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23 December 2020

Dear Sir/Madam,

Environmental Impact Assessment (EIA) Screening Opinion Request
Marine Works (Environmental Impact Assessment) (Amendment)
Regulations 2007
Penrhyn Bay Coastal Scheme
Conwy County Borough Council (CCBC)

Ove Arup and Partners Ltd. (Arup) is working with Conwy County Borough Council (CCBC) to reduce flood and coast erosion risk in the Penrhyn Bay area of Conwy. This EIA Screening Opinion request provides our view on the EIA Screening status of the proposed coastal improvement works for your consideration and provides for a formal request for an EIA Screening Opinion from Conwy County Borough Council. This report is prepared in accordance with the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2007; hereafter referred to as the 'EIA Regulations'.

1 Background

Penrhyn Bay is a coastal embayment which lends its name to the small town located between the renowned seaside resorts of Llandudno and Colwyn Bay, North Wales. The study frontage is approximately 800m in length contained between the northern breakwater National Grid Reference (NGR): SH8235781963 and south-eastern breakwater NGR: SH8295881523. Of this, approximately 450m is comprised of publicly maintained defences consisting of a 1950s stepped concrete seawall, which has suffered significant levels of deterioration due to the previous on-going erosion of beach levels. The remaining 350m of frontage is in a more self-sustaining natural condition and is in private ownership.

At present, the sand and shingle material which makes up the beach is mobile, particularly during storm events, encouraging transportation from the centre of the bay towards the eastern breakwater. Hence, CCBC must undertake regular beach maintenance activities in order to protect the existing back-shore assets at a significant cost to CCBC's capital maintenance funds.

The Shoreline Management Plan states that the policy for Penrhyn Bay is to 'Hold the Line'; whilst the Conwy Local Development Plan (LDP) emphasises the importance of preserving the county's unique natural beauty, safeguarding public rights of way and allowing tourism to continue to make a vital contribution to the economy.

The existing defences provide coastal erosion and tidal flooding protection to over 300 residential and commercial properties, utilities infrastructure (including a Dŵr Cymru Welsh Water (DCWW) pumping station, a Wastewater Treatment Works (WwTW) sea outfall and SP Energy Networks assets), the adjacent promenade, A547 highway, Wales Coast Path, National Cycle Route, and the Rhos-on-Sea Golf Club. The present beach and promenade also form a key part of the local community's well-being and recreation space, whilst adding to Conwy's wider tourist attractions. An and erosion and flood risk plan is presented in Appendix C.

In the absence of the continuing beach management works, regularly undertaken by CCBC, the sea wall and revetment are highly likely to fail through the on-going draw-down of the foreshore exposing the corroded and structurally weak sheet piled toe foundations. The present regime of maintenance activities is unsustainable and is likely to increase in frequency over time, as the mobility of the beach increases due to the beach material particle attrition and the increasing severity of storm events and sea level rise associated with climate change.

The Investment Objectives for the project are to:

1. Manage the effects of flood risk and coastal erosion to people and property.
2. Reduce the on-going capital maintenance costs experienced as part of the present beach maintenance regime to safeguard the public backshore assets.
3. Meet the objectives of the Shoreline Management Plan (SMP2) for Penrhyn Bay, which include:
 - 'Holding the Line'.
 - Maintaining and widening the beach.
 - Acting in an environmentally acceptable way.
4. Incorporate wider benefits and added amenity value into project design and construction (including consideration of Welsh Government's Community Benefits Policy and the Well-Being of Future Generations (Wales) Act 2015). To maintain and, where possible, enhance the natural environment.
5. Maintain and improve the local area – with an awareness of the amenity value presently provided by Colwyn Bay and Llandudno (neighbouring towns).

2 Scheme Development

2.1 Outline Business Case Design

The options appraisal was undertaken in 2019 as part of the Outline Business Case (OBC) that was approved in 2019. A range of options to manage coastal erosion were considered during the development of the OBC, including:

- Option A: Do nothing - cease existing defence maintenance.
- Option B: Do minimum – continue with existing defence maintenance to maintain current standard of protection.
- Option C: Recharge central section with coarser beach material to reduce beach mobility.
- Option D: New central promontory (i.e. central shore connected beach control structure).
- Option E: New rock groynes (timber groynes previously discounted).
- Option F: New nearshore detached breakwater.
- Option D: the installation of a new central promontory (i.e. central shore connected beach control structure was adopted as the preferred option.

2.2 Post-Outline Business Case Design Development

The post outline business case requires development of a detailed design prior to consenting of the preferred solution. Prior to any development taking place, by CCBC or others, confirmation is required as to whether the preferred solution would need to be taken forward as EIA Development.

2.3 Proposed Scheme

An overview of the outline design of the current scheme proposals (thereafter referred to as the 'Proposed Development') is shown in Appendix A. This includes cross reference to other relevant drawings (where available) and the proposed defence levels. In summary, the proposed coastal works comprise the installation of a promontory or groyne-type structure, extending the promenade seaward, to be constructed towards the eastern section of the publicly maintained bay. This option would effectively compartmentalise the embayment into two sub-sections. The structure is required to be a total width of 65m and lie around 100m seaward of the existing seawall.

An additional area of as yet unmodelled beach nourishment is proposed to build out beach profiles around the promontory structure (assumes a 20m berm at c.6mODN). It is anticipated that this material would be localised to the new rock groyne, approximate 68,500m³ and comprise similar material to existing beach deposits (Appendix E).

The structure's exact position, dimensions and nature of beach nourishment are to be determined based on future detailed modelling studies.

The timescale for the Proposed Development is currently uncertain, given investment programme pressures. However, if funding can be secured and consents obtained, the earliest construction start date is March 2022.

3 Environmental Baseline

The following comprises desk study and biodiversity survey to inform the project. An environmental constraints plan is provided in Appendix B.

3.1 Socio-Economic

The proposed works aim to provide erosion and flood protection to c. 300 properties and businesses. Flood and erosion related damages are predicted to include: [1] 1 in 100 year event – 275 properties; [2] 1 in 200 year event – 316 properties; [3] loss of the Rhos-on-Sea Golf Club and Hotel; [4] critical utility assets (potable and sewerage main, DCWW outfalls, pumping station, broadband, gas and electricity network); [5] A547 Glan-y-Mor Road and the promenade (Public Right of Way (PRoW), Wales Coast Path, National Cycle Route 5). The Rhos-on-Sea Golf Club and Hotel, which has more than 1,000 members, and includes a 12-bedroom hotel with a restaurant and supports 12-15 full-time jobs¹ is located directly adjacent to the sea defences. The Golf Club is reluctant to make further investments (of up to £1million) due to concerns related to the flood risk at Penrhyn Bay and the Afon Ganol.

The proposed improvement works will be undertaken adjacent to the promenade which is a PRoW and forms part of the Wales Coast Path and National Cycleway 5. The promenade forms the main pedestrian access along Glan-y-Mor Road, as such recreational use is considered to be high. The eastern end of Glan-y-Mor Road is bound to the south by Ross-on-Sea Golf Club. Potential effects on the use and value attached to these areas by residents and visitors will be a key consideration during detailed design. No impediment to the promenade is anticipated; however, public realm improvements are anticipated to be delivered through detailed design.

3.2 Protected Sites

The following protected sites are located within the study area and are described in more detail in the relevant sections below.

Site	Designation Status	Distance (km)
Statutory		
Liverpool Bay Special Protection Area (SPA)	International	120m north
Creuddyn Site of Special Scientific Interest SSSI	National	0.6km west
Chapel at Penrhyn Old Hall Scheduled Monument (SM)	National	0.8km west
Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Area of Conservation (SAC)	International	0.8km north west
Creigiau Rhiwledyn/Little Ormes Head SSSI	National	1.1 km north west
Llys Euryn Medieval House Llandrillo-Yn-Rhos (SM)	National	1.2km south

¹ Information provided by Rhos on Sea Golf Course (March 2017)

Site	Designation Status	Distance (km)
Coedwigoedd Penrhyn Creuddyn / Creuddyn Peninsula Woods SAC	International	1.2 km south west
Bryn Euryn SSSI	National	1.3 km south
Bryn Euryn Local Nature Reserve (LNR)	National	1.3 km south
Bryn Euryn Camp (SM)	National	1.6km south
Ogof Pant-Y-Wennol (SM)	National	1.7km west

3.3 Biodiversity

Desk and field survey in accordance with CIEEM standards have informed the biodiversity baseline for the proposals. A Preliminary Ecological Appraisal (PEA) including Extended Phase I Habitat Survey was undertaken on 10th December 2020; refer to Appendix D. An environmental constraints plan is also provided in Appendix B.

