



Old Colwyn Coastal Defence and Active Travel Scheme Environmental Statement

Volume 2: Technical Appendix 1 - Introduction

July 2020

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Old Colwyn Coastal Defence and Active Travel Scheme Environmental Statement

Volume 2: Technical Appendix 1 - Introduction

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	July 2020	A. Jones	N. Spofforth	C. Williams	First Issue

Document reference: 415437-MMD-00-XX-RP-N-1703

Information class: Standard

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Appendix 1.1 – EIA Screening Letter



Yr Amgylchedd, Ffyrdd a Chyfleusterau
Environment, Roads & Facilities

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Ein Cyf / Our Ref: **EP0802**

Eich Cyf / Your Ref:

Dyddiad / Date: **17/2/2020**

Dear Sir / Madam,

Old Colwyn Promenade Coastal Defence and Active Travel

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED): REQUEST FOR SCREENING OPINION

TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (WALES) REGULATIONS 2017: REQUEST FOR SCREENING OPINION

The Environment, Roads and Facilities Team at Conwy County Borough Council (CCBC) would like to formally request a Screening opinion in accordance with Regulation 11 of the Marine Works EIA Regulations 2007 (as amended) (hereafter referred to as the MW EIA Regulations) and also in accordance with Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (hereafter referred to as the T&C EIA Regulations), in relation to the following proposed planning application:

Old Colwyn Promenade Coastal Defence and Active Travel Scheme (also referred to as 'the Scheme' within this letter).

In accordance with Schedule 2(1) of the Marine Works EIA Regulations and Regulation 6(2) of the T&C EIA Regulations, the information provided below along with the appended plans and supporting background reports provides:

A plan sufficient to identify the location of the project (and the regulated activity where applicable for the MW EIA Regulations).

A description of the development, including in particular:

A description of the physical characteristics of the development and, where relevant, of demolition works.

Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.

We welcome correspondence in Welsh. We will respond to any correspondence in Welsh which will not lead to a delay.



Prif Switsfwrdd / Main Switchboard: 01492 574000

www.conwy.gov.uk

Ni ddylid cyflwyno dogfennau llys drwy ffacs
 Fax not to be used for serving proceedings



A description of the location of the development, with particular regard to the environmental sensitivity of geographical areas likely to be affected.

A description of the aspects of the environment likely to be significantly affected by the development.

A description of any likely significant effects, to the extent of the information available on those effects, of the proposed development on the environment resulting from:

The expected residues and emissions and the production of waste, where relevant.

The use of natural resources, in particular soil, land, water and biodiversity.

Other information or representations as the person making the request may wish to provide or make including any features of the proposed development or any measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.

Plans appended to this letter comprise:

Red Line Boundary Plan (EP0802/012/A).

Phase 1 Habitat Survey Plan (410895-MMD-00-XX-DR-C-0004/P3).

Additional appended assessments, surveys and reporting in support of the Scheme comprise the following:

BCA Landscape Promenade Design Concept Report (*please note this presents concept options only and is subject to change during the detailed design phase depending on funding, technical physical and environmental constraints*).

Over-Wintering Bird Survey Report (410895-MMD-N-R-00-XX-1700).

A Preliminary Ecological Appraisal Report (PEAR) is currently being completed for the Scheme.

A significant amount of technical reporting already exists for the Colwyn Bay area in relation to Phases 1a/b/c and 2a of the Colwyn Bay Waterfront Project. The following documents have been produced in support of the previous planning applications and can be made available upon request from CCBC (documents in italics include the Scheme area while the remainder cover neighbouring areas):

Phase 1

Phase 1 Environmental Statement – Volume 1 (2010).

Phase 1 Environmental Statement – Volume 2 (2010).

Phase 1 Environmental Statement – Volume 3 (2010).

Environmental Statement Addendum for Phase 1b (2013).

Phase 1b – Design and Access Statement (2013).

Phase 2

Environmental Appraisal Report for Phase 2(a) (2015).

Flood Consequences Assessment (2015).

Colwyn Bay Physical Model, Coastal Defence Schemes Modelling Report (2017).

Biosecurity Risk Assessment (2015).

Design and Access Statement (2015).

Future Nourishment Requirements Technical Note (2015).

Phase 2 Environmental Review and Update Report (2015).

Phase 2 PEMP (2015).
Surface Water Drainage Assessment (2015).
Habitat Regulations Test of Significance (2015).

1.0 Description of the Site and the Scheme

1.1 Scheme Background

The Victorian built coastal defences at Old Colwyn have suffered from undermining, corrosion, partial collapses and degradation with frequent overtopping events occurring at Spring Tides, especially if onshore west to north-west winds occur concurrently. The promenade has to be closed during these events with the number of closures increasing in recent years – the promenade is now routinely closed whenever high tides coincide with forecast northerly or north-westerly winds. The defences have been assessed as being at significant risk of ‘catastrophic failure’ (Colwyn Bay Waterfront Project Phase 3 – Phasing Review, CCBC, August 2019), which could lead to the loss of the pedestrian promenade and a section of National Cycle Route 5, along with the Promenade (highway) which would leave the main London-Holyhead railway highly vulnerable (and subsequently the A55 expressway should the railway embankment fail).

The main trunk sewer that serves the whole of Old Colwyn is situated immediately behind the sea wall and could be lost should the defences fail during a storm event. This would result in a discharge of significant quantities of untreated effluent directly onto the beach with associated severe environmental consequences. Other services are also present in this area.

To reduce the risk of damage to this infrastructure, starting in January 2020, the Splashpoint Project commenced comprising the construction of a 30m deep rock revetment against the sea wall at the location identified as being at highest risk of imminent collapse – the easternmost section of the promenade (where a revetment is currently absent) known as ‘Splashpoint’. The presence of the revetment would reduce the energy from storm waves reaching the promenade, providing passive resistance against the existing wall to significantly reduce the risk of its failure.

Subsequent to this, CCBC are now seeking to provide a permanent upgrade of the coastal defences to protect the remainder of the Old Colwyn stretch of coastline from Splashpoint to Porth Eirias concurrently with improvements to the promenade to facilitate active travel.

1.2 Site Location and Description

Colwyn Bay (Bae Colwyn) is a seaside town in Conwy County Borough on the North Wales coastline. Principal settlements comprise Rhos-on-Sea to the west, the town of Colwyn Bay in the centre and Old Colwyn to the east. The A55 trunk road passes through the town, running parallel to the North Wales mainline railway, both of which separate Old Colwyn and Colwyn Bay town from the waterfront.

A long promenade and associated cycle track follow the waterfront from Rhos-on-Sea past the former location of the Victorian pier (proposed to be the site for a new truncated pier for which preparatory works are currently being completed) in the centre of the bay and round to Old Colwyn. There are slipways located at regular intervals for beach access. The beach predominantly comprises sand with some shingle at the landward edge. The Scheme is located adjacent to the promenade highway, with the railway and A55 to the immediate south.

Along the easternmost section of the promenade adjacent to Old Colwyn, overtopping of the promenade during storm events is a common occurrence which results in the closure of the

highway and frequent (and increasing with deteriorating condition) damage to the sea wall, promenade and the London to Holyhead Railway line.

The national grid references for the western and eastern Scheme boundaries are (285737,378898) and (287058,378694) respectively.

1.3 Proposed Scope of Work

The proposed scope of work comprises a combination of coastal defence, promenade and active travel improvements:

Coastal defence works to comprise:

- The construction of a rock revetment (approximately 30m in cross sectional width and 1,200m in length).

