

Cyngor Gwynedd

Barmouth North Promenade FAS

Preliminary Ecological Appraisal

Reference: BMTH-ARP-EBD-ZZ-RP-OE-000001

P01 | 2024/11/21



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Llywodraeth Cymru
Welsh Government



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1. The Project

1.1 Scheme Overview

- 1.1.1 Cyngor Gwynedd, supported by YGC, propose to carry out coastal flood and erosion risk management works on a 1.2km length of frontage at the North Promenade region in Barmouth, Gwynedd. The 1.2km scheme area comprises of a mix of hard coastal defences (sheet piled wall, concrete revetment, and wave recurve wall, with masonry setback walls). The defences run parallel with the promenade and adjacent to Marine Parade.
- 1.1.2 The preferred option will reduce the long-term flood risk to both people and properties along the Barmouth seafront, bringing the area in line with its SMP2 policy of 'hold the line', with the longer-term considerations towards 'managed realignment'. The project will contribute towards managing flood risk, coastal erosion, and structural failure of the primary coastal defences, adapting to the increasing pressures associated with coastal erosion and climate change.
- 1.1.3 An Outline Business Case (OBC) was submitted by Cyngor Gwynedd in 2021 to seek approval and funding from Welsh Government for the design development and consenting of the project (Stage 1). YGC appointed Alun Griffiths (Contractors) Ltd, with Arup (the 'AGC Team') to progress Stage 1 of the project, which includes developing the outline design, undertake an Environmental Impact Assessment (EIA), Consenting, Detailed Design and Full Business Case.
- 1.1.4 The preferred option outlined in the OBC comprised of the elements listed below, which are to be refined and developed through Stage 1. These elements are collectively referred to in this report as 'the Scheme'.
- Alternative primary wall to be rebuilt structurally and increased by +600mm (from 5.65mOD to 6.25mOD) over a length of approximately 1.2km.
 - Tertiary flood wall to be re-built structurally and increased by +450mm (from 6.4mOD to 6.85mOD) over a length of approximately 1.1km.
 - Existing sheet piles to be refurbished over approximately 515m length.
 - Additional 300m of rock toe armour to be provided to protect the primary sea wall and revetment.
 - 560m of shingle beach profile to be built out to protect the primary sea wall and revetment. Extents to be defined during detailed design. Dependant on stability of shingle material as a result of coastal processes.
 - Refurbishment of culverted outfall and reinstatement of flap valve.
 - Demountable flood defences to be installed with the arrangement to be confirmed during the detailed design.

1.2 Scheme Objectives

- 1.2.1 Cyngor Gwynedd seek a solution to reduce coastal flood and erosion risk to Barmouth North Promenade, whilst improving the amenity and environmental value of this section of coastline. Placemaking opportunities such as beach access, dwell spaces and facilities, and improved connectivity and wayfinding

have the potential to leverage the less-used asset, broadening the appeal of Barmouth and reducing pressure on the popular South Promenade area.

1.2.2 The following Investment Objectives have been identified in the OBC:

- To reduce the threat of coastal flood and erosion risk to people and property with due consideration of SMP2 policy to ensure the long-term resilience and vitality of the community;
- To support, and where possible enhance, recreation and amenity value of the local area;
- To maintain, and where possible enhance, natural and historic environments;
- To ensure marine amenity activities can continue to grow; and
- Ensure an affordable and deliverable whole life option through a partnership approach and contributions.

1.3 Purpose of this Report

1.3.1 The purpose of this report is to provide a summary of the Preliminary Ecological Appraisal (PEA) report undertaken by RML on Arup's behalf (Appendix A), which outlines the scoping opinion responses and associated actions, and provide an update on recommendations and mitigation measures. The purpose of the PEA is to quantify and evaluate the potential effects of proposed works on habitats, species and ecosystems. This involves an appraisal of the habitats present within the footprint of the works and their zone of influence and the potential for the site to support any legally protected, notable or invasive species. Following this assessment, the report will then detail the need for any further surveys and make outline recommendations for mitigation and enhancement measures to be incorporated into the project where appropriate. This PEA has been written with reference to the Guidelines for Preliminary Ecological Appraisal 2nd Edition¹.

1.3.2 The objectives of this PEA are:

- To establish baseline ecological conditions at the site and within the immediate vicinity, including its potential to support important habitats and protected, notable or invasive species;
- To identify key ecological considerations, indicative mitigation requirements and opportunities for biodiversity associated with the proposed works;
- To inform project design to allow significant ecological effects to be avoided, mitigated or minimised wherever possible in line with the step-wise approach; and;
- To recommend further ecological surveys required to inform the Environmental Statement (ES) chapter on biodiversity .

¹ Guidelines for Preliminary Ecological Appraisal. Second Edition (CIEEM). December 2017

2. Preliminary Ecological Appraisal Executive Summary

2.1 Background

- 2.1.1 A Preliminary Ecological Appraisal was undertaken in September 2024 by Richards, Moorehead & Laing Ltd (RML) to inform the proposed improvement works to the flood defences at North Promenade, Barmouth. The site predominantly comprises hardstanding, bare ground and structures along Marine Parade interspersed with small parcels of coastal and amenity grassland, tall ruderal vegetation and scrub, with adjacent coastal and intertidal habitat including mud/sand and cobble/shingle habitat. Invasive non-native species have been noted onsite including Japanese Knotweed (*Reynoutria japonica*), montbretia (*Crocasmia x crocosmiiflora*) and Japanese rose (*Rosa rugosa*). Habitats onsite, and within the potential footprint of works, have been assessed as suitable to support protected species including birds, bats, otter (*Lutra lutra*), other mammals including hedgehog (*Erinaceus europaeus*), reptiles and amphibians.
- 2.1.2 Existing and previous appraisals:
- A breeding bird habitat appraisal survey was undertaken during summer 2024,
 - Passage and wintering bird surveys are being undertaken monthly between October-March 2024/2025.
 - Further surveys are also proposed to assess the use of the site by riparian mammals, including a search for any otter resting sites that could be affected by the proposed works on or adjacent to the two running watercourses onsite, or hydrologically connected to the site.
 - Further appraisal of the intertidal habitats have also been appointed, including a search for marine invasive non-native species and potential presence of piddocks.
- 2.1.3 The site is located inland of the Pen Llŷn a'r Sarnau Special Area of Conservation (SAC) designated for a range of intertidal and marine habitats as well as otter, grey seal (*Halichoerus grypus*), and bottlenose dolphin (*Tursiops truncatus*). The Meirionnydd Oakwoods and Bat Sites SAC is located approximately 400m east of the site, designated for its habitats and populations of lesser horseshoe bat. These will be further considered within the design of works, Environmental Statement and Habitats Regulations Assessment (HRA) with further consideration also to be given to species included within the citations for the Mawddach Estuary Site of Special Scientific Interest (SSSI), located approximately 700m south of the site, Afon Eden – Cors Goch Trawsfynydd SAC, and Northern Cardigan Bay Special Protection Area (SPA); this will include provision of any mitigation measures required to prevent impacts to migratory fish and overwintering birds. Known migratory fish species within the designated sites include allis shad (*Alosa alosa*) (non-spawning populations), twaite shad (*Alosa fallax*), sea lamprey (*Petromyzon marinus*) and Atlantic salmon (*Salmo salar*).

2.2 Further actions and Recommendations

- 2.2.1 The table below summarises further surveys and recommendations for protected species and habitats on site.
- 2.2.2 In general, a toolbox talk should be given to all contractors working within the site by a Suitably Experienced Ecologist (SEE) prior to works, detailing the potential for protected species/habitat within the site, the working methods to be employed and the procedure to follow should any species be identified. A record of attendance should be kept on site, which contractors should sign to indicate they have understood the toolbox talk.
- 2.2.3 A Construction Environmental Management Plan (CEMP) should be produced and should be maintained by the contractor during the construction phase. This will include site-specific methods to ensure that all site activities, especially those in proximity to watercourses are controlled and are in accordance with relevant legislation and undertaken in compliance with the relevant guidelines for pollution prevention and industry best practice.

Table 2-1 Summary of further surveys and recommendations in relation to preliminary ecological appraisal based on current design proposals.

Ecological feature	Further recommendation	Mitigation measures
Bats	Should works result in the loss of or disturbance to any of the structures identified as having low – moderate potential to support roosting bats, surveys may be required, these would need to follow the guidelines as detailed in the Bat Conservation Trust Good Practice Guidelines². This would include presence/likely absence surveys (between May-September) and potential hibernation surveys (between November-March inclusive, months of November and March would be weather/location dependent)².	Reasonable mitigation measures during include specific work timings, directional lighting, methodology adjustments and contractor awareness training in the form of toolbox talks delivered by a Suitably Experienced Ecologist (SEE). Survey results to inform the impact assessment and design of mitigation measures for the proposed works. Disturbance to commuting and foraging routes should be avoided in the first instance, and if not avoided, then disturbance should be minimised. For example, preserving vegetated corridors (where present) and minimising habitat loss during construction are critical. Implementing enhancement measures would also provide significant benefits for bats.
Birds	Overwintering bird surveys currently being undertaken monthly (October-March) for the overwintering bird survey period (2024-2025). Breeding bird habitat assessment has been undertaken. This appraisal stated that it is unlikely that the works would have any significant negative impact of breeding birds during either the construction or operational phases of	As a general recommendation, any vegetation clearance that may be required for access between March and August should be subject to a toolbox talk and supervised by a SEE (or checked by an ecologist for nesting birds, including ground nesting birds, no more than 24 hours prior to clearance). If a nest is identified within or close to vegetation to be removed then it must be left in-situ and protected from the works, with no further works

² Collins. J. (ed.) (2023) Bat Survey for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Ecological feature	Further recommendation	Mitigation measures
	the scheme. It is more likely that the noise, notably during any piling operations, during the construction phase would cause disturbance to wintering waterfowl and wading birds that may feed or roost along the shoreline.	in the area until the young birds have fledged from the nest. The suitable buffer of works to prevent disturbance and length of time for birds to fledge is dependent upon species identified. The breeding bird habitat appraisal recommends the following to remove the potential risk of unlawful destruction of bird nests: any works commencing in discrete areas of the Site between April and August (inclusive) should be preceded by a check by a SEE for active nests, notably Ringed Plover (<i>Charadrius hiaticula</i>) and Oystercatcher (<i>Haematopus ostralegus</i>).
Otter and water vole	Otter and water vole survey has been recommended to establish presence of holts or resting sites on site. Water voles were deemed unlikely to be present, however, including them in checks alongside the otter survey would benefit this species. Further pre-construction checks may be required to identify any new evidence.	Measures to protect otter and water vole, including covering excavations and capping off piping. Riparian habitats within the site should be retained alongside the development where possible and light-spill should be avoided in these areas if task-lighting is required during construction. Where the loss of these habitats is unavoidable, appropriate mitigation and compensation will be required.
Reptiles and amphibians	No further survey with current design.	Any required vegetation clearance should be undertaken whilst reptiles and amphibians are active using a tailored sensitive methodology and under the supervision of the SEE. Where the loss of reptile and amphibian habitats is unavoidable, removing habitats should be done sensitively between March and October, with a two-phase cut to be used, whereby vegetation would be strimmed down in stages, first to 150mm, then to the ground. Groundworks for access within suitable hibernation habitats should be avoided between November and February to avoid the risk of harm to hibernating reptiles and amphibians and suitable hibernation features should be removed by hand or by hand tools under ecological supervision. A toolbox talk should be provided to all those working on site.
Fish	No further survey	Appropriate measures should be included within the design and work method statements to reduce potential environmental impacts of any construction activities within proximity to the tidal/intertidal zones and watercourses, including pollution, physical disturbance of substrate, sensitive timings, associated noise, vibration, and any artificial lighting impacts.
Other mammals; including hedgehog,	No further action. Dormice have been ruled out of this assessment.	Avoid disturbance to areas of existing vegetation. If vegetation clearance is required, this should be done in the presence of a SEE, and any small mammals which are found

Ecological feature	Further recommendation	Mitigation measures
dormice and badgers		would be removed to a suitable location outside the working area. General measures to avoid entrapment or harm to badgers and other mammals include: Excavations should be covered when works are not taking place, especially overnight. Where deep excavations are made, a mammal ramp, or cut access, should be installed to allow badgers a means of escape from the trench. Any temporarily exposed open pipes >200mm diameter should be capped to ensure that badgers cannot enter them. Although unlikely given the urban context, SEE to be contacted if badger setts to occur within 30m of proposed works. If a badger sett is identified within 30m of the works, consideration would need to be given to obtaining a licence from NRW.
Other mammals; marine mammals	No further action	Impacts of construction including noise, vibration and pollution to be considered in design and further assessments for these species.
Invasive-non native species (INNS)	INNS management plan recommended as Japanese knotweed, montbretia and Japanese rose have been recorded on site.	Measures should be adopted to minimise the risk of construction activities leading to the spread of INNS or pathogens. Avoid working in areas where INNS are present. Where this is not possible, appropriate biosecurity measures are to be adopted. Site best-practice measures including 'clean, check, dry' ³ to prevent the spread of invasive species into and outside of the survey area. Further mitigation measures may be required including toolbox talks; a SEE to undertake toolbox talks for any INNS prior to works starting, ensure all site personnel are briefed on INNS prevention procedures and made aware of areas on site where INNS are known to be present.
Intertidal species/habitats	To be detailed within the intertidal assessment, undertaken September/October 2024.	To be detailed within the intertidal assessment.
Habitats and notable plants	No further action at this stage.	Impacts to habitats on site, including loss or degradation, including for access should be avoided or minimised where possible and retained trees on site should be protected in line with British Standard (BS) 5837:2012. Avoid disturbance to areas of existing vegetation and habitats of principal importance such as running water, intertidal mud/sand, intertidal cobbles/shingle and dune grassland, which may support notable species. If

³ <https://www.nonnativespecies.org/what-can-i-do/check-clean-dry/>

Ecological feature	Further recommendation	Mitigation measures
		clearance if required to these areas, this should be done in the presence of a SEE. Best practice measures to be adopted; habitats may be at risk of direct effects or pollution incidents, e.g., sedimentation (from vehicle tracking) or accidental spillages (leaks from machinery/plant). Best practice procedures will be integrated to avoid potential pollution incidents. Best practice pollution prevention measures will be employed for working on or alongside watercourses/tidal habitats, in addition to biosecurity measures.
Designated sites	A Habitats Regulations Assessment (HRA) will be required to avoid impacts to designated sites within the zone of influence of the site.	The proposed works should seek to avoid impacts to the habitats, species and landscapes associated with designated sites and seek to enhance these features wherever possible. Where this is not possible, any loss or degradation of habitat will need to be adequately mitigated or compensated in order to comply with local policies.
Invertebrates	No further action for terrestrial invertebrates. Further action for intertidal species to be detailed in the intertidal assessment.	Works should seek to avoid disturbing habitat that may support terrestrial invertebrates.
Net Benefit for Biodiversity (NBB) and Policy requirements	Current biodiversity impacts are unknown, works must comply with Planning Policy Wales ⁴ . Measures should be developed in the course of the design to enhance the biodiversity within the site and surrounding area. These will need to be implemented in line with national and local policies during , construction and operation. Enhancement measures will need to be re-assessed for their suitability at the site following further surveys and development of the scope of works. This may include both terrestrial and tidal habitat enhancements, the restoration and enhancement of low quality habitats to a priority/higher quality habitat, inclusion of ecological enhancement techniques to improve habitat heterogeneity on coastal defence structures, such as examples outlined in Hall et al., (2018) ⁵ and potential to	

⁴ <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf> (Accessed 14/11/24).

⁵ Hall et al. (2018). Ecological enhancement techniques to improve habitat heterogeneity on coastal defence structures. Available online at: <https://doi.org/10.1016/j.ecss.2018.05.025>. (Accessed: 14/11/2024).

Ecological feature	Further recommendation	Mitigation measures
	collaborate with Living Seawalls⁶ to incorporate bespoke habitat units that are both aesthetically pleasing and ecologically valuable into the seawall design. A Green Infrastructure Statement will be required with all planning applications to demonstrate the stepwise approach and provision of net benefits for biodiversity and ecosystem resilience.	

⁶ <https://www.livingseawalls.com.au/> (Accessed: 14/11/2024).

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
SEE	Suitably Experienced Ecologist
YGC	Ymgynghoriaeth Gwynedd Consultancy]

Appendices

Appendix A Preliminary Ecological Appraisal

Barmouth North Promenade

Preliminary Ecological Appraisal Survey Report

For

Arup

October 2024

3316/11

Barmouth North Promenade

Preliminary Ecological Appraisal Survey Report

For

Arup

October 2024

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1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
email: rml@rmlconsult.com web: www.rmlconsult.com
Tel: +44(0)1824 704366
Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



Preliminary Ecological Appraisal

SUMMARY

RML were commissioned in September 2024, by Arup, working on behalf of Gwynedd Council, to undertake a Preliminary Ecological Appraisal to inform proposed improvement works to flood defences at North Promenade, Barmouth.