Liverpool Bay / Bae Lerpwl Special Protection Area (SPA) - The proposed rock groyne is located approximately 120m south of the Liverpool Bay SPA boundary. Qualifying features include: Red-throated diver (*Gavia stellata*) (non-breeding season); 6.89% of GB population; Little gull (*Hydrocoloeus minutus*) (non-breeding season); Common scoter (*Melanitta nigra*) (non-breeding season); 10.31% of NW European Population; Little tern (*Sternula albifrons*) (breeding season); 6.84% of GB population; Common tern (*Sterna hirundo*) (breeding season); 1.80% of GB population; waterbird assemblage - the main components of the assemblage include all of the non-breeding qualifying features listed above, as well as an additional two species present in numbers exceeding 1% of the GB total: red-breasted merganser (*Mergus serrator*) and great cormorant (*Phalacrocorax carbo*). The SPA encompasses marine areas supporting aggregations of wintering red-throated diver and common scoter as well as important marine foraging areas of little terns breeding within the Dee Estuary SPA, and foraging areas of common terns breeding at the Mersey Narrows & North Wirral Foreshore SPA. The PEA confirms that the SPA species primarily occur offshore and that Penrhyn Bay experiences frequent disturbance making it unsuitable for nesting terns.

Creuddyn SSSI - Creuddyn SSSI is located approximately 0.6km west of Penrhyn Bay and is of special interest for its botanical and entomological features; semi-natural woodland, calcareous grassland, rare vascular plant assemblage including spiked speedwell (*Veronica spicata*) and grassland invertebrate assemblage. No pathway for effect has been identified due to the nature of the proposed works, notification for non-mobile terrestrial features and spatial separation.

Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC - the Menai Straits and Conwy Bay SAC borders the Little Orme, approximately 0.8km to the west. Annex I habitats that are a primary reason for selection of this site: sandbanks which are slightly covered by sea water all the time; mudflats and sandflats not covered by seawater at low tide; and reefs. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: large shallow inlets and bays; and submerged or partially submerged sea caves. The SAC is only notified for habitats and as such due to spatial separation no pathway for effect has been identified.

Creigiau Rhiwledyn / Little Ormes Head SSSI - Little Ormes Head (Creigiau Rhiwledyn) is of special scientific interest for its geological, botanical, ornithological and

marine biological features. The limestone headland, which rises to a height of 141 m, includes sea cliffs and boulders and extends for 1.4 km along the North Wales coastline, separating Penrhyn Bay from Llandudno Bay. No pathway for effect has been identified due to the nature of the proposed works and spatial separation.

Coedwigoedd Penrhyn Creuddyn / Creuddyn Peninsula Woods SAC - Creuddyn Peninsula Woods SAC is located 1.2 km south west of the proposals. Annex I habitats that are a primary reason for selection of this site include: *Tilio-Acerion* forests of slopes, screes and ravines. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites), and *Taxus baccata* woods of the British Isles. No pathway for effect has been identified due to the nature of the proposed works, notification for non-mobile terrestrial features and spatial separation.

Bryn Euryn SSSI and LNR - Bryn Euryn SSSI and LNR is located 1.3 km south of the proposed works. An area of species rich grassland developed on a prominent hill formed mainly of Carboniferous Limestone which outcrops on the southern side in a series of crags. The grassland, which is ungrazed, is dominated by hairy oat grass (*Avenula pubescens*) together with meadow oat grass (*Avenula pratense*), crested hair grass (*Koeleria macrantha*), quaking grass (*Briza media*), common rockrose (*Helianthemum nummularium*), salad burnet (*Sanguisorba minor*) and lesser meadow rue (*Thalictrum minus*). Uncommon species include dropwort (*Filipendula vulgaris*), white horehound (*Marrubium vulgare*) and green-winged orchid (*Orchis morio*). No pathway for effect has been identified due to the nature of the proposed works, notification for non-mobile terrestrial features and spatial separation.

Protected Habitats and Species – No evidence or signs of presence for European or Nationally Protected Species were recorded during the Extended Phase 1 Habitat Survey; although the potential for commuting otter was identified. *Sabellaria alveolata* (honeycomb worm) reef is listed as a Priority Habitat under Section 7 of the Environment (Wales) Act 2016 within the category of ‘Littoral Rock’. This habitat is present within the site and is likely to be affected by the project. Measures to avoid, reduce or offset effects to this habitat will be investigated at the detailed design stage. An intertidal biotope survey is also recommended to inform avoidance or reduction measures associated with the *Sabellaria alveolata* reef.

An Ecological Impact Assessment will be conducted during the detailed design stage to inform the subsequent consent applications. A Habitats Regulations Assessment (HRA) will also be prepared to support the consent applications to confirm no likely significant effect on nearby European Sites.

3.4 Historic Environment

The proposed works will not be undertaken within any statutory heritage designated areas; no Scheduled Monuments or Listed Buildings are present within the vicinity of the scheme.

Chapel at Penrhyn Old Hall SM – located 0.8km west comprising a sixteenth century chapel associated with the nearby mansion of Penrhyn Old Hall. The site is a rectangular building 7.5m by 4.3m internally, and with walls about 1m thick. There is a two centred doorway at the west end, with a crucifixion above it and a circular window above that. There are two single lancet windows in the north wall, which are late insertions with brick

arches. There are two single lancet windows in the south wall with red sandstone quoins; the east wall has a single lancet window similar to, but larger than, those in the south wall. The roof was supported on two arched braced trusses and the roof covering was of slate but is now collapsed. No pathway for effect has been identified.

Llys Euryn Medieval House Llandrillo-Yn-Rhos SM – located 1.2km south comprising a medieval house dating to the 15th-16th centuries. Substantial ivy-grown remains of limestone block walls forming a rough square, surviving up to 7m high in the west wall. Open on east side except for low traces of walls, butting on to south wall, and tumbled overgrown remains. South wall has at least three inwardly splayed loop windows, one within thickened section of wall next to small fireplace. West wall has central renovated fireplace with a square chimney stack up to 11m high set at 45-degree angle to wall. Also, two first floor and two ground floor loop windows. At south west and north west corners small garderobes set into stepped out west wall. North wall has small (1.9m high and 0.8m wide externally) pointed arch doorway, wider internally, with draw-bar hole. Also, one small looped window, one possibly originally larger pointed arch window and splayed opening. The site is of greater antiquity than the ruins. The monument is of national importance for its potential to enhance our knowledge of medieval settlement and building techniques. No pathway for effect has been identified.

Bryn Euryn Camp SM - located 1.6km south comprising the remains of a hillfort, which probably dates to the Iron Age period (c. 800 BC - AD 74, the Roman conquest of Wales). Bryn Euryn Camp comprises the summits of two hills and the slightly lower intervening ground. An approximately circular inner enclosure, some 12m in diameter is defined by a bank of limestone and earth 0.3m high, with traces of the outward facing of a wall on the north side; and a partial outer enclosure with an area of c.0.6 hectares, with defences on the north and west sides only, the south side being craggy. Within the outer enclosure are two medieval pillow mounds and a hut circle. Originally constructed in the Iron Age there is a tradition of early medieval (Dark Age) occupation. No pathway for effect has been identified.

Ogof Pant-Y-Wennol SM - located 1.7km west, the monument consists of a cave containing archaeological deposits that can date from as early as the Palaeolithic period. A cave may have been used for occupation, storage, burial, refuse, or as a temporary shelter. The entrance to the cave is located in a low limestone cliff and is approximately 2m high and 4m wide. The interior consists of a single chamber measuring 6m in height. Excavations have uncovered the remains of six humans and Neolithic pottery. Other finds are possibly Mesolithic and include bone tools, flints and a hearth. No pathway for effect has been identified.

Non-Statutory Heritage Features - Five National Monument Records for Wales have been recorded in the bay between the two existing breakwaters: [1] two fish traps associated with the eastern breakwater; [2] propeller find; [3] wreck of the Scotian, unconfirmed location; [4] modern tidal door of the Afon Ganol associated with the eastern breakwater. Consultation will be undertaken with the relevant Archaeological Trust and County Heritage Officer to confirm the likelihood of potential heritage constraints and any mitigation or monitoring requirements.

3.5 Landscape and Visual

The proposed works will not be undertaken within any statutory landscape designated areas. Detailed design development will consider landscape and visual effects and will incorporate landscape and amenity enhancements.

3.6 Contamination

No baseline of ground investigation or structural investigations has been undertaken. Therefore, it may be required to include trial pits and testing along the frontage at the toe of the existing revetment and intrusive (drilling) and non-intrusive (GPR) survey of the existing structures. This investigation will consider the potential for contaminated ground within the area or identify any potential sources of contamination associated with historical and current land uses nearby. This information will be used to inform the detailed design development and will also consider the risk of contamination to groundwater resources and the Liverpool Bay / Bae Lerpwl (SPA).

3.7 Geomorphology

An assessment of the baseline processes and geomorphology was undertaken in 2017 and can be found in Appendix E. Coastal processes have been factored into the optioneering and outline design of the preferred solution and will be considered further during the detailed design development.

4 EIA Screening Opinion Request

4.1 EIA Development Status

The total area of the proposed rock groyne is 100m by 65m in width, including all the elements described in Section 2.3, and circa 0.8 hectares in extent. An additional area of as yet unmodelled beach nourishment is proposed to build out beach profiles around the promontory structure (assumes a 20m berm at c.6mODN). It is anticipated that this material would be localised to the new rock groyne, approximate 68,500m³ and comprise similar material to existing beach deposits (Appendix E).