- The extension of outfalls along the length of the revetment which currently outfall at the sea wall and protection works to existing outfalls that would be covered by the revetment.

- New pedestrian beach accesses through the new revetment to replace the existing ones.

- The raising of the promenade to permissible overtopping levels, accounting for climate change.

- The widening of the promenade where it is narrow between Rotary Way access and Splashpoint at the eastern end of the promenade.

Active Travel improvements, to include new cycleway layouts, improved pedestrian access areas, improved lighting, new handrailing and improved signage.

Conceptual design has been completed for the Scheme (please see BCA Landscape Promenade Design Concept Report) which is to be classed as a 'Back to Nature' Zone. *Please note these are concept options only and are subject to change during the detailed design phase depending on funding, technical physical and environmental constraints*

In addition to the above key aspects of the Scheme, the conceptual design also includes:

- Boundary regrading to reconcile differences with existing levels.

- Three new headland areas across the western half of the Scheme to tie-in with the design of the promenade to the west of Porth Eirias including one with level access to the beach to comply with the Equalities Act 2010.

- The creation of platform or mini-headland areas with shelters across the eastern half of the Scheme to allow locations for fishing and other activities without blocking the promenade. The spacing and extent of these are yet to be confirmed.

- A new events and informal play area beyond the retaining wall to the north of Rotary Way.

- A picnic area with potential concessions building and refurbished toilet block.

- The creation of additional car parking spaces along the promenade, particularly along the eastern half of the Scheme (numbers of spaces created would be dependent on the parking layout option selected but are understood to vary from 77 to 235 – spaces in this area are estimated to number 49 currently). In the western half of the Scheme the number of parking spaces is anticipated to remain broadly the same as present with a potential small increase.

- The creation of a new area of rock pools and rocky reef habitat between two existing groynes for ecological and educational enhancement.

These aspects have not been finalised as yet, however it is considered likely that many would be taken forward.

The Scheme also includes future management and maintenance actions comprising:

Maintenance and repair of rock structures.

Maintenance and repair of promenade and sea wall.

Beach management.

Reworking of structures to maintain standard of service in line with sea level rise.

1.4 Proposed Methodology

The Scheme is currently at the outline design stage, however it is understood that the rock armour for the construction of the revetment structure is to be sourced from local quarries where possible. All delivery of materials would be via road delivery, exiting the A55 at the immediately adjacent Junction 22 and proceeding eastwards along the promenade.

The rock armour would consist of quarried boulders. Beach material from within the footprint of the Scheme would also be used. Rock armour deliveries would continue throughout the Scheme works and would be stockpiled on the beach, immediately seaward from where they are to be placed within the revetment. This would provide additional protection to the sea wall during the construction works.

Beach material excavated to provide the toe of the revetment would be used immediately landward of the toe, to provide fill material beneath the rock revetment where required. This may be supplemented by additional imported chemically and physically suitable fill material if necessary. A geotextile membrane would then be rolled out onto the footprint of the revetment and the rock armour would be placed using tracked excavators – smaller rock units forming the lower layers and larger rocks forming the primary armour.

The existing outfalls, beach access and slipways would be raised / extended and protected to suit the new layout. The final sections of rock armour would then be placed around and above them. Outfall extensions would be constructed during suitable low water periods.

Access to the foreshore would be gained using existing slipways and across the foreshore, the contractor would be allowed to gain access within the footprint of the new works plus a working corridor outside the limits generally not exceeding 20m in width to incorporate areas for vehicle turning.

Promenade raising works are likely to be carried out on completion of the revetment works. Given the current stage of design, the methodology for the construction of the promenade works has not yet been finalised.

The location of the construction compound for the Scheme has not yet been finalised. It is likely that there would be more than one and that there may be several different locations within the red line boundary as the Scheme progresses (as dictated by the phasing of construction).

1.5 Anticipated Programme

As funding is yet to be secured for Scheme construction, the programme has not yet been confirmed. Due to the scale of the Scheme, the construction process may need to be split into phases.

2.0 Requirement for Environmental Impact Assessment (EIA)

2.1 EIA Directive

The amended Environmental Impact Assessment (EIA) Directive (2014/52/EU) (hereafter referred to as the EIA Directive) requires an EIA to be carried out in support of an application for development consent for categories of project listed in the Directive at Annexes 1 and 2. For schemes included within Annex 1, EIA is mandatory, while within Annex 2, an EIA is required if the development is likely to have *significant* effects on the environment.

2.2 The EIA Regulations

The MW EIA Regulations transpose the EIA Directive so that where applicable, EIAs are carried out prior to granting permission for the deposit of substances or articles within UK waters or UK controlled waters, either in the sea or under the sea bed, from various structures, vessels, containers or structures on land, or anywhere in the sea (where a Marine Licence is required). Waters include any area which is submerged at mean high water spring tide. Therefore, a Marine Licence would be needed for the Scheme area and consideration is necessary under the MW EIA Regulations.

The landward element of the Scheme requires consent under the Town and Country Planning Act 1990 and the T&C EIA Regulations have to be considered.

2.3 Annex 1 or Annex 2 Development

The Scheme does not fall within Annex 1 of the EIA Directive (A1 of the MW EIA Regulations, Schedule 1 of the T&C EIA Regulations), within which EIA would be mandatory.

However, the Scheme does fall under Annex 2 of the EIA Directive (Schedule A2(69) in the MW EIA Regulations, Schedule 2 Clause 10(m) of the T&C EIA Regulations) – Infrastructure Projects, which includes certain coastal works (including land reclamation):

“Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works”.

While in the MW EIA Regulations and the T&C EIA Regulations for coastal works there is no minimum area limit for triggering EIA (all development has to be considered), Welsh Office Circular 11/99 identifies the ‘Indicative Thresholds and Criteria for identification of Schedule 2 Development Requiring EIA’ determining significant effects as detailed in Table 1.

Table 1: Indicative Criteria and Threshold

Development type	Schedule 2 Criteria and Thresholds	Indicative Criteria and Threshold
Coastal works to combat erosion and maritime works capable of altering the coast	All development	Works would exceed one hectare.

The maximum area of coastal defence works north of the sea wall totals approximately 6ha including a 20m working buffer, which exceeds the indicative criteria and threshold of 1ha with an additional approximately 3.6ha of landward promenade improvements.

Therefore, the requirement for EIA needs to be considered, based on whether the Scheme is considered to have potential 'significant' effects on the environment.

3.0 Significance of Potential Environmental Effects

The matters relevant to consideration of whether or not an Annex 2 project is likely to have significant effects on the environment are similar for both the MW EIA Regulations and the T&C EIA Regulations. They relate to the characteristics of the project, its location and the characteristics of potential impact (as detailed in Schedule 2 of the MW EIA Regulations/ Schedule 3 of the T&C EIA Regulations).

3.1 Characteristics of Development

The approximately 9.6ha Scheme area currently comprises the existing seawall and adjacent sand and shingle of the upper Old Colwyn beach along with the adjacent pedestrian promenade, the Promenade (highway) and adjacent footpath to the south at the base of the Network Rail embankment. The purpose of the Scheme is a combination of coastal defence to protect the adjacent promenade and highway including buried key services, National Cycle Route 5, London-Holyhead railway line and A55 Expressway with promenade active travel and amenity improvements to be delivered concurrently.

The Scheme is still at the outline design stage, however it is anticipated that the principal materials to be used are likely to comprise:

Coastal defence works: Rock armour (consisting of boulders within a nominal individual weight range of 3.0 - 6.0 tonnes), rock under armour (0.3-1.0 tonne), beach material won from within the footprint of the Scheme, an underlying geotextile membrane and concrete along with fuels/oils etc required for site plant and other equipment.

