



# **Colwyn Bay Waterfront Project - Phase 2b**

Environmental Management Plan

December 2021



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# **Colwyn Bay Waterfront Project - Phase 2b**

## **Environmental Management Plan**

December 2021

# Issue and Revision Record

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P03	5 May 2022	AGCL		CCBC	Construction update

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# 1 Introduction and Background

## 1.1 Purpose of this Environmental Management Plan

Mott MacDonald Ltd (Mott MacDonald) has been commissioned by Conwy County Borough Council (CCBC) to support with the development and delivery of Phase 2b of The Colwyn Bay Waterfront Project (herein referred to as 'the Scheme').

This report is the first iteration of the Environmental Management Plan (EMP) for the Scheme. The purpose of this EMP is to manage the potential environmental effects of the Scheme as identified within the associated Environmental Statement (ES)<sup>1</sup> and to demonstrate compliance with environmental legislation, providing clear and concise information which states how the mitigation and management of environmental effects will be delivered and maintained.

This EMP is based on the current design for which planning permission and the Marine Licence is being applied for. It has been prepared in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2, Sustainability and Environment Appraisal, LA 120 Environmental Management Plans (herein referred to as "LA 120". While the DMRB is guidance primarily for road and bridge projects, it is considered to provide a robust environmental assessment methodology for large, linear infrastructure schemes, such as this Scheme.

In accordance with DMRB guidance, LA 104 'Environmental Assessment and Monitoring', the results of monitoring shall be used to update the EMP during the construction and handover phase.

**Note: This is a live document and will be continually added to as the project progresses.**

## 1.2 EMP Evolution

The EMP sets out the control of environmental effects through all project lifecycle stages from the Design stage in accordance with Table 1.1 below. The Scheme is currently at the Design stage.

**Table 1.1: Evolution of the EMP**

Project Stage	EMP Iteration	Produced/ Refined
Design	First iteration of the EMP produced during the design stage for the preferred option.	Produced
Construction (refined for the consented project)	Second iteration of the EMP for construction phase (CEMP). Refined during the construction stage of the consented project, in advance of construction.	Refined
End of Construction	Third iteration of the EMP for handover (HEMP) building on the CEMP, refined at the end of the construction stage to support future management and operation.	Refined

Source: DMRB LA120

The EMP is a live document and shall be refined and updated as the project progresses and when additional information comes to light to capture any necessary alterations to the proposed mitigation and management of environmental effects. Such additional information or alterations can include:

- New or updated survey data;

<sup>1</sup> Colwyn Bay Waterfront Project – Phase 2b, Environmental Statement Volume 1: Main Text, 100374-MMD-00-XX-RP-N-0003, September 2021

- Changes in the physical characteristics of the project;
- Changes in the design and mitigation assumptions;
- Changes in the level of understanding of the current state of the environment and the potential effects of the development (e.g. due to greater data availability);
- Changes in legislation, policy and guidance/advice relating to any environmental topic; and
- Changes response to stakeholder consultation.

### 1.3 EMP Scope and Objectives

#### 1.3.1 Scope

In accordance with LA 120, this EMP:

- Provides a clear audit trail, outlining the modifications made from any previous iteration;
- Identifies roles and responsibilities for action and implementation;
- Identifies risks, their associated control measures (including a date of completion), compliance and corrective actions; and
- Establishes procedures for communication, monitoring, audit mechanisms and reporting of control measures.

This document also includes details of induction, training and briefing along with:

- A description of the main difficulties encountered in delivery of measures to mitigate and manage the environmental effects; and
- The main uncertainties involved in the forecasting of measures to mitigate and manage the environmental effects.

This EMP takes due consideration of the documents (including the Environmental Statement (ES) and supporting appendices) submitted to CCBC and Natural Resources Wales (NRW) as part of the planning and Marine Licence applications. It identifies mitigation and environmental issues from commencement to completion and included the following phases of construction:

- Demolition and site clearance;
- Pre-construction (for example advanced works);
- During construction (works); and
- Post construction until completion (when the HEMP will replace it).

#### 1.3.2 Objectives

The overall objectives of this EMP are as follows:

- To document all environmental actions and commitments that are required to manage and minimise environmental effects reported within the ES;
- To minimise the risk of any type of pollution incident or other form of unauthorised discharge;
- To minimise any nuisance to the nearby receptors;
- To maintain communication between the Client (Employer), the Project Manager and relevant third parties, with assignment of any specific and / or statutory reporting duties to third parties, where these are to remain their statutory duty;
- To be compliant with statutory legislation and contract specifications; and
- To provide a framework for the implementation and review of the EMP and other relevant documents.



These objectives are in accordance with the requirements in Landscape Design (LD 117)<sup>2</sup>.

## 1.4 EMP Preparation and Structure

### 1.4.1 Competent Expert Declaration

**Checker:** The competent person holds a Bachelor level degree in Environmental Engineering and is a Chartered Water and Environment Manager with the Chartered Institute of Water and Environmental Management (CIWEM). The competent expert has over 23 years' experience as an environmental consultant.

**Approver:** The competent expert is a Member of the Institute of Civil Engineering (MICE) and Incorporated Civil Engineer (IEng) with 18 years of experience in Flood and Coastal Management projects. They have been appointed by Welsh Ministers to provide expert advice on Flood and Coastal Risk matters, as a Member of Wales' Flood and Coastal Erosion Committee.

### 1.4.2 EMP Structure

The structure of the document is as follows:

1. Introduction and Background to the Scheme (including purpose of EMP);
2. Purpose of this Environmental Management Plan;
3. Project Team Roles and Responsibilities (including site roles, project management organisation and environmental responsibilities);
4. Record of Environmental Actions and Commitments;
5. Consents and Permissions (details and recording);
6. Details of Maintenance and EMP Monitoring Activities;
7. Induction, Training and Briefing Procedures for Staff; and
8. Glossary.

Appendices comprise:

- Appendix A: Relevant Management Plans;
- Appendix B: Environmental Method Statements;
- Appendix C: Emergency Procedures and Record of Environmental Incidents;
- Appendix D: Monitoring Reports; and
- Appendix E: Supporting Drawings.

This EMP contains several outline management plans/assessments to be developed into full management plans (Appendix A) during the second iteration of the EMP (CEMP), and also indicates plans that will need to be developed by the Principal Contractor or CCBC prior to construction.

Plans to developed to date comprise:

- A.1 Biosecurity Risk Assessment;
- A.2 D4RE Record (note this is a live document);
- A.3 Carbon Management Plan
- A.4 Outline Site Waste Management Plan
- A.5 Construction Dust Risk Assessment

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<sup>2</sup> Highways England, 2020. LD 117, Landscape Design [Online] Available at: [LD 117 - Landscape design - DMRB \(standardsforhighways.co.uk\)](https://standardsforhighways.co.uk)

- A.6 Pensarn Beach SSSI Works Impact Assessment and Mitigation Plan

Plans to be developed by the Principal Contractor:

- A.7 Travel Plan
- A.8 Construction Logistics Plan
- A.9 Archaeological Management Plan (to form part of RAMS)
- A.10 Marine Pollution Contingency/Emergency Response Plan
- A.11 Surface Water Management Plan
- A.12 Construction Flood Management Plan
- A.14 Materials Management Plan
- A.15 Site Waste Management Plan
- A.16 Construction Noise Management Plan
- A.17 Communication Plan (Stakeholder and community)
- A.18 Construction Traffic Management Plan
- A.20 Ballast Water Management Plan
- A.21 Bio-fouling Management Plan

Plans to be developed by CCBC:

- A.13 Beach Management and Maintenance Plan (Update)
- A.19 Operational Flood Management Plan

## 1.5 Overview of the Scheme

The Scheme comprises a combination of coastal defence, promenade and active travel improvements and is located in the western area of Colwyn Bay waterfront.

The Victorian built coastal defences around Colwyn Bay from Rhôs-on-Sea in the west to Old Colwyn in the east have suffered from undermining, corrosion, partial collapses, and degradation, with frequent overtopping events occurring at spring tides.

Therefore, the Scheme aims to improve the existing coastal defences and better manage coastal erosion and flood risk to residential and non-residential properties and key tourism infrastructure property in Colwyn Bay and Rhôs-on-Sea. It will also support local regeneration and achieve wider community benefits.

The Scheme is part of the Colwyn Bay Waterfront Project introduced in 2007 by CCBC, which seeks to address both the deteriorating coastal defences along the frontage as well as spark regeneration of the area.

### 1.5.1 Scheme Location

The Scheme area currently comprises the existing seawall and adjacent sand and shingle of the Colwyn Bay to Rhôs-on-Sea beach along with the adjacent pedestrian promenade, the Promenade/West Promenade/Rhôs Promenade (highway) and in the central area the grassed slope of Cayley Embankment, with Cayley Promenade highway to the west (Figure 1.1).

The approximate national grid references for the western and eastern Scheme boundaries are SH84248052 and SH85717903 respectively.

**Figure 1.1: Scheme Red Line Boundary**



Source: Adapted from Red Line Boundary Drawing 100374-MMD-00-XX-DR-Z-0001

## 1.5.2 Scheme Proposals

The proposed scope of work for the Scheme comprises a combination of coastal defence, Promenade and active travel improvements along with future management and maintenance actions.

### 1.5.2.1 Coastal Works

#### Seawall repairs

Minor repairs (e.g. grouting, re-pointing, coping repairs, filling of voids) to the existing seawall From Rydal Boat store boundary with the Phase 2a area to the southern boundary of Rhôs-on-Sea Harbour.

Works are to be completed both from the promenade and from the intertidal area (depending on the repair needed).

#### Terminal groyne works

The existing groyne would be increased in elevation by 1.0m and a secondary wave arm constructed curving in a south-easterly direction from the mid-point of the existing groyne. This is needed to prevent the beach recharge activities causing siltation of the Rhôs-on-Sea Harbour. The existing rock groyne at Rhôs-on-Sea Harbour comprises approximately 2,000m<sup>3</sup> of nominal 1.0t rock armour. The modified groyne would require approximately 10,000m<sup>3</sup> of 1.0-

3.0t rock armour. This material would be obtained from removal of the three existing groynes and from the removal of existing toe protection along the base of the existing seawall.

### **Outfall extensions**

Records and visual inspection have identified a total of six Welsh Water outfalls which currently discharge surface water run-off into the sea. To ensure a continued free flowing discharge of surface water once the beach is recharge and level raised, the outfalls would need to be extended to a point where they are above the new level of the beach, but also not permanently submerged by the sea.

It is currently anticipated that three of the outfalls would be extended, with two of the remaining three outfalls to be protected by a gabion basket to allow continued outflow beneath the new beach surface level as has been completed at previous locations within the areas to the west which have already been recharged. The final outfall has been confirmed by DCWW as redundant and will be capped.

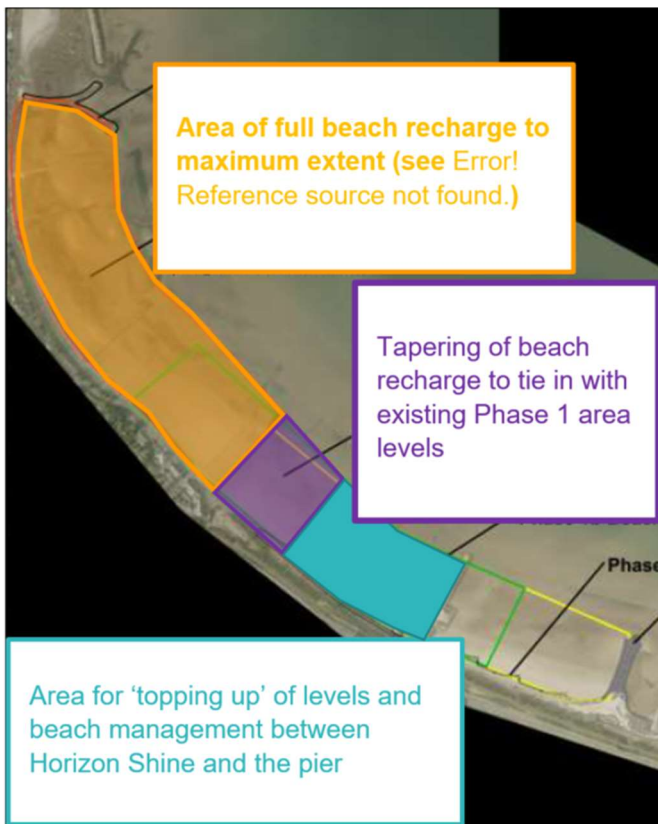
### **Beach recharge**

Beach recharge activities would involve the importation and placement of approximately 1,000,000t (~666,000m<sup>3</sup>) of dredged sand material between the Rhôs-on-Sea terminal groyne to the west (recharge would taper up to its maximum extent from the terminal groyne to the slipway north of the junction of Cayley Promenade with Rhôs Promenade) round to the existing slipway adjacent to the western junction of Cayley Promenade with West Promenade to the east to bring levels up to match the design profile of the Phase 1 works (5.0m AOD). Recharge would be then tapered off from this point eastwards to tie in with levels in the vicinity of the Horizon Shine Kiosk (Figure 1.2).

