

Cyngor Gwynedd

Barmouth North Promenade FAS

Marine Licence Method Statement

Reference: BMTH-ARP-EAC-ZZ-RP-O-000001

P01 | 2026/06/09



images copyright: Mike Alexander



Llywodraeth Cymru
Welsh Government



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Contents

2. Project Description	1
2.1 Introduction	1
2.2 Site Location	1
2.3 Proposed Coastal Defence Works	2
2.4 Construction Programme	12
2.5 Construction Phase	13

Tables

Table 2-1 Construction programme for key assets.	12
--	----

Graphics

Graphic 2-1 Site Plan showing existing arrangement.	1
Graphic 2-2 Suggested location of Vessel A anchoring site and Vessel B route to site.	14
Graphic 2-3 Site compound location.	18
Graphic 2-4 Planned vehicle route to site.	19

2. Project Description

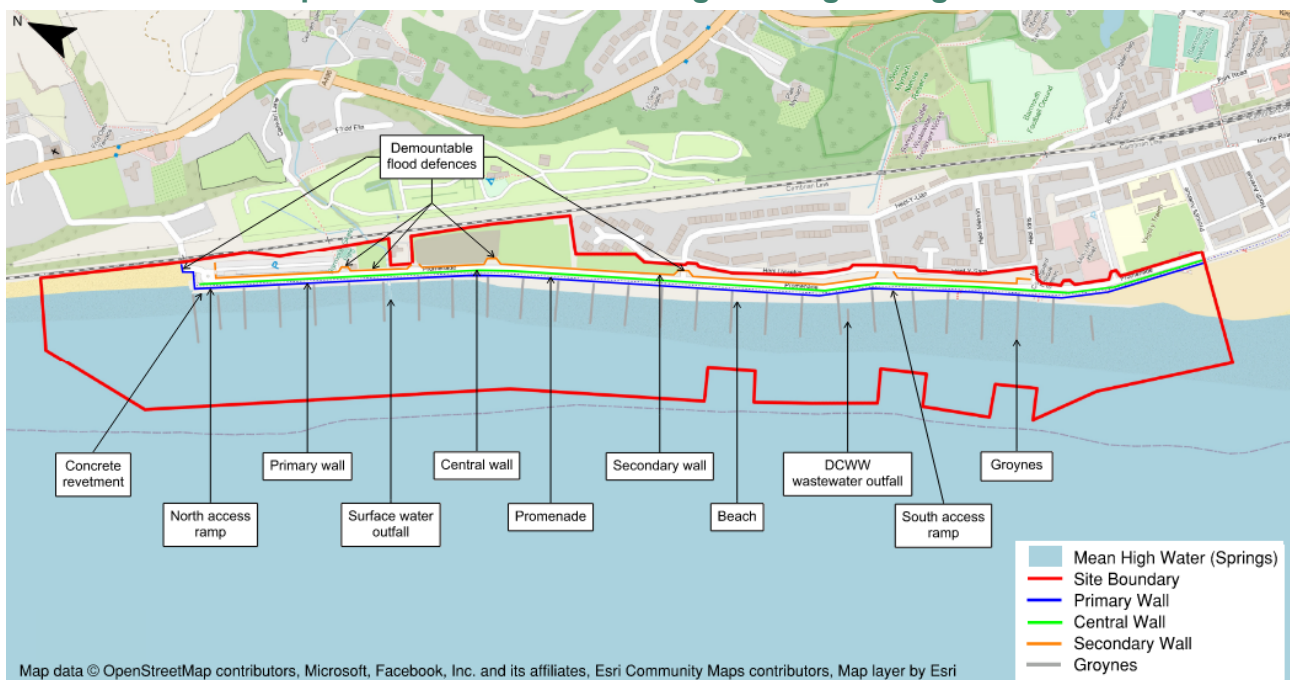
2.1 Introduction

- 2.1.1 This document outlines the proposed construction methodology for the works at Barmouth North Promenade. It has been prepared using advice provided by Alun Griffiths Contractors Ltd for the purposes of informing the Environmental Impact Assessment (EIA). The majority of the information is also in the Environmental Statement Volume 2.
- 2.1.2 The Proposed Development at Barmouth North Promenade comprises new and improved sea defences, placemaking and surface water drainage improvements. The Proposed Development will provide a standard of protection (SoP) of 1 in 50-year annual chance (2% annual exceedance probability). For each element of the design, the proposed construction methods and materials are provided with an overview of the duration of construction and considerations for programming.