The survey was undertaken by experienced ecologists from RML and Arup on the 25th of September 2024, the survey included all land within the red line boundary, current at the time of the survey, and adjacent areas where accessible.

The site comprised predominantly of hard standing, consisting of Marine Parade, and adjacent coastal intertidal habitat. Separate reports would be provided which detail the intertidal habitat survey and marine and coastal interests, ornithology, and otter and water vole surveys.

As the development meets the thresholds of Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 and Annex II of The Marine Works (Environmental Impact Assessment) Regulations 2007 a screening opinion from the planning authority and marine regulating body has been obtained and both have concluded likely significant effects. Therefore, an Environmental Impact Assessment (EIA) is required in relation to both regulations, and would be submitted alongside a Habitat Regulations Assessment.

The Preliminary Ecological Appraisal survey was required to identify the baseline and potential ecological constraints of the scheme and to advise of any mitigation measures, opportunities for enhancement, further survey requirements and measures to avoid, reduce and minimise ecological effects. The report would provide supporting information to the submitted Environmental Statement.

The proposed scheme will primarily involve a betterment of existing defences. Works are mostly concentrated on the beachfront with some work proposed further inland on the tertiary wall, where some grassland could be affected. The preferred option current at the time of writing, includes increasing the height of the flood walls, refurbishing existing sheet piles, additional rock toe armour, and build out of shingle beach profile.

In terms of the findings of the Ecological Appraisal, in general, the main constraint would be the potential disturbance to non-native Invasive plant species. There is some, though limited potential, for notable and protected species including amphibians, reptiles, hedgehogs, nesting birds and bats.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

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1 INTRODUCTION

Scope of commission

- 1.1.1 Richards, Moorehead and Laing Ltd (RML) were commissioned in September 2024, by Arup, working on behalf of Gwynedd Council (GC), to undertake a Preliminary Ecological Appraisal (PEA) to inform proposed improvement works to flood defences at North Promenade, Barmouth.

1.2 Site description

- 1.2.1 The site is located along the North Wales Coast at Barmouth (Abermaw) in Gwynedd. The proposed improvement works are located along the existing coastal defences adjacent to Marine Parade. To the east of Marine Parade are a number of residential dwellings, and other infrastructure including a hotel and café, these all lie outside of the red line boundary, beyond this is the railway line. Included within the redline boundary is an area of bare ground which has been cleared and used as a former compound site, this area is colonised by shrubs and tall ruderal, including stands of the Invasive Non-Native Species (INNS) Japanese knotweed (*Reynoutria japonica*).
- 1.2.2 To the west lies the coastal intertidal habitat. It is reported within the Environmental Impact Assessment Scoping Opinion Report¹ that the existing defences are of poor condition and that structural failure is increasingly a concern, particular in the instances of beach drawdown. Part of the promenade failed due to unsafe voiding beneath the promenade slab, requiring emergency stabilising repairs in 2020 and 2021. The repair works were emergency measures to extend the life of the existing structures until the preferred option, subject to this assessment, is implemented. Beach levels decrease and defences deteriorate in condition toward the north of the study area. Studies conclude that overall foreshore bed levels along North Promenade are lowering and this lowering is expected to continue.
- 1.2.3 The location and extent of the red line boundary subject to this survey and assessment is shown in **Drawing Ref 3316-RML-DR-E-100**, appended to this report in **Appendix A**.

1.3 Scheme proposal

- 1.3.1 At the time of writing the preferred option to improve the standard of defence in the area, primarily consists of:
- The secondary, or alternative primary wall to be re-built structurally and increased by 600mm over a length of 1.2km.

¹ Roberts, E. (2024) North Promenade, Barmouth Environmental Impact Assessment Report to Inform Scoping Opinion, Gwynedd Council

Preliminary Ecological Appraisal

- Tertiary flood wall to be re-built structurally and increased by 450mm over a length of 1.1km. Between both these walls lies the highway, Marine Parade.
- Instal 300m of rock toe armour to be provided to protect the primary sea wall and revetment, at the north end of the scheme.
- Remainder of the primary defences to be protected by 560m of shingle beach nourishment.
- 515m of existing sheet piles, starting from northern end of the scheme to be refurbished.

1.3.2 The total length of the scheme is estimated to be in the region of 1.2km in length, and is illustrated on the drawings provided in **Appendix B**.

1.3.3 There may also be the requirement for additional measures beyond the study area, the details of which were unknown at the time of writing. These would be required to prevent over topping to the north of the study area.

1.4 Scope of this report

1.4.1 The purpose of this report is to provide the results of the PEA of the proposed scheme footprint and adjacent habitats, where accessible, located at the site. This PEA has been written in accordance with the Guidelines for Preliminary Ecological Appraisal 2nd Edition².

1.4.2 The aims and objectives of the PEA are:

- To establish the baseline conditions at the site
- To assess the habitats present, and the potential for these to support protected or notable species
- To highlight any evidence of protected and or notable species, including invasive non-native species within the surveyed area
- Identify the likely ecological constraints and any mitigation measures likely to be required
- Identify any further survey requirements, as appropriate, to inform the Ecological Impact Assessment (EclA) / Environmental Statement (ES).

² CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester. Available at: <https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/> [Accessed: 09/10/24]



Preliminary Ecological Appraisal

1.5 Personnel and quality assurance

- 1.5.1 This report has been written by Donna Hall, reviewed and approved by Andrew Sumner. The report is issued to Arup by RML Ltd.
- 1.5.2 Principal ecologist Donna Hall is a full member of the Chartered Institute for Ecology and Environmental Management with twenty years' experience of working on a variety of infrastructure projects. Donna has experience in Ecological Impact Assessment (EclA) carrying out both the baseline field surveys and reporting the assessment of impacts. She is an experienced field surveyor and has conducted numerous extended phase 1 and 2 habitat and protected species surveys. She has also designed and supervised mitigation and habitat creation schemes and has experience in the preparation and submission of Development License Applications. Donna has spent almost all of her career based in Wales and has experience of working with statutory undertakers based in North Wales on many projects. In addition, she is licensed to survey bats, great crested newts and dormice and understands the importance of ecosystem resilience within project design and implementation.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
email: rml@rmlconsult.com web: www.rmlconsult.com
Tel: +44(0)1824 704366
Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



2 LEGISLATION AND POLICY CONTEXT

2.1 Habitats and Species

- 2.1.1 Certain habitats and species are subject to protection as laid out in the Wildlife and Countryside Act (as amended)³ and/or the Conservation of Habitat and Species Regulations 2017 (the 2017 Regulations) as amended⁴ or by their own separate protection, for example, the Badgers Act 1991⁵.
- 2.1.2 The Conservation of Habitats and Species Regulations 2017 (as amended) ensures the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK which no longer form part of the EU's Natura 2000 ecological network. The amended Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs and SPAs, new SACs and SPAs designated under these Regulations. Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new national site network.
- 2.1.3 A network of nationally designated sites has been established through the designation of Sites of Special Scientific Interest (SSSIs) under the Wildlife and Countryside Act 1981 (*as amended*). The protection afforded under the Act means it is an offence to carry out or permit to be carried out any operation listed within the notification without the consent of the Statutory Nature Conservation Organisation (Natural Resources Wales). The protection afforded to SSSIs is used to underpin the designation of areas within the national site network.
- 2.1.4 The Welsh Government has particular responsibilities with respect to SSSIs under Section 28G of the Wildlife and Countryside Act 1981. An authority to which this section applies has the duty of exercising its functions to take reasonable steps, consistent with the proper exercise of those functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is notified as being of special scientific interest.
- 2.1.5 All wild birds, their nests and eggs are protected under Part 1, Section 1 of the Wildlife and Countryside Act. Birds listed in Schedule 1 of the Act are subject to special protection. Wild birds are also supported by Regulation 10 of the 2017 Regulations which require local authorities and others to take steps to contribute to the diversity and extent of habitat for wild birds.

³ Available at <https://www.legislation.gov.uk/ukpga/1981/69>. [Accessed: 09/10/24]

⁴ Available at <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>. [Accessed: 09/10/24]

⁵ Available at <https://www.legislation.gov.uk/ukpga/1991/36/enacted>. [Accessed: 09/10/24]



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

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- 2.1.6 Wild animals listed in Schedule 5 are protected under Section 9. Plants listed in Schedule 8 are protected under Section 13 of the Act.
- 2.1.7 The Act also includes provisions for the control of invasive non-native species (INNS). Under these provisions it is an offence to:
- Release, or allow to escape into the wild, any animal which is not ordinarily resident in, or a regular visitor to, Great Britain or is included in Schedule 9 of the Act.
 - Plant, or otherwise cause to grow in the wild, any plant which is included in Schedule 9 of the Act.
- 2.1.8 The Invasive Alien Species (Enforcement and Permitting) Order 2019 came into force on 1st October 2019. This Order allows for the enforcement of Regulation (EU) No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species in England and Wales including the relevant licences, permits and rules for keeping invasive alien species.
- 2.1.9 For a summary of the offences under this legislation refer to **Appendix C**.

2.2 Environment (Wales) Act 2016⁶

- 2.2.1 The Environment (Wales) Act 2016 introduces a new, enhanced Biodiversity and Resilience of Ecosystem Duty on public bodies to ensure that biodiversity is an integral part of decision making. Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.
- 2.2.2 Section 6 of the Act places a duty on public authorities to seek to maintain and enhance biological diversity (referred to as biodiversity). All public bodies, statutory undertakers, Ministers of the Crown and other public office holders are required to apply the duty when they are carrying on any functions in Wales, or in relation to Wales.
- 2.2.3 Section 7 of the Act places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

⁶ Available at <https://www.legislation.gov.uk/anaw/2016/3/contents/enacted>. [Accessed:09/10/24]



2.3 National Planning Policy Planning Policy

2.3.1 Planning Policy Wales 12 (PPW12)⁷ Section 6.4.3 sets out the responsibilities of the Local Planning Authority when assessing development proposals and their impacts on biodiversity. This document states:

'The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement'.

2.3.2 PPW 12 sets out the requirement for planning authorities to demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment Act 2016 by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions.

2.3.3 Policies relevant to nature conservation included into Planning Policy Wales can be summarised as follows:

- **Green Infrastructure:** to include the submission of proportionate green infrastructure statements with planning applications and signposting Building with Nature standards.
- **Net Benefit for Biodiversity** and the Step-wise Approach: The step-wise approach is the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. In doing so, planning authorities must also take account of and promote the resilience of ecosystems, in particular the following attributes, known as the DECCA Framework⁸
- **Protection for Sites of Special Scientific Interest (SSSI's):** strengthened approach to the protection of SSSIs.
- **Trees and Woodlands:** closer alignment with the stepwise approach, along with promoting new planting as part of development based on securing the right tree in the right place. Planning authorities must protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial green infrastructure function.

2.3.4 Section 6.6 of PPW12 states that government resources for flood and coastal defences are directed at protecting existing developments. New or improved flood defences in coastal and/or riverside locations should be carefully planned, ensuring all potential

⁷ Available at https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf

[Accessed:10/09/24]

⁸ Available at [Ecosystem Resilience in a Nutshell 1: what is ecosystem resilience? \(cyfoethnaturiol.cymru\)](https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf) [Accessed:10/09/24]



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

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environmental effects, both on and off-shore, and relevant Shoreline Management Plan policies are taken into account.

2.4 Future Wales: The National Plan 2040

2.4.1 Future Wales, The National Plan 2040⁹ provides a framework that sets the direction for development in Wales to 2040. The plan is concerned with infrastructure and development in Wales and aims to ensure that the planning system is consistent at all levels. The National Plan introduced specific policies that safeguard areas for the purposes of improving the resilience of ecological networks and ecosystems services, to identify areas for the provision of green infrastructure, and to secure biodiversity enhancement, the plan introduced a requirement for development to deliver a net benefit for biodiversity (NBB).

2.4.2 Policy 9 – (Resilient Ecological Networks and Green Infrastructure) of The National Plan states:

‘the Welsh Government will work with key partners to ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure’.

2.4.3 Policy 8 – (Flooding) of the Nation Plan states:

‘Flood risk management that enables and supports sustainable strategic growth and regeneration in National and Regional Growth Areas will be supported. The Welsh Government will work with Flood Risk Management Authorities and developers to plan and invest in new and improved infrastructure, promoting nature-based solutions as a priority. Opportunities for multiple social, economic and environmental benefits must be maximised when investing in flood risk management infrastructure. It must be ensured that projects do not have adverse impacts on international and national statutory designated sites for nature conservation and the features for which they have been designated.’

2.5 Local planning policy

2.5.1 Following a decision by Cyngor Gwynedd and the Isle of Anglesey County Council to cease the joint working agreement on Planning Policy matters on 31 March 2023, the Gwynedd

⁹ Available at [Future Wales: The National Plan 2040](#). [Accessed:10/09/24]

Planning Policy Service has been established¹⁰.

- 2.5.2 The process of preparing a new Local Development Plan (LDP) for the Gwynedd Local Planning Authority area only (which is the area of Gwynedd located outside the Eryri National Park) has commenced. The new LDP will cover a period between 2024 and 2039. The Anglesey and Gwynedd Joint Local Development Plan continues to provide the local policy framework for decisions on planning applications, until the Gwynedd Local Development Plan is adopted.

2.6 Biodiversity Policy and Net Benefits for Biodiversity

- 2.6.1 Wales Biodiversity Partnership (WDP)¹¹ have produced biodiversity checklists for local authority and public authority staff in Wales. The checklists will assist public and local authorities to take account of biodiversity in their operational activities and will help organisations to remain legal under the Environment (Wales) Act (2016) Biodiversity Duty and other biodiversity related legislation. In addition, the implementation of the checklists and guidance will help build towards the biodiversity outcomes contained in the Environment Strategy for Wales.
- 2.6.2 The net-benefits for biodiversity approach by Welsh Government has the intention to deliver an overall improvement in biodiversity by putting an emphasis on proactive consideration of biodiversity and wider ecosystem benefits within a placemaking context to be considered early in the design process. The aim is to design schemes that positively impact ecosystem resilience. Natural Resources Wales (NRW) has developed a framework for evaluating ecosystem resilience based on five attributes and properties specified in the Environment (Wales) Act 2016. This is referred to as DECCA: Diversity, Extent, Condition, Connectivity and Aspects of ecosystem resilience¹².

¹⁰ Available at <https://www.gwynedd.llyw.cymru/en/Council/Strategies-and-policies/Environment-and-planning/Planning-policy/Joint-Local-Development-Plan/Cynllun-Datblygu-Lleol-ar-y-Cyd-diwygiedig/Gwynedd-Local-Development-Plan-the-new-Plan.aspx> [Accessed:09/10/24]

¹¹ Available at <https://www.biodiversitywales.org.uk/> [Accessed:09/10/24]

¹² Garrett HM, and Ayling SC. 2021. Terrestrial and freshwater Resilient Ecological Networks: a guide for practitioners in Wales. 43 pp. NRW Report No. 483 Natural Resources Wales. Dolgellau



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
 email: rml@rmlconsult.com web: www.rmlconsult.com
 Tel: +44(0)1824 704366
 Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



3 Survey Method

3.1 Study area 'Zone of Influence'

3.1.1 The 'zone of influence' (Zol) has been established based on the features of interest and how they may be affected by biophysical changes as a result of the proposed scheme and associated activities during construction, operation and restoration and would include the scheme boundary including any off-site ancillary works or areas, construction footprint, including potential construction compounds, haul routes, borrow pits and temporary land take, where this information is known.

3.1.2 It should be noted that the 'zone of influence' in regard to the marine environment and ornithology would be set out within their respective reports which relate to this subject matter report.

3.1.3 The Zol in respect of the PEA includes the following:

- Habitats/species which could be directly affected by land take and which lie within the Red Line Boundary
- Habitats/species which could be temporarily affected, if known
- Immediate adjacent habitats/species which could be indirectly affected
- Habitats/species which could be indirectly impacted from other environmental effects, including but not limited to air, water or noise pollution.

3.1.4 To inform the desk study for the scheme the Zol extended to:

- 10 km for SPA's and SAC's where bats are a feature of interest.
- 2 km for designated sites, including locally-designated Wildlife Sites.
- 2 km for protected and otherwise notable to include records within the last 10 years.

3.2 Desk study

3.2.1 Third party consultation was undertaken as part of the proposal. Data was requested from Cofnod, the Local Environmental Records Centre for North Wales on 19th September 2024, access to the data expires on the 19th March 2025.

3.2.2 A copy of the public records available from Cofnod are provided in **Appendix D**.

3.2.3 Open source 1:25,000 Ordnance Survey mapping and Google Earth Pro satellite imagery were used to identify any mapped water bodies and watercourses within 500 m of the Site.