In addition, the Scheme would also include for the 'topping-up' of sand levels between the Horizon Shine Kiosk and the new truncated pier location (Figure 1.2).

A second location east of the site, at Pensarn beach (Figure 1.3), is anticipated to be temporarily utilised for pipeline construction above MHWST associated with the recharge works. The pipeline would then be transported to the site by sea.

**Figure 1.2: Proposed tapering of beach recharge**



Source: Adapted from Project Appraisal Review and Update Report, CCBC, 2018

**Figure 1.3: Pipeline Construction Area Red Line Boundary**



Source: Adapted from Pipeline Construction Area Red Line Boundary Drawing 100374-MMD-00-XX-DR-N-0020

### 1.5.2.2 Promenade Improvements

In summary, the promenade improvement works are currently anticipated to comprise upgrading the promenade to enhance the experience to the general public visiting the promenade, including:

- Pedestrian and cycle paths: There would be a new approximately 2.2m wide pedestrian only zone (Wales Coast Path) adjacent to the seawall segregated from an approximately 4.0m wide shared surface for cyclists (National Cycle Route 5) with frequent links between the two. This segregation would improve safety for all non-motorised users of the area;
- Build-out areas: Four 'build-out' areas would be included along the promenade (in between echelon car parking spaces). These areas would have minimal built-in furniture to provide a flexible space for any types of activity or event, for example local community groups meeting for fitness/wellbeing classes;
- Cycle and vehicle parking: Multiple areas for cycle parking would be provided along the promenade adjacent to the shared surface with protective barriers between the cycle parking and highway where necessary.
- Hard landscaping: The hard landscape has been designed and detailed to provide continuity from previous phases to the south and would provide a cost effective but robust finish to the large areas of carriageway, parking, cycleway and footway areas in the scheme.
- Art work/promenade insets: There would be a number of art installations and promenade inset works included as part of the promenade works;
- Lighting: Comprising a combination of Twin 'kirium' light emitting diode (LED) luminaire 10.0m tapered steel columns at approximately 25.0m intervals, and 5.0m high LED cylindrical luminaire light beacons;
- Soft landscaping: The planting areas along the Promenade would be raised by 450mm minimum to provide some protection from anticipated wave overtopping. Planting mixes have been agreed through consultation with DCC to be appropriate to the location, without requiring excessive maintenance and would be drought resistant. Proposals for the re-wilding of Caley Embankment would provide maximum enhancement of biodiversity in the area as a direct result of the Scheme;
- Street furniture: A range of robust seating, bins, picnic tables, play elements, cycle parking, electric vehicle chargers, pop-up power facilities and lighting would be incorporated to ensure a high quality provision of elements that are suited to the coastal location and easy to maintain; and
- Drinking water fountain: The Llandrillo-yn-Rhôs Memorial Drinking Fountain is a non-operational 20th century drinking water fountain located on Rhôs Promenade. It is located in the middle of where the new cycle lane is proposed and would have to be moved a short distance. It is proposed to re-connect the fountain to mains drinking water to restore it to use (if practically feasible) to allow the refill of water bottles.

## 1.6 Environmental Context

### 1.6.1 The Scheme

The Scheme is not located within a statutory designated site however, the Bae Lerpwl/Liverpool Bay Special Protection Area (SPA) is located within an area expected to be used for dredger/pipeline movements and is directly adjacent to the proposed recharge area and promenade work.

All distances below are approximate.



Coedwigoedd Penrhyn Creuddyn/Creuddyn Peninsula Woods and Y Fenai a Bae Conwy/Menai Strait and Conwy Bay Special Areas of Conservation (SAC) are located 1.8km west and 2.9km west of the Scheme respectively.

The Scheme is also within part of the North Wales Coast Important Bird Area.

Five Sites of Special Scientific Interest (SSSIs) are located within 5.0km of the Scheme as follows:

- Bryn Eyrn, 0.9km west south-west;
- Creuddyn, 1.8km west;
- Creigiau Rhiwledyn/Little Ormes Head, 3.0km north-west;
- Mynydd Marian, 3.70km south-east; and
- Llyn y Fawnog, 4.6km south.

Four Local Nature Reserves have been identified:

- Bryn Eyrn, 0.8km south-west;
- Upper Dingle Woods, 0.8km south;
- Pwllcrochan Woods, 0.9km south-east; and
- Fairy Glen, 1.7km south-east.

Four Local Wildlife Sites have also been identified:

- Coed Rhôs Fossil Woodland, within;
- Royal Fishing Weir, adjacent to the north;
- Upper Dingle Woods, 0.8km south; and
- Pwllcrochan Woods, 0.8km south.

The Scheme area supports or, is considered suitable to support, wintering birds, marine mammals, fish, marine benthic species, notable habitat (*Sabellaria alveolata* formations - not reef forming) and flora.

The Scheme is also within the Colwyn Bay and Rhyl Flats marine Character Area and North Wales Coast National Landscape Character Area.

Two listed buildings, Rhôs Pier former entrance building and Location of former Victoria Pier are within the Scheme, forming the northern and eastern boundaries respectively. The Llandrillo-yn-Rhôs conservation area is also located adjacent to the west.

Ten maritime heritage assets in the form of wrecks were identified within the Scheme area:

- Mary Ann;
- Princess;
- Scotia;
- Antares;
- Hopewell;
- Mary Catherine
- Ann;
- Pilot;
- Unnamed wreck; and
- Betsey.

The closest residential properties are located along Rhôs Promenade, Cayley Promenade, West Promenade, Marine Road and flats along the Promenade Road, to the west. Numerous kiosks, pubs, cafes, restaurants and shops, along with an estate agent and guest house are located within and adjacent to the Scheme. All other sensitive land uses are separated from the Scheme by the North Wales Coastal (NWC) Railway Line and A55 Expressway.

Further recreation and amenity receptors comprising the North Wales Coast Path, National Cycle Route 5, beaches, promenades and Public Rights of Way are located within the Scheme boundary.

### 1.6.2 Pensarn Beach

Bae Lerpwl/Liverpool Bay Special Protection Area (SPA) is located 250m north of Pensarn.

Traeth Pensarn SSSI is located adjacent and to the west of the pipeline construction area at Pensarn Beach. Coed y Gopa SSSI is located 1.8km to the south-west.

Pensarn beach supports or, is considered suitable to support, wintering birds, marine mammals, fish, marine benthic species, notable habitats (coastal vegetated shingle) and flora.

One listed building, Buildings associated with Pensarn Railway Station has been identified adjacent to the south of Pensarn.

The closest residential properties are located beyond the NWC Railway Line, 65m to the south and a children's play area is located adjacent to the area. Further shops, cafes, amusements and kiosks are located alongside the Pensarn promenade, 20m at their closest point.

Further recreation and amenity receptors comprising the North Wales Coast Path, National Cycle Route 5, beaches, promenades and Public Rights of Way are located adjacent to the area.



## 2 Project Team Roles and Responsibilities

### 2.1 Site Roles and responsibilities

The site-based roles and the organisation of responsibilities in relation to environmental management are summarised below. The Principal Contractor will be required to delegate responsibilities to onsite personnel within key areas of the construction site and any compounds. The delegation of responsibility will be clearly identified within relevant documents and construction site files.

### 2.2 Project Management Organisation

CCBC, or any appointed Employer's Agent, will oversee the management of the Scheme. CCBC will also delegate some site supervision roles such as the Environmental Clerk of Works and procure specialist consultants to supervise, monitor or check the Principal Contractor's Method Statements and sensitive activities, where required. The key scheme roles for CCBC and the Principal Contractor are listed in Table 2.1.

**Table 2.1: General Site Contacts and Responsibilities**

Role	Contact and Organisation	Telephone	Email
Project Manager	Benjamin Poulton CCBC	01492 575 120	Benjamin.Poulton@conwy.gov.uk
Principal Contractor Environmental Manager	Emma Thomas (Alun Griffiths contractors)	07811 717 115	Emma.thomas@alungriffiths.co.uk
Principal Contractor Environmental Clerk of Works	Aneira Jones CCBC	01492 575 120	<a href="mailto:Aneira.Jones@conwy.gov.uk">Aneira.Jones@conwy.gov.uk</a>
Principal Contractor Environmental Specialist(s)	Aneira Jones CCBC	01492 575 120	<a href="mailto:Aneira.Jones@conwy.gov.uk">Aneira.Jones@conwy.gov.uk</a>
Community Liaison Officer	Rich Foxhall	07971 940 735	Rich.foxhall@alungriffiths.co.uk

### 2.3 Environmental Management Responsibilities

The Principal Contractor will have a contractual responsibility for producing the second iteration of EMP once the design and construction plans have been finalised. CCBC, and delegated consultants acting on their behalf, Principal Contractor and sub-contractors, are all responsible for complying with the Scheme's environmental policies, relevant environmental legislation and regulations.

It is a requirement that all persons on site will be made aware of their duty of care to the environment and will be provided with sufficient training, supervision or instruction through Site Inductions, toolbox talks (TBTs) and specific Method Statements as necessary. Responsibilities for the site environmental management will be delegated to key personnel by the Principal Contractor who will manage all reporting and monitoring of environmental mitigation during the contract period. Where required, environmental specialists will be consulted to provide advice on specific issues or site activities, in consultation with the Principal Contractor. The main environmental roles and responsibilities are shown in Table 2.2.

**Table 2.2: Environmental Roles and Responsibilities**

Role	Responsibility
CCBC (Employer)	<ul style="list-style-type: none"> <li>Oversee implementation of whole project and the individuals undertaking specific roles and duties. To be reported to as per Contract requirements and internal organisation Environmental Management System (EMS).</li> </ul>
Principal Contractor Environmental Clerk of Works	<ul style="list-style-type: none"> <li>Provide site induction on environmental practises, toolbox talks, organise specialist surveys, and oversee monitoring and testing of materials as required;</li> <li>Monitoring Principal Contractor's site environmental compliance;</li> <li>Undertake day to day monitoring and compliance checks;</li> <li>Monitor control of dust, noise and vibration;</li> <li>Maintain and update site specific Method Statements;</li> <li>Hours of working to meet accepted noise and vibration limits set in consultation with Environmental Health Officer (EHO);</li> <li>Develop with Principal Contractor's Site Health &amp; Safety Officer an Emergency Spillage Response Plan and associated protocols for incidents; and</li> <li>Ensure local NRW requirements are implemented for consents and permits.</li> </ul>
Principal Contractor Environmental Specialist(s)	<ul style="list-style-type: none"> <li>Project Waste Management controller - may be member of Principal Contractor's dedicated Quality and Safety Team;</li> <li>Ecologist: Supervision if protected species presence confirmed or risk identified during works;</li> <li>Landscape Manager to supervise planting and aftercare; and</li> <li>Other as required.</li> </ul>
Community Liaison Officer	<ul style="list-style-type: none"> <li>Key liaison with all above;</li> <li>Maintain and develop Community Relations Strategy; and</li> <li>Maintain comment and enquiries log and disseminate identified comment for response and implementation of action.</li> </ul>

Source: Mott MacDonald, 2021

### 3 Record of Environmental Actions and Commitments

The Record of Environmental Actions and Commitments (REAC) is contained in Table 3.1. The REAC table identifies the environmental commitments included within the ES<sup>1</sup> to address the potential environmental effects of the Scheme. The REAC is an integral part of this EMP and will continue to be integral to the iterations of the CEMP and HEMP throughout the progression of the Scheme.