Promenade and active travel improvements: Reinforced concrete, imported fill, asphalt, road construction materials, paving, street furniture including railings and street lighting.

A Construction Environmental Management Plan (CEMP) would be produced prior to site works commencing to determine the reasonable and practicable steps to be taken to avoid the pollution of the surrounding environment (surface waters in particular). Working hours would be restricted to standard weekday working hours for works on the promenade and other times for works on the beach as agreed with CCBC's Environmental Health Officers to allow for tidal working. Information for local residents and businesses would be provided on the works to be undertaken along with timescales and diversion routes.

Given that the Scheme objective is increasing coastal protection, the risk of major accidents and/or disasters associated with the Scheme is considered to be very low. The increased protection of this area would reduce operational safety risks to those using the promenade and adjacent infrastructure once the Scheme is complete. Risks to humans during construction would be managed by the compliance with all appropriate health and safety legislation and the closure of the promenade and beach within the Scheme boundary to the public during the construction phase.

3.2 Location of Development (with respect to environmentally designated sites)

The Scheme is not located within a European Site of Conservation Importance, however the Liverpool Bay Special Protection Area (SPA) is located approximately 150m northwards from the sea wall at its closest point (to the north-east of Splashpoint). The Scheme extends into the North Wales Important Bird Area, the boundary of which is located approximately 40m northwards of the sea wall.

There are not considered to be any sensitive properties in the vicinity of the Scheme given its waterfront location, segregated from residential areas by the highway, railway and A55.

The area is not considered to have any features of cultural heritage significance – the site of the former Cadw Grade II listed Victoria Pier (location of a proposed new truncated pier) is around 600m to the west of the western Scheme extent (at its closest point).

3.3 Type and Characteristics of the Potential Impact

The principal effects on the surrounding environment are anticipated from current understanding of the Scheme to comprise those set out in Table 2, sub-divided by environmental topic.

Table 2: Type and Characteristics of Potential Impact (including anticipated initial embedded mitigation where applicable)

Discipline	Type and Characteristics of Potential Impact (including anticipated initial embedded mitigation)
Air Quality	<p>Construction activities have the potential to generate dust and there may be impacts relating to emissions from construction traffic in the immediate area. However the construction works are temporary in nature, the Scheme is isolated from the nearest sensitive receptors by the railway and A55 which would limit any associated adverse effects.</p> <p>Construction dust and impacts from vehicle emissions would be minimised through good construction practice and site management in line with the CEMP.</p> <p>Once operational, the improved public realm and Promenade with parking would encourage the use of this area of the promenade by motorised users, however the improvement of active travel routes along the promenade would also encourage the use of non-motorised forms of transport.</p>
Archaeology and Cultural Heritage	<p>The Old Colwyn area forms the eastern end of the Victorian age promenade around Colwyn Bay, however the Scheme is not considered to have any specific features of cultural heritage significance.</p> <p>The site of the former Grade II Victoria Pier (location of new truncated pier) is located around 600m to the west at its closest point on the far side of the Eirias Park groyne and therefore there are no effects anticipated.</p>
Biodiversity	<p>There is the potential for temporary construction phase adverse effects on the Liverpool Bay SPA and the species it supports (specifically the red-throated diver <i>Gavia stellata</i>, common scoter <i>Melanitta nigra</i>) and thousands of waterfowl during the non-breeding season. The Scheme would not extend into the SPA, however the boundary would be located approximately 150m from the toe of the revetment. Over-wintering bird surveys have been completed across the Winter 2019-2020 period (see the appended Over-Wintering Bird Survey Report) and the findings would be used to ensure that appropriate mitigation would be built into the Scheme design and the construction methodology.</p> <p>Habitats Regulations Assessment (HRA) Screening under the Conservation of Habitats and Species Regs 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) would determine whether the project may affect the protected features of the SPA and require Appropriate Assessment.</p> <p>A Phase 1 Habitat Survey map has been completed for the entire Colwyn Bay area (see Drawing 410895-MMD-00-XX-DR-C-0004) and a Preliminary Ecological Appraisal Report is currently under production.</p> <p>The revetment construction would result in the covering of a 30m strip of mixed substrate</p>

	<p>in the upper intertidal zone however, the revetment would create a large area (1,200m x 30m) of rocky habitat suitable for the colonisation by blue mussel and other species, with the potential for habitat enhancement including the creation of rock pools, rocky reef areas and other potential ecological enhancements to be determined during the detailed design process.</p> <p>A bio-security risk assessment would be completed for the Scheme if considered to be necessary.</p> <p>Other general potential construction effects principally relate to water quality (increased turbidity, suspended solids) however works would only take place at low tide above the water level which would minimise adverse water quality impacts. The CEMP would be produced prior to site works commencing to determine the reasonable and practicable steps to be taken to avoid pollution of the surrounding environment.</p>
Climate	<p>During the construction phase, embodied carbon emissions from the use of construction materials are considered to be the main contributor to climate change, with additional greenhouse gas emissions arising from the use of plant and transport of materials. The reduction of raw material usage, recycling, the use of local suppliers and ensuring vehicle engines and plant motors are switched off when not in use would limit emissions.</p> <p>During operation, additional visitors arriving by motorised vehicles may result in additional CO₂ emissions, however the active travel improvements proposed would encourage the use of non-motorised travel methods. A CEEQUAL assessment is proposed to be completed for the Scheme.</p> <p>Scheme design would take into account climate change including predicted sea level increases when considering the design of the coastal defences and promenade height.</p>
Coastal Processes (including coastal water quality)	<p>Once operational, the Scheme would provide additional coastal protection for a section of the waterfront which currently experiences frequent storm damage and that has been identified as being at risk of significant damage in the short term (Colwyn Bay Waterfront Project Phase 3 – Phasing Review, CCBC, August 2019). The Scheme has been designed to operate in conjunction with existing coastal processes.</p> <p>A Marine Licence application would be made to NRW with consultation completed where necessary.</p> <p>There are two Bathing Water Quality monitoring points in Colwyn Bay – at Porth Eirias and further west at Rhos-on-Sea. Particular consideration would be given to effects on water quality during the Bathing Season (May-September). Revetment works would need to be completed at low tide (above the water line) which would minimise effects associated with sediment mobilisation and the creation of suspended solids.</p> <p>During construction, contamination risks to surface waters from, for example, spillages, accidents and direct runoff would be managed through the CEMP.</p>
Flood Risk	<p>Following construction, the presence of the revetment would reduce wave energy and hence damage of the sea wall, promenade and other adjacent infrastructure during future storm events. Overtopping events would also be reduced in frequency and severity due to the revetment and raised promenade level. The operational effects of the Scheme are therefore considered to be beneficial.</p>
Geology and Soils	<p>There are no Geological Conservation Review Sites, Regionally Important Geological Sites or geologically designated Sites of Special Scientific Interest in the vicinity. Given the Scheme's location and history there is not anticipated to be any contaminated ground encountered. There are no impacts on geology and soils anticipated.</p>
Landscape and Visual Amenity	<p>During construction, an increase in construction traffic and the presence of construction plant would have temporary minor adverse effects upon local views across the Colwyn Bay Waterfront. Storage of construction materials and a construction compound would have temporary limited effects upon local visual amenity as would lighting required for any working during the hours of darkness. However, the effects are not considered to be significant given their temporary nature and the distance of the Scheme from the closest visual receptors.</p> <p>Given the currently poor condition of the promenade and public realm in the Old Colwyn area with poor condition surfacing and railings there is considered to be the potential for beneficial operational landscape and visual effects for future users of the area.</p>
Materials	<p>The construction phase potential direct effects would be associated with the import and use of revetment/promenade materials which may result in the depletion of natural resources. The generation of waste materials is also anticipated from site clearance and</p>