3.3 Review of previous reports

3.3.1 A review of the following available reports and consultation responses was made:

- Gwynedd Council Planning Service - Scoping opinion for improvements to flood defences Re: Request for a Scoping Opinion Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 Works for improvements to flood defences, North Promenade, Barmouth (30th April 2024)
- Roberts, E. (2024) North Promenade, Barmouth Environmental Impact Assessment Report to Inform Scoping Opinion, Gwynedd Council
- NRW - Scoping Opinion under the Marine Works (Environmental Impact Assessment) regulations 2007 (as amended) Barmouth North Promenade Flood Alleviation Scheme (19th April 2024)

3.4 Consultation responses

3.4.1 The consultation responses from NRW and GC highlighted the following comments in respect to Biodiversity and Protected Sites:

- The project should look to incorporate biodiversity enhancements into the design of the scheme where possible
- Marine Mammals of the Pen Llyn a'r Sarnau SAC would need to be considered due to possible noise disturbance from the piling activity. NRW have highlighted that the potential for the piling activity to impact on migratory fish from underwater noise and vibration and should be considered for the Afon Eden – Cors Goch Trawsfynydd SAC which has salmon as a feature¹³.
- The Aber Mawddach/ Mawddach Estuary SSSI should be assessed
- A survey for Invasive Non-Native Species to identify the range and location of any species in the vicinity should be conducted
- Marine Invasive Non-native Species survey and Benthic Habitat Assessment should be carried out to include the possibility that piddocks could be present within old wooden groynes or intertidal clays¹⁴
- An assessment should include surveys for otters (also a feature of the Pen Llyn a'r Sarnau SAC) and bats so that suitable mitigation may be considered.

¹³ These would be addressed within the Habitat Regulations Assessment; this is out of the scope of this PEA but will need to be considered in further assessments.

¹⁴ This would be addressed within the intertidal surveys and assessment; this is out of the scope of this PEA but will need to be considered in further assessments.



3.5 Field survey

Extended phase 1 habitat survey

- 3.5.1 An extended Phase 1 habitat survey was conducted on the 25th September 2024 by Donna Hall of RML and Rosie Seager-Jones of Arup to determine the current baseline conditions of the site. The survey area included all land within the red line boundary and immediate adjacent land, where accessible. The weather conditions during the survey were overcast with a light – moderate breeze, 80% cloud cover and a temperature of 14°C.
- 3.5.2 Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species were recorded, and habitats were classified according to their vegetation types. Where appropriate, consideration was given to whether habitats qualify, or could qualify, as a Habitats of Principal Importance following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008). The Phase 1 survey method is ‘extended’ through the additional recording of specific features indicating the presence, or likely presence of, protected species or other species of nature conservation significance (also referred to as ‘notable’ species).
- 3.5.3 The scientific naming of plant species follows those in Stace (2019). Habitats were marked on a paper base map and were subsequently digitised using a Geographical Information System (QGIS). Target notes (TN) were made to provide information on specific features of ecological interest or habitat features too small to be mapped. These are shown and described in **Appendix E**.
- 3.5.4 Any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (*as amended*) and The Invasive Alien Species (Enforcement & Permitting Order) recorded during the Phase 1 habitat survey was also target noted.

3.6 Protected Species Assessment

- 3.6.1 Any evidence, or potential for protected species and notable species were noted and, where appropriate, marked as a target note on the Phase 1 habitat plan. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement and supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups. This modified approach to Phase 1 habitat survey is in accordance with the approach recommended by Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).
- 3.6.2 A rapid ground level visual inspection to structures was conducted to assess their potential to support breeding, resting and hibernating bats. The survey were conducted

following guidance as outlined in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines Good Practice Guidelines¹⁵

3.7 Survey constraints and limitations

- 3.7.1 The habitat survey was carried out late in the season but still within the recommended survey period for conducting Phase 1. However, identification of plant species was not hampered, with most being clearly visible, allowing full determination of habitat types to be made.
- 3.7.2 Records held by local ecological record centres, local recording groups and on the internet are often collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, rather, it may simply indicate a gap in recording coverage.
- 3.7.3 No detailed surveys of adjacent watercourses or ditches for signs or habitat suitability for otters and water voles was conducted to inform this assessment, a separate survey would be conducted and a report would be provided.
- 3.7.4 No intertidal habitat mapping or detailed biotope surveys have been conducted. This would be carried out by marine intertidal specialists, and reported separately.
- 3.7.5 Breeding bird surveys have been conducted by external sub-consultants appointed by Ymgynghoriaeth Gwynedd Consultancy (YGC). Overwintering and migratory bird surveys would be conducted by consultants appointed by YGC. Separate reports would be produced and provided to inform the ES.

¹⁵ Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust London.



4 Baseline Ecological Conditions

4.1 Statutory designated sites

- 4.1.1 There are four statutory designated sites within 2 km of the scheme. These are detailed in **Table 1**. In addition, Snowdonia National Park is located 1.2 km east of the site. The location of the sites are illustrated on **Drawing Ref 3316-RML-DR-E-102** in **Appendix F**.

Table 1: Statutory designated sites within 2 km of the Site.

Site name /Code	Distance from site	Reason for notification (as taken from site citations)
Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau Special Area of Conservation (SAC) ¹⁶ UK0013117	Within 100 m of the redline boundary	Habitats: Reefs Large shallow inlets and bays Sandbanks which are slightly covered by seawater all the time Estuaries Coastal lagoons Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadows Salicornia and other annuals colonising mud and sand Submerged or partially submerged sea caves Species: Grey seal <i>Halichoerus grypus</i> Bottlenose dolphin <i>Tursiops truncatus</i> Otter <i>Lutra lutra</i>
Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC ¹⁷ UK0014789	400 m (approx.) east.	The Meirionnydd Oakwoods and Bat Sites SAC is made up of a series of woodlands, stretching from Dolgellau in the south to Eryri in the north. The majority of the SAC is classified as the woodland type known as "Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i>". A key feature of importance is the rich Atlantic bryophyte communities that are often well developed within this Annex I habitat and lesser horseshoe (<i>Rhinolophus hipposideros</i>) bat populations which includes the majority of

¹⁶ Available at [Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk/pen-llŷn-a-r-sarnau-llyn-peninsula-and-the-sarnau-special-areas-of-conservation) [Accessed 09/10/24]

¹⁷ Available at [Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk/coedydd-derw-a-safleoedd-ystlumod-meirion-meirionnydd-oakwoods-and-bat-sites-special-areas-of-conservation) [Accessed 09/10/24]

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Site name /Code	Distance from site	Reason for notification (as taken from site citations)
		known maternity roosts in Meirionnydd and several hibernacula.
Northern Cardigan Bay SPA / UK9020327 ¹⁸	2. 6 km west	Over winter: Red-throated diver (<i>Gavia stellata</i>), 1,186 individuals representing 7% of the wintering population in Great Britain (2001/02 – 2003/04).
Craig yr Aderyn (Bird's Rock) SPA / UK9020283 ¹⁹	10 km south	During the breeding season the area regularly supports chough (<i>Pyrrhocorax pyrrhocorax</i>) 1.8% of the GB breeding population 1999. Over winter the area regularly supports 8% of the GB population of chough 1996 present during the breeding and over wintering season.
Barmouth Hillside Site of Special Scientific Interest (SSSI) / 114	398 m east	A nationally important geological site, woodland and botanical interest. The woodland has a varied breeding mammal and bird population.
Aber Mawddach / Mawddach Estuary SSSI / 1628	706 m south	The special features of the site are the estuarine habitats, particularly muddy sediments and saltmarshes, reed beds and raised mire. There is also a substantial species interest, including breeding wading birds, scarce vascular plants, bryophytes and invertebrates. Otter (<i>Lutra lutra</i>) and migratory fish species allis shad (<i>Alosa alosa</i>) (non-spawning populations), twaite shad (<i>Alosa fallax</i>), sea lamprey (<i>Petromyzon marinus</i>) and Atlantic salmon (<i>Salmo salar</i>) are also features of interest.

4.2 Non-statutory designated sites

4.2.1 There were seven Local Wildlife Sites located within 2 km of the site; these are detailed in **Table 2** below and on **Drawing Ref 3316-RML-DR-E-103** in **Appendix G**.

¹⁸ Available at <https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9020327.pdf> [Accessed 05/11/24]

¹⁹ Available at <https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9020283.pdf> [Accessed 05/11/24]



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Table 2: Non statutory designated sites within 2 km.

Site name /Code ²⁰	Site Designation	Distance from site	Reason for notification
Wern Mynach/Gwynedd 0000	Candidate Wildlife Site (CWS)	157 m east	Wet woodland, marshy grassland
Ceilwart-ganol/Gwynedd 1505	CWS	468 m east	Acid grassland and Bracken <i>Pteridium aquilinum</i>
Garn/ Gwynedd 1502	CWS	799 m east	Dry heath/acid grassland mosaic
Dinas Oleu/Gwynedd 1506	CWS	807 m southeast	Dry dwarf shrub heath
Ffridd y Graig & south to Garn/Gwynedd 1504	CWS	819 m east	Acid grassland, dry dwarf shrub heath
Orielton Wood/Gwynedd 1501	CWS	1536 m south	Broadleaved woodland, dry dwarf shrub heath
Tyddyn-y-nant/Gwynedd 1503	CWS	1661 m north	Acid grassland, marshy grassland

4.2.2 There are eleven areas of ancient woodland (either unknown category, plantation on ancient woodland site or restored ancient woodland site) within 2 km of the site. The closest lies 145 m to the east of the Site, these are detailed on **Drawing Ref 3316-RML-DR-E-104** in **Appendix H**.

4.3 Desk study results – Habitats

4.3.1 An area of the site to the north is classified as a Priority Ecological Network owing to its ‘semi-natural grassland’. Most of this area includes the grassland associated with residential properties and caravan parks and further afield, the woodland habitats associated with the SAC. The entire coastline and sea is categorised as a Marine Priority Ecological Network. These are detailed on **Drawing Ref 3316-RML-DR-E-106** in **Appendix G**.

4.3.2 No Section 7 Habitats of Principal Importance have been returned for the site (within the last 10 years) by Cofnod.

²⁰ Where available

4.4 Desk study results - Invasive non-native species (INNS)

- 4.4.1 Eleven species listed as either an Invasive Non-native Species, including those of interest in Wales, or as listed on the Great Britain Non-native Species Inventory Portal Checklist of Non-native Species²¹ or the Wildlife & Countryside Act 1981 Schedule 9 were recorded within 2 km of the site.
- 4.4.2 The nearest was Japanese Knotweed (*Reynoutria a japonica*) which was recorded within 500 m in habitat to the rear of the former compound site. Other species recorded within 500 m include Montbretia (*Crocsmia pottsii x aurea* = *C. x crocosmiiflora*) and Japanese Rose (*Rosa rugosa*).

4.5 Desk study results - Protected and notable species

- 4.5.1 The following section presents the findings of the desk study (species records within 2 km of the site within the last 10 years) obtained from Cofnod.

Amphibians and reptiles

- 4.5.2 There were five records of reptiles, and no records of amphibians returned within 2 km of the site in the last 10 years. Species noted were adder (*Vipera berus*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*). The closest record was that of an adder, within 500 m of the site, to the north located within a private garden, not directly connected to the site and to the north of the north of the A496. No records were returned from within red line boundary. No records of great crested newt (*Triturus cristatus*) were returned within the search area, distribution of this species is localised in North Wales, with Anglesey populations being at the western edge of the species range²², as such, they are considered unlikely to occur within the surveyed area and rare within Barmouth and can be descoped from the remainder of this report.

Badger

- 4.5.3 There were two records returned for badger (*Meles meles*) within 2 km in the last 10 years. The closest record was 400m due east where it was recorded near the A496 and was noted going into adjacent woodland at dusk. No records were returned from within the red line boundary.

²¹ Available at <https://www.nonnativespecies.org/non-native-species/> [Accessed 18/10/24]

²² Available at <https://cdn.naturalresources.wales/media/687859/eng-evidence-report-259-review-of-the-current-conservation-status-ccs-of-the-great-crested-newt-in-wales.pdf> [Accessed 14/11/24].

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Bats

- 4.5.4 A single record of a pipistrelle bat (*Pipistrellus pipistrellus*) bat was returned 2 km due south east foraging close to the Lion Hotel. No records were returned from within the red line boundary.
- 4.5.5 The Meirionnydd Oakwoods and Bat Sites SAC is within 400 m of the site. Lesser horseshoe bats are a feature of interest.

Dormouse

- 4.5.6 No records of dormouse (*Corylus avellana*) were returned within the search area, dormice populations in North Wales are considered to be small, scattered and isolated from each other²³. Dormice are considered unlikely to be present within the coastal environments of Barmouth, as such, this species will be scoped out from the remainder of this assessment.

Hedgehog

- 4.5.7 There were eight records of hedgehog (*Erinaceus europaeus*) returned within 2 km of the site in the last 10 years. These were all live sightings, located in and around residential areas.

Otter

- 4.5.8 There were two records of otter recorded from within 2 km of the site within the last ten years. None of these are from within the red line boundary, one record was for a dead otter, recorded 500 m due south, within the marine habitat. Whilst the other, a live sighting, was noted foraging and feeding on Barmouth Breakwater, 1.5 km due south.

Invertebrates

- 4.5.9 There were five records returned within 2 km of the site in the last 10 years. Notable species are listed in **Table 3**.

²³ Available at <https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-and-policies/Environment-and-planning/Bio> [Accessed 14/11/2024]

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Table 3: List of notable invertebrates

English Name	Scientific name	Distance/direction from site	Designation
Wall	<i>Lasiommata megera</i>	274 m east	BAP, LBAP, RL-NT, S7
Coastal Silver-stiletto	<i>Acrosathe annulata</i>	581 m north	RDB - NS
Cinnabar	<i>Tyria jacobaeae</i>	783 m east	BAP, LBAP, S7
Forester	<i>Adscita statices</i>	797 m east	BAP, S7
Small heath	<i>Coenonympha pamphilus pamphilus</i>	817 m east	BAP, S7
Small Pearl-bordered Fritillary	<i>Boloria selene</i>	1218 m east	BAP, LBAP-G, RL-NT, S7
Insect - Beetle (Coleoptera)	<i>Bembidion prasinum</i>	1259 m east	RDB - NS
Insect - Beetle (Coleoptera)	<i>Donacia thalassina</i>	1259 m east	RDB - NS
Insect - Beetle (Coleoptera)	<i>Dryops auriculatus</i>	1259 m east	RDB-NB, RL-NT
Insect - Beetle (Coleoptera)	<i>Phaleria cadaverina</i>	1259 m east	RDB – NS
Knot Grass	<i>Acronicta rumicis</i>	1360 m east	BAP, LBAP-G, S7
August Thorn	<i>Ennomos quercinaria</i>	1484 m east	BAP, LBAP-G, S7
Ashworth's Rustic	<i>Xestia ashworthii</i>	1484 m east	BAP, LBAP-G, S7
Key RDB -NS = Red Data Book listing (not based on IUCN guidelines) - Nationally Scarce RDB-NB = Red Data Book listing (not based on IUCN guidelines) - Notable B RL-NT = IUCN Red List of Threatened Species - Near Threatened BAP: UK Biodiversity Action Plan Priority Species²⁴. LBAP – Local Biodiversity Action Plan²⁵. S7 - Section 7 Environment Act (Wales) 2016²⁶			

Birds

- 4.5.10 There were sixteen records of bird species recorded within 2 km of the site within the last 10 years, some of which are from within the red line boundary. A list of species is provided in **Appendix C**²⁷. Those noted within the red line boundary are detailed in **Table 4**.

²⁴ Available at <https://jncc.gov.uk/our-work/uk-bap-priority-species/> [Accessed 18/10/24]

²⁵ Available at <https://www.biodiversitywales.org.uk/> [Accessed 18/10/24]

²⁶ Available at <https://www.legislation.gov.uk/anaw/2016/3/section/7> [Accessed 18/10/24]

²⁷ Breeding and overwintering bird surveys would be reported separately.