This is the main vehicle for passing essential environmental information to the Employer and crucially to CCBC, who will be responsible for the future maintenance and operation of the asset.

**Table 3.1: REAC Table**

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
<b>Construction</b>							
<b>General (up front chapters)</b>							
General – ES Ch4	Recommendation from NRW	We advise that the provision of detailed designs, construction method statements and construction programme may need to be conditioned as part of any Marine Licence to allow validation of the assessment in the ES.  Section 4.1.2 of the ES states “Detailed design of the Scheme would be complete by Summer 2021”. We request that this information is provided for review once available.	Not applicable within ES.  Discharge of any conditions within Marine Licence	Information to be provided to NRW	Principal Contractor  CCBC	P	Signature:  Date:
<b>ES Chapter 7 (Air Quality)</b>							
ES Ch7	Mitigation of air quality impacts	Delivery of materials and plant would be via the A55 Expressway at Junction 22. This route avoids the movement of construction traffic through the streets of Colwyn Bay and Rhôs-on-Sea, limiting the number of receptors along the route.	Compliance with method statements.	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:
ES Ch7	Mitigation of air quality impacts from construction dust	Best practice mitigation measures for the Scheme as outlined in guidance from the IAQM <sup>3</sup> for a ‘low’ risk site would be implemented for both the Scheme and Pensarn. This includes the following mitigation:  <b>Site Management:</b> <ul style="list-style-type: none"> <li>Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager;</li> <li>Display the head or regional office contact information;</li> <li>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;</li> </ul>	Compliance with method statements.	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:

<sup>3</sup> Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction.

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<ul style="list-style-type: none"> <li>• Make the complaints log available to the local authority when asked;</li> <li>• Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the logbook;</li> <li>• Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked;</li> <li>• Carry out regular site inspections to monitor compliance with the air quality and dust control procedures, record inspection results, and make an inspection log available to the local authority when asked; and</li> <li>• Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.</li> </ul> <p><b>Preparing and maintaining the site:</b></p> <ul style="list-style-type: none"> <li>• Plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;</li> <li>• Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site; and</li> <li>• Avoid site runoff of water or mud.</li> </ul> <p><b>Operating vehicle/ machinery:</b></p> <ul style="list-style-type: none"> <li>• Ensure all vehicles switch off engines when stationary - no idling vehicles; and</li> <li>• Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.</li> </ul>					

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<b>Operations:</b> <ul style="list-style-type: none"> <li>Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;</li> <li>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;</li> <li>Use enclosed chutes and conveyors and covered skips; and</li> <li>Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</li> </ul> <b>Waste management:</b> <ul style="list-style-type: none"> <li>Burning of waste materials is prohibited.</li> </ul>							
Es Ch7	Mitigation of air quality impacts	<ul style="list-style-type: none"> <li>In addition, best practice mitigation measures as outlined in guidance from the IAQM<sup>4</sup> for a 'medium' risk site would be implemented for the Scheme which includes the following:</li> </ul> <b>Site Management:</b> <ul style="list-style-type: none"> <li>Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.</li> </ul> <b>Preparing and maintaining the site:</b> <ul style="list-style-type: none"> <li>Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;</li> <li>Keep site fencing, barriers and scaffolding clean using wet methods; and</li> </ul>	Compliance with method statements.	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:

<sup>4</sup> Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction.

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<ul style="list-style-type: none"> <li>Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.</li> </ul> <p><b>Operating vehicle/ machinery</b></p> <ul style="list-style-type: none"> <li>Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);</li> <li>Implement a travel plan that supports and encourages sustainable travel;</li> <li>Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; and</li> <li>Implement a Travel Plan that supports and encourages sustainable travel for site workers (public transport, cycling, walking, and car-sharing).</li> </ul> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.</li> </ul> <p><b>Mitigation specific to demolition:</b></p> <ul style="list-style-type: none"> <li>Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground; and</li> <li>Bag and remove any biological debris or damp down such material before demolition.</li> </ul> <p><b>Mitigation specific to construction:</b></p>					

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		<ul style="list-style-type: none"> <li>Avoid scabbling (roughening of concrete surfaces) if possible; and</li> <li>Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.</li> </ul> <p><b>Mitigation specific to trackout:</b></p> <ul style="list-style-type: none"> <li>Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site;</li> <li>Avoid dry sweeping of large areas;</li> <li>Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;</li> <li>Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;</li> <li>Record all inspections of haul routes and any subsequent action in a site logbook;</li> <li>Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsters and regularly cleaned;</li> <li>Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);</li> <li>Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and</li> <li>Access gates to be located at least 10m from receptors where possible.</li> </ul>					



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<b>ES Chapter 8 (Historic Environment)</b>							
ES Ch8	Protection of archaeological features and heritage assets	An Archaeological Management Plan (Appendix A.9) would need to be compiled as part of the Scheme Risk Assessment and Method Statement (RAMS). This would contain specific information on how impacts to archaeological remains would be reduced and or avoided during the construction of the Scheme.  This would include the management of vehicle movement along the foreshore and stockpiling areas for rock armour, to ensure that sensitive archaeological remains are avoided.  Where vehicle access cannot be avoided, suitable protection measures would be detailed, in order to reduce effects to archaeological remains, caused by machinery movement and compaction	Preparation of an archaeological management plan/ preparation of method statement.	Principal Contractor to prepare method statements.	Principal Contractor	P and C	Signature:  Date:
ES Ch8	Protection of archaeological features	In relation to buried archaeological remains task specific mitigation measures would be included in the Scheme RAMS to be developed before works commence. This would include the requirement for briefings and toolbox talks with Contractors provided as part of the induction process, to raise awareness of archaeological issues and reporting procedures.	Preparation of method statements.	Compliance with method statement to include reporting procedures for discovery of archaeological remains.	Principal Contractor	P and C	Signature:  Date:
ES Ch8	Protection of archaeological features	A heritage constraints plan identifying archaeological sensitive areas has been produced by Mott MacDonald. This will inform the Archaeological Management Plan which would be produced as part of the Principal Contractors RAMS.  Adherence to the constraints plan, identifying archaeological sensitive areas (Appendix E.1).	Compliance with the constraints plan/ method statement.	Toolbox talks to highlight the constraints, updates to the constraints plan as required. Preparation of method statement.	Principal Contractor and ECoW.	C	Signature:  Date:

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ES Ch8	Protection of the Fish Weir	Measures would need to be put in place to protect Llandrillo-yn-Rhôs Fish Weir (MM013) from construction machinery. As agreed with CPAT, a 5.0m buffer around the asset would be put in place and this would be marked out during the construction works to prevent any plant from tracking over and damaging the asset. Where access is required over the arm of the weir, suitable protection measures would be put in place to prevent damage caused by plant movement and compaction.	Compliance with method statement	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of identified wreck	Measures are required to protect the recently surveyed wreck identified within the off-shore working area (MM083). As agreed with the RCAHMMW Senior Investigator (Maritime), a 50m exclusion zone would be placed around this wreck site to prevent any damage/disturbance being caused to these remains.	Compliance with method statement	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of archaeology assets	Prior to the construction of the Scheme, a programme of magnetometry survey should be undertaken within the inter-tidal area to ascertain the presence of any below ground remains associated with the non-designated wreck sites identified on the NMR. Consultation would be required with Cadw and RCAHMMW to determine the scope of this investigation. If archaeological remains are identified avoidance and damage prevention measures such as those outlined above (protection of the fish weir) should be implemented.	Completion of survey Compliance with method statement	CCBC to arrange survey Principal Contractor to prepare method statements.	CCBC Principal Contractor	P and C	Signature:  Date:
ES Ch8	Protection of heritage assets	Prior to and following construction of the Scheme, a UAV/drone survey of the Llandrillo-yn-Rhôs Fish Weir (MM013) is required. This will allow comparison of any impact from the Scheme and serve to enhance our understanding of the monument, which is encouraged under policy SOC_05 of the Welsh National Marine Plan.	Compliance with method statement	Principal Contractor to prepare method statements.	Principal Contractor	P and O	Signature:  Date:
ES Ch8	Protection of archaeology assets	Monitoring in the form of an archaeological watching brief will be required during excavations associated with the reconstruction and extension of the terminal groyne and outfalls. This is in order to	Any archaeological finds to be reported.	Principal Contractor to appoint Archaeologist.	Principal Contractor and ECoW/ CIFA (Chartered	C	Signature:  Date:

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		record any currently unknown archaeological remains which may be disturbed by construction activities associated with the Scheme.			Institute For Archaeologists) Archaeologist.		
ES Ch8	Protection of the submerged forest (if remains encountered)	Measures should be put in place to ensure that if archaeological remains of high value associated with the submerged forest (MM007) are uncovered work ceases and an appropriate excavation and sampling strategy is put in place. This should be in accordance with an archaeological written scheme of investigation approved by the CPAT Archaeologist and recorded in the CEMP.	Production of WSI	Principal Contractor and archaeologist	Principal Contractor and ECoW/ CIFA Archaeologist.	P	Signature:  Date:
<b>ES Chapter 9 (Biodiversity)</b>							
ES Ch9	Protection of the Menai Strait and Conwy Bay SAC and Liverpool Bay SPA (Condition from NRW)	<p>No development, including site clearance, shall commence until a site wide Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The CEMP should include:</p> <ul style="list-style-type: none"> <li>Construction methods: details of materials, how waste generated will be managed;</li> <li>General Site Management: details of the construction programme including timetable, details of site clearance; details of site construction drainage, containments areas, appropriately sized buffer zones between storage areas (of spoil, oils, fuels, concrete mixing and washing areas) and any watercourse or surface drain.</li> <li>Biodiversity Management: details of invasive species management;</li> <li>Resource Management: details of fuel and chemical storage and containment; details of waste generation and its management;</li> <li>Pollution Prevention: demonstrate how relevant Guidelines for Pollution Prevention and best practice will be implemented, including details of emergency spill procedures and incident response plan.</li> </ul>	Production of CEMP and approval by LPA (Local Planning Authority)	Principal Contractor to prepare	Principal Contractor	P	Signature:  Date:

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		<ul style="list-style-type: none"> <li>Details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details.</li> </ul> <p>The CEMP shall be implemented as approved during the site preparation and construction phases of the development.</p> <p>Justification: A CEMP should be submitted to ensure necessary management measures are agreed prior to commencement of development and implemented for the protection of the environment during construction</p>					
ES Ch9	Protection of marine benthic habitats	The suction dredger used to export approximately 1,000,000t (~666,000m³) of dredged sand material would be held in position by auxiliary vessels (barge vessels or tugs) or by using a dynamic positioning system (DPS) as opposed to using anchors that might permanently damage or displace sensitive benthic habitats.	Compliance with method statements.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Mitigation of pollution impacts.	<p>Throughout the construction and operational phases, best practice guidance in reference to pollution prevention would be followed; CIRIA (2015)<sup>5</sup>.</p> <p>Implementation of a designated refuelling area.</p> <p>Pollution prevention measures and contingency planning would be implemented to protect <i>M. edulis</i> beds (none identified during walkover however designated Shellfish Water adjacent), <i>Sabellaria</i> honeycomb worm formations, Menai Straits and Conwy Bay SAC, coastal vegetated shingle and Traeth Pensarn SSSI.</p>	Compliance with method statements.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Mitigation of pollution impacts.	Marine Pollution Contingency Plan (Appendix A.10) would be produced (to include information on the prevention of the release of pollutants and waste into the marine environment and how to deal with these should a pollution event of this nature occur).	Preparation of a Marine Pollution Contingency Plan.	Adherence to the marine pollution contingency plan.	Principal Contractor	C	Signature:  Date:

<sup>5</sup> CIRIA 2015. Charles, P, Edwards, P (eds), Environmental good practice on site guide (fourth edition) (C741)