The timescale for the Proposed Development is currently unknown. However, if funding can be secured and consents obtained, the earliest construction start date is March 2022.

4.1.1 Schedule A1 Assessment

The proposed development is not considered to be of a kind described in Schedule A1 of the EIA Regulations.

4.1.2 Schedule A2 Assessment

Schedule A2 Infrastructure projects (69) includes for: coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works. Whilst the works are not proposed within a environmental sensitivity geographical area, the boundary of the Liverpool Bay/ Bae Lerpwl (SPA)

commences at Mean Low Water Springs; as such the works are proposed within close proximity to a sensitive area.

Due to the improvement works meeting the Schedule A2 description the works are considered to be Schedule A2 Development and require an EIA Screening Opinion to determine whether the works constitute EIA Development.

As such, a Schedule 2 assessment is required to determine whether the Flood and Coastal Erosion Risk Management works are likely to have significant effects on the environment and therefore require formal Environmental Impact Assessment and preparation of an Environmental Statement.

4.1.3 Schedule 2 Assessment

Where a project is determined to be Schedule A2 Development, the appropriate authority must then decide whether the project would be likely to have a significant effect on the environment, having regard in particular to the relevant 'selection criteria'.

Three broad criteria which should be considered for Schedule 2 assessment are identified in the EIA Regulations and are considered in more detail below:

- i. Characteristics of the project;
- ii. Location of the project;
- iii. Types and characteristics of the potential impact.

Characteristics of the project

The need for the development is well established by the OBC, determining the risk of undermining the toe of the existing defences, the long-term costs of continued maintenance that would be relieved by the preferred solution and the significant benefits to the local community, businesses and critical assets from the erosion and flood protection improvements.

The rock groyne and beach nourishment are suited to the local area, which already comprises a number of rock promontories whilst the beach nourishment will approximate existing beach deposits. The proposed design would ameliorate coastal processes and reduce ongoing maintenance requirements. Public realm and amenity enhancements are proposed and will be developed at detailed design in consultation with the local community and key stakeholders.

Location of the project

For any Schedule A2 Development, EIA is more likely to be required if it would be likely to have significant effects to the 'environmental sensitivity' of areas likely to be affected. In each case, it will be necessary to judge whether the likely effects on the environment of that particular development will be significant in that particular location.

The proposed works are not located in an environmental sensitivity area. The precise location of the structure will be determined at detailed design with consideration of local-scale effects, such as the existing *Sabellaria alveolata* (honeycomb worm) reef with intent to avoid, reduce and / or offset effects.

Characteristics of the Potential Impact

The proposed development will have a substantial positive long-term beneficial effect on the local community, local businesses, critical infrastructure and amenity resources by preventing undermining of the coastal defences and providing resilience in light of potential climate change impacts, including increased storminess (frequency and intensity) and sea level rise. Public realm and amenity enhancement are proposed that will also provide improvements and a beneficial effect on the local community.

No direct effects on the Liverpool Bay SPA are predicted as the development will be undertaken outside the European Site. Indirect effects are not anticipated due to the location of protected features offshore and lack of suitable breeding habitat; primarily due to frequent disturbance, highly mobile sediment and lack of non-tidal habitat. A Habitats Regulations Assessment (HRA) Stage 1: Screening will be undertaken to ensure potential effects on the Liverpool Bay SPA and wider European Sites are considered. The HRA will be submitted with the relevant consent applications.

Sabellaria alveolata (honeycomb worm) reef is listed as a Priority Habitat under Section 7 of the Environment (Wales) Act 2016 within the category of 'Littoral Rock'. This habitat is present within the site and is likely to be affected by the project. Measures to avoid, reduce or offset effects to this habitat will be investigated at the detailed design stage, to be informed by an intertidal biotope survey.

No known statutory or non-statutory heritage assets are considered likely to be affected by the proposed works. Further consultation will be undertaken with the relevant Welsh Archaeological Trust to confirm the potential for unknown archaeology. Any requirement for landscape and visual assessment will be determined through consultation with CCBC during the detailed design stage.

Construction access will likely comprise barge deliveries for bulk materials and plant access via Glan-y-Mor Road utilising existing access by the eastern breakwater. Plant access will be as utilised by ongoing beach managements activities, whilst barge deliveries will be managed to avoid grounding on *Sabellaria* reef.

Best practice procedures (Guidelines for Pollution Prevention (GPP5: works and maintenance in or near water), CIRIA best practice guidance, etc.) will be integrated into the Proposed Development via an Outline Construction Environmental Management Plan (CEMP) to avoid potential pollution incidents. Further ground investigation will be undertaken to establish and manage potential ground contamination. Construction plant and access will be controlled via the Outline CEMP to manage the risk of a pollution incident.

In line with the Environment (Wales) Act 2016 and the Well-Being of Future Generations (Wales) Act 2015, CCBC has a duty to deliver sustainable development, integrating the seven well-being goals and the principles of Sustainable Management of Natural Resources and will aim to provide biodiversity, amenity and community enhancement where practicable. Enhancement measures will be developed through consultation during detailed design development and integrated into the Proposed Development to deliver these objectives.

The Outline CEMP will consolidate all best practice and site-specific mitigation measures recommended by the various technical assessments into one document to be managed by the appointed contractor. As such, residual effects will be managed effectively, avoiding or

minimising potential effects through design and sensitive construction techniques as far as practicable.

Consequently, **no significant adverse environmental effects** are anticipated from the Proposed Development, whilst beneficial effects are predicted through the delivery of flood protection and enhancement measures.

4.1.4 Cumulative Effects Assessment

Marine licences were reviewed for potential applications within a radius of 1km that may have potential cumulative effects with the Proposed Development. Ground investigation works are proposed as part of this Proposed Development and have been granted a marine licence by NRW (Application RML2031). These works are to assist the detailed design and therefore will be completed prior to construction of the Proposed Development. No other marine licence applications were found.

Further assessment of cumulative effects will be reconsidered at the detailed design stage.

Please could you advise if you are aware of any other developments that should be considered in relation to the proposed improvement works.

5 Indicative EIA Screening Conclusion

The existing defences provide coastal erosion and tidal flood protection to over 300 residential and commercial properties, critical utilities infrastructure (sewerage, potable water, broadband, gas and electric network, drainage, etc.), the A547 highway and adjacent promenade (PRow, Wales Coast Path and National Cycle Route). The present beach and promenade also forms a key part of the local community's well-being and recreation space, whilst adding to Conwy's wider tourist attractions.

Under the EIA Regulations, the proposed works are not considered to constitute a Schedule A1 development, but are considered to be Schedule A2 Development by virtue of all coastal defence works requiring EIA consideration. The Schedule 2 Assessment concludes that the proposed works would not be likely to have a significant effect on the environment, whilst beneficial effects are predicted through the delivery of flood protection and enhancement measures. As such, the proposed Flood and Coastal Erosion Risk Management improvements are **not** considered to constitute EIA Development and a formal EIA is not deemed to be required.

Should you agree with the EIA Screening conclusion offered herein, your views on any further supporting environmental information or opportunities to be included in the subsequent non-statutory Environmental Report would be welcomed at this stage.

Please do not hesitate to contact me should you wish to discuss this further. I look forward to hearing from you with an EIA Screening Opinion in due course.

Yours faithfully,



Gareth McIlquham
Senior Environmental Consultant

Enc.