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Table 4: List of notable birds within the red line boundary

English Name	Scientific name	Location	Designation
Black headed gull	<i>Chroicocephalus ridibundus</i>	Barmouth North Promenade	LBAP-G, RL-VU, S7, UKBA, WBR
Common guillemot	<i>Uria aalge</i>	Barmouth North promenade	UKBA, WBA
Common Scoter	<i>Melanitta nigra</i>	Barmouth North promenade	BAP, LBAP-G, RL-CR, S7, UKBR, WBA, WCA1.1
Cormorant	<i>Phalacrocorax carbo</i>	Barmouth North promenade	LBAP-G, RL-NT, WBA
Gannet	<i>Morus bassanus</i>	Barmouth North promenade	LBAP-G, UKBA, WBA
Great Crested Grebe	<i>Podiceps cristatus</i>	Barmouth North promenade	RL-VU
Oystercatcher	<i>Haematopus ostralegus</i>	Barmouth North promenade and feeding on rocks, Barmouth outfall	LBAP-G, UKBA, WBA
Red breasted Merganser	<i>Mergus serrator</i>	Barmouth North promenade	RL-VU, UKBA, WBA
Herring gull	<i>Larus argentatus</i>	On the beach	LBAP-G, RL-DD, RL-EN, S7, UKBR, WBR
Great black-backed gull	<i>Larus marinus</i>	On the beach	RL-EN, UKBR, WBR
Common sandpiper	<i>Actitis hypoleucos</i>	On the beach	RL-VU, UKBA, WBA
Key LBAP-G = Gwynedd Local Biodiversity Action Plan RL-VU = IUCN Red List of Threatened Species – Vulnerable RL-CR = IUCN Red List of Threatened Species - Critically Endangered UKBA = RSPB/BTO Birds of Conservation Concern - Amber list (not based on IUCN criteria) UKBR = RSPB/BTO Birds of Conservation Concern - Red list (not based on IUCN criteria) WBR = RSPB/BTO Birds of Conservation Concern in Wales - Red list (not based on IUCN criteria) WBA = RSPB/BTO Birds of Conservation Concern in Wales - Amber list (not based on IUCN criteria) WCA1.1 = Wildlife & Countryside Act 1981 Schedule 1.1 - Birds which are protected at all times RL-NT = IUCN Red List of Threatened Species - Near Threatened RL-DD = IUCN Red List of Threatened Species - Data Deficient RL-EN = IUCN Red List of Threatened Species - Endangered BAP: UK Biodiversity Action Plan Priority Species²⁸. LBAP – Local Biodiversity Action Plan²⁹. S7 - Section 7 Environment Act (Wales) 2016³⁰			

²⁸ Available at <https://jncc.gov.uk/our-work/uk-bap-priority-species/> [Accessed 18/10/24]

²⁹ Available at <https://www.biodiversitywales.org.uk/> [Accessed 18/10/24]

³⁰ Available at <https://www.legislation.gov.uk/anaw/2016/3/section/7> [Accessed 18/10/24]

Fish

- 4.5.11 No records were returned from Cofnod, however migratory fish species are features of interest in the Mawddach Estuary approximately 700m south of the site, comprising allis shad (non-spawning populations), twaite shad, sea lamprey and Atlantic salmon.

Marine mammals

- 4.5.12 No records were returned from Cofnod, however marine grey seal and bottlenose dolphin are features of interest in the Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC, approximately 100m from the site boundary.

4.6 Field survey results - Habitats

- 4.6.1 The study area comprises mainly of coastal intertidal habitat³¹ and built-up areas, interspersed with small pockets of grassland. To the west of the sea wall, the habitat is intertidal and includes boulders and shingle. The sea wall, promenade and highway areas are considered to provide little, if any ecological value. The land in between the tertiary wall and the railway line is mostly built up with some sections of grassland and scrub. Non-native Invasive plant species (Japanese knotweed) occur frequently within areas of tall ruderal and scrub, in particular in close proximity to watercourses and the railway line.
- 4.6.2 The main habitats recorded within the surveyed site are described in the following paragraphs. The location and extent of habitats present are shown on **Drawing Ref 3316-RML-DR-E-101** in **Appendix E**. Photographs of key habitat features, where appropriate, are provided in **Appendices I** respectively.

Dense scrub (A2.1) and Scattered Scrub (A2.2)

- 4.6.3 Scattered scrub is infrequent within the surveyed site, with a small area within the red line boundary which bounds the former compound site area. Species noted include bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*) and willow (*Salix sp.*).
- 4.6.4 Dense scrub and bracken occurs adjacent to a small lane to the north of the site, outside the red line boundary, on the hillside.

Tall ruderal herb (C3.1)

- 4.6.5 This habitat was associated with areas around the former compound site, to the south of the site and areas adjacent to the watercourses and railway line.
- 4.6.6 Throughout most of the tall ruderal vegetation were stands of the Invasive Non-Native Species (INNS) Japanese knotweed (*Reynoutria japonica*). Other species noted included bracken, (*Pteridium aquilinum*) willow, common reed (*Phragmites australis*) and bramble.

³¹ A separate Intertidal Biotope Survey Report would be provided

Introduced Shrub (J1.4)

- 4.6.7 This habitat is associated with the ornamental planting within gardens which were not accessible for survey

Running water (G2)

- 4.6.8 Two watercourses run through the surveyed area. These are culverted in large sections within this area. Both are outside of the red line boundary.
- 4.6.9 The larger of the two water course is culverted under the railway and road. It is densely choked with vegetation and Japanese knotweed is present. Other species noted include willow scrub, common reed, bindweed (*Convolvulus arvensis*) and bramble. The river flows through the wooded Wern Mynach CWS prior to being culverted under the railway line, it is open for a small section and fenced off, prior to it being culverted under the road. The section inspected had a gravel substrate and slow flow.
- 4.6.10 The watercourse furthest north does have some un-culverted parts, to the north of the café, therefore does provide some, though very limited corridor habitat. The watercourse is culverted under the railway line, then looks to be un-culverted where it is routed through grassland. This section of the watercourse surveyed is dominated by common reed and Japanese knotweed. The ditch is approximately 1m wide and 0.5 – 1m deep with clear water and slow flow.

Intertidal mud/sand (H1.1)

- 4.6.11 This habitat forms the larger part of the intertidal habitats. Wooden groynes dissect the intertidal habitat which are home to barnacles (*Chthamalus sp.*) and brown algal beds (*Fucus sp.*).

Intertidal cobbles / shingle (H1.2)

- 4.6.12 An area of intertidal cobbles and shingle occurs within the other intertidal habitats, adjacent to the existing defences and extends seaward. Isolated patches also occur along the existing defences. A wider expanse occurs to the north and forms a long stretch, extending north.

Dune grassland (H6.5)

- 4.6.13 There was a very small patch of dune grassland to the north of the Promenade Café and Wine bar, and a few clumps of marram grass (*Ammophila arenaria*) within the area cleared and used as a former compound site. The area is very small and isn't a good example of dune grassland and has become encroached with bramble scrub and Non Native Invasive plants including Japanese knotweed and Montbretia. A small ditch runs through this habitat.

Coastal grassland (H8.4)

- 4.6.14 Coastal grassland occurs in small strips on the verges located adjacent to the residential flats and properties. This area is managed as a short sward. Some areas where the substrate of the adjacent walls and masonry are showing have become colonised BY stonecrop (*Sedum sp.*), common restharrow (*Ononis repens*), yarrow (*Achillea millefolium*) common birds-foot-trefoil (*Lotus corniculatus*), mouse-ear hawkweed (*Hieracium pilosella*), sea plantain (*Plantago maritima*) and lady's bedstraw (*Galium verum*). Other species noted include red fescue (*Festuca rubra*), creeping bent (*Agrostis stolonifera*) and white clover (*Trifolium repens*).
- 4.6.15 A small area of coastal grassland occurs adjacent to the former compound site. Species noted here include small patches of marram, red fescue, Cocks-foot (*Dactylis glomerata*), dock (*Rumex sp.*), yarrow, sea plantain, gorse and bramble scrub.

Amenity grassland (J1.2)

- 4.6.16 Amenity grassland is associated with the playing field to the east of the site, outside of the red line boundary and residential garden areas.

Semi-improved neutral grassland (B2.2)

- 4.6.17 There is a small strip of semi-improved neutral grassland adjacent to the amenity area/park. Dominant species noted include red fescue, Cocks-foot, common bent (*Agrostis tenuis*), dock, yarrow, common birds-foot-trefoil, and false oat-grass (*Arrhenatherum elatius*).

Bareground (J.4)

- 4.6.18 Bare ground/gravel substrate is associated with the former compound site.

Buildings (J3.6)

- 4.6.19 There are numerous residential, commercial and leisure facilities and buildings to the east of Marine Parade.

Wall (J2.5)

- 4.6.20 A masonry walls run the entire length of Marine Parade, both sides, with gaps associated with entrances to roads and or buildings.

Artificial sea wall (J3.5)

- 4.6.21 The seawall is present along the entire length of Marine Parade, bordering where the land meets the coast. It is of masonry composite and is enhanced by areas of sheet metal piling in sections.

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Hardstanding (J5)

4.6.22 Hardstanding within the red line boundary includes Marine Parade, residential roads and carparking.

4.7 Priority habitats

4.7.1 **Table 5** lists the habitats found within the surveyed area and whether these habitats are listed as Priority Habitats in Section 7 of the Environment (Wales) Act 2016³².

Table 5: Summary of Priority Habitats

Habitat Ref	Habitat Description	Priority Habitat	Site Context/Justification
A2.1 and A2.2	Dense and scattered scrub	x	Scattered scrub is infrequent within the surveyed site, with a small area within the red line boundary which bounds the former compound site area.
C3.1	Tall ruderal	x	Associated with areas around the former compound site, to the south of the site and areas adjacent to the watercourses and railway line. INNS present.
G2	Running water	✓	Two watercourses run through the surveyed area. These are culverted in large sections within this area. Both are outside of the red line boundary.
H1.1	Intertidal mud/sand	✓	This habitat forms the larger part of the intertidal habitats and may be disturbed by the proposed refurbishment works.
H1.2	Intertidal cobbles / shingle	✓	Adjacent to the existing defences and extends seaward. Isolated patches also occur along the existing defences which would be disturbed by the proposed refurbishment works.
H6.5	Dune grassland	✓	Limited in its extent but worthy of protection.
H8.4	Coastal grassland	x	Managed areas which form a long strip behind the existing stone wall and a small section adjacent to the former compound. These areas could be

³² Available at <https://www.biodiversitywales.org.uk/environment-wales-act> [Accessed 18/10/24]

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Habitat Ref	Habitat Description	Priority Habitat	Site Context/Justification
			disturbed by the proposed refurbishment works.
J1.2	Amenity grassland	x	Small area associated with the park, outside the red line boundary.
B2.2	Semi-improved neural	x	Small strip associated with the park, outside the red line boundary.
J.4	Bareground	x	Bare ground/gravel substrate is associated with the former compound site.
J3.6	Buildings	x	Numerous residential, commercial and leisure facilities and buildings to the east of Marine Parade.
J5	Hardstanding	x	This habitat was limited to the existing footpaths through the site.
J2.5	Wall	x	Masonry walls run the entire length of Marine Parade, both sides. This wall would be rebuilt.
J3.5	Artificial seawall	x	Of masonry composite enhanced by areas of sheet metal piling in sections. This would be refurbished.
Key: ✓ Listed as priority habitat X Not listed as priority habitat			

4.8 Field survey results - Invasive non-native species (INNS)

- 4.8.1 Dense stands of Japanese Knotweed occurs frequently within the surveyed area mainly associated with disturbed habitat adjacent to the former site compound and along the railway embankment and the watercourses. Montbretia was recorded in the dune grassland adjacent to the small ditch. The locations of the INNS are provided on the Phase 1 habitat plan, **Appendix E**.

4.9 Field survey results - Protected and notable species

- 4.9.1 The following section presents the findings of the extended Phase 1 Habitat survey conducted on the 25th September 2024.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
 email: rml@rmlconsult.com web: www.rmlconsult.com
 Tel: +44(0)1824 704366
 Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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- 4.9.2 Where a species or species group has been omitted, this is due to there being no evidence or no suitability on site to support the species and as such are not considered to be affected by the schemes proposals.

Flora

- 4.9.3 No species of note were recorded during the survey INNS were recorded which are discussed in **Section 4.8**. The dunes to the south-east of the site (outside of the redline boundary) provide suitable habitat to support a range of notable flora.

Amphibians and Reptiles

- 4.9.4 Much of the site has reduced habitat suitability for amphibians and reptiles with no ponds on site or within 2 km of the site. However, there are some suitable areas which offer more habitat structure and diversity within the surveyed area, these include the stream and ditch fringes, dune grassland, and tall ruderal habitat associated with the railway and around the edges of the former compound site.

Badger

- 4.9.5 No badger setts or badger activity was noted during the site survey. Woodland habitat to the east associated with the CWS (located 150 m from the site, beyond the railway track) provides the more optimal habitat for the construction of setts. The habitat corridor along the railway network provides suitable foraging and dispersal habitat.

Bats

- 4.9.6 No trees which offer bat roosting potential occur within the surveyed area.
- 4.9.7 There are a number of properties to the east of Marine Parade which offer low – moderate roosting potential. A summary of these and their likelihood to support bats is provided in **Table 6**. The seawall and culverts occurring within or under the sea wall do not have the potential to support bats as these are frequently inundated with sea water.
- 4.9.8 The area in general is pretty exposed, with low to negligible potential for foraging and/or commuting along the coast and Marine Parade. There is some lighting along the highway, though this looks to be quite limited. No baseline lighting assessment has been carried out to inform the assessment. The main foraging and commuting habitat is associated with the vegetated railway corridor, and the woodland beyond this located to the east.



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Table 6: Summary of Roost Categorisation - Structures

Building/Block Ref	Description	Representative Photo	Potential Roost features (PRF) (e.g. loose tiles, soffits, barge boards, roof void)	Overall Roost Categorisation (e.g. negligible, low, moderate, high)
Min Y Mor Hotel	Stone building with a complex roof structure consisting of slate tiles with lead flashing. Wooden fascia boarding and soffits and hanging tiles to the west aspect.		Lifted lead flashing Gaps under bargeboards and soffits Gaps underhanging tiles. Potential roof voids	Moderate – summer and winter roosting
Coastguard rescue station (Target Note 3)	Flat roof structure, no void building in good condition.		No PRF's noted	Negligible summer and winter roosting



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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Building/Block Ref	Description	Representative Photo	Potential Roost features (PRF) (e.g. loose tiles, soffits, barge boards, roof void)	Overall Roost Categorisation (e.g. negligible, low, moderate, high)
Residential properties associated with Hoel Y Sarn	Buildings of typical brick and render construction with slate roofs of varying conditions. Lead flashing and soffits. Likely to have loft spaces.		Some PRF's limited to gaps under roof and ridge tiles, around lead flashing and under soffits	Low summer and winter roosting
Sub station (Target Note 4)	Small stone building with a sloping roof in a generally good condition but with some gaps in the stone work and access under the roof line which leads into the internal areas. The roof is sloped and consists of slate tiles. There are wooded fascia boarding to edges which provide access and also crawl spaces.		Gaps under fascia boarding Gaps under roof tiles Gaps in the stonework Potential roosting area within the structure.	Moderate summer and winter roosting



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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Building/Block Ref	Description	Representative Photo	Potential Roost features (PRF) (e.g. loose tiles, soffits, barge boards, roof void)	Overall Roost Categorisation (e.g. negligible, low, moderate, high)
Apartments associated with Hoel Llywelyn	Block of typical brick/block and render construction with slate roofs. The general condition of these was good.		Some PRF's limited to gaps under roof and ridge tiles, and under soffits	Low summer and winter roosting
Garages along Hoel Y Plas (Target Note 5)	Set of garages of breeze block construction with a metal roof and wooden doors.		Gaps under metal over hang and above and around doors which lead into the garage.	Low summer and winter roosting



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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Building/Block Ref	Description	Representative Photo	Potential Roost features (PRF) (e.g. loose tiles, soffits, barge boards, roof void)	Overall Roost Categorisation (e.g. negligible, low, moderate, high)
Shelter (Target Note 6)	Block and render structure, flat roof and open to each side.		None	Negligible summer and winter roosting
Promenade café and wine bar (Target Note 7)	Block/brick and render building with a pitched tiled roof and flat roof extension.		Some PRF's limited to gaps under roof and ridge tiles, and under soffits.	Low summer and winter roosting



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

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Hedgehog

- 4.9.9 This species could utilise the grassland habitat, boundary vegetation and railway line for foraging and dispersal into the wider landscape. The majority of this habitat occurs outside the redline boundary. The coastal habitats and Marine Parade offer no suitable habitat.

Riparian mammals

- 4.9.10 Otters have been recorded along the coast towards the estuary, which provides more optimal habitat in terms of foraging and refugia for this species. No evidence was noted during the site walkover, although it is likely that otters may occur due north along the coast from the estuary. This area is quite exposed, with little foraging potential except when the tide is out and fish become trapped in areas which continue to hold water.
- 4.9.11 There are two watercourses within the surveyed section. These provide limited potential for otters or water voles, owing to their fragmented nature and fairly poor condition, especially considering the available habitat in the wider environs, in particular for otters. To access onto the coastal areas from these water courses, otters would need to traverse the railway line and also residential areas and Marine Parade, or through culverted sections.
- 4.9.12 In terms of water vole potential, both watercourses are choked with vegetation, the larger watercourse did not appear to have a suitable bank substrate for burrowing mammals and was heavily shaded. The smaller ditch has more suitability, though still limited, but it is fragmented and unlikely to support viable populations.