	<p>clearance of any redundant above-ground infrastructure.</p> <p>Completion of a Design for Resource Efficiency workshop and Site Waste Management Plan would minimise the requirement for imported materials and waste generated. Materials requirements and waste arisings associated with the annual maintenance regime are expected to be minimal.</p>
Noise and Vibration	<p>There is the potential for noise and vibration effects from construction works (including deliveries and placement of rock revetment) from manoeuvring plant and construction traffic. Given the construction works would be temporary in nature and the Scheme is isolated from the nearest receptors by the railway and A55, any associated adverse effects are considered to be negligible.</p> <p>Noise impacts would be minimised through limiting construction works to hours as agreed with CCBCs Environmental Health department taking into account that tidal working may be necessary. Mitigation measures would also be outlined in the CEMP.</p>
Population and Health	<p>In general, the effects of the Scheme are anticipated to be highly beneficial, particularly with respect to improved coastal protection, active travel options, amenity, recreation and tourism, increased social inclusion, greater attraction for business relocation and improved employment opportunities.</p>
Traffic, Transport and Access	<p>All materials would be delivered by road. During construction there would be a temporary short-term increase in traffic related to the delivery of plant, rock armour, concrete, other construction materials and construction worker vehicles. However these would exit the A55 at the immediately adjacent Junction 22 and proceed eastwards along the promenade. The section of the promenade in question would be closed completely during the works for safety reasons. Cyclists travelling along National Cycle Route 5 would be provided with a diversion along the quiet Min-y-Don Avenue and into Eirias Park. Road Traffic would be re-routed through Old Colwyn.</p> <p>Following completion of the Scheme, the operational effects are anticipated to be beneficial. For non-motorised users the cycle lane and pedestrian footpath would no longer need to negotiate street furniture, parked cars and anglers with an associated improvement in visibility and safety which would attract an increased number of users. While the improvements may also attract additional motorised users, there would be an increase in car parking provision.</p> <p>The improved coastal defences would reduce the wave overtopping rates and therefore the number of associated estimated annual promenade closures due to dangerous coastal conditions.</p>
Potential for Cumulative Effects	<p>The principal potential for cumulative impacts during operation is when the Scheme is considered in the context of the wider Colwyn Bay Waterfront Project Works which have already provided improved coastal protection from Porth Eirias westwards, through the Phase 1a/b/c and 2a areas. Phase 2b to improve coastal defence and amenity from the Horizon Shine kiosk round to Rhos-on-Sea Harbour (including beach recharge and promenade improvement works) is currently at the outline design stage. The extension of coastal protection and promenade improvements from Porth Eirias to the east within the Scheme area is therefore considered to have a beneficial in-combination effect by ensuring the continuation of coastal defence improvements in an area where key national infrastructure is at particular risk and by preventing the loss of a key connecting stretch of promenade vital for the continuation of active travel routes.</p> <p>It is understood that construction works on the new truncated pier should be commencing shortly. However, these are located a minimum of 600m to the west with a much smaller scope and footprint. It is understood that these works would be completed by the time the Scheme would move to the construction phase. The operational in-combination effect with the pier is considered to be beneficial relating to ensuring the quality of the Old Colwyn promenade is in-keeping with the Colwyn Bay Waterfront Project Phase1 area.</p>

4.0 Request for Screening Opinion

Given the requirement to screen for EIA under both the MW EIA Regulations and the T&C EIA Regulations for the Scheme, we wish to request a single Screening Opinion with a sufficient

scope to embrace the range of environmental issues which each set of Regulations can be expected to consider.

We trust that sufficient information has been provided for you to form a Screening Opinion for this development. However, if you need any further information or have any queries, please do not hesitate to contact us.

We would be most grateful for a Screening Opinion response within three weeks from receipt of this letter, as stipulated within the T&C/MW EIA Regulations and look forward to hearing from you.

Yours sincerely

A handwritten signature in black ink, appearing to read "G.B. Edwards", with a long horizontal flourish underneath.

For G.B. Edwards
Head of Environment Road & Facilities

Appendix 1.2 – EIA Screening Opinion

Oliver Edwards
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Ein Cyf / Our Ref DC/ENQ/29321

Eich Cyf / Your Ref

Dyddiad / Date 12/03/2020

Site / Location: Promenade
(Splash Point to Porth Eirias)
Colwyn Bay
Conwy
LL29 8AR

Proposal: EIA Screening Opinion

Dear Oliver Edwards

**Town and Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017
Request for Screening Opinion**

Further to your letter dated 17th February 2020, I hereby attach the local planning authority's Screening Opinion, which determines that any planning application for the development will need to be accompanied by an Environmental Statement.

We would be happy to advise on the scope and level of detail of the information to be provided in the environmental statement following receipt of an application for a Scoping Opinion

We would also like to draw your attention to the requirement in The Town and Country Planning (Development Management Procedure)(Wales)(Amendment) Order 2016 for the applicant to conduct pre-application consultation, and would again invite you to carry out discussions with the local planning authority on these matters.

Yn ddiffuant / Yours sincerely



Paula Jones

Rheolwr Rheoli Datblygu ac Adeiladu / Development and Building Control Manager



**TOWN AND COUNTRY PLANNING
(ENVIRONMENTAL IMPACT ASSESSMENT)
(ENGLAND AND WALES) REGULATIONS
1999 - REGULATION 7**

**DETERMINATION AS TO WHETHER OR NOT A DEVELOPMENT PROPOSAL IS
SUBJECT TO ENVIRONMENTAL IMPACT ASSESSMENT - SCREENING OPINION**

SECTION A

Enquiry reference:	ENQ/29321
Date of receipt of enquiry:	20 th February 2020
Address of site:	Colwyn Bay Promenade and beach
Applicant	Name: Conwy County Borough Council Address: Bodlondeb, Conwy
Proposed developments	Coastal defence works and enhancements to the Promenade
The applicable thresholds/criteria from column 2 of Schedule 2 of the Regulations for the type of development proposed	Paragraph 10(m) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works -- All development
Is the proposal in a Sensitive Area as defined in Regulation 2(1)	No (but close to Liverpool Bay Special Protection Area)

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SECTION B

Consideration has been given by the Local Planning Authority to the Selection Criteria in Schedule 3 of the Regulations, the general guidance contained in the EIA Circular, relevant indicative Criteria in Schedule 3 of the Regulations and, as applicable, the details contained in any request for a screening opinion and in the case of Schedule 2 development.


The Local Planning Authority hereby determines that:

The proposed development constitutes an Environmental Impact Assessment application within the Regulations and therefore you are **required** to submit an Environmental Statement to the Local Planning Authority.

SECTION C

The Local Planning Authority's reasons why it has requested an Environmental Statement in this case are:-

- (i) The area of the proposal exceeds the 1 hectare threshold above which paragraph A29 of Welsh Office circular 11/99 advises that an EIA is more likely to be required
- (ii) The area of the proposal is situated on and above the inter-tidal zone, which is of biodiversity interest, and is close to the Liverpool Bay Special Protection Area. The proposal is likely to have significant effects on biodiversity interests within and neighbouring the development site, including potential impacts on the SPA (subject to further Habitat Regulations Assessment screening).
- (iii) The Promenade and beach form recreational and tourism assets which are make a significant to the economic and social well-being of Colwyn Bay. The proposal could have potentially significant impacts on the appearance, amenity and accessibility of those assets.


