLEMENT PLAN:	
From present day	Maintain existing defences.
Medium term	Develop strategy to look at opportunities for MR at north Barmouth.
Long term	Maintain defences.

As such, the defined epochs within Table 1 are considered to be less prescribed than indicated, with the policy change seen as a continuous process (as opposed to one step change in approach).

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The SMP2 suggests a strategy to look at opportunities for Managed Realignment should be developed within the medium term (epoch 2), with the policy change occurring over medium to long-term (epochs 2 and 3). It further recognises that there is significant benefit in continuing to manage the frontage (albeit alternative funding sources may be required through integrated planning) and *'in all probability works will be needed to the north Barmouth frontage towards the end of Epoch 1'*.

The appraisal will be based on evidence from modelling of the base year (i.e. 2019), 50-year (i.e. 2069) and 100-year (i.e. 2119) periods. Analysis of results will be used to define the extent of future risks over the medium to long-term.

2.3 Policy Extents

The SMP2 expresses (as outlined) that whilst the frontage at Barmouth is split over three areas, the policies should be considered and *'progressed as one overall area'* – due to the coastal process influences between the areas. The *'manner in which the apex between north Barmouth and south Barmouth is approached needs to be integrating management to both north and south'*.

The flood cell (associated with the inundation modelling, as indicated in the figure below) extends north/south of the indicative study area. Overtopping of the frontage to the north and south of the North Promenade could have a significant impact on flood risk (and associated benefits) associated with the North Promenade. Following issue of the Inundation Modelling Conceptual Note (Arup, 2018) we await YGC's decision on extending the consideration of flood cell overtopping north and south of the study area.

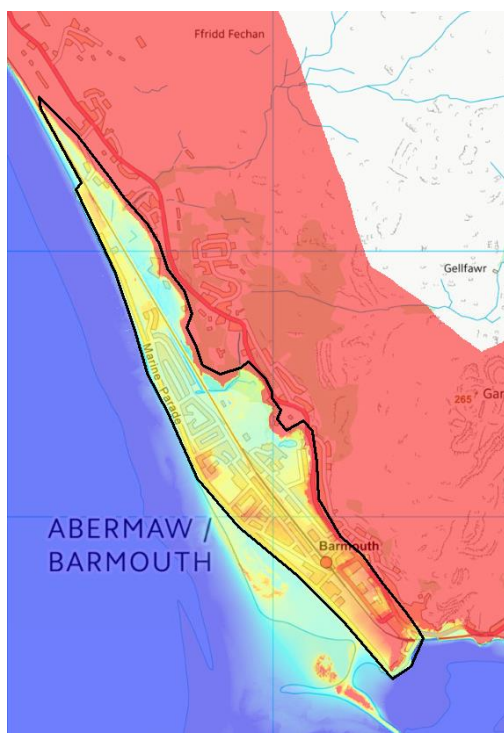


Figure 2. Proposed extent of inundation model and LiDAR ground elevations (i.e. flood cell) (dark blue is 0m AOD and red is above 8m AOD).

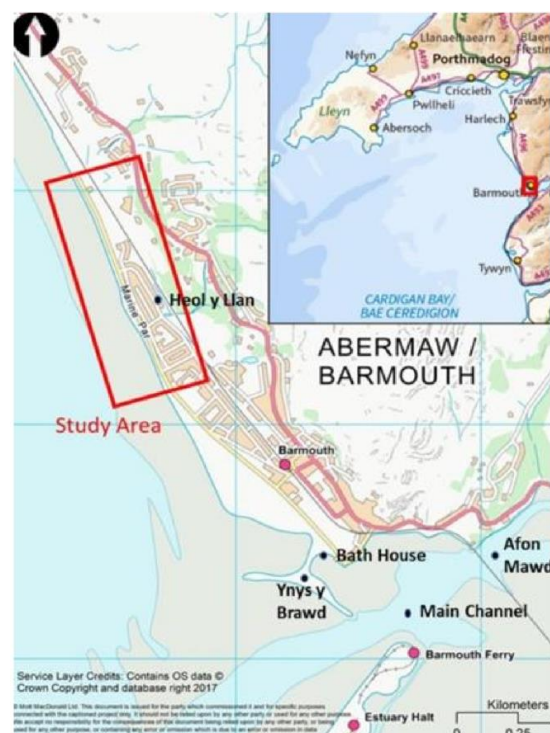


Figure 3. Present study area extents [reproduced from Figure 1-1 in Barmouth North Promenade PAR Review, Mott MacDonald, February 2018]

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Our current scope considers coastal risk management for Policy Unit 11.15. Instruction by YGC is needed as to the degree to which consideration of policy development of adjacent Policy Unit 11.14 and 11.16 should be given, recognising the SMP2 rationale.

DOCUMENT CHECKING (not mandatory for File Note)

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