Invertebrates

- 4.9.13 The majority of the site is unsuitable for terrestrial invertebrates owing to the extent of hard standing and tidal influences. The only suitable habitat is associated with the unmanaged areas including the tall ruderal habitat, railway line and gardens which provides habitat for some coastal species and or common species, dependent upon habitat type.

Birds

- 4.9.14 The tall ruderal habitat and scattered trees scrub all provide suitable nesting and foraging habitat for birds.
- 4.9.15 During the walkover approximately 90 gulls present including herring gulls³³, lesser black back and black headed gulls (*Chroicocephalus ridibundus*)³⁴ were noted

³³ UK Conservation status: Red

³⁴ UK Conservation status: Amber

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loafing/resting/feeding on the sand, with an additional 30 foraging over water in the locality of the northern shingle beach.

- 4.9.16 Cormorants and oystercatchers were recorded flying along the shoreline and a suspected rock pipit (*Anthus petrosus*) was recorded on the beach.
- 4.9.17 Other birds recorded or heard on site in the scrub included stonechat (*Saxicola torquata*), robin (*Erithacus rubecula*), blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), magpie (*Pica pica*) and house sparrows (*Passer domesticus*). Birds flying overhead included barn swallow (*Hirundo rustica*), carrion crow (*Corvus corone*) and jackdaws (*Coloeus monedula*).
- 4.9.18 A breeding bird habitat appraisal has been undertaken in summer 2024, conducted by YGC, with over wintering bird surveys scheduled. Separate reports would be provided.

Fish

- 4.9.19 The tidal areas within the site are suitable to support a wide range of marine species, including the migratory species in passage. The freshwater watercourses on site may provide suitable habitat for a limited range of common freshwater species, however, are not considered optimal to support migratory species due to barriers.

Marine mammals

- 4.9.20 The tidal areas within or adjacent to the site are suitable to support foraging and commuting marine mammals.

4.10 Priority and notable species

- 4.10.1 Table 7 lists the species with known presence or potential to be present on the site which are Priority Species listed on Section 7 of the Environment (Wales) Act 2016 or are considered notable and relevant to the site in question.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
 email: rml@rmlconsult.com web: www.rmlconsult.com
 Tel: +44(0)1824 704366
 Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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Table 7: Section 7 and notable species

Species group	Species	Site Context
Reptiles	Common lizard Slow worm	Some limited suitable habitats within the surveyed area.
Amphibians	Common toad Common frog	No ponds on site or within 500m. Some limited suitable habitats within the surveyed area.
Birds	Environment Wales Act (2016) S 7 list 51 species of bird of some recorded on site.	The tall ruderal and scrub provide suitable nesting and foraging habitat for birds. The intertidal areas support herring and black-headed gull
Fish	Migratory fish species; allis shad (non-spawning populations), twaite shad), sea lamprey and Atlantic salmon.	These fish are features of interest of the Aber Mawddach/ Mawddach Estuary SSSI, 700m from the site, and there are suitable habitats present within the tidal areas to support these species in passage.
Mammals	Bats	Limited foraging and roosting potential. Some structures with low – moderate suitability.
	Otter	Records within 2 km likely dispersal along the coast. Water courses offer limited suitability.
	Hedgehog	Suitable habitat within the tall ruderal habitat and vegetation along the railway line. also associated with the residential areas.
	Badgers	Suitable foraging and dispersal along the railway within scrub etc. Woodland outside the redline boundary suitable for sett creation.
	Marine mammals	Suitable habitat is present for foraging and commuting marine mammals within the tidal habitats.

5 Potential effects and recommendations

5.1 Summary

- 5.1.1 The following sections discuss the potential effects of the proposed refurbishment works, current at the time of writing, upon the ecological interest at the site and advises upon methods which can either avoid, mitigate, or compensate for these effects.
- 5.1.2 The potential effects which could arise from the refurbishment of the coastal defences include, but are not limited to:
- Habitat loss, temporary and or permanent
 - Increased noise, human activity and pollution incidents
 - Increased lighting
- 5.1.3 A full assessment of the effects and their likely significance upon the nature conservation interest at the site would be conducted and reported within the ES and HRA.
- 5.1.4 In general, the following best-practice measures should be considered when designing the construction phase of the works:
- A toolbox talk should be given to all contractors working within the site by a Suitably Qualified Ecologist (SQE) prior to works, detailing the potential for protected species/habitat within the site, the working methods to be employed and the procedure to follow should any species be identified. A record of attendance should be kept on site, which contractors should sign to indicate they have understood the toolbox talk; and
 - A Construction Environmental Management Plan (CEMP) should be produced and should be maintained by the Contractor during the construction phase. This will include site-specific methods to ensure that all site activities, especially those in proximity to watercourses and the marine environment are controlled and are in accordance with relevant legislation and undertaken in compliance with the relevant current best practice methods.

5.2 General biosecurity measures

- 5.2.1 In order to minimise the potential effects of INNS, biosecurity measures designed to manage and control the spread of INNS should be a contractual requirement for construction. Information set out within the Marine Biosecurity Planning Guidance³⁵

³⁵ Cook, E.J., Macleod, A. Payne, R.D., and Brown, S. (2014) edited by Natural England and Natural Resources Wales (2015). Marine Biosecurity Planning – Guidance for producing site and operation-based plans for preventing the introduction and spread of non-native species in England and Wales.”

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should be used and outline is presented any CEMP. In Summary, the following measures should be implemented, where possible:

- Contractors to be made aware of INNS which may be encountered on site by way of 'toolbox' talks and posters;
- Access and egress to the water bodies should be limited to a single point(s)
- Anything that comes in contact with the water, including boots, should be carefully cleaned.

5.3 Designated sites

- 5.3.1 The Pen Llŷn a'r Sarnau/ Lleyn Peninsula and the Sarnau Special Area of Conservation are located within 100m. Mudflats and Sandflats are a feature of the site, with the whole of the North Promenade frontage located directly adjacent to the Sandflat feature. Other features of the SAC nearby (within 2km) include estuaries, reefs and Atlantic salt meadow. Otter is also a species feature of this SAC.
- 5.3.2 The main potential effect is considered to be the potential loss of or disturbance to features of interest, in particular the mudflats and sandflats in order to construct/install rock toe armour, refurbishments of outfalls and sheet piles and reprofiling of the shingle beach.
- 5.3.3 No effects are envisaged to The Meirionnydd Oakwoods and Bat Sites SAC or features of interest owing to the location of the proposals and the habitat suitability of the site itself to support lesser horseshoe bats. The primary habitat feature for the lesser horseshoe bat (CSZ³⁶ of 2 km) is broadleaved woodland and wooded riparian corridors, mature treelines and hedgerows. None of this habitat would be directly affected by the works to improve the coastal defences. This species tend to fly low to the ground, in cover and they are averse to light pollution and will avoid areas which are lit.
- 5.3.4 No impacts are envisaged to the Barmouth Hillside SSSI owing to its distance from the site and no anticipated pollution pathway.
- 5.3.5 The Aber Mawddach Estuary is a component feature of the SAC and is located approximately 700 m south of the works and does have a hydrological, tidal link. The estuary is wide with extensive sandflats throughout its length, areas of muddy sediments and large areas of saltmarsh. The estuary and river also have a notable fish fauna and otters are present. The erection and repair of sea defences or coast protection works is listed as a Potentially Damaging Operation (PDO), however, there would be no direct impacts to the SSSI as a result of the works. There could be indirect effects, for example

³⁶ Core Sustainance Zone

from noise and pollution incidents, these would be mitigated for and controlled within any associated CEMP.

Recommendations

5.3.6 The likelihood of a significant impact of the works on the SAC will be fully assessed and reported within the HRA.

5.3.7 General mitigation measures could include the following:

- Limiting the works to where they are needed
- The Scheme would include standard measures to control pollution during construction and that these would be set out in a Construction Environmental Management Plan (CEMP) as part of the ES.
- Limitation in working hours of noise/vibration-generating construction within the Marine Environment
- Sensitive lighting

5.4 Habitats

Dense scrub (A2.1) and Scattered Scrub (A2.2) Tall ruderal herb (C3.1) Introduced Shrub (J1.4)

5.4.1 The scheme proposal may result in the direct loss of scrub, tall ruderal habitat or introduced shrub. No further recommendations or further survey requirements at this stage until full details of the scheme are known.

Running water (G2)

5.4.2 There is a low likelihood of watercourses being directly impacted by the scheme proposals. Also, the culverted sections under Marine Parade reduce the likelihood of there being significant indirect effects, i.e. from pollution incidences. No further recommendations.

Intertidal mud/sand (H1.1) Intertidal cobbles / shingle (H1.2)

5.4.3 These habitats are highly likely to be disturbed as a result of the refurbishment works. General mitigation measures as set out in section 5.1 are relevant. In addition, mitigation for the loss or disturbance of this habitat could include the following:

- Incorporate stepped or terraced designs into sea walls to provide different tidal levels for habitat development
- Use materials and textures in sea defences that encourage colonisation by marine organisms



- Combine hard engineering structures with natural features to enhance habitat value while providing coastal protection

Dune grassland (H6.5)

- 5.4.4 The small area of dune grassland is unlikely to be impacted by the current proposals.

Recommendations

- 5.4.5 Although limited in its extent, this habitat should be retained and protected and should not be used to store equipment or used as a site compound. In addition, the small ditch is located within this habitat.

Coastal grassland (H8.4)

- 5.4.6 The improvement to the existing flood defences may result in the loss of or disturbance to coastal grassland. This habitat occurs adjacent to the existing tertiary wall which would be rebuilt.

Recommendations

- 5.4.7 No storage of materials should occur within this grassland habitat.
- 5.4.8 Disturbance should be limited to the areas required for improvement works.
- 5.4.9 Habitat reinstatement should occur post works to include a species mix which is of a similar composition, native and characteristic of the local environment.

Amenity grassland (J1.2) Semi-improved neutral grassland (B2.2)

- 5.4.10 These habitats are outside of the red line boundary and are unlikely to be impacted by the current proposals. No further recommendations, unless the scheme design changes to include these areas.

Bareground (J.4)

- 5.4.11 This area is located outside of the red line boundary and could be utilised as a compound site for this scheme. The area is of negligible ecological interest.

Recommendations

- 5.4.12 If this is utilised as a compound site for the works, it is important to keep to the area of bareground and not encroach upon any vegetation. The compound site should be fenced off.

Wall (J2.5) and Artificial sea wall (J3.5)

- 5.4.13 The tertiary wall, primary wall and existing sea wall would be directly impacted by the scheme. The tertiary and primary wall do not provide any ecological interest. The sea wall

to the seaward side, including existing sheet piles had been colonised by barnacles and algae.

Recommendations

5.4.14 The effects upon these would be assessed within the intertidal survey report. To mitigate for the loss of these, the creation of new defences should consider the following:

- Create textured surfaces on sea walls to better mimic natural habitats
- Schedule construction and maintenance activities to minimise disruption to sensitive marine life cycles
- Use environmentally friendly materials that encourage marine growth
- Incorporate recycled materials where possible, for example, recycled plastic tiles used in the Living Seawall project³⁷

5.5 Invasive non-native species (INNS)

5.5.1 Non native invasive species were recorded within the red line boundary, associated with tall ruderal and scrub habitat which bounds the bare ground of the former compound site. In addition, they do occur within the surveyed area, associated with the two watercourses, and also along the railway line. Schedule 9 species noted within the red line boundary were Japanese knotweed and Montbretia.

Recommendations

5.5.2 It is advised that INNS are demarcated, and the area avoided. The following is advised:

- Before works commence, the contractor's personnel should be provided with a Toolbox Talk on the identification of Schedule 9 invasive species recorded within the surveyed area (Montbretia and Japanese knotweed). This information should be retained on site notice boards and welfare areas.
- Establish clean and dirty areas around the identified INNS areas, so that all personnel and equipment can be de-contaminated prior to leaving a dirty area and entering a clean area.
- The INNS should be demarcated on site by a competent person (e.g. Ecologist).

5.5.3 If proposals change and where works may affect these species, it is advised that consultation is sought with an approved contractor who follow the recommended Codes

³⁷ Available at [Living Seawalls](https://www.livingseawalls.co.uk/) [Accessed 18/10/24]

of Practice and are registered with the Invasive Non-Native Specialists Association (INNSA)³⁸.

5.6 Protected and notable species

Amphibians and reptiles

- 5.6.1 There are no records of amphibians or reptiles on the site but there is some potential for dispersal and foraging within adjacent areas. Any encroachment upon these habitats may inadvertently disturb these species.

Recommendations

- 5.6.2 Avoid disturbance to habitat which could support these species, for example the dune grassland and tall ruderal.
- 5.6.3 Any identified hibernacula should be dismantled strip by strip as far as is practical and checked by the ecologist at each stage. This should be done when temperatures are above 10 Deg C, and not in frosty conditions.
- 5.6.4 If there is the requirement for any vegetation clearance, this should be done under ecological site supervision. Vegetation clearance should be undertaken in a directional manner towards suitable habitat. Any vegetation to be removed (in particular tall grassland) should be strimmed or flailed down to 15 cm, then left for a day checked by the ecologist and then taken to ground level (stage strimmed).
- 5.6.5 Any arisings (grass cuttings, log piles and excavated rubble) should be moved off site or stored in a skip so as to avoid the reoccupation by reptiles/amphibians.
- 5.6.6 A toolbox talk should be provided to all those working on site. If evidence of reptiles or amphibians is found, work should cease until advice has been obtained from the site ecologist. Site clearance should continue in the presence of the ecologist until the site area is devoid of suitable habitat.

Badgers

- 5.6.7 There are no records of badgers on sight and no signs of badgers were noted during the site survey. The current scheme proposals are unlikely to impact upon the local badger population. No potential sett building habitat would be disturbed.

Recommendations

- 5.6.8 If badger setts or sett entrances are found at any time during required site an ecologist must be consulted on the way forward, which is dependent upon the location of the sett

³⁸ Available at [Home - INNSA](https://www.innsa.co.uk/) [Accessed 18/10/24]

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and extent of potential disturbance. If setts are discovered within 30 m of any works, a licence from NRW may be required.

Bats

- 5.6.9 There may be loss of commuting or foraging habitat, for example a small section of grassland, the extent of which is unknown at the time of writing as the scheme is still within the design phase. No culverts were identified which have the potential to support bats.
- 5.6.10 Buildings with moderate potential for bats include the small stone sub station and the hotel. Buildings with low potential include a row of garages and residential flats and apartments. It is anticipated that there would be no loss of or disturbance of existing structures.

Recommendations

- 5.6.11 No further surveys are required unless works would result in the loss of or disturbance to any of the structures identified as having low – moderate potential. If surveys are required, these would need to follow the guidelines as detailed in the Bat Conservation Trust Good Practice Guidelines³⁹.
- 5.6.12 Although there is very limited foraging and commuting habitat along Marine Parade, there could be the occurrence of bat activity along here, mainly from species which are accustomed to flying in the more open urban environments, subject to lighting. If temporary construction lighting is required during the bat activity season for works, this should be directed to where it is needed and designed to ensure no additional light spill occurs onto the grassland, and vegetated areas to the east of Marine Parade.
- 5.6.13 Disturbance to commuting and foraging routes should be avoided in the first instance, and if not avoided, then disturbance should be minimised.

Hedgehogs

Hedgehogs may use the grassland habitat, boundary vegetation and railway line for foraging and dispersal into the wider landscape.

Recommendations

- 5.6.14 Avoid disturbance to areas of existing vegetation. If clearance is required to these areas, this should be done in the presence of an ecologist and any hedgehogs which are found would be removed to a suitable location outside the working area.

³⁹ Collins. J. (ed.) (2023) Bat Survey for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Riparian mammals

The potential for the watercourses to support otters and water voles is limited, and it is likely that these areas would not be directly affected by the works. Otters are highly likely to utilise the intertidal areas.

Recommendations

- 5.6.15 It is advised to avoid any works, including the storage of materials etc, close to the small ditch and dune grassland, if this area is avoided, then no further surveys for water voles would be required. If the scheme changes and works are proposed within this area, then pre-works checks would be required for any site clearance and construction works.
- 5.6.16 The larger water course is outside of the red line boundary and is unlikely to be affected, either directly or indirectly. Further targeted surveys for riparian mammals have been appointed to determine the suitability of watercourses on or adjacent to the site.
- 5.6.17 Although largely nocturnal, otters may nevertheless be disturbed by construction of the sea defences as they are highly likely to disperse and forage along the coast. Movement along here is unlikely to be disrupted from construction works. However, if there is the requirement for some night-time operations, artificial lighting may discourage otters from using and dispersing through these areas. It is advised that additional night-time lighting, if required, should only be used where and when it is essential for safety during works and to allow for the constraints of working within a tidal zone with limited working time each day. Reasonable Avoidance Measures for otters should include the installation of a means of escape to any deep excavations (>0.5m) left open overnight.