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Date of Determination: 12th March 2020

Paula Jones
Development Control Manager
On behalf of Conwy County Borough Council

Copy of this determination is placed on the Part 1 Register.



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Appendix 1.3 – EIA Scoping Report



Old Colwyn Coastal Defence and Active Travel

EIA Scoping Report

28 April 2020

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Old Colwyn Coastal Defence and Active Travel

EIA Scoping Report

28 April 2020

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P1	9 th April 2020	Co-ord: N. Spofforth (Ch1-7, 14, 20-21)	C. Williams	C. Williams	Preliminary first issue for client comment
		G. Cotter (Ch8)	J. Brooks		
		M. Cooper (Ch9)	M. Hopper		
		A. Morley (Ch10)	L. Woolley		
		A. Winter (Ch11)	A. Greenwood		
		L. Brodie/ S. Costa (Ch12)	V. Deakin		
		L. Brodie/ S. Costa (Ch13)	V. Deakin		
		F. Churchyard (Ch15)	C. Watson		
		S. Stone (Ch16)	A. Manns		
		R. Monkton (Ch17)	C. Ho		
		C. Marti (Ch18)	I. Scott		
L. Thomas (Ch19)	S. Arthur				
P2	28 th April 2020	N. Spofforth	G. Mitchell (S3.2)	C. Williams	Second issue with client comments / confirmations included
			C. Williams		

Document reference: 415437-MMD-00-XX-RP-N-1702

Information class: Standard

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1 Introduction

1.1 Background

This Environmental impact Assessment (EIA) Scoping Report has been prepared on behalf of Conwy County Borough Council (CCBC) Environment, Roads and Facilities Team (hereafter referred to as 'the Applicant') to accompany a request for an EIA Scoping Opinion. It sets out the proposed scope of the EIA to be undertaken in respect of the Old Colwyn Coastal Defence and Active Travel Scheme (hereafter referred to as the 'Scheme').

The Scheme, located in the Old Colwyn area of Colwyn Bay comprises coastal defence works in the form of a new rock revetment and promenade raising, in combination with promenade improvements to facilitate active travel.

Following the submission of an EIA Screening Request to CCBC on 20th February 2020, an opinion was provided on 12th March 2020 that EIA would be required (see Appendix A). This EIA Scoping Report brings together the results of early desk-based assessments and other upfront works completed which have enabled the proposed scope and methodology of the EIA to be established.

1.2 Old Colwyn Coastal Defences

The Victorian built coastal defences at Old Colwyn have suffered from undermining, corrosion, partial collapses and degradation with frequent overtopping events occurring at Spring Tides, especially if onshore west to north-west winds occur concurrently. The Promenade has to be closed during these events with the number of closures increasing in recent years – the promenade is now routinely closed whenever high tides coincide with forecast northerly or north-westerly winds.

The defences have been assessed as being at significant risk of 'catastrophic failure' (Colwyn Bay Waterfront Project Phase 3 – Phasing Review, CCBC, August 2019), which could lead to the loss of the pedestrian promenade and a section of National Cycle Route 5, along with the Promenade (highway) which would leave the main London-Holyhead Railway Line highly vulnerable (and subsequently the A55 Expressway should the NWC Railway Line embankment fail).

The main trunk sewer that serves the whole of Old Colwyn is situated immediately behind the sea wall and could be lost should the defences fail catastrophically during a storm event. This would result in a discharge of significant quantities of untreated effluent directly onto the beach with associated severe environmental consequences. Other services are also present in this area.

To reduce the risk of damage to this infrastructure, starting in January 2020, the Splashpoint Project commenced comprising the construction of a 30m deep rock revetment against the sea wall at the location identified as being at highest risk of imminent collapse – the easternmost section of the promenade (where a revetment is currently absent) known as 'Splashpoint'. The presence of the revetment will reduce the energy from storm waves reaching the promenade, providing passive resistance against the existing wall to significantly reduce the risk of its failure.

Subsequent to this, CCBC are now seeking to provide a permanent upgrade of the coastal defences to protect the remainder of the Old Colwyn stretch of coastline from Splashpoint to Porth Eirias concurrently with improvements to the Promenade to facilitate active travel.

1.3 Aim of EIA Scoping Process

EIA Scoping forms the second stage in the EIA process after Screening and involves identifying the environmental disciplines that should be considered within the EIA through the consideration of environmental factors and potential existing and/or new receptors. EIA scoping initiates the process of defining the potential for significant effects, which in turn results in the identification of the environmental factors which require consideration and assessment as part of the EIA.

Under Regulation 15 of the Town and Country Planning (EIA) (Wales) Regulations 2017 and also according to the Marine Works EIA Regulations 2007 (as amended), hereafter referred to together as the 'EIA Regulations', (unless specific reference needs to be made to one or the other specifically in which case they will be referred to as the 'T&CP EIA Regulations' and the 'MW EIA Regulations' respectively) "a person who is minded to make an EIA application may ask the (appropriate authority) to state in writing their opinion as to the scope and level of detail of the information to be provided in the environmental statement (a "scoping opinion").

1.4 Objectives of Report

The objectives of this EIA Scoping Report are to:

- Set out the proposed scope of the EIA (i.e. identify which environmental disciplines are to be 'scoped in' or 'out'), taking into account what is currently known about the application site and the Scheme;
- Facilitate consultation with CCBC, Natural Resources Wales (NRW) and other relevant statutory bodies on the environmental issues to be addressed as part of the EIA and design development process;
- Set out what additional information needs to be collected (i.e. through desk-based studies or field survey work) to characterise the baseline environment of the application site;
- Define the assessment methods to be used to determine the likely significant environmental effects of the Scheme;
- Identify potential effects and opportunities for mitigation; and
- Set out the proposed structure of the Environmental Statement (ES).

1.5 Report Structure

Following the introduction, this report covers the following key areas:

- Chapter 2: Application site location and description – provides a description of the Site and the surrounding environment which represents the baseline conditions, including environmental sensitivity;
- Chapter 3: Proposed development scope and high level anticipated methodology – outlines the high level specification of the Scheme based on current design information available;
- Chapter 4: Planning context summary – covering both national and local planning policy;

- Chapter 5: Overview of EIA screening and scoping – establishes the approach undertaken to date;
- Chapter 6: Consultation; and
- Chapter 7: Potential for cumulative effects.

Subsequent to this, each environmental discipline undergoes a scoping assessment which comprises an introduction to the discipline and definition of the study area, summary of the baseline conditions along with any assumptions/limitations followed by a brief assessment of the likely effects relating to the Scheme according to current legislation and guidance, identification of supplementary mitigation measures that should be considered and identification of any supporting work required.

- Chapter 8: Air Quality;
- Chapter 9: Archaeology and Cultural Heritage;
- Chapter 10: Biodiversity;
- Chapter 11: Climate;
- Chapter 12: Coastal Processes;
- Chapter 13: Flood Risk;
- Chapter 14: Land and Water Quality;
- Chapter 15: Landscape and Visual;
- Chapter 16: Materials and Waste;
- Chapter 17: Noise and Vibration;
- Chapter 18: Population and Health; and
- Chapter 19: Traffic, Transport and Access.

Following the scoping assessments, the proposed final scope and the necessary actions required in order to align the ES with the EIA Regulations is summarised in Chapter 20 and a list of abbreviations and acronyms used throughout this report is provided in Chapter 21.

Appendices provided comprise the following:

- Appendix A: A copy of the EIA Screening Response;
- Appendix B: Supporting Drawings;
- Appendix C: Outline EIA methodologies are provided for each EIA discipline;
- Appendix D: A copy of current supporting reports and other pertinent documents are provided.