Appendix A: Outline Design Drawings

Appendix B: Environmental Constraints Plan

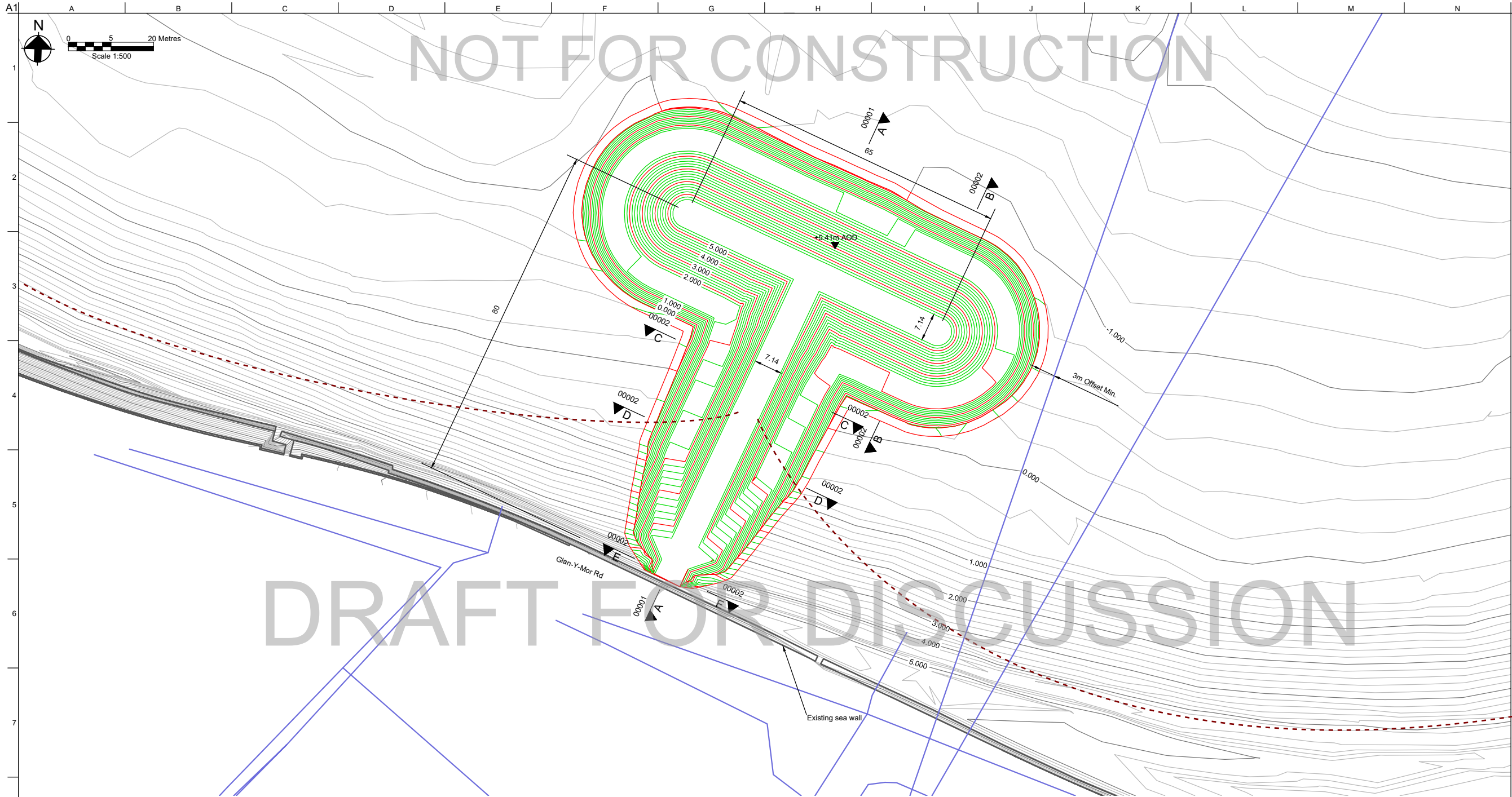
Appendix C: Erosion and Flood Risk Plans

Appendix D: Preliminary Ecological Appraisal

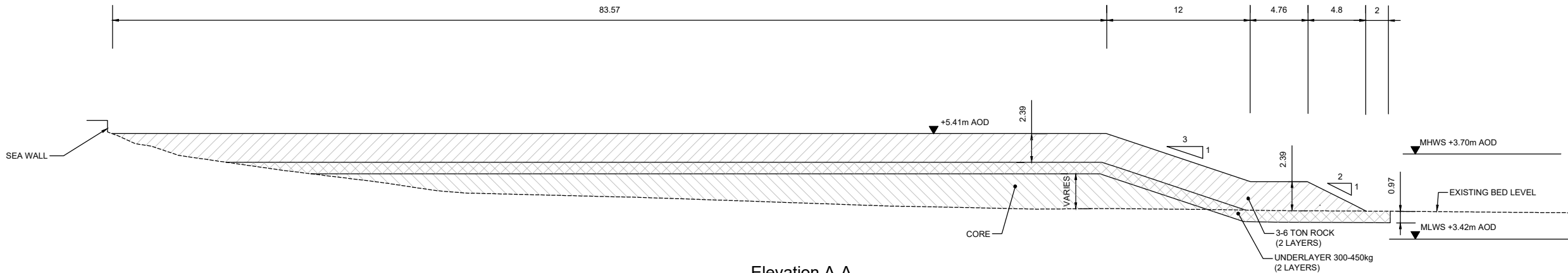
Appendix E: Geomorphology Assessment

Appendix A

Outline Design



GROYNE PLAN VIEW
Scale 1:500



Elevation A-A
Scale 1:250

Notes

- All dimensions are in millimetres unless stated otherwise.
- All levels are in metres relative to ordnance datum.
- Do not scale from this drawing.
- Groyne dimensions may be subject to change upon confirmation of Groyne location.

Legend

	Existing Minor Contour (0.2m)
	Existing Major Contour (1.0m)
	Proposed Minor Contour (0.2m)
	Proposed Major Contour (1.0m)
	Existing Bed Level
	Existing DCWW Asset
	3-6 Ton Rock Armour
	Core
	Underlayer
	Indicative berm (c. 20m) of additional beach material

Proposed Groye Quantities

Material	Volume
3-6 Ton Rock Armour	14,120m³
Core	4,380m³
Underlayer	8,795m³
Total Material Fill	27,295m³

Total Groyne Footprint Area	7,435m²
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Assumptions

The design presented is indicative and preliminary. The drawing is to be used for OBC budgeting purposes only. Please refer to Penrhyn Bay OBC: Appendix H: Design Assumption and Risk Register (2019) for further details of design assumptions and associated risks. It is recommended numerical modelling is undertaken to reduce risk and further define the structure shape, dimensions, orientation and impact of the structure on the beach evolution.

01	09/01/19	TB	PA	JT
Initial issue				
Issue	Date	By	Chkd	Appd

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Client

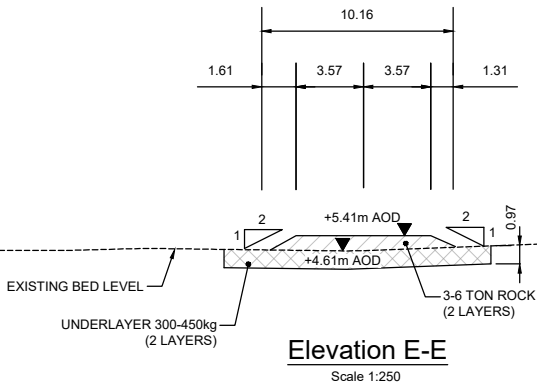
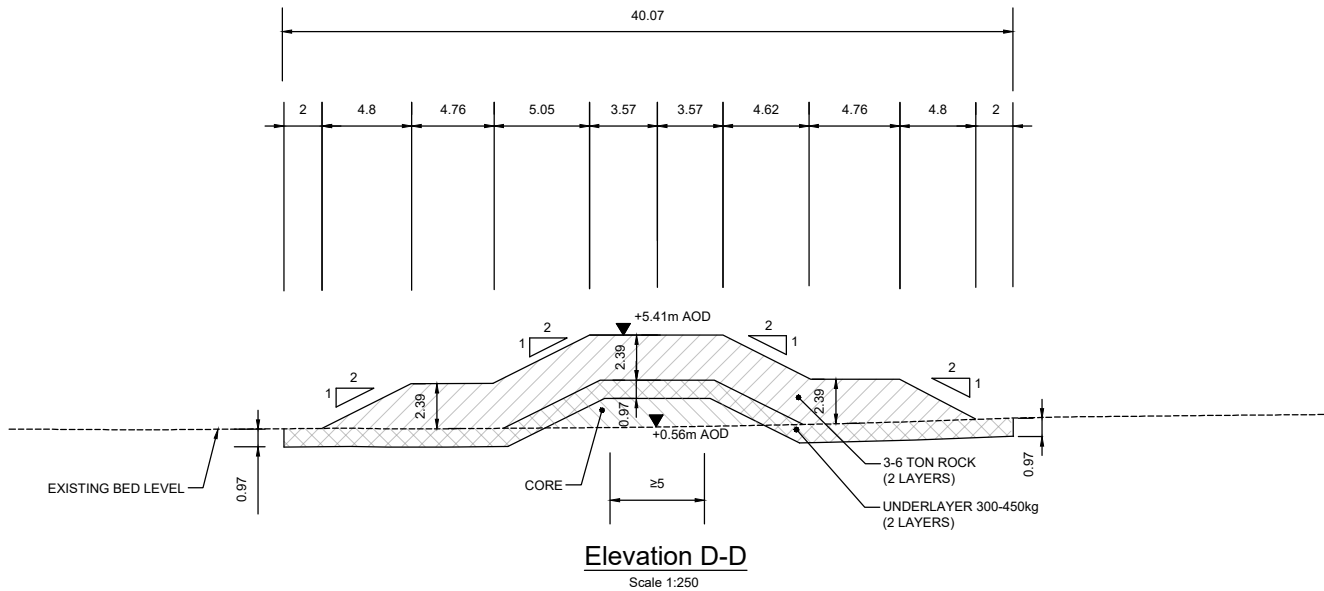
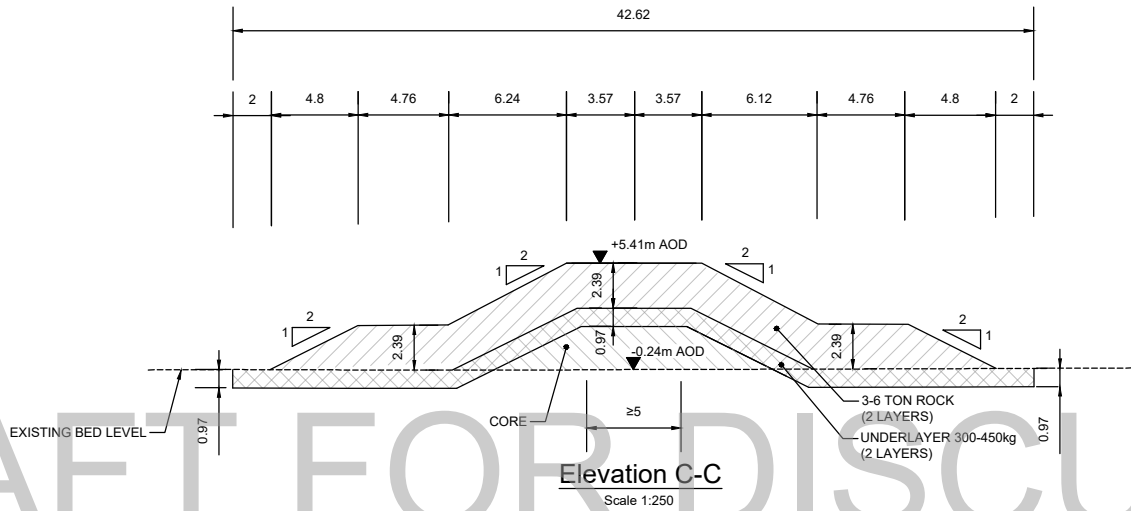
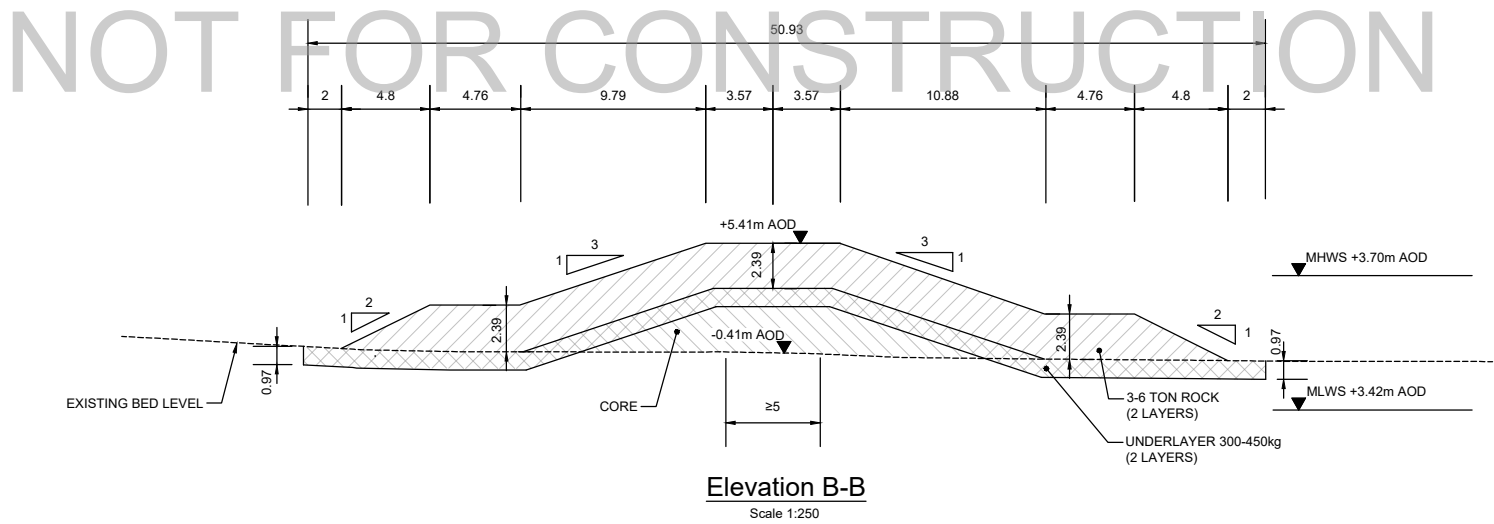
Job Title
Penrhyn Bay