Invertebrates

- 5.6.18 The areas of grassland, shrub, scrub and tall ruderal vegetation are unlikely to be affected by the proposed scheme, however as the scheme is still within the design stage, if habitat with the potential to support invertebrates is impacted, then this should be kept to a minimum.

Birds

- 5.6.19 A number of birds were recorded utilising the intertidal habitats as well as tall ruderal, shrub and scrub habitat.
- 5.6.20 The main impact on nesting birds would arise if vegetation clearance or disturbance is conducted within the nesting bird season (considered to be March - August inclusive but can be earlier or later in the season dependent upon local climatic conditions).
- 5.6.21 In regard to disturbance to birds utilising the intertidal habitats it is considered that the effects from construction noise may not significantly disturb the aggregations of roosting, loafing or feeding waterfowl, though they may be temporarily displaced from locations

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near the works. Where birds are displaced during construction it is highly likely to be temporary with birds returning upon the cessation of disturbance.

Recommendations

- 5.6.22 An outline breeding bird appraisal has been undertaken during summer 2024 by YGC and overwintering bird surveys are being undertaken over autumn/winter 2024/2025. The results of these surveys will determine further action required based on the species and assemblages recorded during the surveys carried out. Generally, over wintering bird surveys consist of surveys conducted between November and February, which are considered the core winter months but can be extended for birds on passage. Monthly surveys are generally recommended, with a minimum of 3-4 survey visits over the winter period.
- 5.6.23 Any vegetation clearance, if required, would need to be undertaken outside of the main breeding bird season (September to February⁴⁰). If clearance outside of March to August is not possible, suitable nesting habitat would need to be checked immediately prior to removal by a suitably experienced ornithologist/ecologist (no more than 48 hours) in order to confirm that no nesting birds are present. Should an active nest be found, then an appropriate exclusion area around the nest site would need to be established in liaison with the ornithologist/ecologist, and the works within that area would cease until all young birds are fledged. The exclusion zone will vary depending on species.
- 5.6.24 To mitigate disturbance to overwintering birds during improvement works, the following strategies could be implemented, which would be dependent upon the findings of the surveys:
- Avoid peak overwintering periods, typically from October to March, when possible
 - Conduct the most disruptive work outside of the main overwintering season
 - Establish buffer zones between work areas and important bird habitats
 - Leave undisturbed areas for birds to use as alternative habitats
 - Use quieter machinery and equipment when available
 - Install temporary noise barriers around particularly noisy work areas, and

⁴⁰ It should be noted that birds can extend and (or) commence breeding beyond the typical nesting guidance, dependent upon local climatic conditions. Consultation with an ecologist should be sought during periods of unseasonal weather.

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- Limit the use of percussive piling techniques, opting for less disruptive methods where feasible.

Fish

- 5.6.25 There is suitable habitat to support a variety of marine and migratory fish species within the tidal habitats, with some suitability in the freshwater watercourses.

Recommendations

- 5.6.26 In the absence of mitigation, works could cause disturbance/killing/injury of fish within the marine habitats, considered suitable to support a wide range of fish species. Consideration may be needed to be given to avoiding sensitive periods for fish (e.g. spawning and migration). Works must follow pollution prevention and general mitigation during construction to avoid impacts on fish habitats.

Marine mammals

- 5.6.27 There is suitable habitat off the coast of Barmouth to support foraging and commuting marine mammals.

Recommendations

- 5.6.28 In the absence of mitigation, works could cause disturbance/killing/injury of marine mammals within the marine habitats. Works must follow pollution prevention and general mitigation during construction to avoid impacts on marine mammal habitats.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
email: rml@rmlconsult.com web: www.rmlconsult.com
Tel: +44(0)1824 704366
Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



6 Net Benefits for Biodiversity

6.1 Summary of biodiversity losses

6.1.1 Within the current scheme proposals, there is a negligible loss of biodiversity interest at the site in the long term. Measures have been advised to protect the existing habitats and those to be retained as well as Reasonable Avoidance Measures for any protected and notable species which may be encountered.

6.2 Net benefits for biodiversity (NBB).

6.2.1 Recommendations for NBB which could be considered include the following:

- Management, control and eradication of INNS where this occurs on land which may be used for site storage etc, or is within client ownership
- Re-instatement and/or enhancement of coastal grassland
- Create complex, textured surfaces within the rebuilt territory and primary walls to mimic natural habitats and provide attachment points for invertebrates
- Retrofitting or including pocket rock pools onto vertical sea defences, such as vertipools
- Tidal habitat enhancement measures to include ecological enhancement techniques to improve habitat heterogeneity on coastal defence structures, such as examples outlined in Hall et al., (2018)⁴¹ by creating grooves within the coastal defences, and
- Incorporation of Living Seawalls to provide ecologically valuable habitats into the seawall design.

6.2.2 Further opportunities for tidal habitat enhancement measures will be outlined within the Intertidal Survey Report.

⁴¹ Hall et al. (2018). Ecological enhancement techniques to improve habitat heterogeneity on coastal defence structures. Available online at: <https://doi.org/10.1016/j.ecss.2018.05.025>. [Accessed: 18/10/2024]

1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313

7 Conclusions and Summary

7.1 Summary

- 7.1.1 This Preliminary Ecological Appraisal report examines the potential ecological impacts of proposed flood defence improvements at North Promenade, Barmouth, Gwynedd, Wales. The report aims to establish baseline ecological conditions, assess potential constraints, recommend mitigation measures, and identify further survey needs.
- 7.1.2 The proposed project involves enhancing existing flood defences along a 1.2km stretch of North Promenade. This includes raising the secondary and tertiary flood walls, installing rock toe armour, nourishing the shingle beach, and refurbishing sheet piles. The project necessitates an Environmental Impact Assessment (EIA) and a Habitat Regulations Assessment (HRA) due to its potential significant effects.
- 7.1.3 The PEA involved a desk study, review of previous reports and consultations, and an extended Phase 1 habitat survey.
- 7.1.4 The report highlights relevant legislation and policies, including the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended), the Environment (Wales) Act 2016, Planning Policy Wales 12 (PPW12), Future Wales: The National Plan 2040, and local planning policies.
- 7.1.5 Four statutory designated sites are within 2km of the project area, including the Pen Llŷn a'r Sarnau Special Area of Conservation (SAC), which is within 100m. Seven Local Wildlife Sites and eleven areas of ancient woodland are also located within 2km.
- 7.1.6 The site comprises predominantly hardstanding (Marine Parade), intertidal habitats (boulders, shingle, mud/sand), and small patches of grassland and scrub. Invasive Non-Native Species (INNS), particularly Japanese knotweed, are prevalent in disturbed areas.
- 7.1.7 While no records of amphibians or reptiles exist for the site, suitable habitats are present. Records of badgers and bats exist within 2km, but no evidence was found on-site. Hedgehogs are likely present in surrounding grassland and residential areas. Otters have been recorded nearby and may utilise the intertidal zone. Several notable invertebrate and bird species have been recorded within 2km, with some observed on-site during the field survey.
- 7.1.8 The primary concern is potential disturbance to the Pen Llŷn a'r Sarnau SAC, specifically its mudflats and sandflats, due to rock toe armour installation, sheet pile refurbishment, and beach reprofiling. Mitigation measures include limiting works, implementing pollution control measures, restricting noisy works during sensitive periods, and using sensitive lighting. No direct impacts are anticipated on other designated sites covered within the scope of this assessment.



Preliminary Ecological Appraisal

- 7.1.9 Intertidal habitats are likely to be disturbed during construction. Mitigation includes incorporating habitat features into the new sea defences (e.g., stepped designs, textured surfaces). Coastal grassland may be lost or disturbed, requiring reinstatement post-construction. Measures to avoid disturbance to dune grassland and the use of bare ground for a compound site are recommended.
- 7.1.10 The report advises demarcating and avoiding INNS, providing training to contractors on INNS identification, and implementing biosecurity measures to prevent their spread.
- 7.1.11 Recommendations for protected species include avoiding habitat disturbance, careful vegetation clearance under ecological supervision, considering potential bat roosts in nearby buildings, minimising lighting impacts on bats and otters, and implementing Reasonable Avoidance Measures for otters. For birds, vegetation clearance should be timed outside the breeding season, with nest checks conducted if necessary.
- 7.1.12 The report suggests achieving a net benefit for biodiversity (NBB) through managing and eradicating INNS, reinstating and enhancing coastal grassland, creating habitat features on seawalls (e.g., textured surfaces, rock pools, living seawalls).

7.2 Conclusion

- 7.2.1 The project has the potential for negligible long-term biodiversity loss with appropriate mitigation. Further surveys are recommended for intertidal habitats, overwintering birds, and riparian mammals to inform the EIA and HRA. Biodiversity enhancements should be incorporated into the project design to achieve a net benefit for biodiversity.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ
 email: rml@rmlconsult.com web: www.rmlconsult.com
 Tel: +44(0)1824 704366
 Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



8 Report references

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1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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APPENDIX A: SITE LOCATION



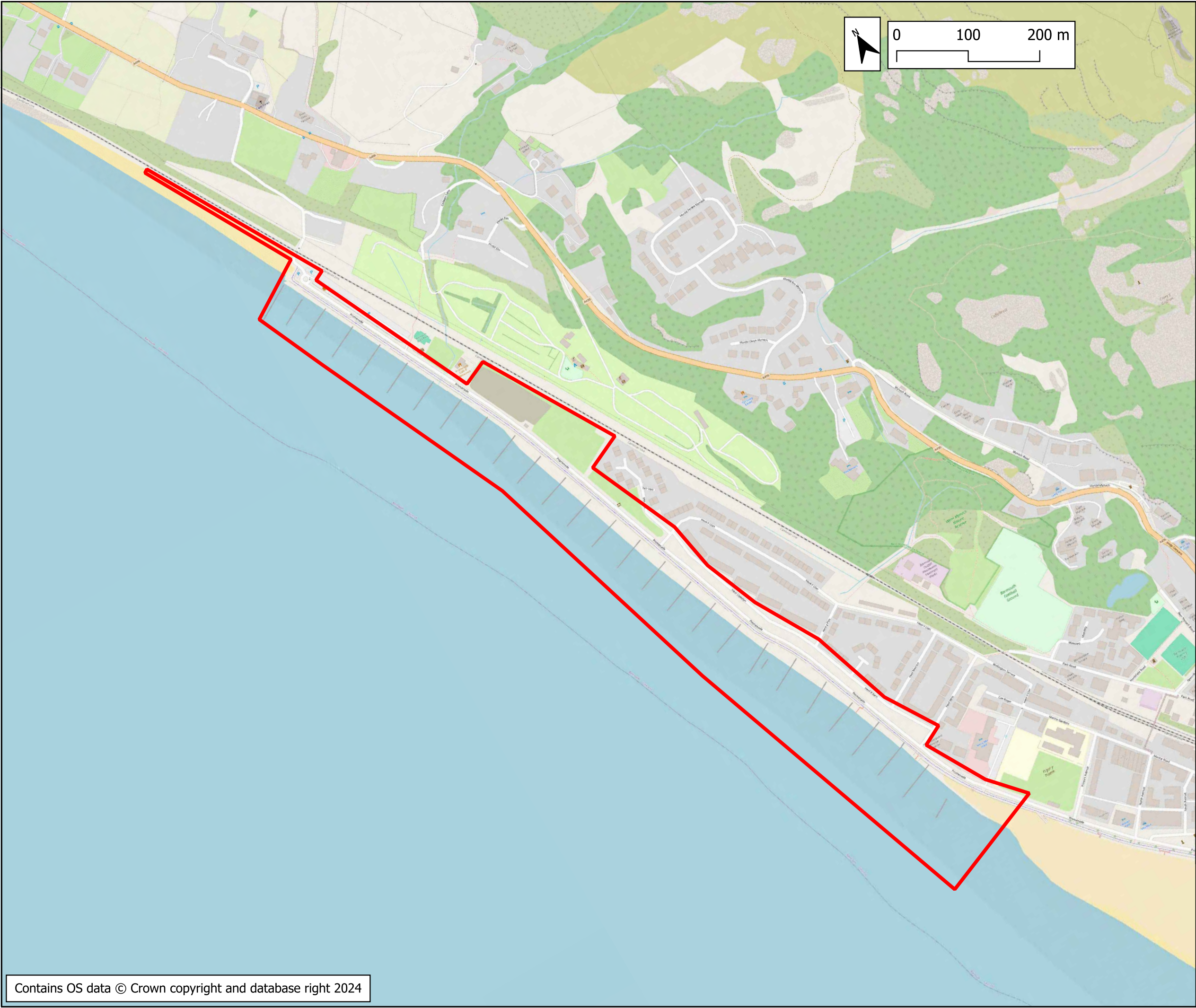
1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313





Cleient / Client:

ARUP

Enw project / Project name:

BARMOUTH NORTH PROMENADE

Teitl lluniad / Drawing title:

Site Location

Eglurhad / Key:

 Red Line Boundary

Scale of Insert map 1: 2500000



Graddfa / Scale (A3): 1:5000 @ A3	Dyddiad / Date: Oct 2024	Darlunwyd gan: Drawn by: KM
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		Cwriad: Revision: 01

Darparwyd gan / Prepared by:



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Rullecote, Denbighshire, LL15 1N3
Rhif Ffôn/Tel: +44 (0)1824 704366, Ffôn/Fac: +44 (0)1824 705450
e-bost/e-mail: info@rmlconsult.com, www.rmlconsult.com

APPENDIX B: PROPOSED PLANS



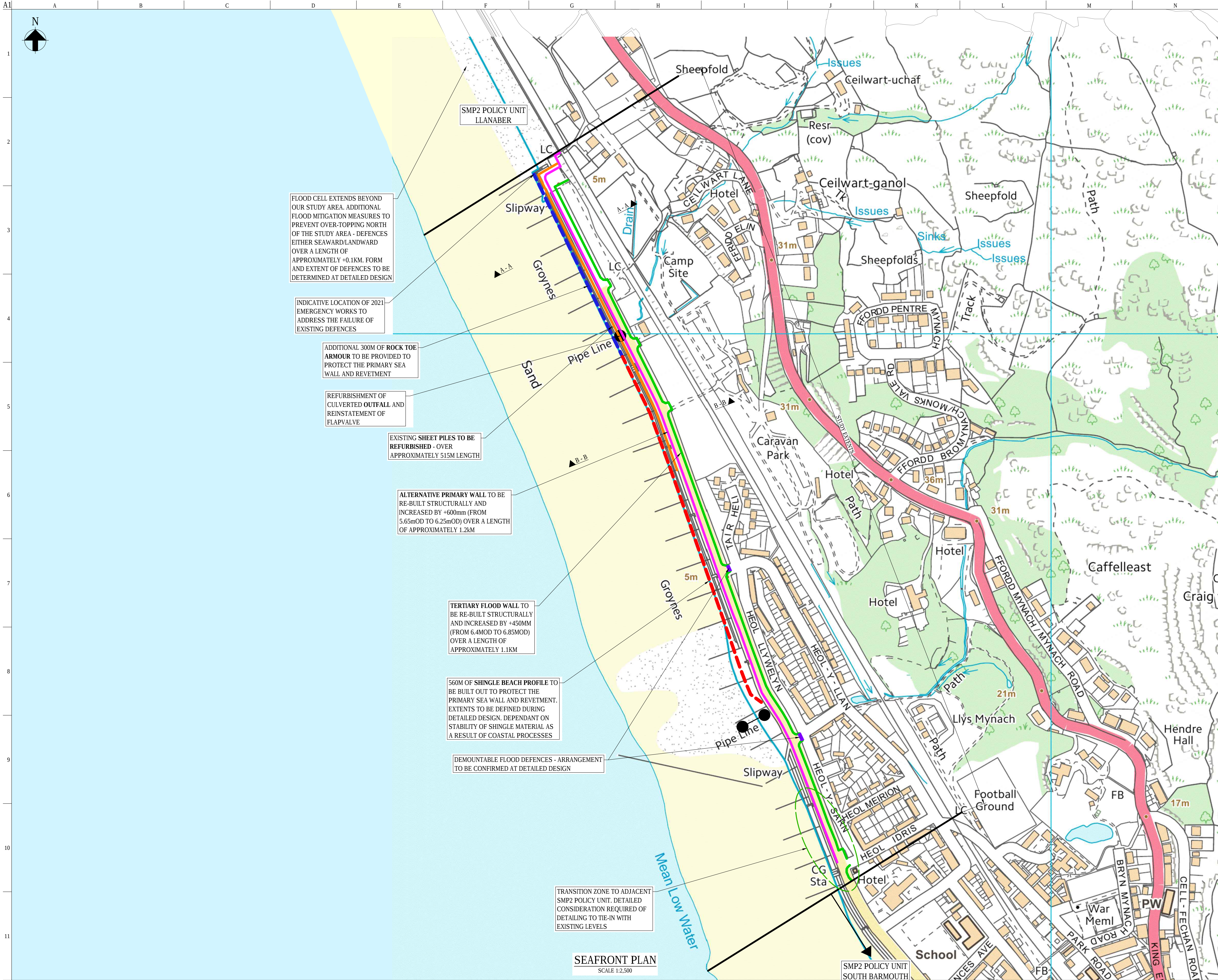
1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313





- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
 2. ALL LEVELS ARE IN METRES RELATIVE TO ORDINANCE DATUM.
 3. DO NOT SCALE FROM THIS DRAWING.
 4. TO BE READ IN CONJUNCTION WITH DRAWING ARP-XX-EP-DR-CS-001-SK.