1.6 List of Appended Drawings and Reports

Drawings (as included in Appendix B):

- Red Line Boundary Drawing EP0802;
- Coastal Defence Works Drawings 415437-MMD-00-XX-DR-C-3001/2; and
- BCA Landscape General Arrangement Drawing 19.537-100-D07.

Supporting Reports completed to date (as included in Appendix D):

- Colwyn Bay Preliminary Ecological Appraisal Report, Mott MacDonald Ltd, April 2020, 410895-MMD-N-R-00-XX-1701;
- Overwintering Bird Survey Report, Mott MacDonald, February 2020, 410895-MMD-N-R-00-XX-1700; and

- Old Colwyn Promenade Coastal Defence & Active Travel Improvement Basis of Design Report Mott MacDonald Ltd, April 2020, 415437-MMD-00-XX-RP-C-3100.

All other referenced reports are available on request if needed.

1.7 Overarching Reference Reporting

For this Scoping report, the following key documents have been used for reference, with individual environmental discipline chapters listing supplementary reference reporting:

- Colwyn Bay Waterfront Phase 1 Engineering Works ES Volumes 1-3, October 2010; and
- ES Addendum for Colwyn Bay Waterfront Phase 1b Promenade Enhancement and Phase 1c Coastal Defence, December 2013.

2 Scheme Location and Sensitivity

2.1 Location and Context

Colwyn Bay (Bae Colwyn) is a seaside town in Conwy County Borough on the North Wales coastline. Principal settlements comprise Rhos-on-Sea to the west, the town of Colwyn Bay in the centre and Old Colwyn to the east. The A55 Expressway passes through the town, running parallel to and south of, the London to Holyhead mainline railway (North Wales Coast (NWC) Line), both of which separate Old Colwyn and Colwyn Bay town from the waterfront.

A long promenade and associated cycle track follow the waterfront from Rhos-on-Sea past the former location of the Victorian pier (proposed to be the site for a new truncated pier for which preparatory works are currently being completed) in the centre of the bay and round to Old Colwyn.

There are slipways located at regular intervals for beach access. The beach predominantly comprises sand with some shingle, predominantly at the landward edge. The Scheme is located adjacent to the Promenade highway, with the NWC Railway and A55 Expressway to the immediate south.

The Scheme is located along the easternmost section of the promenade at Old Colwyn, from the Porth Eirias car park in the west to Splashpoint in the east. The national grid references for the western and eastern Scheme boundaries are (285737, 378898) and (287058, 378694) respectively. The Scheme is divided into two principal areas:

- Area 1 – From the eastern edge of Porth Eirias car park to the east of Rotary Way where the road reduces in height back down to promenade level; and
- Area 2 – From the eastern edge of Area 1 to Splashpoint in the far east.

Within Area 2, overtopping of the promenade during storm events is a common occurrence which results in the closure of the highway and frequent (and increasing with deteriorating condition) damage to the sea wall, promenade and the NWC Railway Line embankment.

2.2 Environmentally Sensitivity

The Scheme is not located within a European Site of Conservation Importance, however the Liverpool Bay Special Protection Area (SPA) is located approximately 150m northwards from the sea wall at its closest point (to the north-east of Splashpoint). The Scheme extends into the North Wales Important Bird Area, the boundary of which is located approximately 40m northwards of the sea wall.

There are not considered to be any sensitive properties in the vicinity of the Scheme given its waterfront location, segregated from residential areas by the Promenade, NWC Railway Line and A55 Expressway.

The area is not considered to have any specific features of cultural heritage significance – the site of the former Cadw Grade II listed Victoria Pier (location of a proposed new truncated pier) is around 600m to the west of the western Scheme extent (at its closest point). Local historical conservation areas are segregated from the Scheme by the A55 Expressway and the NWC Railway Line.

National Cycle Route 5 runs along the promenade within the Scheme area.

3 Proposed Scheme

3.1 Scope

The proposed scope of work for the Scheme comprises a combination of coastal defence, promenade and active travel improvements.

Please refer to the following drawings in Appendix B:

- Red Line Boundary Drawing EP0802;
- Coastal Defence Works Drawings 415437-MMD-00-XX-DR-C-3001/2; and
- BCA Landscape General Arrangement Drawing 19.537-100-D07.

3.1.1 Coastal Works

The current design in summary includes the following key features:

- The construction of a rock revetment (approximately 32m in cross sectional width and 1.2km in length);
- The extension of large outfalls along the length of the revetment which currently outfall at the sea wall and protection works to existing outfalls that would be covered by the revetment;
- A new access build out area in the western half of the Scheme (Area 1) to complement on plan the design of the promenade to the west of Porth Eirias;
- New pedestrian beach accesses through the proposed revetment to replace the existing ones comprising three sets of steps through the revetment along with level access to the beach at the new access build out for less abled users.
- The construction of a new fishing platform over the revetment at Splashpoint to provide a location for anglers to use without blocking the active travel route along the promenade;
- The design also includes stepped access to be located over the groyne/outfall structures at the base of the new revetment; and
- The raising of the Promenade to permissible overtopping levels, with consideration for climate change.

3.1.2 Promenade and Active Travel Improvements

In addition to the above key aspects of the Scheme, the current design in summary also includes:

- The widening of the available Promenade where it narrows between Rotary Way and Splashpoint (within Area 2).
- Improvements to the alignment and width of pedestrian and cycle paths along the active travel route;
- Improved highway alignment and width for road users between Rotary Way and Splashpoint (within Area 2).
- A new allocated activity zone and flexible open space beyond the retaining wall to the north of Rotary Way;
- Boundary regrading to reconcile differences with existing levels to the west and east – the raised Promenade will have to tie into existing road levels;

- Improved street lighting along the active travel route.
- An improved picnic area with enhanced planting and provision for an outdoor education space;
- Pedestrian crossings, stepped and ramp access to the raised Promenade;
- The improvement and redistribution of car parking spaces with the number of car parking spaces in Area 1 to decrease marginally to accommodate disabled parking, and a minor increase in Area 2 (parking provision to include disabled parking allowance and electric vehicle charging bays);
- A location for a new concession building; and
- Landscape and ecological enhancements including planting and marine habitat creation/enhancement.

3.1.3 Management and Maintenance

The Scheme also includes future management and maintenance actions comprising:

- Maintenance and repair of rock structures, headlands and platform;
- Maintenance and repair of Promenade and sea wall; and
- Beach management.

3.2 Preliminary Methodology

The Scheme is currently at the tender design stage and the following is based on current best understanding. The below is a preliminary outline methodology only and is subject to detailed design, amendment, consent and construction stage contractor methodology and risk assessments.

3.2.1 Timescales

CCBC are currently seeking funding for these critical works. There are a number of stakeholders and the amount of funding required is considerable, therefore it is not possible at this time to predict when the works may go ahead. If funding was to be found in Spring/Summer 2020 then the works could commence as early as Winter 2020, although this appears to be unlikely at the time of writing this report. It is entirely possible that the works will not commence for a number of years.

The construction phase is anticipated to last between 18 and 24 months, however given the scale of the Scheme it is possible that the work will be completed in stages.

3.2.2 Coastal Defence Works

The rock armour for the revetment would consist of quarried boulders, in part by reusing the existing toe around where suitable and ideally sourcing from local quarries if possible. Delivery of materials would then be via road delivery, exiting the A55 Expressway at the immediately adjacent Junction 22 and proceeding eastwards along the Promenade. However, depending on funding and timing constraints, if rock cannot be sourced from local quarries, the potential for bringing in quarried rock from elsewhere by barge for direct delivery to the beach would be considered. Rock armour deliveries would continue throughout the Scheme works and would be stockpiled on the beach, immediately seaward from where they are to be placed within the revetment. This would provide additional protection to the sea wall during the construction works.