2.2 Site Location

- 2.2.1 The Proposed Development is located within Barmouth North Promenade. A site plan presenting the existing arrangements and assets is shown below in Graphic 2-1.

Graphic 2-1 Site Plan showing existing arrangement.



2.3 Proposed Coastal Defence Works

- 2.3.1 An overview of the Proposed Development is presented in ES Volume 4, Figure 2.1- Outline Design Layout Site Plan.
- 2.3.2 Design General Arrangements and Cross Sections for the Proposed Development have been submitted with the planning application as below:

- BMTH-ARP-HGN-PROM-DR-Z-000003 - OUTLINE DESIGN LAYOUTS GENERAL ARRANGEMENT - SHEET 1 OF 5
- BMTH-ARP-HGN-PROM-DR-Z-000004 - OUTLINE DESIGN LAYOUTS GENERAL ARRANGEMENT - SHEET 2 OF 5
- BMTH-ARP-HGN-PROM-DR-Z-000005 - OUTLINE DESIGN LAYOUTS GENERAL ARRANGEMENT - SHEET 3 OF 5
- BMTH-ARP-HGN-PROM-DR-Z-000006 - OUTLINE DESIGN LAYOUTS GENERAL ARRANGEMENT - SHEET 4 OF 5
- BMTH-ARP-HGN-PROM-DR-Z-000007 - OUTLINE DESIGN LAYOUTS GENERAL ARRANGEMENT - SHEET 5 OF 5
- BMTH-ARP-HGN-ZZ-DR-Z-000001 - TYPICAL CROSS SECTIONS - SHEET 1 OF 5
- BMTH-ARP-HGN-ZZ-DR-Z-000002 - TYPICAL CROSS SECTIONS - SHEET 2 OF 5
- BMTH-ARP-HGN-ZZ-DR-Z-000003 - TYPICAL CROSS SECTIONS - SHEET 3 OF 5
- BMTH-ARP-HGN-ZZ-DR-Z-000004 - TYPICAL CROSS SECTIONS - SHEET 4 OF 5
- BMTH-ARP-HGN-ZZ-DR-Z-000005 - TYPICAL CROSS SECTIONS - SHEET 5 OF 5

2.4 Construction Programme

- 2.4.1 Works are scheduled to commence in April 2027 and due to be completed in spring 2029, taking approximately 24 months. The estimated timescale for each asset's construction is detailed in Table 2-1.

Table 2-1 Construction programme for key assets.

Asset	Programme
Beach and rock revetment	12 months
Primary wall, central balustrade and secondary wall	12 months
Public realm works (hard and soft landscape)	12 months

- 2.4.2 Barmouth is a popular holiday destination; to minimise negative impacts of the Proposed Development on the community and tourism, the construction programme will be dependent on the tourism season. Programming of activities will take into account impact on local businesses and tourism, aiming to reduce disruption during the summer holiday season. Construction durations, estimated in Table 2-1, are weather dependent. Due to the tidal nature of the site and frequent overtopping experienced it is likely that construction will be disrupted during named storms in the Barmouth locality.

Working hours

- 2.4.3 Regular working hours are scheduled to be between 07:00 and 19:00, although much of the construction work subject to beach access will require variations around tidal patterns. There will be no work over Christmas, New Year, Easter and Bank Holidays. The outline construction methodology estimates that 50 full-

time staff will be on site for the duration of the construction: 15 office staff and 35 construction workers. No nighttime working will take place however in the winter months, work will likely start and finish in the dark due to shorter daylight hours.

- 2.4.4 Works will not be carried out during the school summer holidays to reduce impacts on the community and tourism. This has been the case with other construction projects in Barmouth.

2.5 Construction Phase

- 2.5.1 The construction approach to each asset of the Proposed Development is described within this section.