Drawing Title
Rock Armour Groyne
Plan and Elevation

Scale at A1	As Shown
Discipline	Maritime
Job No	252256
Drawing No	252256-ARP-DRG-000001
Drawing Status	Information
Issue	P01

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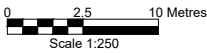


Notes

- All dimensions are in millimetres unless stated otherwise.
- All levels are in metres relative to ordnance datum.
- Do not scale from this drawing.
- Groyne dimensions may be subject to change upon confirmation of Groyne location.

Legend

-----	Existing Bed Level
	3-6 Ton Rock Armour
	Core
	Underlayer



Assumptions

The design presented is indicative and preliminary. The drawing is to be used for OBC budgeting purposes only. Please refer to Penrhyn Bay OBC: Appendix H: Design Assumption and Risk Register (2019) for further details of design assumptions and associated risks. It is recommended numerical modelling is undertaken to reduce risk and further define the specific structure shape dimensions orientation and impact of the structure on the beach evolution.

01	09/01/19	TB	PA	JT
Initial issue				
Issue	Date	By	Chkd	Appd

ARUP

13 Fitzroy Street
London W1T 4BG
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www.arup.com

Client

Job Title

Penrhyn Bay

Drawing Title

Rock Armour Groyne
Sections

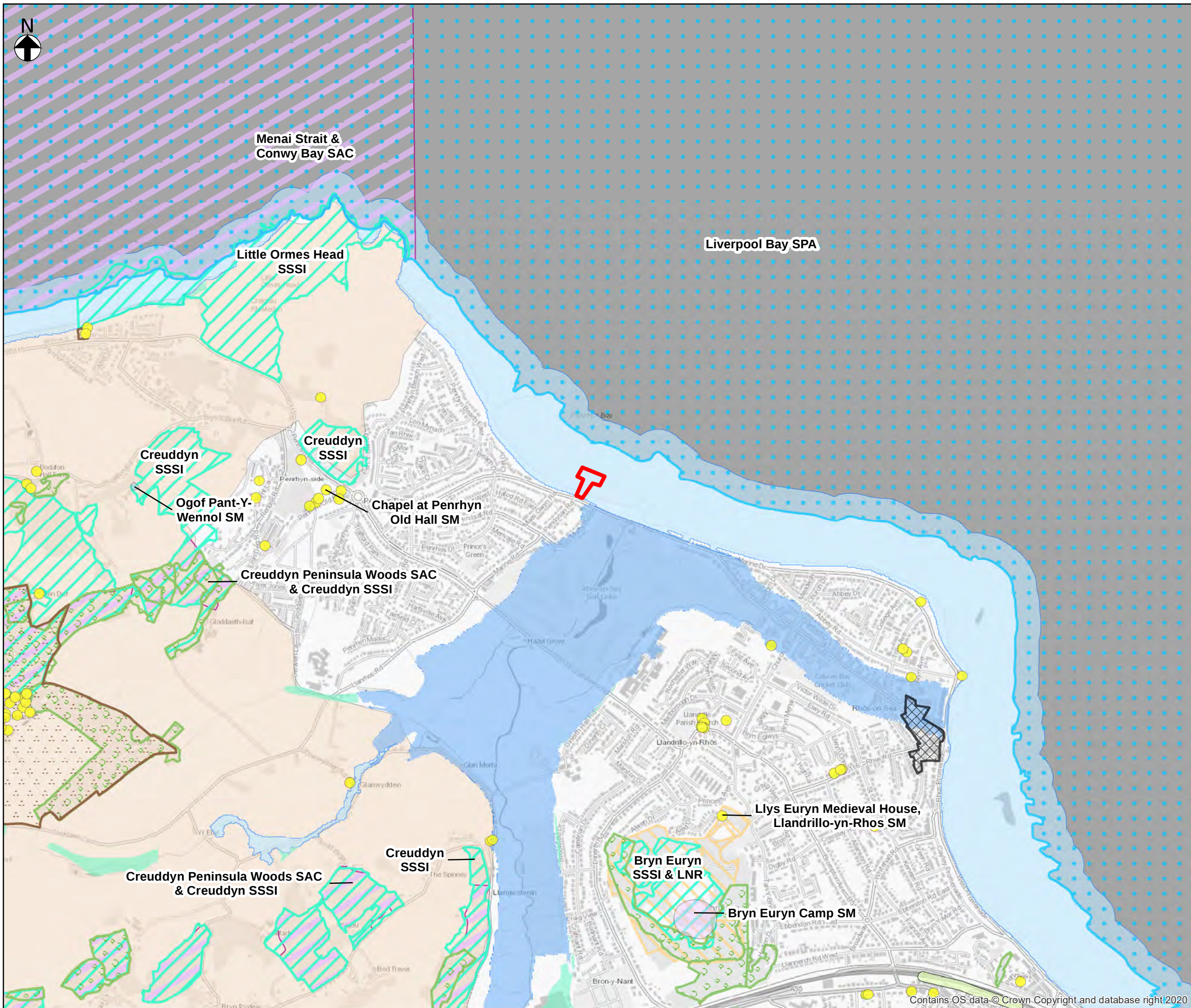
Scale at A1 As Shown

Discipline Maritime

Job No	Drawing Status
252256	Information
Drawing No	Issue
252256-ARP-DRG-000002	P01

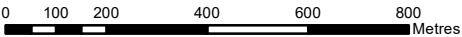
Appendix B

Environmental Constraints Plan



LEGEND

-
- Proposed Improvements
- Conservation Area (CA)
- Scheduled Monument
- Registered Park & Garden
- Ancient Woodland
- Noise Priority Area (NPA)
- Special Protection Area (SPA)
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Special Area of Conservation (SAC)
- TAN15 Flood Zone C2
- TAN15 Flood Zone C1
- TAN15 Flood Zone B
- Historic Landscape
- Listed Buildings



P1	2020-12-14	IM	FOR INFORMATION	GM	RC	2020-12-16
Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.