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ES Ch9 / Biosecurity Risk Assessment (Appendix A.1)	Protection of marine ecology	<p>A Marine Biosecurity Risk Assessment has been produced (to prevent the introduction and spread of INNS and disease within the marine environment e.g. biosecurity protocols to follow for vessels associated with the works. It should also outline contingency actions to take should INNS or disease be discovered on site) (Appendix A.1).</p> <p>Control measures would be applied through this EMP and comprise the following:</p> <ul style="list-style-type: none"> <li>• Cleaning of sections of vehicles and machinery which come into contact with the intertidal area (track/wheels) should be thoroughly cleaned before and after use (e.g. wheel washing facilities should be provided);</li> <li>• The EMP would be updated to a CEMP prior to construction and NRW Pollution Prevention Guidelines should be followed;</li> <li>• Where possible, existing material should be reclaimed, therefore lowering the risk of the introduction of invasive species. Any brought in material should be bespoke. If this is not possible, it should be ensured that brought in material hasn't been utilised in the marine environment previously. If this is not possible, material brought in should be screened for INNS ahead of its use on site;</li> <li>• The number of vehicles used on site and the frequency at which they enter the intertidal area should be limited (vehicles should only enter the intertidal area on an ebb tide when there is a suitable dry area available for working);</li> <li>• A stringent system of vehicle maintenance and cleanliness should be implemented during construction works, including frequent vehicle washing between road and beach access;</li> <li>• All PPE especially footwear, Velcro closures, gloves, etc. should be thoroughly inspected and cleaned and inspected before arrival on site. Transfer between work areas on site should be avoided and minimised where possible. Measures</li> </ul>	Adherence to the Marine Biosecurity Plan/ Biosecurity Risk assessment.	Adherence to the Marine Biosecurity Plan.	Principal Contractor	C	<p>Signature:</p> <p>Date:</p>

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		<p>for biosecurity in the field are also further outlined in NNSS guidance<sup>6</sup>;</p> <ul style="list-style-type: none"> <li>• Boot washing as well as equipment cleaning facilities (with a biocide such as Virkon) should be provided and carried out when entering and exiting site;</li> <li>• All vessels and associated staff must ensure adherence to the Ballast Water Management Convention, 2017 for each vessel required for the works. This legislation outlines the requirements for each vessel to have a ballast water management plan, a ballast water record book and an international ballast water management certificate;</li> <li>• Exchange of hopper water (not covered under the ballast water convention) should adhere to the same measures as ballast water if being discharged as ballast;</li> <li>• Anchors for vessels used on site should be cleaned when the opportunity arises (e.g. at port or when refuelling) to minimise cross contamination between sites;</li> <li>• Any rock delivered to site should preferably be virgin material and not consist of rocks that has been sourced from other coastal defence schemes. Rocks should also be clean prior to introduction into the intertidal zone on site;</li> <li>• All vessels used on site should ensure they have a copy of their Bio-fouling Management Plan on board with clear information outlining efforts to reduce bio-fouling of the vessel, e.g. through anti-fouling treatments or use of biocides;</li> <li>• Once removed, (if not being utilised within the Scheme for the groyne improvements) the sections of rock revetment should be disposed of suitably on land and should not be disposed of or reused within the marine environment;</li> </ul>					

<sup>6</sup> GB Non-Native Species Secretariat, 2021 [Online] Available at: [Check, Clean, Dry - GB non-native species secretariat \(nonnativespecies.org\)](https://nonnativespecies.org/) [Accessed September 2021]

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		<ul style="list-style-type: none"> <li>The pipeline should be cleaned before first use and after final use for this project to prevent any cross-contamination; and</li> <li>The dredged sand should be obtained only from a licenced dredging area and not from an area known to contain marine INNS. Additionally, the dredged sand should come from a subtidal site when possible, meaning that any INNS contained are unlikely to survive transition into an intertidal area due to exposure at low tide.</li> </ul>					
	Protection of species on the Cayley Embankment	Green hay should be sourced locally and be from a meadow or old grassland that has been screened for invasive plant species prior to spreading at Cayley embankment through survey/an assessment of survey data at the donor site.	Compliance with method statements				
ES Ch9	Protection of marine habitats and species	Erosion prevention measures should be implemented (to include restricting plant movement on vegetated and unvegetated ground (including intertidal sands), avoidance of repeated tracking and the provision of erosion matting).	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Protection of marine mammals.	Vessels in transit and manoeuvring in coastal waters should operate within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance. This would indirectly reduce the probability of incidental collisions occurring between marine mammals and working vessels.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9		A restricted zone for vessels entering inshore waters should be implemented, to reduce incidental collisions occurring between marine mammals and reduce effects of propeller cavitation.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9		If a marine mammal is seen within 100m of the works, work ceases until the animal has moved out of the area. The possible presence of marine mammals near to the site would also be included within toolbox talks for works associated with beach recharge. If a marine mammal is spotted during this activity, works would cease, and an appropriately qualified marine ecologist would be contacted.	Compliance with method statements, toolbox talks to highlight the importance of the species.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:

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ES Ch9	Protection of trees.	Use of tree-protection fencing (in line with BS5837-2012117) and other demarcation fencing to protect retained habitats from construction encroachment should be considered, where feasible.	Compliance with method statements	Principal contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Protection of sensitive habitats and species	Standard best practice measures required to minimise effects on habitats should be implemented, including: <ul style="list-style-type: none"> <li>Damping down of dust sources and other measures to minimise air quality effects to habitats; and</li> <li>Best practice construction and hygiene measures (avoiding littering, fires, storage of foods, etc).</li> </ul>	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Protection of nesting birds.	Construction safeguards should be implemented to include, where relevant, timing of works to avoid sensitive seasons and/or check surveys and supervised clearance of habitats to safeguard nesting birds are as follows: <ul style="list-style-type: none"> <li>Any woody vegetation clearance or building demolition to be undertaken outside of the nesting bird season (widely considered to be from March to August inclusive but can vary depending on the species/or seasonal constraints). Where this is not possible, pre-clearance checks must be undertaken by an experienced ecologist to identify if any birds are nesting within or close to the vegetation due to be removed. If a bird's nest is found, it must be left in-situ and protected from the works. No works can be undertaken in that area until the young birds have fledged from the nest site, which may take up to 6 weeks depending on the species.</li> </ul>	Compliance with method statements.	Principal Contractor to prepare method statements.	Principal Contractor and ECoW	C	Signature:  Date:
ES Ch9	Protection of light sensitive habitats and species.	Measures to minimise light spill onto sensitive habitats (including use of directional lighting as well as minimising night working) should be implemented during construction.	Compliance with method statements.	Principal Contractor to prepare method statements.	Principal Contractor	C	Signature:  Date:



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ES Ch9, Botanical Survey Report	Protection of habitats and species at Pensarn.	<p>The following mitigation measures are recommended for the proposed pipeline construction at Traeth Pensarn:</p> <ul style="list-style-type: none"> <li>An Ecological Clerk of Works (ECoW) would set up a demarcation zones , typically of 2m radius, around areas occupied by notable plants prior to the delivery of the pipe sections to prevent vehicles tracking over these areas;</li> <li>In areas where it is not possible to create a demarcation zone for notable plants, boards would be placed across occupied areas to prevent excessive disturbance from heavy plant removing favourable habitat for these species;</li> <li>Marked tracking zones for plant movement and erosion prevention measures (to include restricting plant movement on vegetated and unvegetated ground, avoidance of repeated tracking and the provision of erosion matting);</li> <li>Vehicle tracking and movement zones should also be considered to reduce the chance of the works spreading red valerian further into the SSSI or other areas of sensitive vegetation;</li> <li>An ECoW would provide a toolbox talk prior to works commencing to highlight the importance of the SSSI , the adjacent habitat and the important species present in the area;</li> <li>An ECoW would undertake weekly checks of the works area; and</li> <li>Construction of a physical barrier to prevent construction vehicles entering with 30m of the SSSI boundary.</li> </ul> <p>Through the application of buffer zones, boarding and other measures as detailed above, impacts to all identified important floristic and habitat features may be avoided without the requirement for compensation.</p>	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	<p>Signature:</p> <p>Date:</p>
ES Ch9	Protection of marine and	Adherence to a Surface Water Management Plan.	Adherence to the biosecurity	Preparation of a surface water	Principal Contractor	C	Signature:

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	terrestrial ecology		risk assessment, surface water management plan.	management plan by the Principal Contractor.			Date:
ES Ch9	Protection of shellfish waters.	The Rhôs-on-Sea Shellfish Water should be avoided with no anchoring within this area. For tracking vehicles and stockpiling of materials, a minimum 2.0m buffer should be implemented around the intertidal boundary of the Shellfish Water.	Compliance with method statements, toolbox talks to highlight the importance of the species.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Protection of benthic habitats	The littoral <i>Sabellaria</i> honeycomb worm formation requires mitigation measures to protect the habitat from damage during construction. A 10.0m buffer around the asset would be marked out (by the contractor in the way considered to be most practical for the works and plant in question) during the construction works to prevent any stockpiling of materials and plant from tracking over and damaging the habitat.  The Contractor should produce a method statement for the minor beach recharge in this area to avoid unnecessary damage to honeycomb worm. The habitat is resilient to temporary smothering associated with the low levels of mobile sand recharge proposed in this area, however is likely to be more extensively damaged by plant movements.	Compliance with method statements, toolbox talks to highlight the importance of the species.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch9	Mitigation of impacts to wintering birds	<ul style="list-style-type: none"> <li>Toolbox talks would be undertaken with site staff prior to works commencing to highlight the importance of the SPA habitat and wintering birds, in order to minimise disturbance;</li> <li>The core wintering bird season (October to March) should be avoided during beach recharge works;</li> <li>Due to tidal constraints, lower tide working would be implemented for intertidal construction works relating to the</li> </ul>	Compliance with method statements, toolbox talks to highlight the importance of the species.	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:

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		<p>seawall repairs, terminal groyne works and outfall extensions, this would minimise disturbance from construction;</p> <ul style="list-style-type: none"> <li>• Best practice measures would be implemented to reduce noise and reduce the risk of pollution;</li> <li>• Avoidance of excessive working hours on site, as far as practicable; and</li> <li>• Use of directional lighting, hoods and cowls to reduce light spill onto marine habitats.</li> </ul>					
ES Ch9	Protection of marine ecology.	<p>A walkover by a marine ecologist and the Contractor would be undertaken 6-8 weeks prior to the start of construction. This would ensure that the area is fully assessed for any changes in the extent and quality of <i>M. edulis</i> and <i>Sabellaria alveolata</i> formations and any changes would be fully accounted for in updates to a site environmental constraints plan.</p> <p>These areas on the constraints plan should be flagged during toolbox talks with site staff to ensure that they are avoided during the tracking of vehicles or plant in this area at low tide, which could physically damage the habitats.</p> <p>A copy of this constraints plan should be shown to workers during toolbox talks to ensure minimal damage occurs to these areas (no tracking of plant or vehicles over these habitats) and a copy should be made available to workers on site (e.g. on the site noticeboard).</p>	Updates to constraints plan as required, toolbox talks to be undertaken.	Walkover survey	Principal Contractor and ECoW	P	<p>Signature:</p> <p>Date:</p>
ES Ch9	Protection of fish.	<p>Pollution prevention measures and contingency planning would be implemented to ensure fish species are safeguarded during the works.</p> <p>If night-time working is required, then light management protocols are proposed. These include reducing nonessential lighting during nocturnal hours, daylight working where possible and specified berthing areas away from the sensitive areas (nursery and spawning grounds).</p>	Compliance with the method statement	Principal Contractor to prepare method statements	Principal Contractor	C	<p>Signature:</p> <p>Date:</p>