Rock Revetment

- 2.5.2 Stockpiles will be used to store excavated material and imported rock, their location is dependent on the delivery method. There are two options for delivery – Option 1 by road and Option 2 by sea - detailed below, including different stockpile locations to be utilised for each option.
- 2.5.3 For both options, temporary stockpiles located on the beach below MHWS will be used to store rocks for the rock revetment prior to placement. All sand/shingle excavated from the beach will be stored on the beach above MHWS to be later reinstated along the beach and used for beach recharge.
- 2.5.4 The rock revetment will be constructed with one working front, starting in the north and moving south.
- 2.5.5 To construct the rock revetment existing shingle and sand in the footprint of the proposed rock revetment (estimated 9,500m³) will be excavated using a 35t-40t excavator. Shingle and sand will be moved to an on-site stockpile location using a dump truck. Any non-indigenous material or non-natural debris will be removed and disposed of at a nearby tip. A geotextile separation membrane will be placed on the excavated surface. Rocks will be individually placed from the temporary stockpiles on the beach with a 50t excavator with a grab. This work will be undertaken at low tides.

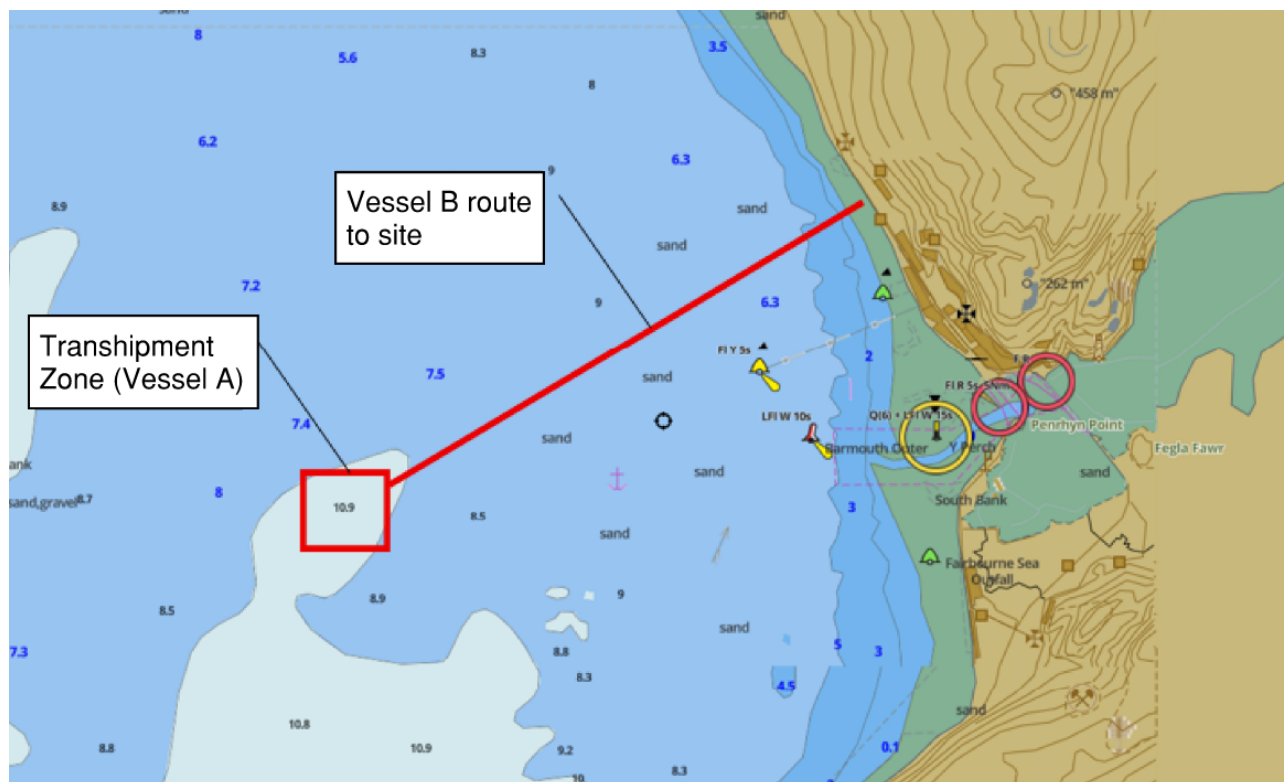
Option 1 - Delivery by Road

- 2.5.6 For option 1, the main stockpile area will be located within the site compound area (see paragraph 2.5.31) to store 7000t-10,000t of rock for the rock revetment. Rock will be moved from the main stockpile to temporary stockpiles below MHWS prior to placement using dump trucks and a 50t excavator with a grab.
- 2.5.7 For option 1, delivery by road, the rock would be supplied by a Welsh quarry. The approximate volume of rock required for the Proposed Development is 63,000t, which if delivered by road would equate to around 20 round trips per day over a period of 10 months using heavy goods vehicles (HGVs).
- 2.5.8 Graphic 2-4 indicates the site compound area and construction access routes. Temporary stockpile areas will be adjacent to the beach access ramps (below MHWS). All other material will be stored above MHWS in the site compound area.

Option 2 - Delivery by Sea

- 2.5.9 For option 2, delivery by sea, the rock will be tipped onto the shore below MHWS level as a temporary stockpile, rock will be placed directly from here to the rock revetment footprint.
- 2.5.10 The rock is likely to be sourced from a European quarry. The rock supplied will be transported to the quayside where approximately 25,000t of rock will be loaded onto a Self-Discharging Excavator Vessel (SDEV) (Vessel A). Vessel A will set sail to the site where it will anchor approximately 6km offshore of Barmouth for around 1 to 2 weeks before setting sail for another load.