Beach material excavated to provide the toe of the revetment would be used immediately landward of the toe (if suitable), to provide fill material beneath the rock revetment where

required. Beach material from within the footprint of the Scheme would also be used if possible, although the Splashpoint project encountered shallow clay with limited material suitable for re-use. This would be supplemented therefore by additional imported chemically and physically suitable fill material as necessary. A geotextile membrane would then be rolled out onto the footprint of the revetment and the rock armour would be placed using tracked excavators – smaller rock units forming the lower layers and larger rocks forming the primary armour.

The existing outfalls, beach access and slipways would be raised / extended and protected to suit the new layout. The final sections of rock armour would then be placed around and above them. Outfall extensions would be constructed during suitable low water periods.

Access to the foreshore would be gained using existing slipways and across the foreshore, the contractor would be allowed to gain access within the footprint of the new works plus a working corridor outside the limits generally not exceeding 20m in width to incorporate areas for vehicle turning.

3.2.3 Promenade and Active Travel Improvements

To provide improved coastal protection to the promenade, highway, railways embankment and Welsh water assets the promenade crest height would be raised to approximately +7m AOD. The existing seawalls would be raised by constructing new reinforced concrete (RC) seawalls on top of the existing, therefore reusing the existing structures as much as possible and reducing associated structural disturbance. The Contractor would ensure coastal protection of the site and promenade is provided throughout the construction phase.

The new RC structures along the promenade seaward edge would not be constructed nor the promenade raised until the new rock revetment is constructed to the existing promenade level. To provide restraint to the existing seawall, the lower section of existing seawall would be embedded by fill material as discussed in Section 3.2.2 and the rock armour would be constructed to rest against the seawall. In the western section, the existing recurved seawall upstand would remain in place and a mass gravity reinforced concrete stepped wall would be constructed on top. Along the majority of the remaining seaward edge the existing seawall coping would be locally removed and a new reinforced concrete balanced cantilevered wall would be built on top.

Possible localised existing voids in the highway would be remediated (by excavating voids and backfilling with compacted granular fill). Along the lower western highway section and splash point, new drainage pipes, kerbing, services ducts, street lighting / sign foundations and back of promenade retaining wall foundations which are lower than the new finished floor level would be installed.

Elsewhere where the promenade / highway would be raised the existing surfacing would be perforated for drainage by core drilling on a local grid (so the existing highway can typically remain in situ). Suitable compacted granular fill in accordance with the specification of highway works (ideally from recycled suitable materials) would be installed in layers. During this process new drainage pipes, services ducts, kerbing, street lighting / sign foundations would be constructed. After the promenade and highway is raised the new RC promenade slabs, highway sub-base / asphalt pavement and footway paving would be installed.

Once the heavy civil engineering works are complete, the street furniture, signs, artwork features, lighting, landscaping, road markings etc would be installed.

3.2.4 Construction Compounds

The location of the construction compounds for the Scheme have not yet been finalised. It is likely that there would be more than one and that there may be several different locations within the red line boundary as the Scheme progresses (as dictated by the phasing of construction).

4 Planning Context

This Chapter provides a summary of the principal national and local policy relevant to the Scheme and the EIA. A full review would be completed as part of the EIA process and reported within the ES.

4.1 National Planning Policy

4.1.1 Planning Policy Wales (Edition 10, December 2018)

Planning Policy Wales (PPW) contains current land use planning policy for Wales. It provides the policy framework for the effective preparation of local planning authorities' development plans.

4.1.1.1 Relevant to the Coastal Defence Scheme Aspects

(6.5 Coastal Areas) 6.5.20 *"In considering new coastal defence works, account should be taken of all potential environmental effects, both on and off-shore, including the impacts on habitat fragmentation and consequential 'coastal squeeze', as well as information contained in Shoreline Management Plans and other relevant documents such as Area Statements"*.

(6.6 Water and Flood Risk) 6.6.28 *"New or improved flood defences in coastal and/or riverside locations should be carefully planned, ensuring all potential environmental effects, both on and off-shore, and relevant Shoreline Management Plan policies are taken into account. Flood defence works can provide opportunities to achieve wider social, economic and environmental benefits, which should be maximised where possible. Nature based solutions should be the first consideration given the opportunity to deliver other multiple benefits, including habitat creation, biodiversity enhancement and water quality improvements. Overall, green infrastructure opportunities can benefit ecosystem resilience and provide opportunities for leisure facilities or renewable energy generation"*.

4.1.1.2 Relevant to the Active Travel Scheme Aspects

Being *'accessible by means of active travel and public transport'* is listed as being one of the methods by which Facilitating Accessible and Health Environments can be achieved (National Sustainable Placemaking Outcomes).

In addition the following are relevant:

3 Strategic Spatial Choices: Movement

3.12 *"Good design is about avoiding the creation of car-based developments. It contributes to minimising the need to travel and reliance on the car, whilst maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys. Achieving these objectives requires the selection of sites which can be made easily accessible by sustainable modes as well as incorporating appropriate, safe and sustainable links (including active travel networks) within and between developments using legal agreements where appropriate"*.

3.13 *"Existing infrastructure must be utilised and maximised, wherever possible. Where new infrastructure is necessary to mitigate transport impacts of a development and to maximise accessibility by sustainable non-car modes, it should be integrated within the development layout and beyond the boundary, as appropriate. This could include works to*

connect cycle routes within a site to a wider strategic cycling network or provision of bus priority measures on highway corridors serving a new development”.

3 Strategic Spatial Choices: Promoting Healthier Places

3.20 “Disadvantaged and deprived communities tend to be disproportionately affected by health problems. There are links between the built and natural environment and health throughout a persons lifetime and an understanding of the wider determinants of health should be a key component of development plan preparation. The planning system should identify proactive and preventative measures to reduce health inequalities. This will include enabling opportunities for outdoor activity and recreation, reducing exposure of populations to air and noise pollution, promoting active travel options and seeking environmental and physical improvements, particularly in the built environment”.

4 Active and Social Places: Moving within and between places

4.1 Transport – Active Travel

4.1.25 “Walking and cycling are good for our health and well-being. They support valuable social and recreational opportunities and are integral to placemaking, creating life and activity in public places and providing the opportunity to meet people. Sustainable places invite people to walk and cycle as part of their everyday routine”.

4.1.26 “The Active Travel (Wales) Act 2013 makes walking and cycling the preferred option for shorter journeys, particularly everyday journeys, such as to and from a workplace or education establishment, or in order to access health, leisure or other services or facilities. The Active Travel Act requires local authorities to produce Integrated Network Maps, identifying the walking and cycling routes required to create fully integrated networks for walking and cycling to access work, education, services and facilities”.

4.1.29 “New development places additional demand on transport infrastructure and networks, with the location, layout and design of development affecting the distance and way in which people travel. Developing local active travel networks can help to mitigate the impact of new development, by providing an alternative mode of travel to the private car, particularly for shorter journeys. Provision for active travel must be an essential component of development schemes and planning authorities must ensure new developments are designed and integrated with existing settlements and networks, in a way which makes active travel a practical, safe and attractive choice”.

4.1.1.3 The Well Being of Future Generations Act 2015

“The Well-being of Future Generations (Wales) Act 2015 – places a duty on the Welsh Ministers (and other public bodies) to produce well-being objectives and take reasonable steps to meet those objectives in the context of the principle of sustainable development”.