- EXISTING DEFENCES:
- EXISTING SURFACE WATER CULVERT
 - EXISTING SURFACE WATER PUMPS AND FLAPPED OUTFALLS

- CONSTRUCTION ACTIVITIES WORKS:
- EXTENTS OF WORKS TO THE ALTERNATIVE PRIMARY WALL
 - EXTENTS OF REFURBISHMENT TO SHEET PILES
 - EXTENTS OF WORKS TO TERTIARY FLOOD DEFENCE WALL
 - EXTENTS OF ROCK TOE STRUCTURE TO AFFORD PROTECTION TO THE PRIMARY DEFENCES
 - EXTENTS OF ADDITIONAL BEACH MATERIAL TO AFFORD PROTECTION TO THE PRIMARY DEFENCES

P02	17/05/21	ASC	JT	RC
For Information				
Issue	Date	By	Chkd	Appd

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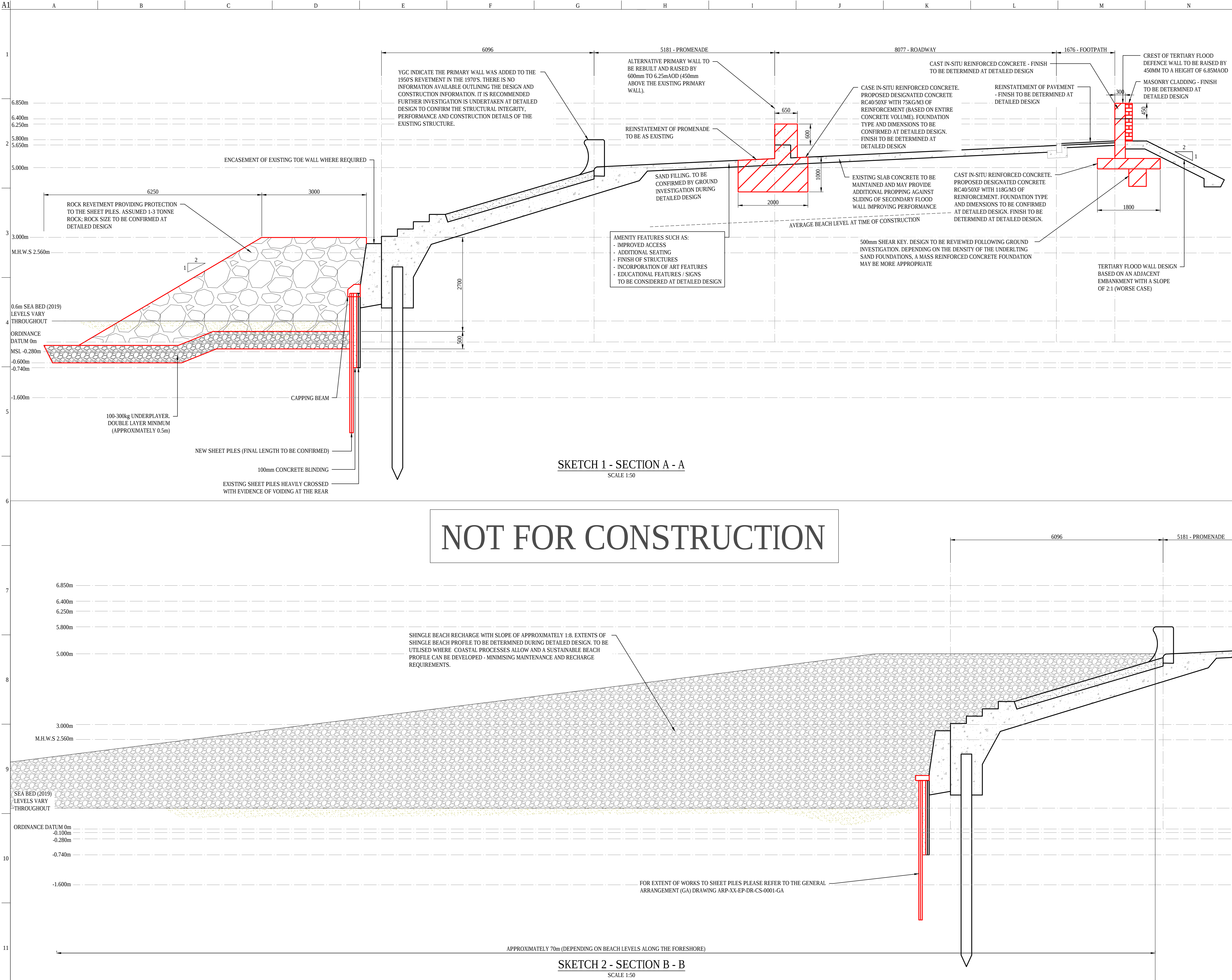
Cardiff CF10 4GP
Tel +44 (0)20 7536 1531 Fax +44 (0)20 7580 3924
www.arup.com

Client
YGC
(Ymgynghoriaeth Gwynedd Consultancy)

Job Title
Barmouth North Promenade

Extend Lifespan and Betterment of Existing Defenses

Scale at A1 1:2,500
Discipline Civil / Structural
Job No 264326-00 Drawing Status Information
Drawing No ARP-XX-EP-DR-CS-0001-GA Issue P02



- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
 - ALL LEVELS ARE IN METRES RELATIVE TO ORDINANCE DATUM.
 - DO NOT SCALE FROM THIS DRAWING.
 - DIMENSIONS OF THE EXISTING DEFENCES INFERRED FROM 1954 CONSTRUCTION DRAWINGS (1265/A/4) BY LEWIS & DUVIVIER CONSULTING ENGINEERS. PROVIDED BY YGC IN 2018. FURTHER WORK TO CONFIRM THE DIMENSIONS AND FORM OF THE EXISTING DEFENCES WILL BE REQUIRED DURING DETAILED DESIGN.
 - TO BE READ IN CONJUNCTION WITH DRAWING ARP-XX-EP-DR-CS-001-GA.

- LEGEND**
- EXISTING DEFENCES (INFERRED FROM 1954 CONSTRUCTION DRAWINGS)
 - NEW CONSTRUCTION WORKS

- ASSUMPTIONS:**
- THE DESIGN PRESENTED IS INDICATIVE AND PRELIMINARY, THE DRAWING IS TO BE USED FOR OBC BUDGETING PURPOSES ONLY. IT IS RECOMMENDED FURTHER MODELLING AND SURVEYS ARE UNDERTAKEN AT DETAILED DESIGN TO REDUCE RISK AND FURTHER DEFINE THE FORM OF THE WORKS.
 - WORKS TO THE PRIMARY FLOOD WALL HAVE BEEN AVOIDED DUE TO A LACK OF CONSTRUCTION / SURVEY INFORMATION AND CONCERNS AROUND THE STRUCTURAL STABILITY (IF WORKS TO THE RAISE OR REPLACE THE STRUCTURE WERE UNDERTAKEN). THIS SHOULD BE REVIEWED AT DETAILED DESIGN.
 - MODELLING IS REQUIRED AT DETAILED DESIGN TO DEFINE THE ANTICIPATED WAVE LOADING ON THE PRIMARY, SECONDARY AND TERTIARY WALLS. AT PRESENT, THE DESIGN CRITERIA ASSUMES:
 - 75-120kN/M WAVE LOADING ON PRIMARY WALL.
 - 30% OF WAVE LOADING ON SECONDARY FLOOD WALL
 - <10% OF WAVE LOADING ON TERTIARY FLOOD WALL.
 - IMPACT FROM DEBRIS DOES NOT OCCUR AT THE SAME TIME AS WAVE LOADING.
 - AT PRESENT, NO ADDITIONAL PROPPING AGAINST SLIDING OF SECONDARY WALL PROVIDED BY THE EXISTING REVETMENT.

PLEASE REFER TO THE PREFERRED OPTION RISKS AND ASSUMPTIONS REGISTER IN APPENDIX J FOR FULL DETAILS.

P02	17/05/21	ASC	PA	RC
For Information				
Issue	Date	By	Chkd	Appd

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Cadiff CF10 4QP
Tel +44 (0)20 7536 1531 Fax +44 (0)20 7580 3924
www.arup.com

Client
YGC
(Ymgynghoriaeth Gwynedd Consultancy)

Job Title
Barmouth North Promenade

Extend Lifespan and Betterment of Existing Defenses

Scale at A1
1:2,500

Discipline
Civil / Structural

Job No
264326-00

Drawing Status
Information

Drawing No
ARP-XX-EP-DR-CS-0001-SK

Issue
P02

APPENDIX C: LEGISLATION

The following has been produced as a guide. For a definitive list of all species of flora and fauna, and a full interpretation you should refer to relevant Acts listed below.

Conservation of Habitats and Species Regulations 2017 (as amended)

Schedule 2 applies to all Protected Species which includes all bat species, otters, great crested newts, dormice, otters, sand lizards, smooth snake and natterjack toad amongst others. The protection afforded is overlapping but separate from the Wildlife and Countryside Act 1981 (as amended).

It is an offence:

- to deliberately capture, injure or kill
- to deliberately disturb
- to damage or destroy a breeding site or resting place of a protected species; this applies whether species are present or not.

Regulation 9 of the Habitats Regulations requires the appropriate authority, the nature conservation bodies and competent authority must exercise their functions which are relevant to nature conservation so as to secure compliance with the requirements of the Directives.

Regulation 10 of the Habitat Regulations requires the appropriate authority, the nature conservation bodies and a competent authority must take such steps in the exercise of their functions as they consider appropriate to secure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive (measures to maintain the population of bird species).

The Wildlife and Countryside Act 1981 (as amended)

Applies to all wild birds where it is an offence:

- to kill, injure or take any wild bird (subject to certain exceptions)
- to take, damage or destroy a nest whilst it is in use or being built
- to take or destroy the egg of any wild bird

Schedule 1

It is also an offence to disturb any wild bird listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)

- while it is nest building
- at a nest containing eggs or young
- disturbs the dependant young of any such bird.

Schedule 5

For animals fully protected under Schedule 5 which includes all bats, great crested newts, otters, water voles, sand lizards, smooth snake and natterjack toad, it is an offence:

- to intentionally kill or injure or take
- to intentionally damage or destroy or obstruct access to any structure or place which a species uses for shelter or protection, at any time even if the animal is not there

Preliminary Ecological Appraisal

- to intentionally disturb whilst it is occupying a place which it uses for shelter or protection
- to obstruct access to any structure or place which an animal uses for shelter or protection

Adder, grass snake, common lizard and slow worm are only protected from being killed or injured and the white-clawed crayfish is only protected from being taken.

Schedule 9

Invasive non-native species are listed under Schedule 9. It is an offence:

- to plant or otherwise cause to grow in the wild any species listed on Schedule 9.

In addition, The Invasive Alien Species (Enforcement & Permitting Order) took effect on the 1st December 2019. It introduces enforcement provisions, offences and penalties needed to comply with the requirements of EU Regulation (1143/2014) on the prevention and management of the introduction and spread of invasive alien species. The provisions apply to 66 species known as 'species of Union concern'. Under the Order, NRW and the police may impose criminal sanctions in Wales relating to an offence under the Order. As the regulator, NRW may also impose civil sanctions.

Licences may be issued under the Order allowing activities which are prohibited under the EU Regulation to be carried out. These activities can only be carried out in compliance with the conditions of a licence. Natural Resources Wales are the licensing body in Wales.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 fully protects badgers and their setts.

It is an offence to kill, injure or take a badger, or to damage or interfere with a sett unless a licence is obtained from Natural Resources Wales.

Offences include:

- killing, injuring and taking (or attempting these)
- possession of a dead badger (or derivative)
- cruelly ill-treating a badger
- damaging a badger sett or any part of it
- destroying a badger sett
- obstructing access to / entrance of a badger sett
- causing a dog to enter a badger sett
- disturbing a badger whilst occupying a sett.



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



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APPENDIX D: COFNOD DATA

Provided separately



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313



APPENDIX E: PHASE 1 PLAN AND TARGET NOTES



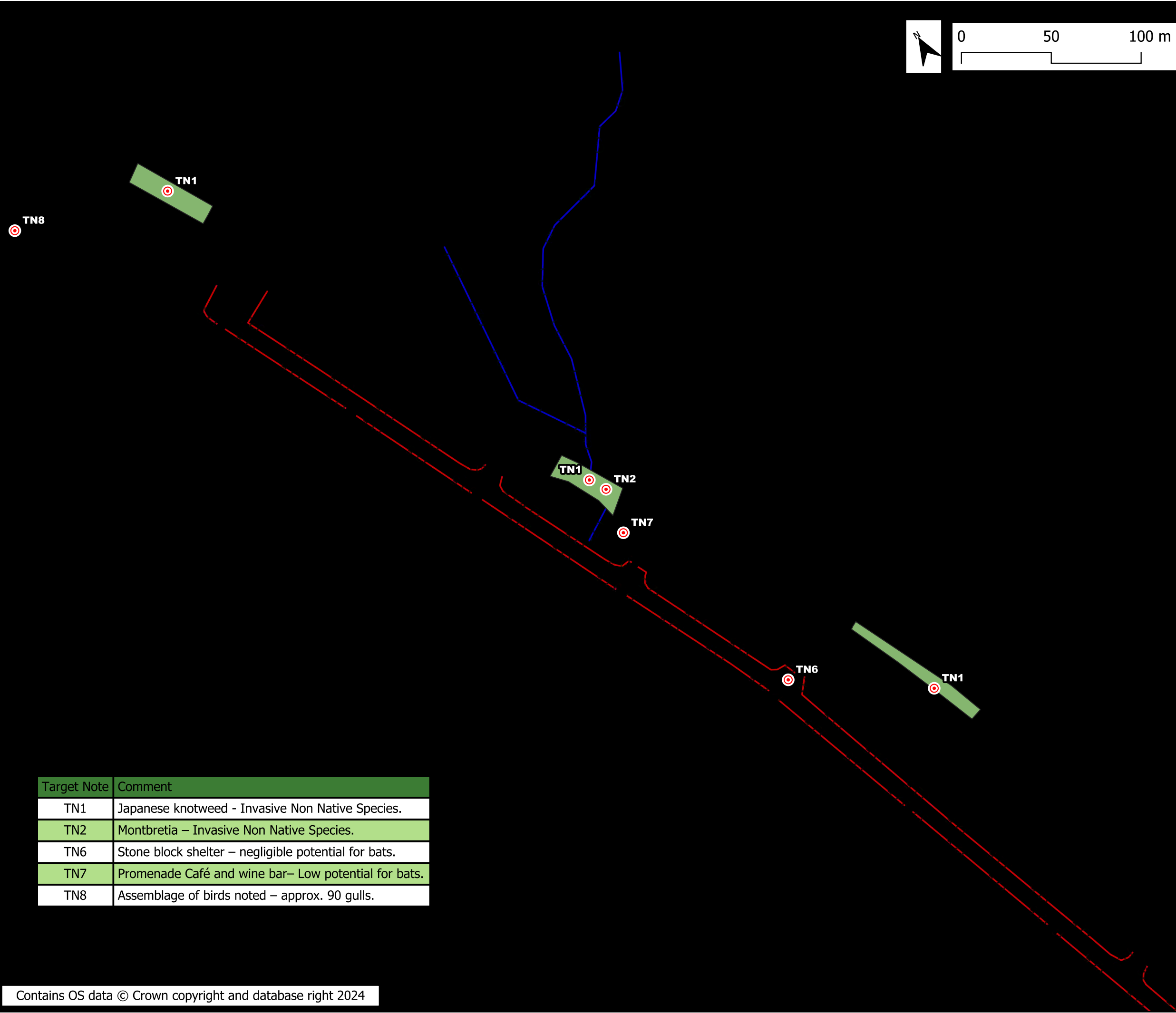
1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313





Target Note	Comment
TN1	Japanese knotweed - Invasive Non Native Species.
TN2	Montbretia – Invasive Non Native Species.
TN6	Stone block shelter – negligible potential for bats.
TN7	Promenade Café and wine bar– Low potential for bats.
TN8	Assemblage of birds noted – approx. 90 gulls.