- 2.5.11 A shallow draught tipper boat or smaller barge (Vessel B) of capacity 1,000-3,000t will travel with Vessel A and the rock armour will be transferred individually from Vessel A onto Vessel B using an on-board excavator equipped with a hydraulically operated grab. Vessel B will transport the rock to the site of the proposed rock revetment at high tide and tip the rock onto the seabed. At low tide this will be sorted into sizes and placed in the rock revetment footprint using the excavator and grab. See Graphic 2-2 for suggested anchoring site and route of Vessel B between Vessel A and the site of the Proposed Development.

Graphic 2-2 Suggested location of Vessel A anchoring site and Vessel B route to site.



- 2.5.12 Vessel B will shuttle to and from the main ship transferring rock to the breakwater site. It is estimated that 10-20 journeys to and from the main ship will be required per load. Once Vessel A has been unloaded, it will return to collect more rock from the quarry. A total of up to 4 return trips for Vessel A are estimated to be required to transport the rock.
- 2.5.13 Navigational safety and lighting will be required for some of the works below high water. The proposed works to the rock revetment will be limited to daylight hours 'in the dry' i.e. during low tides only. This will prevent interference with harbour navigation access. Vessels will be lit and marked appropriately

conforming to relevant navigational code, including the Maritime and Coastguard Agency (MCA) requirements. The harbourmaster will be notified of the dates of works, in advance. There would be one or two tugs on site for barge handling and control of Vessel B. Upon delivery, Vessel B will approach the shoreline shortly before the following high tide. Some vessels will be running their engines when offloading is taking place. Marine Gas Oil (MGO) will be used as fuel. At no time will there be any beaching of boats on the beach.

- 2.5.14 In the unlikely event of an emergency the Harbourmaster will be contacted so that a Notice to Mariners can be raised and / or lighting or buoying installed if required to limit further damage, nuisance or incidents occurring. In the unlikely event that plant becomes trapped and has to be abandoned, the harbourmaster will be alerted, so that a notice to mariners can be raised. Depending on location and if deemed necessary, requirements to mark or light the obstacle until it is removed can be agreed with the harbourmaster. Conditions of contract will be placed to ensure that the contractor is responsible for the removal of any obstructions to navigation caused by abandoned plant.

Beach Access Steps

- 2.5.15 Sheet piles will be placed either side of the area where the steps will be constructed reaching a height above MHWS, this will be carried out using a 70t piling rig. Shingle/sand will be excavated using a 35t-40t excavator and moved to a stockpile area on the beach above MHWS with dump trucks. Rubble will be placed between the two sheet pile walls and steel framework constructed to support the steps. Precast concrete slabs and steps will be placed on top of the steel frame to form the steps and landings using a 70t crane with a maximum lifting height of 55m. The sheet piling will be cut down to follow the line of the concrete steps and a concrete capping beam cast in situ. A 30m concrete pump will be used to pour concrete from a concrete mixer truck parked on Marine Parade.