ARUP

Project Name. PENRHYN BAY

Drawing
Title.

ENVIRONMENTAL CONSTRAINTS PLAN

Suitability.	Suitability Code.
FOR INFORMATION	S1

Originator IM	Designer GM	Date. 2020-12-14
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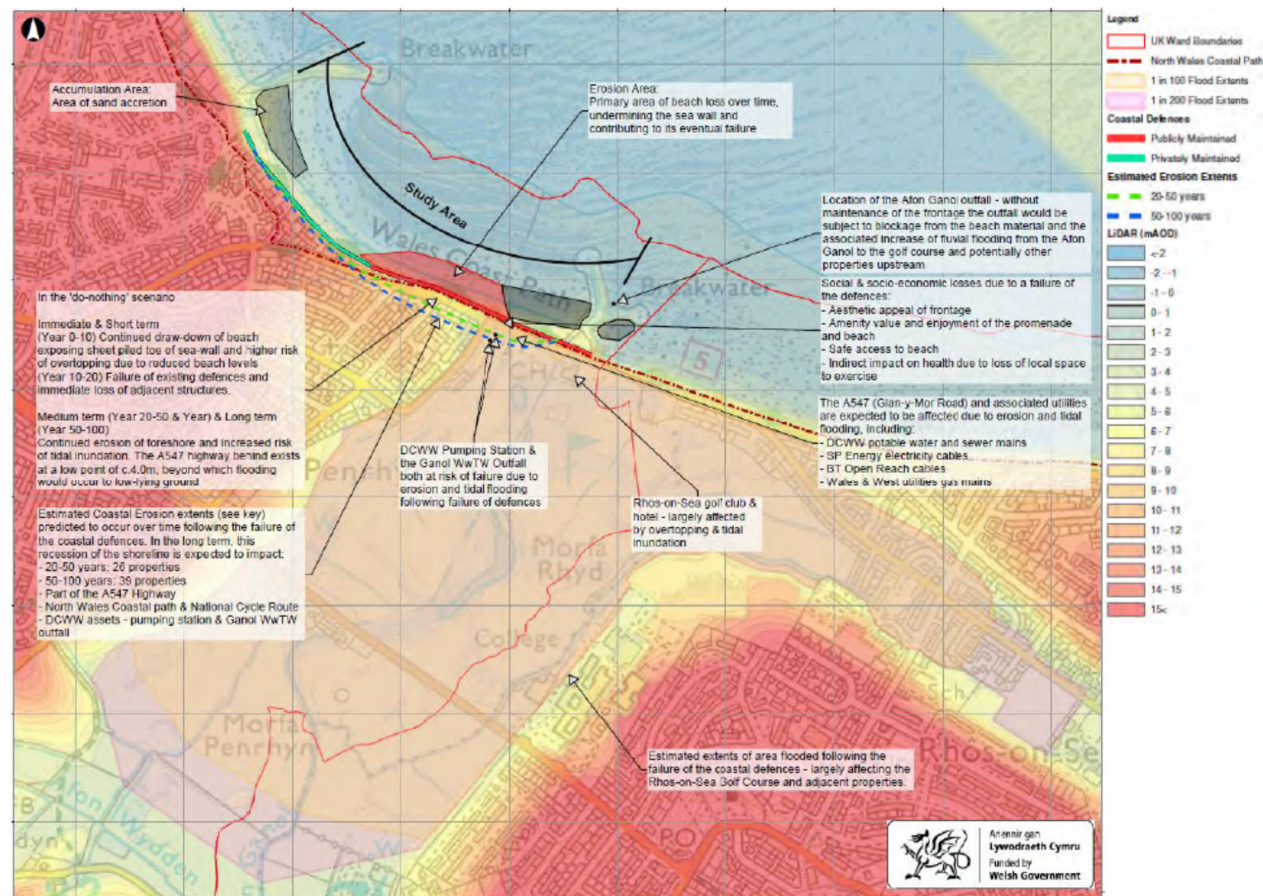
Internal Project Number 274649	Scale 1:15,000	Rev. P1
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Drawing Number. 001

Appendix C

Erosion and Flood Risk Plan

‘Do-Nothing’ Scenario – full version available in Penrhyn Bay OBC, Appendix H: Drawing 002.



(Crown copyright and database rights 2016 Ordnance Survey 100023380)

Appendix D

Preliminary Ecological Appraisal

Available under separate cover; direct link provided in cover email.

Appendix E

Coastal Geomorphology Report

Available under separate cover; direct link provided in cover email.

Sent by e mail

Date 29 March 2021

Dear Gareth McIlquham,

SCREENING OPINION UNDER THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (as amended)

Penrhyn Bay Coastal Scheme (Flood and Coastal Erosion Risk Management Works)

I am writing further to your request for a screening opinion, duly made complete on 7 January 2021, made in accordance with The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ("The Regulations").

The purpose of the Environmental Impact Assessment (EIA) screening procedure is to determine whether the proposed works require an Environmental Impact Assessment and submission of an Environmental Statement (ES).

In reaching our Screening Opinion we have considered the proposed works against Schedule A1 and A2 of the above regulations. We have also consulted with the bodies that we consider have an interest in the project by reason of their environmental responsibilities, or local or regional competences, as required by the above regulations.

Screening Opinion

It is our opinion that the proposed works fall within the categories of project listed within Schedule A2, paragraph 69 (*Coastal work to combat erosion and maritime works capable of altering the coast through the construction of, for example, dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works*) of the above regulations, and therefore must be considered in terms of its size, nature and location having regard to the relevant criteria listed in Schedule 1 of the above regulations.

We have considered the views of the consultation bodies alongside the criteria as set out in Schedule 1 of the Regulations, and have determined, based on the information provided; that the project does not require a statutory Environmental Impact Assessment.

We have come to this conclusion on the basis of the likely significant impacts of the project having reviewed the project in terms of the criteria set out in Schedule 1, and consider that the proposed works described in the screening report is unlikely to have significant adverse impacts on the environment.

We have considered that the proposed works may potentially have an adverse effect on *Sabellaria alveolata* reef (a priority habitat under Section 7 of the Environment (Wales) Act 2016) within the intertidal zone from direct impact and also from secondary impacts relating to alteration of coastal processes localised to the proposed development within Penrhyn Bay. However, we are satisfied that these effects can be avoided or mitigated for through the proposed site-specific intertidal surveys to inform development design and placement.

The proposed works are not located within a designated site but are in close proximity to Liverpool Bay SPA. The designated features of this site are predominantly located offshore and with no appropriate nesting habitat identified within the area of works, significant impacts are not predicted as occurring.

The Conservation of Habitats and Species Regulations 2017

As part of the screening exercise, we have also considered whether the proposed project, either alone or in combination with other plans or projects, is likely to have a significant effect on any site designated as a European site of conservation importance under the above Regulations. To assist in making this judgement of likely significant effect, we have sought advice from our statutory nature conservation advisor and it is our initial view that no sites could be impacted by the proposal.

We would encourage you to contact Natural Resources Wales Conservation Advice (Advisory) to receive further pre-application advice to inform your non-statutory environmental report, which will support any future marine licence application. Further information on this service can be found via: <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/advice-for-developers/our-service-to-developers/?lang=en>

This Screening Opinion will be provided to all those bodies that were consulted and will be publicised on our website and on our Public Register.

Yours sincerely



Marine Licensing Team
Natural Resources Wales

Cc: All Consultation Bodies

Annex 1 – Comments by Consultation Bodies

To be read in conjunction with Screening Opinion SC2007

1. Summary of Proposal Considered

Penrhyn Bay is a coastal embayment in the county of Conwy, North Wales. The Shoreline Management Plan states that the policy for Penrhyn Bay is to 'Hold the Line'; whilst the Conwy Local Development Plan (LDP) emphasises the importance of preserving the county's unique natural beauty, safeguarding public rights of way and allowing tourism to continue to make a vital contribution to the economy.

The existing defences provide coastal erosion and tidal flooding protection to over 300 residential and commercial properties, utilities infrastructure (including a Dŵr Cymru Welsh Water (DCWW) pumping station, a Wastewater Treatment Works (WwTW) sea outfall and SP Energy Networks assets), the adjacent promenade, A547 highway, Wales Coast Path, National Cycle Route, and the Rhos-on-Sea Golf Club. The present beach and promenade also form a key part of the local community's well-being and recreation space, whilst adding to the area's wider tourist attractions.