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
ES Ch9	Mitigation of impacts to bats	Buildings identified of low suitability to support roosting bats should undergo a 'soft strip' involving sensitive removal of the roof which exposes the roof void and any potential roosting bats present. If any bats are identified during the removal, then the project ecologist should be notified immediately and all works within the area ceased. Timing of works should avoid the winter period between November and February inclusive.	Compliance with the method statements.	Principal Contractor to prepare method statements	Principal Contractor with ecological advice from ECoW	C	Signature:  Date:
ES Ch9	Mitigation of lighting impacts to bats	When designing the lighting as part of the Scheme, the following should be considered in line with Institution of Lighting Professionals and Bat Conservation Trust guidance: <ul style="list-style-type: none"> <li>• Dark buffers, illuminance limits and zonation;</li> <li>• Appropriate luminaire specifications;</li> <li>• Sensitive site configuration;</li> <li>• Internal lighting mitigation options;</li> <li>• Screening;</li> <li>• Glazing treatments;</li> <li>• Creation of alternative valuable bat habitat on site; and</li> <li>• Dimming and part-night lighting.</li> </ul> Construction undertaken within night-time hours should minimise lighting, where possible, with any lighting to be of a colour temperature of <2,700K, directional onto the area of working and with no upward illumination.  In addition, no illumination of vegetation is advised, to prevent adverse impacts upon nocturnal wildlife such as bats and invertebrates.	Compliance with the method statements.	Principal Contractor to prepare method statements	Principal Contractor with ecological advice from ECoW	P and C	Signature:  Date:
ES Ch9	Mitigation of noise impacts to bats	Noise levels should be kept to a minimum throughout the works areas by turning plant and machinery off when not in use,	Compliance with the method statements.	Principal Contractor to	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		particularly during the night-time hour so as to minimise disturbance upon bats in the local area.		prepare method statements			
ES Ch9	Mitigation of impacts to bats	Enhancements could be implemented during landscape design to include the provision of dark commuting and foraging corridors via non-illuminated native hedgerow planting which link to the surrounding green infrastructure. These continuous linear features would benefit bat species within the local area.	Compliance with the method statements.	Principal Contractor to prepare method statements	Principal Contractor	C and O	Signature:  Date:
ES Ch9	Mitigation of impacts to marine mammals	Vessels in transit and manoeuvring in coastal waters are to operate within speeds outlined by Maritime and Coastguard Agency's (MCAs) legislation and guidance.  Use of a suitable Code of Conduct, such as the WiSe Scheme, should be considered for use as mitigation for any collision risk posed to marine mammals.	Compliance with the method statements.	Principal Contractor to prepare method statements	Principal Contractor	P and C	Signature:  Date:
<b>ES Chapter 10 (Climate)</b>							
ES Ch10		Opportunities identified in the D4RE Workshop, such as the reuse of rock within the existing revetment and the use of recycled rebar in areas of concrete, should be implemented (see Appendix A.2). Further opportunities to reduce the impact on climate are to be continually explored prior to construction of the Scheme.	Implementation of possible opportunities throughout construction works	Principal Contractor to hold frequent reviews of works and opportunities	Principal Contractor	C	Signature:  Date:
ES Ch10		The following high-level approach (as defined within PAS 2080) is recommended:  a. Build nothing: evaluate the basic need for an asset and/or programme of works and explore alternative approaches to achieve outcomes set by the asset owner/manager;  b. Build less: evaluate the potential for re-using and/or refurbishing existing assets to reduce the extent of new construction required;	Compliance with method statements and review of opportunities	Principal Contractor to prepare method statements and hold frequent reviews of works and opportunities	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<ul style="list-style-type: none"> <li>c. Build clever: consider the use of low carbon solutions (including technologies, materials, and products) to minimise resource consumption during the construction, operation, and user's use stages of the asset or programme of work; and,</li> <li>d. Build efficiently: use techniques (e.g. construction, operational) that reduce resource consumption during the construction and operation phases.</li> </ul>					
ES Ch10		Adherence to the Carbon Management Plan (Appendix A.3).	Compliance with the Carbon Management Plan	Principal Contractor to review and comply with the Carbon Management Plan	Principal Contractor	C	Signature:  Date:
ES Ch10		Opportunities for low energy lighting should be explored. The use of solar panels for kiosks and any additional aspects requiring energy should be explored.	Implementation of possible opportunities throughout construction works	Principal Contractor to hold frequent reviews of works and opportunities	Principal Contractor	C	Signature:  Date:
ES Ch10		<p>To continue the reduction of carbon the following measures are required to be implemented wherever possible, confirmed or further explored. These ideas would be considered and justified if not possible to implement:</p> <ul style="list-style-type: none"> <li>• The use of pre-cast elements where possible; and</li> <li>• The efficient design, detailing and specification of works components to minimise materials and maintenance.</li> </ul>	Resource efficiency targets to be set in Site Waste Management Plan.	Principal Contractor to develop Site Waste Management Plan.	Principal Contractor and MML (Designer)	P and C	Signature:  Date:
ES Ch10		Plant equipment and vehicles to be used on the Scheme should be selected where practicable based on their relative environmental performance taken from a technical specification.	Production of traffic management plan.	Principal Contractor to develop Site Waste	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		Construction works would be carried out in accordance with the best practicable means, as described in Section 79 (9) of the Environmental Protection Act (EPA) 1990, to reduce fumes or emissions. This would include all vehicle engines and plant motors to be switched off when not in use.	Resource efficiency targets to be set in the Site Waste Management Plan.	Management Plan and traffic management plans.			
<b>ES Chapter 11 (Coastal Processes and Flood Risk)</b>							
ES Ch11	Mitigation of flood risk (recommendation by NRW)	A Flood Management Plan (FMP) should be compiled for the frontage and suggest further discussions with NRW regarding future flood warning arrangements for the existing serviced area and a possibility of providing a specific warning for the Colwyn Bay frontage. This would require future discussions with the Flood Risk and Infrastructure team and NRW's Warning and Informing team.	FMP produced in consultation with NRW's Warning and Informing team.	CCBC to compile FMP	CCBC	O	Signature:  Date:
ES Ch11	Pollution prevention.	Throughout the construction and operational phases, best practice guidance in reference to pollution prevention would be followed; CIRIA (Construction Industry Research and Information Associated) (2015).	Adherence to Marine Pollution Contingency Plan and Surface Water Management Plan.	Principal Contractor to comply with and develop plans.	Principal Contractor	C	Signature:  Date:
ES Ch11	Mitigation of impacts to coastal processes and erosion	The works associated with the extension of outfalls, sea wall repairs and groyne modifications would be undertaken at exposed low tides using land-based plant, therefore negating the requirement for working within the water column.  Access to the foreshore would be gained using existing slipways with no additional temporary accesses required.	Adherence to method statements.	Preparation of method statements	Principal Contractor	C	Signature:  Date:
ES Ch11	Mitigation of impacts to coastal processes and erosion	A Contractor-led beach inspection scheme should be implemented. Stockpile locations for the removal of rock armour from the sea wall, and armour from two existing groynes (where required), would be agreed: (a) in advance with CCBC and NRW once a Contractor has been appointed (to be recorded in the CEMP); and (b) when the rock delivery method has been selected.	Adherence to method statements and compliance with groyne construction	Preparation of method statements and consultation with CCBC and NRW, and	Principal Contractor	P and C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<p>During construction, materials, such as rock armour used to modify the terminal groyne, would be stored as high up the beach as practicable when it is not used immediately to reduce the short-term negative impact on hydrodynamics and the sediment transport regime.</p> <p>The size of the stockpile should be assessed to ensure that changes to the tidal currents are not resulting in scour. Monitoring of the beach around the stockpile would be undertaken and the beach levels reinstated should beach lowering be recorded.</p> <p>Sediment stockpiles should be minimised to reduce the potential for suspended sediments.</p> <p>Stockpiles would only be temporary and would not be permitted to remain beyond the end of the construction phase.</p> <p>The lower beach is only to be accessed for groyne enhancements (considered likely to include a large 360° tracked excavator with grab attachment and a large rear loader dumper).</p>	sequence provided by the designers.	compliance to groyne construction sequence provided by the designers			
ES Ch11	Mitigation of impacts to coastal processes and erosion.	Excavation for the new groyne would be kept to the minimum required in order to allow a solid foundation for new structures. This would minimise the relocation of removed sediments onto the foreshore that might be dispersed and elevate the suspended sediment concentration.	Adherence to method statements.	Preparation of method statements	Principal Contractor	C	Signature:  Date:
ES Ch11	Mitigation of impacts to coastal processes and erosion.	Beach recharge activities would commence after the completion of the terminal groyne modification to reduce risk of recharge material being washed into Rhôs Harbour.	Adherence to method statements.	Preparation of method statements	Principal Contractor	C	Signature:  Date:
ES Ch11	Mitigation of impacts to coastal processes and erosion.	The extended Red Line Boundary (RLB) for the scheme is the maximum possible extent of the area below mean low water potentially needed by the pipeline, dredger and tug for beach recharge activities. It is noted that only a tiny proportion of this area would be utilised at any one time to reduce sediment dispersion and changes in the water quality within Colwyn Bay.	Adherence to method statements.	Preparation of method statements	Principal Contractor	C	Signature:  Date:



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		<p>Pipeline construction, floatation and demobilisation are to be kept within the extended RLB, and only a tiny proportion of this area would be utilised at any one time.</p> <p>Pipeline construction on Pensarn beach should be deployed parallel to the shore and should not be left for a long period of time.</p>					
ES Ch11	Mitigation of impacts to other sea traffic.	<p>The Contractor would be required to identify and provide, where practicable, access to a temporary alternative navigation route prior to pipeline construction and floatation to avoid any navigation disruption/traffic within Colwyn Bay and Rhôs Harbour. This would also be undertaken for the period of time when the pipeline is in place and beach material is being pumped onshore.</p> <p>Ongoing consultation and communication with the affected parties should be undertaken and information provided on when and where the barge and pipelines would be in place.</p>	Adherence to method statements.	Preparation of method statements	Principal Contractor and communications representative	C	<p>Signature:</p> <p>Date:</p>
ES Ch11	Mitigation of flood risk.	<p>The Contractor would be required to develop and implement a robust Construction Flood Management Plan (Appendix A.12) prior to the commencement of the construction phase.</p> <p>Additionally, to reduce the potential increase in flood risk and increased erosion during the temporary removal of groynes, works should be scheduled as far as is practicable for lower tides and reduced storm periods (i.e. outside the winter period).</p> <p>Alternatively, enforced temporary closures of the Promenade may be required during the works. If damage to the Promenade and existing sea wall occurs, temporary works to shore up the structures would be undertaken to prevent failure.</p>	Preparation of a Construction Flood Risk Management Plan	Principal Contractor to produce.	Principal Contractor	P and C	<p>Signature:</p> <p>Date:</p>
ES Ch11	Mitigation of impacts to WFD elements.	<p>Regular on-the-spot visual monitoring would be undertaken during the construction phase to determine any visible changes to the marine environment.</p> <p>While intertidal works take place, beach and bathing water closures would be enforced as a precautionary measure to reduce the potential impact to users of the Bathing Water. The cessation</p>	Adherence to method statements.	Preparation of method statements, reporting procedure in place.	Principal Contractor and ECoW	C	<p>Signature:</p> <p>Date:</p>