Beach Access Ramp

- 2.5.16 The construction methodology of the ramp is similar to the access steps. The existing ramp will remain in place and the proposed ramp constructed on top and around the existing concrete structure. Sheet piles will be placed on either side of the proposed ramp footprint with bedding rock and loose rock infill between the sheet piles. A geotextile layer with concrete blinding layer will be poured over the fill material to create a smooth surface at the correct gradient. A precast concrete base slab is to be placed on top of this and form a connection with the sheet piles. Bulk concrete pour anchored into the existing ramp will raise the level of the top section of the existing ramp to join the new ramp. The top level of concrete parapets is to remain above the top of the rock revetment and a balustrade railing on top. The concrete parapet is designed to prevent the public from walking along the top of the wall. Rock revetment will be placed around the ramp and over the existing ramps, partially embedded in mass concrete to reduce risk of units shifting.

Concrete Revetment - Sheet piling

- 2.5.17 New sheet piling will be installed using 70t piling rig and a crane with a maximum lifting height of 55m.

Primary wall

- 2.5.18 Localised concrete repairs and filling of joints will be carried out using hand tools where required – isolated sections of the promenade would need to be cordoned off while this is carried out.

Central Balustrade

- 2.5.19 The central balustrade will be constructed by demolishing the existing masonry wall, excavating the promenade surface and reconstructing the kerb and balustrade. Two gangs will begin in the south separated by a small gap and move north to increase efficiency. The balustrade will be built in sections of up to 5m to reduce disruption and traffic management required. Street furniture such as signage and benches will be removed and stored to be replaced following construction. Traffic management measures will be required as work will take place on and adjacent to the west lane of Marine Parade (see section 2.5.34).
- 2.5.20 The existing wall will be demolished using an angle grinder, pneumatic breaker, excavator and dump trucks. The waste material will be transported offsite for disposal. Kerb and balustrade units would be transported from the compound, along the promenade, using lightweight tractor and trailer units. Lifting equipment will be used to lift the units into place and connection details will be completed by hand.

Secondary Wall

- 2.5.21 Construction of the secondary wall will involve demolition and reconstruction of the existing wall. Two gangs will begin in the south separated by a small gap and move north to increase efficiency of the crane and other equipment. The wall will be built in 5m sections to reduce disruption and traffic management required. Street furniture such as signage will be removed and stored to be replaced following construction of the secondary wall. Traffic management measures will be required as work will take place adjacent to the east lane of Marine Parade.
- 2.5.22 The existing wall will be demolished using an angle grinder, pneumatic breaker, excavator and dump trucks. The waste material will be transported offsite for disposal. Excavation of the existing wall foundations is not required due to the use of sheet piles. Sheet piles will be lifted using a crane and driven using a piling rig to construct the wall's foundations.
- 2.5.23 The concrete recurve wall will be constructed on top and connected to the sheet piles. This is likely to be constructed in-situ with concrete brought onto site and poured into formwork, although the use of precast units may be possible. On the landward side the wall will be clad with stone masonry to match the existing secondary wall.

Groyne Removal

- 2.5.24 The timber groynes will be removed using hand cutting tools and machinery. Groyne piles will be removed using an excavator with a grab or chain attachment. Concrete steps attached to the existing concrete revetment at the end of each groyne will be broken out with an excavator and a breaker. Waste material from the groynes and steps will be removed from site using dump trucks. Groyne removal will take approximately two weeks.

Outfall Extension

- 2.5.25 The existing surface water outfall will be extended through the rock armour to provide a new outfall. The outfall is likely to be extended in the same pipe material, with concrete surround for protection. The pipes will be lifted into position with an excavator, and shutters placed around the pipes prior to pouring concrete using a mobile concrete pump. A proprietary flap valve will be fixed to the end of the encased pipe.

Demountable Defences

- 2.5.26 Temporary demountable flood defences would be installed where existing flood defence features are temporarily removed as part of construction, prior to the construction of the permanent works.