Cleient / Client:

ARUP

Enw project / Project name:

BARMOUTH NORTH PROMENADE

Teitl lluniad / Drawing title:

Phase 1 Habitat Plan

Eglurhad / Key:

Red Line Boundary

Invasive Non Native Species (INNS) indicative extents

A2.1 - Scrub - dense/continuous

A2.2 - Scrub - scattered

C3.1 - Other tall herb and fern - ruderal

H1.1 - Intertidal - mud/sand

H1.2 - Intertidal - shingles/cobbles

H6.5 - Dune grassland

H8.4 - Coastal grassland

J3.5 - Artificial sea wall

J3.6 - Buildings

J4 - Bare ground

J5 - Other habitat - hardstanding

G2.1 - Running water - eutrophic

J2.5 - Wall

Target Note

Graddfa / Scale (A3):

1:2000 @ A3

Dyddiad / Date:

Oct 2024

Orffurwyd gan:

KM

Rhif lluniad / Drawing number:

3316-RML-DR-E-101

Gwirwyd gan:

DH

Darparwyd gan / Prepared by:

RML

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1 Llys Cwyl, Cwrt Y Dderwen, Ffordd Celyn, Ruffin, Denbighshire, LL15 1ND
Rhif Ffôn/Tel: +44 (0)1824 704566, Ffôn/Facs: +44 (0)1824 705450
e-bod/e-mail: ml@rmlconsult.com, Gwefay/Website: www.rmlconsult.com



Target Note	Comment
TN1	Japanese knotweed - Invasive Non Native Species.
TN3	Coast guard rescue station – negligible potential for bats.
TN4	Substation - Moderate potential for bats.
TN5	Garages - Low potential for bats.

Cleient / Client:

ARUP

Enw project / Project name:

BARMOUTH NORTH
PROMENADE

Teitl lluniad / Drawing title:

Phase 1 Habitat Plan

Eglurhad / Key:

Red Line Boundary

Invasive Non Native Species (INNS)
indicative extents

A2.1 - Scrub - dense/continuous

A2.2 - Scrub - scattered

C3.1 - Other tall herb and fern - ruderal

H1.1 - Intertidal - mud/sand

H1.2 - Intertidal - shingles/cobbles

H8.4 - Coastal grassland

J1.2 - Cultivated/disturbed land
- amenity grassland

J3.5 - Artificial sea wall

J3.6 - Buildings

J5 - Other habitat - hardstanding

G2.1

G2.1 - Running water - eutrophic

J2.5

J2.5 - Wall

Target Note

Graddfa / Scale (A3):
1:2000@ A3

Dyddiad / Date:
Oct 2024

Darlunwyd gan:
Drawn by:
KM

Rhif lluniad / Drawing number:
3316-RML-DR-E-101

Cwriad /
Revision:
01

Gwirwyd gan:
Checked by:
DH

Darparwyd gan / Prepared by:

RML

1 Llys Clwyd, Cwm Y Dderwen, Ffordd Celyn, Ruffry, Denbighshire, LL15 1ND
Rhif Ffôn/Tel: +44 (0)1824 704566, Ffôn/Fac: +44 (0)1824 705450
e-bost/e-mail: ml@mikonsult.com, Gwefay/Website: www.mikonsult.com

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APPENDIX F: DESIGNATED SITES



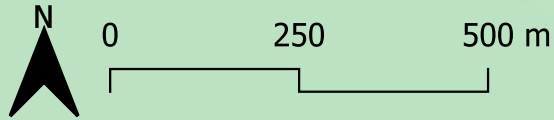
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email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313





Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC

Eryri National Park

Coedydd Derw a Safleoedd Ystlumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC

Barmouth Hillside SSSI

Aber Mawddach / Mawddach Estuary SSSI

Cleient / Client:

ARUP

Enw project / Project name:

BARMOUTH NORTH PROMENADE

Teitl lluniad / Drawing title:

Statutory Designated Sites

Eglurhad / Key:

Red Line Boundary

Statutory Designated sites

Special Area of Conservation

Special Site of Scientific Interest

Eryri National Park

Source data provided by Cofnod

Graddfa / Scale (A3):

1:10000 @ A3

Dyddiad / Date:

Oct 2024

Darlunwyd gan:

KM

Drawn by:

DH

Rhif lluniad / Drawing number:

3316-RML-DR-E-102

Checked by:

01

Copied:

Revision:

Darparwyd gan / Prepared by:



1 Llyn Clynid, Cwm Y Dderwen, Ffordd Celyn, Rullecott, Denbighshire, LL15 1ND
Rhif Ffôn/Tel: +44 (0)1824 704566, Ffôn/Fax: +44 (0)1824 705450
e-bost/e-mail: rml@rmlconsult.com, Gwefan/Website: www.rmlconsult.com

APPENDIX G: NON STATUTORY DESIGNATED SITES



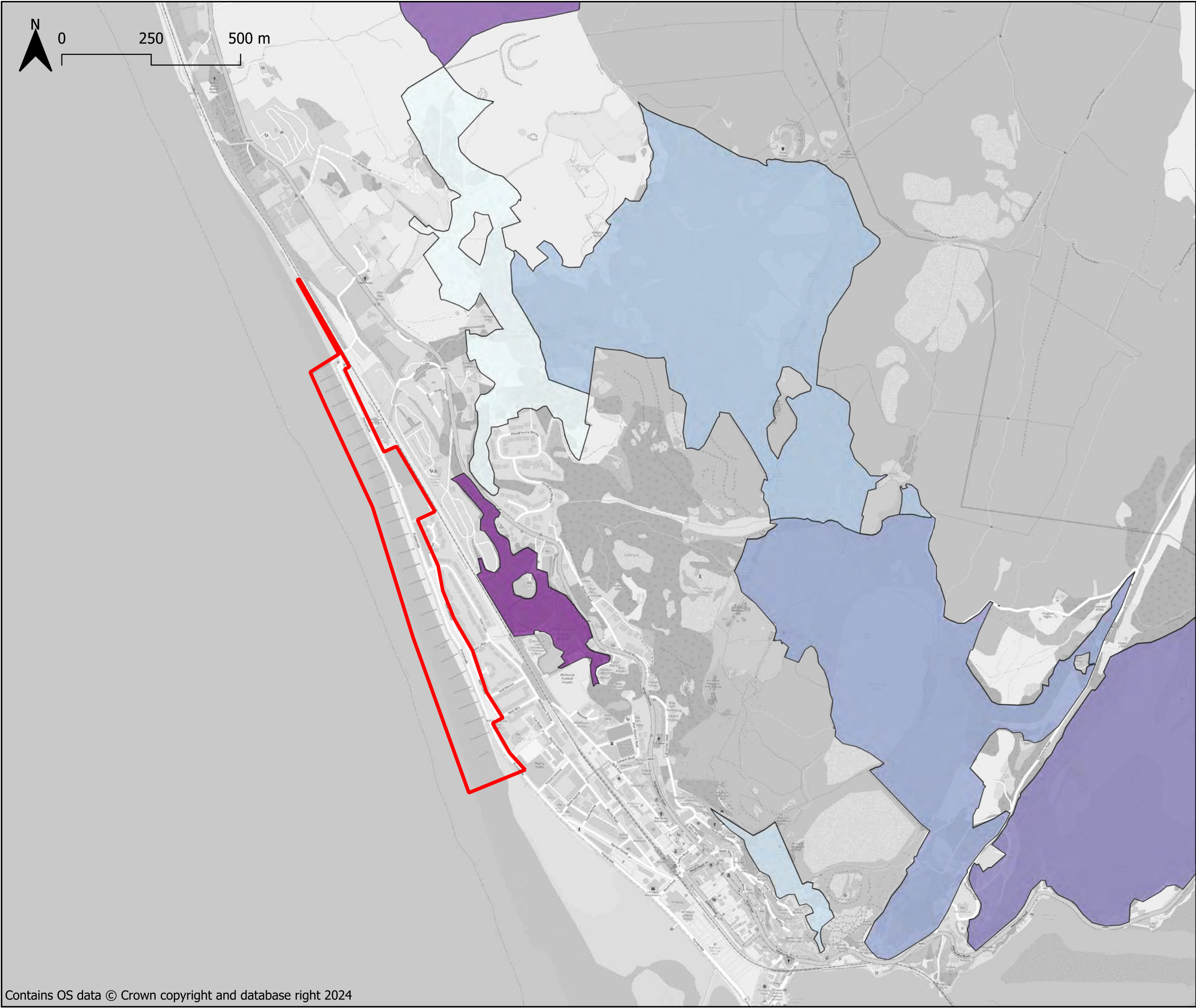
1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1NJ

email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

Registered in England and Wales No. 1848683 VAT Reg No. 401 424 313





Cleient / Client:

ARUP

Enw project / Project name:

**BARMOUTH NORTH
PROMENADE**

Teitl lluniad / Drawing title:

**Non Statutory
Designated Sites**

Eglurhad / Key:

 Red Line Boundary

Wildlife Sites (Candidate)

 Ceilwart-ganol

 Dinas Oleu

 Ffridd y Graig & south to Garn

 Garn

 Orielton Wood

 Tyddyn-y-nant

 Wern Mynach

Source data provided by Cofnod

Graddfa / Scale (A3): 1:10000@ A3	Dyddiad / Date: Oct 2024	Darlunwyd gan: Drawn by: KM
Rhif lluniad / Drawing number: 3316-RML-DR-E-103	Chwiliwyd gan: Checked by: DH	Cwriad: Revision: 01

Darparwyd gan / Prepared by:



RML

1 Llys Cwyl, Cwrt Y Dderwen, Ffordd Celys, Ruthin, Denbighshire, LL15 1N3
Rhif Ffôn/Tel: +44 (0)1824 704566, Ffacs/Fax: +44 (0)1824 705450
e-bost/e-mail: rm@rmlconsult.com, info@rmlconsult.com, www.rmlconsult.com



Cleient / Client:

ARUP

Enw project / Project name:

**BARMOUTH NORTH
PROMENADE**

Teitl lluniad / Drawing title:

Priority Ecological Networks

Eglurhad / Key:

Red Line Boundary

Priority Ecological Networks

Marine

Native Woodland

Semi-Natural Grassland

Source data provided by Cofnod

Graddfa / Scale (A3):	Dyddiad / Date:	Darlunwyd gan:
1:5000@ A3	Nov 2024	KM
Rhif lluniad / Drawing number:		Gwilywyd gan:
3316-RML-DR-E-106		DH
		Cwriad:
		Revision:
		01

Darparwyd gan / Prepared by:

RML

1 Llys Cwyl, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire, LL15 1ND
Rhif Ffôn/Tel: +44 (0)1824 704566, Ffôn/Fac: +44 (0)1824 705450
e-bost/e-mail: rm@rmlconsult.com, www.rmlconsult.com

APPENDIX H: ANCIENT WOODLAND



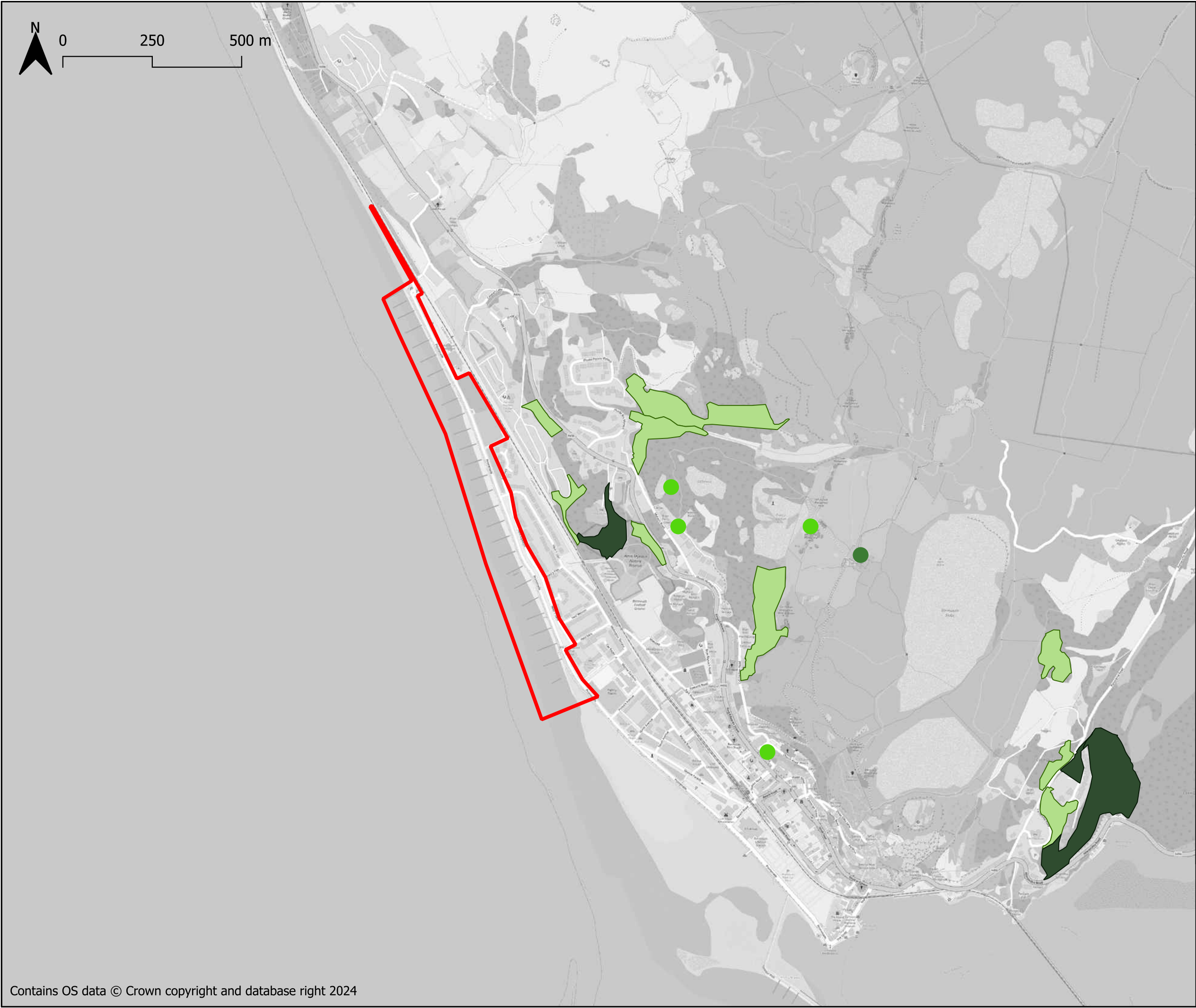
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email: rml@rmlconsult.com web: www.rmlconsult.com

Tel: +44(0)1824 704366

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Cleient / Client:

ARUP

Enw project / Project name:

BARMOUTH NORTH
PROMENADE

Teitl lluniad / Drawing title:

Ancient Woodland

Eglurhad / Key:

Red Line Boundary

Ancient Woodland

Ancient Semi Natural Woodland

Restored Ancient Woodland Site

Ancient Tree Inventory

Notable tree

Veteran tree

Source data provided by Cofnod

Graddfa / Scale (A3): 1:10000 @ A3	Dyddiad / Date: Oct 2024	Darlunwyd gan: Drawn by: KM
Rhif lluniad / Drawing number: 3316-RML-DR-E-104		Gwiriwyd gan: Checked by: DH
		Cwriad: Revision: 01

Darparwyd gan / Prepared by:



1 Llys Clwyd, Cwrt Y Dderwen, Ffordd Celyn, Ruthin, Denbighshire LL15 1N3

Rhif Ffôn/Tel: +44 (0)1824 704366, Ffacs/Fac: +44 (0)1824 705450

e-bost/e-mail: rm@rmlconsult.com, info@rmlconsult.com, www.rmlconsult.com

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APPENDIX I: PHOTOGRAPHS AND REFERENCE PLAN

Photo Ref	Feature/Description	Image
Photograph 1	Sea defences and intertidal habitat	
Photograph 2	Coastal shingle/cobble and sheet piling.	
Photograph 3	Coastal grassland .	
Photograph 4	Watercourse and Japanese knotweed	

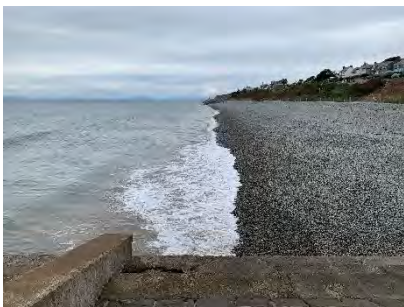
Preliminary Ecological Appraisal

Photo Ref	Feature/Description	Image
Photograph 5	Fence around culverted section of larger watercourse	
Photograph 6	Coastal grassland colonising sea wall	
Photograph 7	Coastal grassland adjacent to former compound site	

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Photo Ref	Feature/Description	Image
Photograph 8	Japanese knotweed to the rear of the former compound site and bareground	
Photograph 9	Stands of Japanese knotweed	
Photograph 10	Bareground	
Photograph 11	Dune grassland	

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Photo Ref	Feature/Description	Image
Photograph 12	Ditch in dune grassland	
Photograph 13	Coastal shingle cobble	
Photograph 14	Small track to the west, may be used for access	