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		of the associated Bathing Water monitoring for the quality status should also be considered. Regular monitoring of the Rhôs-on-Sea Shellfish Water would be required to assess the Schemes impact on the shellfish population.					
ES Ch11	Monitoring of coastal processes.	<p>Regular beach monitoring would be undertaken along the frontage, and the existing Beach Maintenance and Management Plan that was produced following the Phase 1b beach recharge scheme in 2013 would be updated. To update this plan it is recommended that the following works are undertaken:</p> <ul style="list-style-type: none"> <li>• Whole bay beach plan surveys;</li> <li>• Local frontage wide beach plan surveys;</li> <li>• Pre and Post storm surveys; and</li> <li>• Analysis of monitoring data and reporting.</li> </ul> <p>The Beach Maintenance and Management Plan would allow arrangements and procedures to be made to ensure that the beach is managed and maintained to provide its coastal defence and amenity function. This plan should also incorporate control measures to prevent deterioration in water quality.</p> <p>Other actions:</p> <ul style="list-style-type: none"> <li>• CCBC to monitor beach changes along the coastline beyond the scheme. This information would be incorporated into the existing Beach Maintenance and Management Plan;</li> <li>• CCBC to monitor beach level and recycle material in front of structure in line with the Beach Maintenance and Management Plan;</li> <li>• Regular inspection of defence structures;</li> <li>• Ongoing beach monitoring and beach recycling if required to prevent failure of the sea wall and terminal groyne;</li> <li>• Maintenance of outfalls by CCBC in line with their Beach Maintenance and Management Plan; and</li> </ul>	Undertake surveys required and updates to the Beach Maintenance and Management Plan	Adherence to Beach Maintenance and Management Plan and ongoing monitoring	Principal Contractor to undertake initial survey works following completion of recharge. CCBC to monitor beach levels going forward in the Operational phase	C and O	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<ul style="list-style-type: none"> <li>Potential closure of Promenade for extreme storm events. CCBC would be required to produce an Operational Flood Management Plan.</li> </ul>					
	Monitoring of flood defence structures	<ul style="list-style-type: none"> <li>Regular inspection of defence structures should be undertaken;</li> <li>Ongoing beach monitoring and beach recycling, if required, to prevent failure of the sea wall and terminal groyne;</li> <li>Maintenance of outfalls in line with CCBC's Beach Maintenance and Management Plan;</li> <li>Potential closure of Promenade for extreme storm events. CCBC would be required to produce an Operational Flood Management Plan (Appendix A.19); and</li> <li>Alternative measures such as flood risk signage, social media announcement and flood warning system/alert.</li> </ul>	Sea defence structures inspections and records undertaken/produced. Adherence to the beach management and maintenance plan	Principal Contractor to inspect defence structures regularly. Beach management and maintenance plan to be updated	Principal Contractor/CCBC	C and O	Signature:  Date:
	Monitoring of flood defence structures.	Regular maintenance of flood defence structures would be undertaken within the Scheme and would continue throughout the life of the flood defence structures to record their ability to withstand the flood and wave attack. This record is beneficial to develop a plan for repair or modification of flood defence structures in the future.	Sea defence structures inspections and records undertaken/produced. Adherence to the beach management and maintenance plan and reporting procedure in place.	Principal Contractor to inspect defence structures regularly. Beach management and maintenance plan to be updated	CCBC	O	Signature:  Date:
Es Ch11	Mitigation of pollution	Construction would be undertaken using GPP5 - Guidance for Pollution Prevention: Works and maintenance in or near water.	Compliance with method statements.	Principal contractor to	Principal Contractor	P and C	Signature:  Date:

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	impacts (NRW consultation)			prepare method statements.			
<b>ES Chapter 12 (Landscape)</b>							
ES Ch12	Mitigation of landscape and visual impacts.	<p>Construction would be undertaken using industry best practice to reduce adverse effects on landscape and visual amenity. The following mitigation measures are proposed to mitigate any significant adverse construction effects identified in this assessment:</p> <ul style="list-style-type: none"> <li>• Lighting during construction would be designed to minimise light pollution during the hours of darkness. Lighting would be directional to prevent light spill and designed to reduce skyglow;</li> <li>• Site fencing around the construction sites would be well maintained throughout the construction period;</li> <li>• Footways and cycleways would be diverted to allow access where operationally possible;</li> <li>• During offloading of materials, the affected beach area would be off limits to recreational users of the beach and water. Users would be encouraged to use other stretches of the coastline; and</li> <li>• All areas of land within the Scheme red line boundary that have been temporarily occupied during the construction phase (areas not to be re-developed) would be re-instated to pre-construction condition.</li> </ul>	Compliance with method statements.	Principal Contractor to complete pre-construction survey and prepare method statements.	Principle Contractor	C	<p>Signature:</p> <p>Date:</p>
<b>ES Chapter 13 (Materials)</b>							
ES Ch13	Reduction in materials usage and waste generation.	A Materials Management Plan (MMP) would be compiled by the Contractor, as part of the CEMP if required (Appendix A.14). It would identify ways to re-use site-won or excavated materials within the construction of the Scheme, provided they meet the requirements of the CL:AIRE Code of Practice (CoP).	Preparation of and compliance with a MMP	Principal Contractor to produce MMP	Principal Contactor	C	<p>Signature:</p> <p>Date:</p>

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
ES Ch13	Reduction in materials usage and waste generation.	A Site Waste Management Plan (SWMP) would also be developed by the Contractor as part of the CEMP (Appendix A.4). It would contain specific information on how material with the potential to become waste is reused or managed on- or off-site during the construction of the proposed Scheme. The Site Waste Management Plans is a key part of the CEMP and would be a live document based on construction operations as they occur. The MMP and SWMP would show how efficient use of material resources and reduction of waste arisings would be achieved.	Preparation of and compliance with a Site Waste Management Plan.	Principal Contractor to produce Site Waste Management Plan.	Principal Contactor	C	Signature:  Date:
ES Ch13	Reduction in materials usage and waste generation	<ul style="list-style-type: none"> <li>Where possible, recycled aggregates would be used within the Scheme and existing material resources sourced locally would be used where possible;</li> <li>Materials would be delivered on an 'as required' basis to avoid damage or contamination and limit the generation of waste;</li> <li>Where site-won material is not available or suitable for re-use; secondary or recycled materials would be procured where available and practicable;</li> <li>All suitable excavated material (with the exception of sediment from the intertidal area which would remain within the sediment budget for the coastal cell) would be re-used, where feasible, in the construction of the Scheme and in landscaping features to reduce the requirement to import materials for construction and reducing the need to remove surplus materials from site;</li> <li>Excavating activities would be confined to the minimum areas required for the works to minimise the quantity of contaminated material removed;</li> <li>Temporary stockpiling of fill materials prior to incorporation in the Scheme would be avoided where possible, to ensure double handling and damage is minimised and therefore avoidance of waste. However, where required, materials would be stockpiled in accordance with best practice and managed</li> </ul>	Site Waste Management Plan and MMP to be produced (a verification plan is required if an MMP is used).	Principal Contractor to produce Site Waste Management Plan and MMP.	Principal Contactor	C	Signature:  Date:

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		<p>appropriately to limit the likelihood of damage or contamination;</p> <ul style="list-style-type: none"> <li>Locally sourced materials and suppliers would be identified and used, where practicable, to reduce fuel requirements and cost of delivery, for example sand along the coast where permitted. This also reduces greenhouse gas emissions resulting from transportation;</li> <li>Pre-cast elements would be used, where practicable, to ensure efficient use of materials and avoid the generation of waste arisings from off-cuts;</li> <li>Collaborating with nearby projects to provide and use surplus material, where suitable;</li> <li>The waste hierarchy would be implemented throughout the construction to minimise disposal and maximise re-use and recycling of site-won material. Opportunities for re-use and recycling include (but are not limited to): <ul style="list-style-type: none"> <li>Re-using excavated soils on-site in the landscaping features of the Scheme;</li> <li>Chipping green waste on-site for use in the landscaping for the Scheme;</li> <li>Composting of green waste;</li> <li>Recycling of inert material by crushing, blending and subsequent re-use, as an aggregate;</li> <li>Re-using waste on other nearby schemes, subject to permitting requirements and suitability of the material; and</li> <li>Re-using waste for uses with clear benefits to the environment, for example in the remodelling of agricultural land or in the restoration of nearby quarries or other excavation sites.</li> </ul> </li> <li>Facilities e.g. site compounds and skips would be provided on-site to separate out waste, for example for recycling.</li> </ul>					

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
ES Ch13	Reduction in materials usage and waste generation	Contractors would review the D4RE opportunities identified and act on these where feasible up to construction: <ul style="list-style-type: none"> <li>Determine the availability of reusable material from the Scheme and locate suitable local schemes where this material can be used, if not used on site;</li> <li>Use recycled rebar in areas of concrete;</li> <li>Use local sources of materials where possible;</li> <li>Use pre-cast concrete or modular units where necessary to reduce waste and improve quality;</li> <li>Use of recycled cement and other site won materials as subbase in pavement; and</li> <li>Retain existing lighting columns and street furniture or return to depot for reuse in other CCBC projects.</li> </ul>	Compliance with the EMP.	D4RE to be reviewed and actioned where possible	Principal Contractor and MML (Designer)	P and C	Signature:  Date:
ES Ch13	Reduction in materials usage and waste generation	Mitigation measures that would be implemented on-site to ensure efficient use of material resources, and to reduce the potential impacts during operation are as follows: <ul style="list-style-type: none"> <li>The Beach Monitoring and Management Plan for Colwyn Bay would be updated by CCBC and would detail the frequency and trigger beach management. Suitable beach management would minimise loss of sediment from the bay and reduce future requirements for recharge; and</li> <li>Use local sources of materials where possible.</li> </ul>	Update to the Beach Management and Maintenance Plan, compliance with MMP and review of material sources	Principal Contractor to produce MMP and review materials sources. CCBC to update Beach Management and Maintenance Plan	Principal Contractor / CCBC	O	Signature:  Date:
<b>ES Chapter 14 (Noise and Vibration)</b>							
ES Ch14	The effective management and reduction of construction noise.	Working hours on the Site would be agreed with CCBC. The beach recharge would be a 24hr operation for up to 20 weeks, otherwise normal hours of work would be expected to be as detailed below (or alternative as agreed with CCBC): <ul style="list-style-type: none"> <li>Monday to Friday 07:00 to 19:00 hours; and</li> </ul>	Preparation of a method statement, consultation with CCBC.	Principal Contractor to produce method statement	Principal Contractor	P and C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<ul style="list-style-type: none"> <li>Saturday 08:00 to 12:00 hours (or as agreed in advance with CCBC).</li> </ul> <p>The impact of noise and vibration on nearby sensitive receptors within the vicinity of the Scheme would be controlled by implementation of the principal of Best Practicable Means (BPM). This can be achieved by undertaking construction activities in accordance with good practice set out in BS 5228-1/2:2009+A1:2014.</p>					
ES Ch14	The effective management and reduction of construction noise.	Whilst construction noise is likely to be disruptive at nearby residences at times, it can be controlled by the implementation of a Construction Noise Management Plan (CNMP) (Appendix A.16), or as part of the CEMP.	Adherence to a CNMP	Production of the CNMP.	Principal Contractor	C	Signature:  Date:
ES Ch14	The effective management and reduction of construction noise.	If necessary, specific measures for mitigation would be discussed with CCBC and described within the Contractor method statements. Where noise limits have the potential to be exceeded, alternative methods would be considered in conjunction with CCBC. This may include an application under Section 61 of the Control of Pollution Act 1974, the provision of noise insulation measures and, or temporary rehousing of residents during periods of particularly intense noisy works.	Consultation with CCBC and production of method statements.	Method statements to be produced.	Principal Contractor	P and C	Signature:  Date:
ES Ch14	The effective management and reduction of construction noise.	<p>Typical means by which noise and vibration would be minimised where feasible include the following:</p> <ul style="list-style-type: none"> <li>Selecting quiet equipment;</li> <li>Ensuring equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions;</li> <li>Training members of the construction team and advising during toolbox briefings on quiet working methods;</li> <li>Not leaving equipment running unnecessarily;</li> <li>Fitting equipment with silencers or mufflers;</li> </ul>	Production of method statements.	Method statements to be produced.	Principal Contractor	C	Signature:  Date:



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		<ul style="list-style-type: none"> <li>• Use of plant enclosures whenever feasible;</li> <li>• Careful orientation of plant with directional features;</li> <li>• Lowering materials instead of dropping them from height;</li> <li>• Informing nearby sensitive receptors in advance of construction activities and keeping them up to date with progress and changes;</li> <li>• Giving nearby sensitive receptors a site contact telephone number for liaison and support;</li> <li>• Managing deliveries to prevent queuing of site traffic at access points; and</li> <li>• Using adjustable or directional audible vehicle-reversing alarms or use of alternative warning systems (for example white noise alarms).</li> </ul>					
ES Ch14	The effective management and reduction of construction noise.	If appropriate, letter box drops would be undertaken, explaining the likely duration, start and stop dates, and that measures are being employed to minimise noise levels. A dedicated site contact would be nominated to liaise with residents and maintain good rapport. A complaint handling procedure would also be put in place.	Complaint handling procedure and records of complaints and actions to be kept.	Principal Contractor to prepare CEMP	Principal Contractor and communications representative	C	Signature:  Date:
ES Ch14	The effective management and reduction of construction vibration.	<p>Vibration mitigation measures would where feasible include the following:</p> <ul style="list-style-type: none"> <li>• Utilising low vibration working methods; and</li> <li>• Replacement of plant that is causing significant levels of vibration with other plant where necessary.</li> </ul>	Preparation of method statements	Principal Contractor to prepare	Principal Contractor	C	Signature:  Date:
ES Ch14	The effective management and reduction of construction noise.	Where residual significant adverse effects are predicted during construction, specific measures for tertiary mitigation would be agreed with CCBC and described within the Contractor method statements.	Production of method statements	Principal Contractor to prepare	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
<b>ES Chapter 15 (Population and Health)</b>							
ES Ch15	Mitigation of impacts to population and health receptors.	The Contractor would develop the EMP into a CEMP to minimise disruption to businesses for customers, deliveries and staff and to minimise disruption to pedestrians, cyclists and users of the beach. Task specific mitigation measures would also be included in RAMS to be developed before related works commence.	CEMP to be produced.	Principal Contractor to prepare CEMP	Principal Contractor	P	Signature:  Date:
ES Ch15	Mitigation of impacts to population and health receptors.	The Contractor would be required to register for the Considerate Constructors Scheme (or similar) on this Project. Once registered, the Contractor would follow the Site Code of Considerate Practice.	Registration completed for Considerate Constructors Scheme (or similar)	Contractor(s)	Principal Contractor	P	Signature:  Date:
ES Ch15	Mitigation of impacts to population and health receptors.	A communication plan would be put in place by the Contractor to keep local marine users informed in advance of any closures and necessary marine diversions throughout the duration of the groyne and beach recharge works at Rhôs-on-Sea Harbour.	Preparation of a method statement/ communication strategy	Principal Contractor to prepare	Principal Contractor and communications representative.	P and C	Signature:  Date:
ES Ch15	Mitigation of impacts to population and health receptors.	Temporary diversions and other management procedures would be advertised throughout the WIA.  The Contractor would develop a Construction Traffic Management Plan in consultation with the CCBC Highways Department to minimise disruption to motorised users (Appendix A.18).	Consultation with CCBC, production of a Traffic Management Plan and records of advertisements and complaints and actions kept.	Principal Contractor to prepare.	Principal Contractor	P	Signature:  Date:
ES Ch15	Utilisation of local workforce to benefit the	The Contractor would where feasible identify commitments to benefit local workforce where possible and would seek to employ	Records of advertisements	Principal Contractor to prepare	Principal Contractor and CCBC	P	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
	local economy.	the construction workforce from local residents through a wider communication plan (Appendix A.17).  As part of the tendering process it is recommended that the Contractor is required to demonstrate the measures it would utilise to employ a local workforce so that long- and short-term benefits can be attributed to the local area (CCBC area).	and actions kept.				
ES Ch15	Mitigation of impacts to local businesses.	Consider the provision of temporary facilities for the current kiosks business during construction.  If it is not possible to relocate businesses on the Promenade, explore support for helping them to identify alternative premises elsewhere.  If businesses are being relocated, ensure they are able to remain open for as long as possible to minimise the period of inactivity.	Implement relocation if feasible, or implement support structures.	CCBC to implement and define support structures and relocation actions	CCBC	P	Signature:  Date:
ES Ch15	Benefits to recreational users of the promenade.	Ensure the new facilities have lots of places to stop, rest and shelter from the sun, to encourage greater use by older people who make up a large proportion of the local population.	Shelters included within the designs	Principal Contractor to design and construct	Principal Contractor	P, C and O	Signature:  Date:
<b>ES Chapter 16 (Traffic, Transport and Access)</b>							
ES Ch16	Mitigation of impacts to local residents, pedestrians and cyclists	Uncontrolled crossings would be installed at appropriate locations on Cayley Promenade.	Crossings installed	Principal Contractor to construct as per designs	Principal Contractor	C	Signature:  Date:
ES Ch16	Mitigation of impacts to road users and general traffic.	The design of scheme would be subject to a Stage 3 Road Safety Audit.	Road Safety Audit process completed	MML (designer) to undertake Stage 3 audit once construction is complete	MML	P and O	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
<b>Chapter 17 (Other Environmental Disciplines)</b>							
ES Ch17	Mitigation of contaminated land impacts	<p>Unsuspected Contamination</p> <p>If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this unsuspected contamination shall be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be carried out as approved.</p> <p>Justification: To ensure the risks associated with previously unsuspected contamination at the site are dealt with through a remediation strategy, to minimise the risk to both future users of the land and neighbouring land, and to ensure that the development can be carried out safely without unacceptable risks.</p>	Consultation with the LPA, NRW and production of method statements.	Principal contractor to prepare method statements and obtain written consent of the LPA.	Principal Contractor	P	<p>Signature:</p> <p>Date:</p>
ES Ch17	Mitigation of impacts to groundwater	<p>Surface water drainage – No infiltration of surface water drainage into the ground is permitted other than with the express written consent of the local planning authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with the approval details.</p> <p>Justification: To prevent both new and existing development from contributing to or being put at unacceptable risk from or being adversely affected by unacceptable levels of water pollution.</p>	Consultation with the LPA, NRW and production of method statements.	Principal contractor to prepare method statements and obtain written consent of the LPA.	Principal Contractor	P	<p>Signature:</p> <p>Date:</p>
ES Ch17	Mitigation of contaminated land impacts	<p>The developer should:</p> <ul style="list-style-type: none"> <li>Follow the risk management framework provided in CLR11, Model Procedures for the Management of Land Contamination, when dealing with land affected by contamination;</li> <li>Refer to the Environment Agency's 'Guiding Principles for Land Contamination' for the type of information that we require</li> </ul>	Consultation with the LPA, NRW and production of method statements.	Principal contractor to prepare method statements and obtain written consent of the LPA.	Principal Contractor	P	<p>Signature:</p> <p>Date:</p>

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion Record
		<p>in order to assess risks to controlled waters from the site. The Local Authority can advise on risk to other receptors, such as human health; and</p> <ul style="list-style-type: none"> <li>Refer to the Environment Agency's (2017) 'Approach to Groundwater Protection'.</li> </ul>					

## 4 Consents and Permissions

### 4.1 Consents and Permissions

To be updated as necessary by Principal Contractor (as defined under the CDM Regulations) as the project progresses.

The following would be required for the Scheme construction:

- Flood Risk Activity Permit;
- Planning permission;
- Temporary Traffic Regulation Order;
- Permanent Traffic Orders;
- Coastal Protection Act 1949 consent;
- Work below mean high water spring would require a Marine Licence;
- Any consents/permissions required for temporary diversion of the Wales Coast Path and National Cycle Route 5;
- Sewer diversion consents;
- Connection to existing electrical sub-stations; and
- Crown Estate Permission.

### 4.2 Consents and Permission Record

Marine Licence start date 9<sup>th</sup> March 2022

Temporary Traffic Regulation Order start date 16<sup>th</sup> May 2022

Planning Permission gained 15<sup>th</sup> March 2022

## 5 Details of Maintenance and EMP Monitoring Activities

This EMP will be updated with results of monitoring during construction and handover phases including:

- The mitigation needed to manage environmental effects associated with a project and identify all necessary measures to avoid, reduce and offset a project's environmental impact and the methods for implementation;
- The statutory monitoring commitments, including the need to evaluate the monitoring, identify remedial actions and report on environmental monitoring; and
- Environmental management actions should include all monitoring requirements, success criteria, and specify a mechanism for reporting on progress against environmental requirements and commitments.

The EMP is an iterative document and continually updated to reflect progress on achieving the identified actions throughout the project lifecycle and respond to any assessment assumption and design changes identified by the change management process.

A summary of the tertiary mitigation/monitoring requirements identified within this ES<sup>7</sup> for the identified potentially Significant Adverse effects (and in addition where identified as being necessary elsewhere in the ES) is provided in Table 5.1.

**Table 5.1: Summary of Tertiary Mitigation/Monitoring Requirements**

Discipline	Tertiary Mitigation/Monitoring Proposed	Responsible person(s)
Historic Environment	<ul style="list-style-type: none"> <li>• Further consultation with Cadw and RCAHMMW would be required in order to establish the scope of geophysical survey in advance of construction works. This would be focused along the eastern fringe of the Scheme RLB, in order to establish the presence and predict the impact of the Scheme upon the non-designated wreck sites recorded on the National Monuments Record;</li> <li>• An archaeological watching brief would be required for areas of intertidal excavation including the extended outfalls and Rhôs Harbour terminal groyne works;</li> <li>• Measures should be put in place to ensure that if archaeological remains of high value associated with the submerged forest are uncovered work ceases and an appropriate excavation and sampling strategy is put in place. This should be in accordance with an archaeological written scheme of investigation approved by the CPAT Archaeologist and recorded in the CEMP; and</li> <li>• A programme of archaeological investigation in the form of a historic building survey would be required prior to the removal and relocation of the Llandrillo-yn-Rhôs Memorial Drinking Fountain (MM041) on Rhôs Promenade. The Principal Contractor RAMS would detail how the asset would be dismantled, removed, stored and restored and provide appropriate plans and locations of the restored position. Further consultation with CPAT would be required to establish the level of survey required. This work should be undertaken in accordance with an archaeological</li> </ul>	CCBC/Principal Contractor

<sup>7</sup> Central Rhyl Coastal Defences, Environmental Statement Volume 1: Main Text, CR-MMD-00-00-RP-EN-3016, August 2021.

Discipline	Tertiary Mitigation/Monitoring Proposed	Responsible person(s)
	written scheme of investigation approved by the CPAT Archaeologist and recorded in the CEMP.	
Biodiversity	<ul style="list-style-type: none"> <li>Habitats and Faunal Enhancements: Although no bespoke marine ecological enhancement options are recommended as part of the Scheme, monitoring of the groyne extension adjacent to Rhôs-on-Sea is advised to monitor if intertidal fauna and flora has re-established on the rock revetments. It is possible that these structures can be retrospectively engineered to promote biodiversity if over time the artificial structure proves unsuitable habitat for resettlement;</li> <li>Long term monitoring and management of the Cayley Embankment (rewilding) should also be undertaken to determine effectiveness of measures and any changes needed to the maintenance regime; and</li> <li>Intertidal habitats (<i>Sabellaria alveolata</i> formations): Pre-construction photographic condition surveys to be undertaken for the marine habitats on site. This would provide a suitable baseline against which to assess the effectiveness of mitigation measures used during works.</li> </ul>	CCBC/Principal Contractor
Coastal Processes and Flood Risk	<ul style="list-style-type: none"> <li>FMP to be produced and further discussions with NRW regarding future flood warning arrangements for the existing serviced area and a possibility of providing a specific warning for the Colwyn Bay frontage. This would require future discussions from the CCBC Flood Risk and Infrastructure team and NRW's Warning and Informing team;</li> <li>In addition to monitoring tides and any storm events during the construction of the Scheme, monitoring of the beach levels and any occurrence of localised scour would need to be undertaken by the Contractor. A management plan for a response to storms would be included in the Contractors Flood Management Plan (Appendix A.12);</li> <li>To reduce aeolian impacts, fencing similar to that installed in the vicinity of Victoria Pier as part of the earlier scheme (Phase 1c) works may be considered appropriate in future across the northern part of the frontage where there is only a 0.6 to 0.7m height difference between the recharge and the crest of the sea wall (monitoring dependent); and</li> <li>The overtopping rates are expected to increase over the next 50 years for operational conditions of 1 in 10 to 20 years, thus, additional mitigation measures such as signage, social media announcement, flood warning system/alert and additional secondary flood defence measures (e.g. additional crest walls) may be required.</li> </ul>	CCBC/Principal Contractor
Climate	GHG emissions contribute to climate change and must be reduced wherever possible, particularly considering the Net Zero Carbon target set by the government. Therefore, through the subsequent stages of the Scheme wherever possible GHG emissions must be minimised.	Principal Contractor and MML (Designer)
Landscape and Visual	<ul style="list-style-type: none"> <li>The Contractor would adopt sensitive policies towards reducing visual impact as far as possible. Wherever possible viewing areas would be provided so that members of the public can safely view the ongoing work;</li> <li>Areas where works are complete would be reopened to the public as soon as safely possible;</li> </ul>	Principal Contractor