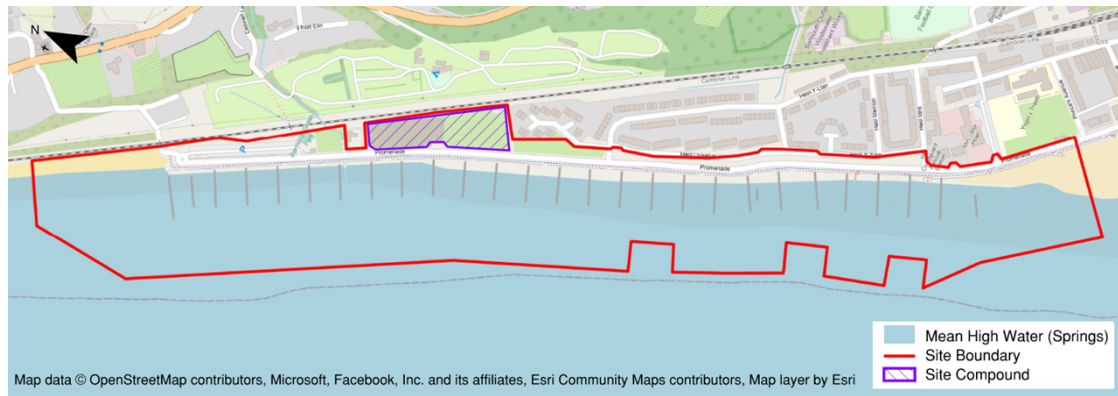
Construction Lighting

- 2.5.27 Throughout the duration of the project, temporary lighting will be required to allow works to continue outside of daylight hours, this will mainly occur during the winter months. This includes work lighting which will be temporary lighting installed in the same place throughout the project and task specific lighting which will be in place for specific sections of the works for a shorter length of time. All temporary lighting will be directed away from the sensitive areas identified by the Ecological Clerk of Works (ECoW).
- 2.5.28 Flood lighting, security lights, and any other obtrusive external lighting shall be sensitively located to avoid nuisance to neighbouring properties and should only provide the necessary luminance for the relevant tasks. Site compound lighting will be installed to light up compound walkways and access and directed into the site compound causing no disturbance to the local environment outside of the compound.
- 2.5.29 Work lighting locations:
- All cabins in the site compound.
 - Stockpile area in yard.
 - On ramps for unloading/turning around for deliveries.
 - Along any working area (on the beach or top of the promenade).
- 2.5.30 Types of task specific lighting:
- Mobile Tower lights.
 - Handheld lighting & Head torches.
 - Vehicle and Plant lighting.

Site Compound and Access

- 2.5.31 The construction compound will be located on privately owned land to the east of Marine Parade as shown in
- 2.5.32 Graphic 2-3. Arrangements have been made with the landowner for use of the land during the construction period. The compound will accommodate welfare, office and parking facilities.