In the absence of the continuing beach management works, regularly undertaken by CCBC, the sea wall and revetment are highly likely to fail through the on-going drawdown of the foreshore exposing the corroded and structurally weak sheet piled toe foundations. The present regime of maintenance activities is unsustainable and is likely to increase in frequency over time, as the mobility of the beach increases due to the beach material particle attrition and the increasing severity of storm events and sea level rise associated with climate change.

The Objectives for the project are to:

1. Manage the effects of flood risk and coastal erosion to people and property.
2. Reduce the on-going capital maintenance costs experienced as part of the present beach maintenance regime to safeguard the public backshore assets.
3. Meet the objectives of the Shoreline Management Plan (SMP2) for Penrhyn Bay, which include:
 - Hold the Line
 - Maintaining and widening the beach.
 - Acting in an environmentally acceptable way.
4. Incorporate wider benefits and added amenity value into project design and construction (including consideration of Welsh Government's Community Benefits Policy and the Well-Being of Future Generations (Wales) Act 2015). To maintain and, where possible, enhance the natural environment.

5. Maintain and improve the local area – with an awareness of the amenity value presently provided by Colwyn Bay and Llandudno (neighbouring towns).

To achieve these above objectives, a rock groyne and associated beach nourishment areas are proposed (refer Section 2 below). The total area of the proposed rock groyne is 100m by 65m in width. The beach nourishment is proposed to build out beach profiles around the promontory structure of approximately 68,500m³ and comprising similar material to existing beach deposits.

The rock groyne and beach nourishment are suited to the local area, which already comprises a number of rock promontories whilst the beach nourishment will approximate existing beach deposits. The proposed design would ameliorate coastal processes and reduce ongoing maintenance requirements. Amenity enhancements are proposed and will be developed at detailed design in consultation with the local community and key stakeholders.

2. Location

Penrhyn Bay is a coastal embayment which lends its name to the small town located between the renowned seaside resorts of Llandudno and Colwyn Bay, North Wales. The study frontage is approximately 800m in length contained between the northern breakwater National Grid Reference (NGR): SH8235781963 and south-eastern breakwater NGR: SH8295881523. Of this, approximately 450m is comprised of publicly maintained defences consisting of a 1950s stepped concrete seawall, which has suffered significant levels of deterioration due to the previous on-going erosion of beach levels. The remaining 350m of frontage is in a more self-sustaining natural condition and is in private ownership.

The proposed works are not located within an environmental sensitivity area but are in proximity to the Liverpool Bay SPA (refer Figure A.1).

The precise location of the structure will be determined at the detailed design stage with consideration of local scale effects, such as the existing *Sabellaria alveolata* (honeycomb worm) reef with intent to avoid, reduce and / or offset effects.

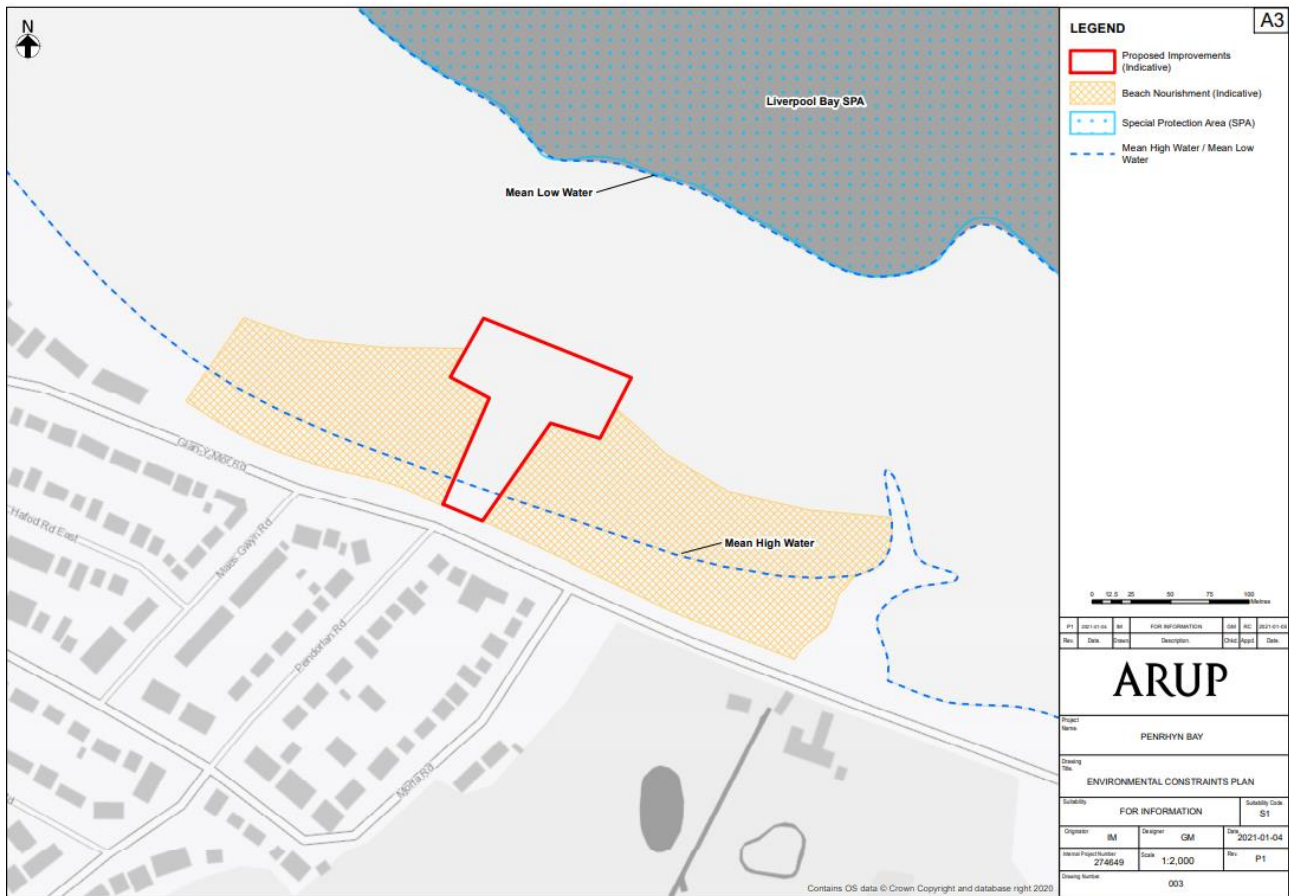


Figure A.1 Indicative proposed coastal defence and beach nourishment area

3. Consultation responses received

In considering our Environmental Screening opinion, Natural Resources Wales Permitting Services (NRW PS) have consulted with various consultation bodies. Those that provided a response are listed below.

- Welsh Government (WG)
- Natural Resources Wales Technical Experts (NRW TE)
- MoD – Safeguarding Defence (MoD)
- Maritime and Coastguard Agency (MCA)
- Trinity House (TH)
- Royal Yachting Association (RYA)
- Conwy County Council Biodiversity Officer (CCC-BD)
- Cadw (Cadw)
- Gwynedd Archaeological Trust (GAT)
- NATS (NERL Safeguarding) (NATS)

4. Key points raised during consultation

Although it was concluded a statutory Environmental Impact assessment was not required, the following advice has been provided regarding the proposal.

4.1 Nature conservation

4.1.1 Marine ornithology

NRW TE agree with the findings of the preliminary ecological appraisal that the features of Liverpool bay are largely offshore and there is no appropriate nesting habitat within the area. NRW TE do not foresee any likely significant effect on any of the marine bird features of Liverpool Bay SPA or Little Ormes Head SSSI.

The Local Authority Biodiversity Officer provided the following comments on marine ornithology;

The site is within the boundary of the North Wales Coast Important Bird Area, but this has not been noted or considered.

The PEA states that *Rock armour (assumed 3-6 ton and 100-300kg gradings) is anticipated to be brought to site by sea and stockpiled on the beach.* However, there is no subsequent consideration of the impacts on the bird species which are a feature of the SPA. The use of the SPA is highly seasonal but there is no consideration of timing in the documents. This should be included and presented within the non-statutory Environmental Report.

No information has been submitted regarding the use of the adjacent SPA by the birds which are a feature of the designation. Surveys of wintering birds have been carried out for the Colwyn Waterfront Phase 2b scheme which may help to inform such an analysis .

4.1.2 Marine & Intertidal Ecology

Sabellaria alveolata (honeycomb worm) reef is listed as a Priority Habitat under Section 7 of the Environment (Wales) Act 2016 within the category of 'Littoral Rock'. This habitat is present within the site and is likely to be affected by the project.

We recognise that measures for this habitat have been proposed to be investigated further as part of the detailed design stage and that these will be informed by a site-specific intertidal biotope survey, which will enable the *S.alveolata* reef location and extent to be mapped. NRW TE confirm an intertidal biotope surveys would be required along with discussion with NRW TE with regard to the approach of the design in avoidance or mitigation of any effects.

4.1.3 Protected sites

NRW TE advise that this proposal will not affect the designated features of the Little Orme SSSI (NRW).