Discipline	Tertiary Mitigation/Monitoring Proposed	Responsible person(s)
	<ul style="list-style-type: none"> <li>Complaints from residents would be collated by the Contractor and wherever possible mitigation undertaken to reduce that impact; and</li> <li>Where planned activities are anticipated to cause a visual disturbance, the Council would be informed in advance to allow notification of the proposed works to be disseminated.</li> </ul>	
Noise and Vibration	<p>During construction:</p> <ul style="list-style-type: none"> <li>Where residual significant adverse effects are predicted, specific measures for tertiary mitigation would be agreed with CCBC and described within the Contractor method statements. Where there is a demonstrable need and implementation is practicable, temporary noise barriers would be incorporated where these can remove line of sight between works and noise sensitive receptors. Application may be made under Section 61 of the Control of Pollution Act 1974, the provision of noise insulation measures and, or temporary rehousing of residents during periods of particularly intense noisy works may be considered where trigger levels from Table E.2 of the BS5228-1:2009+A1:2014 are exceeded for the relevant time periods and durations; and</li> <li>Noise monitoring is generally used to control exposure where significant adverse effects are anticipated. The predictions show that Significant Adverse effects are anticipated for the night-time beach recharge works for sensitive receptors on the Rhôs, Caley and West Promenade Receptor zones; It is therefore considered that noise monitoring should be undertaken for the duration of these works.</li> </ul>	Principal Contractor/CCBC
Population and Health	<ul style="list-style-type: none"> <li>Ensure that the principal construction Contractor would seek to employ the construction workforce from local residents through a wider communication plan where feasible;</li> <li>Ensure that the diversions are accessible to all users, including disabled people and ensure cyclists do not need to dismount to utilise the diversions where feasible;</li> <li>Explore staggering closures of different portions of the beach to maintain access where safe and feasible; and</li> <li>Continue to keep the local community informed of works and potential disruption during the construction of the Scheme.</li> </ul>	Principal Contractor/CCBC
	<ul style="list-style-type: none"> <li>Consider providing temporary facilities for kiosk businesses during construction.</li> <li>If it is not possible to relocate businesses on the Promenade, explore support for helping them to identify alternative premises elsewhere.</li> <li>If businesses are being relocated, ensure they are able to remain open for as long as possible to minimise the period of inactivity.</li> </ul>	CCBC
Traffic and Transport	<p>During operation:</p> <ul style="list-style-type: none"> <li>Post implementation the traffic situation would be monitored by the Local Authority to ensure that the mitigation included in the scheme is appropriate. Other mitigation measures may be considered in future if necessary e.g. the introduction of 20mph speed limit on Caley Promenade.</li> </ul>	CCBC

Source: Mott MacDonald, 2021

## 6 Induction, Training and Briefing Procedures for Staff

### 6.1 Introduction

Table 6.1 identifies an indicative programme of training on environmental issues relevant to the scheme that have been identified for delivery prior to and during the construction stage. On commencement of site mobilisation, the Principal Contractor will be responsible for site inductions and training of all personnel on the site, whether visitors, full time staff or subcontractors.

All individuals working on or visiting the site will be required to attend the Principal Contractor's site-specific induction. Those participating in or near to specific activities that have the potential for an environmental impact will be required to attend additional training or toolbox talks, led by the Principal Contractor or specialists, on ecology, pollution control, waste management and emergency procedures for minor and major incidents.

The list below is not exhaustive and the Principal Contractor or Environmental Manager on site must highlight requirements for additional training, as the project progresses, to improve and add value to the overall site environmental awareness and compliance. Additional training or induction issues would be identified from the regular site environmental check reports, or site feedback on any noted non-compliance. It is a requirement for the site to maintain the standard of environmental management and minimise risks that could negatively impact on the environment.

Any additional induction and training requirements should be inserted within Table 6.1 below as they are identified throughout the lifetime of the scheme, by the Principal Contractor.

**Table 6.1: Indicative Programme of Training**

Topic	Personnel	Delivery	Delivery Format
Competent resources (staff)	All	By lead staff resource or employer prior to commencement of activities.	Supply of specific certificates, for example Construction Skills Certification Scheme (CSCS) Project Cards, training confirmation.
Reporting of environmental observations and suggestions.	All	Site induction	Presentation and environmental reporting cards to be supplied. Posters with site reporting and environment contact numbers.
Communications to public.	All	Site induction	Follow Considerate Constructors Scheme principles (CCS) or a Communication Plan, if required.
Spill kit use.	All	Site induction	Toolbox talks and Deployment Training Session.
Refuelling / mechanical repairs and maintenance (off and on site)	All	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).

Topic	Personnel	Delivery	Delivery Format
Tree root protection areas (RPAs)	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Waste from Welfare units and offices – Sewage	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Chemical handling and storage	Stores manager and any persons with access or contact	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Ecological sensitivities	All	Site induction. Prior to works close to sensitive areas.	Toolbox talks where relevant and daily site briefings.
Heritage/ Archaeological sensitivities	All	Site induction. Prior to works close to sensitive areas.	Toolbox talks where relevant and daily site briefings.
Preventing nuisance (noise, vibration, dust and odours)	Any specialist installations (for example breaking out concrete, existing pavement) machine drivers and banksmen.	Site induction.	Presenting nuisance (noise, vibration, dust and odours)

## 6.2 Environmental Competencies

The Principal Contractor shall ensure all personnel are suitably qualified or experienced for the roles and responsibilities that they are employed to undertake and suitably supervised.

The Principal Contractor will monitor and record that all staff have attended the relevant environmental induction or training as listed above (including updated or new training) prior to undertaking any activities on site.

## 6.3 Training and Site Induction

All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the Principal Contractor before commencing activities on site. The list below is not exclusive but environmental training at Induction will at least include the following:

- Company/Project Environmental Policy;
- Site environment;
- Fuel containment;
- Earthworks and Excavations (Risks of exposing contamination);
- Pollution protocol and measures for example use of spill kits;
- Defined Materials Storage area (excavated and imported);
- Defined waste areas - Domestic and construction materials;
- Wheel wash – road sweeping;
- Dust and emissions control;
- Noise control;
- Vibration control;
- Site traffic protocols and routes in the form of a Traffic Management Plan - haul routes, staff travel to site plan;

- Warning signs;
- Site Inspection and monitoring forms;
- Material procurement;
- Toolbox talks where relevant to specific works;
- Communication Systems on site – dealing with the public, incident and near miss reporting inclusive of environment;
- Site organisation, key personnel responsibilities and contact details;
- Emergency Response Plan(s) for addressing Safety and Environmental issues.
- Contamination risk management;
- Update and maintain site specific toolbox talks or advisory sheets relevant to the project; and
- Working in publicly accessible places.

#### 6.4 Toolbox Talks and Supporting Materials

Toolbox talks will be posted within common use areas such as welfare units and office reception areas. Key environmental issues linked to the programme will be targeted on the daily notice board as an aide memoir to all staff on site for example areas of construction plant avoidance due to ecological and archaeological constraints.

## 7 Glossary

Term and abbreviation if necessary	Definition
Environmental Management Plan (EMP)	The EMP includes the specific measures that will be taken to control and manage the environmental impacts whilst the project is under construction that may otherwise occur for each of the environmental topics, such as noise, air quality, water resources and ecology. In addition, a description of the planned works and the general site arrangements should be included in the EMP. The Principal Contractor will be responsible for ensuring the measures specified within the EMP are implemented.
Design for Resource Efficiency (D4RE)	A Design for Resource Efficiency assessment is undertaken to consider the resources efficiency throughout the design process to reduce its use of resources and therefore release carbon savings.
Dust	The word 'dust' usually refers to particulate matter in the size range 1-75 microns in diameter. Dust can be mechanically transported either by wind or re-suspension by vehicles. It can also arise from wind erosion on material stockpiles and earth moving activities.
EMP: Outline EMP (First iteration EMP)	A management plan produced during the design stage for the preferred option.
EMP: Construction EMP (Second iteration EMP)	A management plan that is refined during the construction stage for the consented project, in advance of construction.
EMP: Handover EMP (Third iteration EMP)	A management plan that contains essential environmental information needed by the body responsible for the future maintenance and operation of the asset.
Environmental Clerk of Works	An environmental or construction professional with direct responsibility for monitoring compliance with planning consents, environmental permits, legislation and mitigation
Greenhouse Gas (GHG) emissions	Emissions of gases that contribute to the greenhouse effect by absorbing infrared radiation trapping heat and contributing to global warming.
Listed Building	A building which is considered by the Secretary of State (for Culture, Media and Sport) to be of special architectural or historic interest in accordance with the regime set out in the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Wildlife Site (LWS)	Non-statutory sites that are given protection under the planning process.
Materials Management Plan (MMP)	The Materials Management Plan (MMP) identifies materials to be generated and clarifies how they will be reused. The Materials Management Plan must be approved by an independent Qualified Person (registered with CL:AIRE).
Mitigation	Measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects.
Natural Resources Wales (NRW)	NRW is responsible for environmental protection and regulation in Wales and plays a central role in implementing the government's environmental strategy. NRW is the main body responsible for managing the regulation of water quality and resources, coastal waters (including Marine Licencing), fisheries, inland river, estuary and harbour navigations, and conservation and ecology. They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.
Operation	The functioning of a project on completion of construction.
RCAHMMW	The Royal Commission on the Ancient and Historical Monuments of Wales. The RCAHMMW has a national role in developing and promoting understanding of the archaeological, built and maritime heritage of Wales, as the originator, curator and supplier of authoritative information for individual, corporate and governmental decision makers, researchers, and the general public. They hold a unique collection of photographs, maps, images, publications and reports within its archive, The National Monuments Record of Wales.
Receptor	A defined individual environmental feature that has the potential to be affected by a project.

Term and abbreviation if necessary	Definition
Special Area of Conservation (SAC)	A Special Area of Conservation (SAC) is defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Scheduled Monument	A scheduled monument is a historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport under the regime set out in the Ancient Monuments and Archaeological Areas Act 1979.
Site of Special Scientific Interest (SSSI)	An SSSI is a conservation designation denoting a protected area in the United Kingdom, designated due to special interest in its flora, fauna, geological or physiographical features. They are protected by law to conserve their wildlife or geology.
Site Waste Management Plan	Site Waste Management Plans encourage the effective management of materials and ensure waste is considered at all stages of a project - from design through to completion. Although not a regulatory requirement, Site Waste Management Plans are considered to be good practice.
Special Protection Area (SPA)	SPAs are classified in accordance with European Council Directive 2009/147/EC on the conservation of wild birds, known as the Birds Directive. SPAs protect rare and vulnerable birds (as listed on Annex I of the Birds Directive), and regularly occurring migratory species.
Written Scheme of Investigation (WSI)	A Written Scheme of Investigation outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.

## **A. Relevant Management Plans**

**A.1    Biosecurity Risk Assessment/ Marine Bio Security Plan**



**A.2 D4RE Spreadsheet**

### A.3 Carbon Management Plan

**A.4    Outline Site Waste Management Plan**

## A.5 Construction Dust Risk Assessment

**A.6    Pensarn Beach SSSI Works Impact Assessment and Mitigation Plan**

## A.7 Travel Plan

## A.8 Construction Logistics Plan

**A.9 Archaeological management Plan**



**A.10 Marine Pollution Contingency/Emergency Response Plan**

**A.11 Surface water Management Plan**

**A.12 Construction Flood Risk Management Plan**

### **A.13 Beach Management and Maintenance Plan (Update)**

An update to the existing beach management and maintenance plan is currently in progress

## A.14 Materials Management Plan

N/A

**A.15 Site Waste Management Plan**

**A.16 Construction Noise Management Plan**

**A.17 Communication Plan**



**A.18 Construction Traffic Management Plan**

## A.19 Operational Flood Management Plan

An update to the operational flood management plan is currently in progress

**A.20 Ballast Water Management Plan**

**A.21 Bio-fouling Management Plan**

**A.22 Material and Waste Audits**

## B. Environmental Method Statements

## **C. Emergency Procedures and Record of Environmental Incidents**

## D. Monitoring Reports



## E. Supporting Drawings

### E.1 Environmental Constraints Within the Intertidal Area

