

Technical Note

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Revision History

Revision	Author	Date	Description
P02	GI	2026/09/17	Updated following YGC comments
P01	PS	2026/09/11	For submission to YGC

1 Introduction

- 1.1.1 YGC and Arup submitted a planning application on 5 June 2026 for Barmouth North Promenade Flood Alleviation Scheme. NRW responded to the planning application in a letter dated 21 July 2026, reference CAS-311193-Z1V6 (“the NRW Response”). This note responds to the comments raised and summarises the changes made to documentation to address comments, where those comments require changes to be made to the submission.
- 1.1.2 The following documents have been updated to address comments raised and are submitted alongside this note:
- Environmental Statement Chapter 2 – Project Description;
 - Environmental Statement Chapter 6 – Biodiversity and Protected Sites;
 - Habitats Regulation Assessment Screening and Appropriate Assessment; and
 - Water Framework Directive Assessment
- 1.1.3 This technical note is set out in relation to each document that has been updated for ease of review, following the points raised in the letter.

2 Marine Physical Processes

2.1 Numerical modelling

- 2.1.1 The NRW Response states *“We consider that the impact of the scheme (particularly the groyne removal) on the sand portion of the beach has not been fully assessed. Therefore, we advise numerical modelling to demonstrate that groyne removal will not lead to adverse changes to beach morphology or sediment transport should be undertaken”*.
- 2.1.2 It is noted that coastal processes were discussed in pre-application meetings between NRW, YGC and Arup on 10/7/2025, where it was agreed that numerical modelling would not be required. Similarly, NRW’s response to the Pre-Application Consultation (PAC) did not raise the need for quantitative analysis.
- 2.1.3 The NRW Response gives concerns over indications that there is some longshore transport both to the North and South and that some groynes at the southern end of the beach are buried. However, as stated in the Environmental Statement 12.9.46, coastal processes reporting gives strong evidence of very limited transport of coarse sediment. The baseline sediment transport model also suggests that longshore transport changes would be changed by offshore changes in bathymetry and wave directional trends, as opposed to implementation of the scheme.
- 2.1.4 It is also stated (Environmental Statement 12.9.54) that validation of longshore drift rates through field measurements was considered. However, the desktop assessment indicated relatively low longshore drift rates and, therefore, given the type of solution envisaged (rock revetment aligned with the shoreline which does not interrupt longshore drift) it was not considered necessary or proportionate to

undertake measurements to validate these rates. Furthermore, the practical difficulties associated with obtaining field data, including the installation of an ADCP and the collection of metocean data over a suitable monitoring period, together with the anticipated low drift rates, meant that the added value of such measurements to the assessment was not deemed sufficient to justify them being carried out, or that the results would make a material difference to the proposed solution.

- 2.1.5 As stated in Environmental Statement 12.9.4, groynes have been assessed as generally in poor condition and have very limited functionality with the exception of one refurbished groyne which seems to be retaining the coarser material in the upper part of the beach. Groynes to the south of the scheme that have been buried are evidence of cross-shore transport or increased deposition including from processes that have formed the dunes to the South of the scheme.
- 2.1.6 The implementation of further numerical sediment transport modelling to quantify the effects of removing the existing groynes was not considered necessary or proportionate. This conclusion was based primarily on the established conceptual understanding of the frontage, the observed condition and limited effectiveness of the groynes, and the limited influence that their removal is expected to have on the dominant coastal processes. The likely effect of groyne removal can be assessed proportionately from the condition and geometry of the structures, historical beach behaviour, site observations, the understanding of the coastal processes at the site with cross-shore sediment transport as a predominant transport direction and the existing shoreline modelling evidence which shows low longshore transport rates. These collectively indicate that the groynes currently exert limited control over the frontage and that their removal is expected to cause only local sediment redistribution or increased mobility of a limited quantity of upper-beach material, rather than a material change to wider longshore sediment pathways. Therefore, given the limited magnitude of the anticipated change, further data collection and numerical modelling to assess the effects of the groynes removal would be unlikely to alter the assessment or inform a different design.