The submitted Preliminary Ecological Appraisal (PEA) lists a number of statutory and non-statutory sites which could have usefully been scoped out as the likelihood that they would be impacted by the scheme is less than negligible. Similarly, a long list of species which have no association with the intertidal area did not need to be presented. Conversely, potential impacts on the Liverpool Bay SPA which is in very close proximity to the site have not been considered in any depth and should be considered in more detail as part of the non-statutory Environmental report (LBO). As detailed in Section 4.1.1 above.

4.1.4 Marine Fish Ecology

No concerns for fish from the development were raised during the consultation.

4.2 Pollution prevention

4.2.1 Water Framework Directive

As the proposed site of the project is within a designated Water Framework Directive (WFD) waterbody (North Wales Coastal waterbody), a WFD Compliance Assessment must be carried out. This would include the polychaete reef mentioned in section 3.2.17 of the Preliminary Ecological Appraisal.

No mention is made of the designated WFD waterbody in the provided documents. We advise that Coastal waterbodies designated under the WFD extend from the Mean High Water to 1 nautical mile offshore. Here, the proposed site of the project lies within the North Wales Coastal waterbody.

NRW TE note that little mention is made of the WFD other than in Section 3.2.17 of the Preliminary Ecological Appraisal. We advise that the WFD should be included in Appendix A – ‘Legislation of the Preliminary Ecological Appraisal’. In addition, it would be useful to include the North Wales Coastal waterbody on a map, such as the map of protected sites.

More information on WFD waterbodies and their current status can be found on the Water Watch Wales website. In addition, we can provide guidance on completing a WFD Compliance Assessment if required, although information can be found on the gov.co.uk website and NRW’s website.

4.2.2 Water Quality

There is no mention of the nearby designated bathing waters. Colwyn Bay (approx. 2km away), Colwyn Bay Porth Eirias (approx. 3km away) and Llandudno North Shore (approx. 4km away).

There is no mention of the Rhos-on-Sea Shellfish Water Protected Area, which is less than 500m away from the project site, in the document or maps. More information is available on NRW's website <https://naturalresources.wales/guidance-and-advice/environmental-topics/water-management-and-quality/water-quality/shellfish-water-protected-areas/?lang=en>

We agree that all works should be undertaken in accordance with Guidance for Pollution Prevention (GPP5), that refuelling of all plant and equipment should not take place on the beach and that a CEMP should be provided.

NRW TE agree that further groundworks investigations should be carried out and that this will aid in determining the likelihood of contaminants being released into the waterbody.

There is no mention of any temporary impacts likely to arise from sediment disturbance. For example, an increase in suspended sediments in the water column.

4.3 Coastal Processes

NRW TE provide the following comments relating to coastal processes:

Comment 1.

There is no discussion on the impacts that the new structure will have on the hydrodynamics at the site. It does though remark that the coastal processes are primarily now controlled by the two groynes at northern and southern end which already affects the natural variability of the coast. I.e. interruption of long shore sediment transport from the north. And an accelerated movement of sediment alongshore towards the south where the sediment tends to pile up and bypass the southern groyne. No interpretation has been given on the offshore flow conditions particularly during storms. There is evidence from the beach profiles of an intertidal berm which moves with the seasons at the southern end. There is a transport potential of sediment towards the west but this is much smaller as the wind fetch from the east is limited and the waves are smaller.

We advise that a Coastal Processes Impact Assessment should be carried out to determine the alteration to the current/wave hydrodynamics and the movement of sediment both alongshore and offshore in the presence of the new groyne which will act to split the frontage up into sub cells and will create more offshore driven flows around the structure on both phases of the tide. There will also potentially be significant draw down of sediment during storm events particularly from the North west and north. A more detailed understanding on the alteration to hydrodynamics in the presence of the central groyne will inform beach management planning and the requirement for future beach nourishment. A more detailed understanding on the impact that alteration to hydrodynamics and sediment transport offshore will also inform the assessment on the Sabellaria reef's recovery/rejuvenation following any habitat destruction caused by the construction of the groyne.

Comment 2

The section of coastline is already modified by the presence of groynes and as a result the addition of another groyne will act to modify the flow and wave patterns further. It is not envisaged that the new structure will have a far-reaching impact on protected sites outside the locality of Penhryn Bay.

Comment 3

There is no detail in the screening opinion on where the 68500m³ of nourished beach material will be sourced from. Any temporary impacts arising from sediment disturbance in the water column arising from these activities should be factored into the coastal processes' assessment.

Comment 4

Alteration of physical processes and sediment transport locally within Penhryn Bay resulting from the proposed works will have a direct impact to the *Sabellaria alveolata* (S7 Habitat of Principle Importance to Wales, Environment Wales Act 2016) and potentially to the WFD coastal water body status and these must be considered.

4.4 Historic Environment

Cadw have provided a list of designated historic sites (presented below), which are located within 2km of the proposed development but intervening topography, buildings and vegetation block all views between them. Consequently, Cadw consider the proposed development will have no impact on the setting of any designated historic assets. There are a number of non-designated historic assets in the vicinity of the proposed development but it is unlikely that the proposed works will have a significant impact on them.

There is some archaeological potential in and around the bay, including but not limited to the fish traps associated with both groynes, tidal gates, and some potential shipwreck locations (all recorded by RCAHMS). As such there is a possibility that this potential could be managed by mitigation at a later stage.

Scheduled Monuments

CN074 Chapel at Penrhyn Old Hall

CN190 Ogof Pant-y-Wennol

DE071 Bryn Euryn Camp

DE146 Llys Euryn Medieval House, Llandrillo-yn-Rhos

Registered Parks and Gardens

PGW (Gd) 6(CON) Gloddaeth (St. David's College) (grade I)

Listed Buildings

143	Church of St Trillo	//*
144	Lychgate of Church of St Trillo	//
146	St Trillo's Chapel	//
147	Remains of Llys Euryn	//
3383	Tan-y-Wal	//
3384	Craig-Llwyd Bach	//
	Outbuilding, comprising Cartshed and Loft and Cowshed at Ty	
3405	Uchaf	//

3465	North Lodge	//
3466	Pen-y-gaer	//
	Penrhyn Old Hall, including forecourt wall, steps and mounting	
3467	block	//*
3468	South Lodge to Penrhyn Old Hall	//
3469	Wing adjoining Penrhyn Old Hall to North East	//
3470	Former Chapel at Penrhyn Old Hall	//
3471	Outbuilding range to NW of Penrhyn Hall Farmhouse	//
	Barn to SW of Penrhyn Hall Farmhouse, including attached range	
3473	to SW	//
3474	Pen-y-Bont Ucha	//
5792	Store Cottage	//
14824	Pumping Station	//
14825	United Reformed Church	//
14826	Church of St George	//
14827	Sundial in St Trillo's Churchyard	//
14828	Ellis Tomb in St Trillo's Churchyard	//
14829	1. Chest Tomb in St Trillo's Churchyard	//
14830	2. Chest Tomb in St Trillo's Churchyard	//
14831	3. Chest Tomb in St Trillo's Churchyard	//
14832	4. Chest Tomb in St Trillo's Churchyard	//
14833	5. Chest Tomb in St Trillo's Churchyard	//
14834	6. Chest Tomb in St Trillo's Churchyard	//
14835	St Trillo's Vicarage	//
14836	,60,RHOS ROAD,Rhos on Sea,,CLWYD,	//
14837	,62,RHOS ROAD,Rhos on Sea,,CLWYD,	//
14838	,64,RHOS ROAD,Rhos on Sea,,CLWYD,	//
14839	,4,TRILLO AVENUE,Rhos on Sea,,CLWYD,	//
14840	White Cottage	//
25410	Pen-y-Bont Isa	//
87734	Former Pier Entrance Building	//

4.5 Flood risk

Flood risk have no concerns on this proposal.

4.6 Navigational Safety

It appears that the works will take place between the mean high water level and above the mean low water line. MCA therefore expect the impact on shipping and navigation to be relatively low).

Trinity House has no objections to the proposed application and confirms any marking requirements are to be considered by Trinity House prior to any changes to any existing aids to navigation.

Following consultation with their local representatives, the RYA has no concerns regarding this proposal.

4.7 Cumulative Impacts

Further assessment of cumulative effects will be completed as part of the detailed design stage and included within the non-statutory Environmental report to support the Marine Licence Application.

The following data sources may provide useful information on other projects for the assessment of cumulative effects:

- The Nationally Significant Infrastructure Projects register:
<https://infrastructure.planninginspectorate.gov.uk/projects/register-of-applications/>
- The Developments of National Significance Register:
<http://gov.wales/docs/desh/publications/180312-dns-register-en.pdf>
- Planning Policy e.g. Local Development Plans, Transport Plans (National and Local) and National Policy Statements.
- An up to date list of marine licensable developments can be found at the following link:
<http://lle.gov.wales/catalogue/item/MarineLicences>

The Local Authority Biodiversity officer also highlights that the site is in close enough proximity to the Colwyn Waterfront Phase 2b scheme (1.5km) for this to warrant consideration particularly as similar broadscale habitats are the same and it is also in proximity to the Liverpool Bay SPA.

End of Screening Opinion.