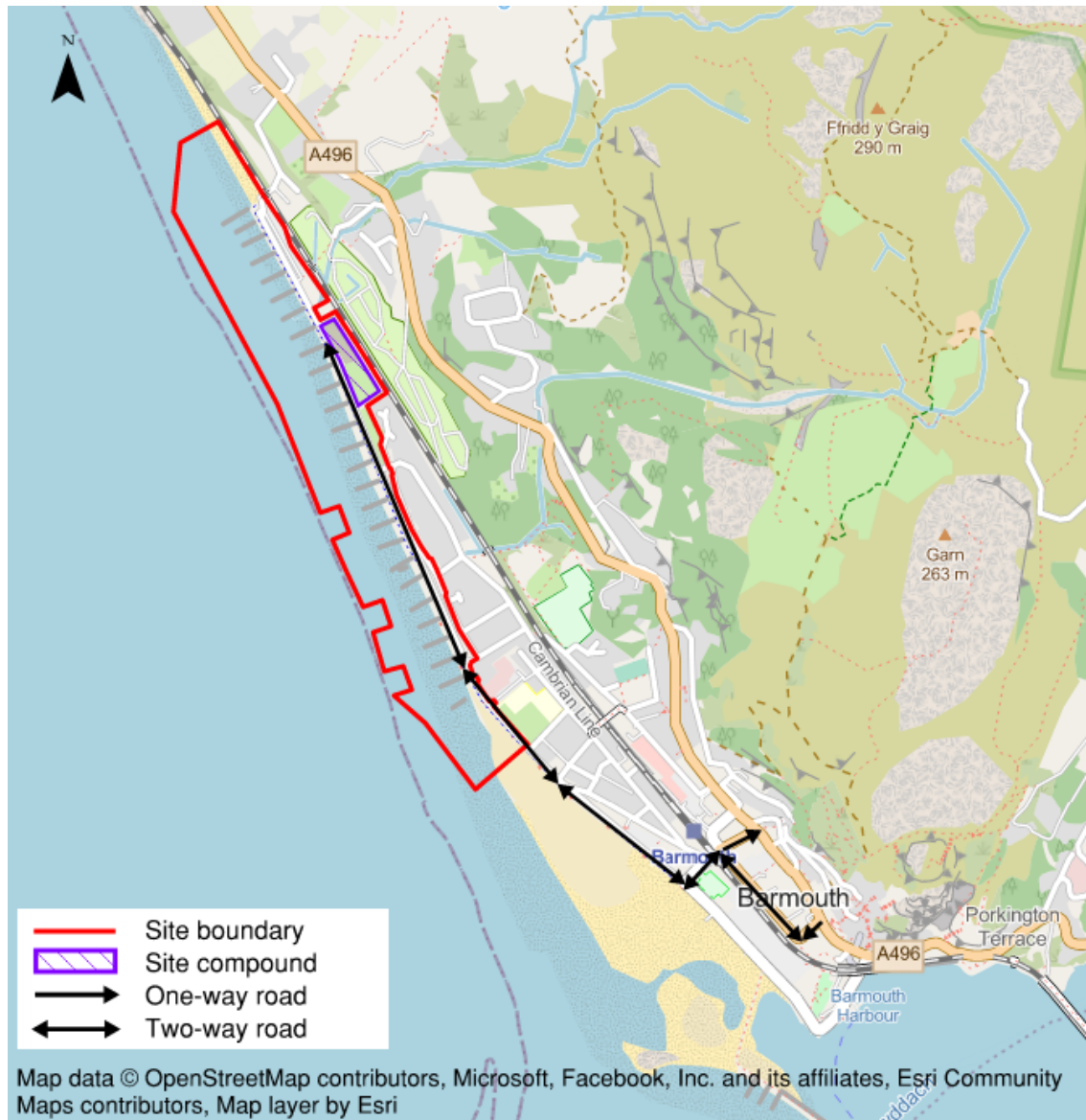
Graphic 2-3 Site compound location.



Vehicle routes to site

- 2.5.33 Vehicles will access the site from the south following the route marked in Graphic 2-4. Due to height restrictions at other railway crossing points this is the most suitable route for HGVs and it is therefore necessary to pass through the town centre.

Graphic 2-4 Planned vehicle route to site.



Traffic management & access

- 2.5.34 Access from the compound to the beach will be via existing ramps or via a purpose-built ramp. Existing ramps will require strengthening or minor improvements (widening, edge protection, pedestrian access) to facilitate access and they will eventually be rebuilt to access the beach through the new revetment works.
- 2.5.35 The works will be carried out under a combination of two traffic signals and priority works installed along Marine Parade to maintain access to all properties at all times.
- 2.5.36 It has been assumed that all staff will arrive and depart from the site during the typical highway peak hours of 08:00-09:00 and 17:00-18:00.
- 2.5.37 Based on the assessment of the lack of existing public transport provision, it has been assumed that 50% of staff will drive to work in their own cars, and 50% will be passengers in a company van.
- 2.5.38 Innovative traffic monitoring (Tactical Road User Surveillance Technology) and management (Dynamic Roadspace Utilisation Management) systems will be used to optimise traffic management by adapting to traffic conditions in real time.

Abbreviations List

AGC	Alun Griffiths Contractors
D&B	Design and Build
ECI	Early Contractor Involvement
EIA	Environmental Impact Assessment
ES	Environmental Statement
FAS	Flood Alleviation Scheme
OBC	Outline Business Case
YGC	Ymgynghoriaeth Gwynedd Consultancy