2.2 Far field blockage

- 2.2.1 The NRW Response states: *“Far field blockage should also be considered (following GN19 this would be 10 times the maximum structure dimensions if no more detailed information was available).”*
- 2.2.2 The proposed coastal protection measure, a revetment aligned parallel to the coastline and situated within the upper beach area, does not constitute a barrier to longshore sediment transport. Consequently, it does not correspond to the far-field blockage mechanism referred to in GN19, which is typically linked to shore-perpendicular structures that interrupt and block the natural movement of sediment along the coast.

2.3 Zone of influence

- 2.3.1 The NRW Response states: *“As well as the zone of influence of the new structure, the zone of influence related to the removal of the groynes should also be considered”*
- 2.3.2 It is not considered appropriate to define a separate zone of influence associated with groyne removal. The existing groynes are in poor condition, partially buried

and provide limited control on contemporary sediment transport processes. The available evidence indicates that longshore sediment transport along this frontage is limited, with no strong indication that the groynes are currently exerting a significant influence on beach morphology. As a consequence, their removal is not expected to result in a measurable change in sediment transport pathways or beach levels beyond the range of natural variability already observed along the frontage. Furthermore, the concept of a fixed zone of influence is more readily applicable to the introduction of a new structure that modifies hydrodynamic conditions. In contrast, the removal of deteriorated and largely ineffective structures does not create a new physical constraint on coastal processes and is therefore unlikely to generate a distinct or quantifiable zone of influence..

- 2.3.3 The NRW Response also states: *“It is also recommended that the zone of influence of the storage of construction materials (Rock armour/revetment) below Mean High Water Springs (MHWS) is considered.”*
- 2.3.4 Given the temporary duration, limited spatial extent and negligible magnitude of any potential effects, assessment of a separate zone of influence for the temporary storage of construction materials would not provide any meaningful additional information or alter the conclusions of the coastal processes assessment. Therefore, this is not recommended.

3 Ecology

3.1 Timing of rock armour deliveries

- 3.1.1 The NRW Response recommended *“that rock armour delivery by sea is avoided during the key over-wintering period for red-throated diver (1st November to 31st March)”*. This will be implemented and the Marine Vessel Management Plan will reflect this.

3.2 Habitats Regulation Assessment Screening and Appropriate Assessment (HRA Assessment)

- 3.2.1 As recommended, Table 4-2 of the HRA Assessment has been amended to reflect the Conservation Objectives for the red-throated diver qualifying feature of the SPA. As noted in the NRW response letter, this does not materially alter the assessment.
- 3.2.2 As recommended, the distance from the site to the estuaries feature has been amended in the same table.
- 3.2.3 Table 6-1 of the HRA Assessment has been updated to reflect the avoidance of the over-wintering period for red-throated diver by marine deliveries.

3.3 Habitats Monitoring and Management Plan

- 3.3.1 NRW note that they *“are in general support of the habitat remediation measures for Sabellaria reef and blue mussel bed habitats as part of the proposed scheme”* and recommended that the Habitats Monitoring and Management Plan is submitted for review.
- 3.3.2 Given the likely timescales in preparing this Plan, including additional survey

work which is subject to survey windows, we propose that this element becomes a planning condition and is approved prior to construction start.

3.4 Environmental Statement

- 3.4.1 Chapter 6 of the Environmental Statement has been updated to reflect the avoidance of delivery by sea over winter, as per 3.1.1.
- 3.4.2 Chapters of the Environmental Statement 6 and 2 have been updated to confirm that rock armour will not be tipped onto the seabed.

4 Water Framework Directive

- 4.1.1 As requested in the NRW response letter, the Mawddach Estuary has been screened in and the assessment updated, concluding that there will be no meaningful impacts on the hydromorphology of the waterbody, or status at the water body scale. This includes no adverse impacts predicted on the excellent bathing water quality rating of Barmouth beach.

5 Construction Environmental Management Plan (CEMP)

- 5.1.1 The NRW Response states that the CEMP “*does not specifically address any of the risk or mitigation measures involved in removal of the groynes that impact water quality*”. Section 2.12.24 of the Environmental Statement already notes that the timber groynes will be removed using hand cutting tools and machinery, and it has been added that this will be carried out at low tide.
- 5.1.2 It is suggested that the CEMP is updated following completion of the Habitats Monitoring and Management Plan.