“A Resilient Wales can be supported by protecting sufficient scales, extent and connectivity of, and between, landscapes and habitats to enable them to withstand the pressures of change and protect and enhance biodiversity, to tackle pollution, to protect and enhance water resources, to protect soils and to enable flood mitigation, the creation of carbon sinks, especially in urban areas, and to promote opportunities for social and economic activity based on valuing and enabling access to the natural, historic and built environment”.

“A Healthier Wales can be achieved by enabling opportunities for connecting with the natural and historic environment, enabling access to tranquil areas, tackling airborne pollution and other environmental risks and the promotion of active travel and

encouragement of healthier lifestyles with the benefit of improving physical and mental well-being”.

4.1.2 Technical Advice Notes

PPW is supplemented by 21 topic-based Technical Advice Notes (TANs). Procedural guidance is given in Welsh Office / National Assembly for Wales / Welsh Government Circulars. Each TAN provides detailed planning advice on a different subject.

The TANs considered to be relevant to this Scheme are:

- TAN 5: Nature Conservation and Planning;
- TAN 11: Noise;
- TAN 12: Design;
- TAN 13: Tourism;
- TAN 14: Coastal Planning;
- TAN 15: Development and Flood Risk;
- TAN 16: Sport, Recreation and Open Space;
- TAN 18: Transport;
- TAN 20: Planning and the Welsh Language;
- TAN 21: Waste;
- TAN 23: Economic Development; and
- TAN 24: The Historic Environment.

4.2 Local Planning Policy

4.2.1 The Conwy Local Development Plan 2007-2022, Adopted October 2013

According to mapping within the Local Development Plan (LDP), the Scheme is located within the Coastal Zone, a strategic regeneration area, and from Rotary Way to the west, within the Colwyn Bay Masterplan Area.

Key Issues identified as impacting on the LDP area include the following ‘Priority Issues’ relevant to the Scheme:

- *Tackling Deprived Areas: “Colwyn Bay has experienced a significant decline in the tourism industry. There is a need to promote the comprehensive regeneration and renaissance of Colwyn Bay to broaden economic activity, address social exclusion, reduce deprivation, and limiting and reducing Houses in Multiple Occupation (HMO) through the Strategic Regeneration Area Initiative and the Colwyn Bay Masterplan”. (Sources: Wales Spatial Plan (Update 2010), Bay Life Initiative Strategy (2006), Government Strategic Regeneration Initiative Area Status, Colwyn Bay Masterplan Brief (2009), Colwyn Bay Masterplan Baseline Study, ‘Turning the Tide Strategy’, BP/37 ‘Growth Distribution Options Report’).*
- *Protecting Regional & Town Centres: “The regional centre of Llandudno and other important Town Centres within the Plan Area experience pressure from non-retail uses. There is a need to maintain and, where appropriate, enhance Llandudno as the retail centre for the region, promote the regeneration of Colwyn Bay, as well as other retail centres and, where possible, enhance the overall vitality, attractiveness and viability of the centres through a more diverse shopping experience”.*
- *Encouraging Sustainable Transport: “The dominant mode for journeys to work, including high outward commuting, is by car within the Plan Area. There is a need for*

improved sustainable transport use and transport infrastructure in Conwy through the development of an integrated transport system, sustainable accessibility in urban and rural areas, public transport provision, modal interchanges, increased cycling and walking facilities and the requirement of travel plans to reduce car dependency”.

The following LDP policies are also considered to be relevant to the Scheme:

- Policy DP/8 - COLWYN BAY URBAN REGENERATION MASTERPLAN: *“Regeneration proposals in Colwyn Bay will be concentrated within the Colwyn Bay Masterplan (CBMP) area as shown on the proposals map. Key Proposals and interventions will be supported which assist the following Colwyn Bay urban regeneration objectives:*
 - a) *Creates the conditions for investment and economic growth and improved social activity;*
 - c) *Increases connectivity to the waterfront, east-west links between the town centre, East Colwyn and Eirias Park and along Abergele Road in line with Strategic Policy STR/1;*
 - e) *Enhances the opportunity provided at Eirias Park by the new Events Centre and Rugby Academy with further clustering of the sports facilities to the southern boundary;*
 - f) *Contributes to buildings and structures with local or national heritage importance through sympathetic enhancement or conservation proposals; and*
 - g) *Provides for improved development of the waterfront to include coastal defence works and the enhancement of the area as a tourism and leisure facility/attraction”.*
- POLICY STR/5 – INTEGRATED SUSTAINABLE TRANSPORT SYSTEM: *“In order to improve the transport system, accommodate development needs and enhance communities, the following schemes will be safeguarded and promoted as shown on the Proposals Map:*
 - f) *Wales Coastal Path Improvement Programme and the Conwy Rights of Way Improvement Plan – To improve accessibility to the coast and countryside for local communities and visitors; and*
 - g) *Colwyn Bay – Improved access between the town and the seafront as part of the Colwyn Bay Masterplan and coastal defence project”.*
- POLICY NTE/5 - THE COASTAL ZONE: *“A Coastal Zone is defined on the Proposals Map. Development in the Coastal Zone, outside settlement boundaries, will only be permitted where the development:*
 - a) *Specifically requires a coastal location;*
 - b) *Does not adversely affect the open character of the zone;*
 - c) *Does not adversely affect the nature conservation value of the zone with any effects identified mitigated for;*
 - d) *Does not detract from the tourism value or facilities;*
 - e) *Does not interfere with natural coastal processes;*
 - f) *Does not impede the function of any existing coastal defence structures; and*
 - g) *Accords with the Development Principles of the Plan”.*
- STRATEGIC POLICY STR/1 - SUSTAINABLE TRANSPORT, DEVELOPMENT AND ACCESSIBILITY: *“Development will be located so as to minimise the need to travel. Convenient access via footways, cycle infrastructure and public transport should exist or be provided where appropriate, thereby encouraging the use of these modes of travel for local journeys and reducing the need to travel by private car and improving the accessibility of services to those with poor availability of transport. The Council will*

endeavour to improve accessibility and seek to change travel behaviour. This will be achieved by working with our partners to:

- a) Focus future development in the Plan Area in highly accessible locations, predominantly along the A55 and railway network within and on the edge of the Urban Development Strategy Area within the coastal belt in line with Policy DP/2 – ‘Overarching Strategic Approach’. All development proposals will be assessed against the Council’s Parking Standards as set out in Policy STR/2 – ‘Parking Standards’, mitigate travel in line with Policy STR/3 – ‘Mitigating Travel Impact’ and promote sustainable modes in line with Policy STR/4 – ‘Non-Motorised Travel’;*
- c) Promote walking and cycling throughout the Plan Area as part of an integral and highly sustainable means of transport in line with Policy DP/4 – ‘Development Criteria’. The design and construction of walking and cycling facilities and infrastructure will be improved to make walking and cycling more attractive, direct and safe in line with Policy DP/3 – ‘Promoting Design Quality and Reducing Crime’. Quality and convenient pedestrian crossings will be promoted to facilitate safe and direct movement across busy roads. Development shall contribute towards these connections and quality cycle parking where appropriate in line with The Development Principles and the Council’s Parking Standards set out in Policy STR/2;*
- d) Transport schemes which lead to improvements in accessibility will be supported in principle. In considering development proposals, the potential for more sustainable means of transport related to the uses and users of the development must be addressed, including the preparation of Travel Plans”.*

Finally, as the very edge of the Scheme encroaches on to the westernmost extent of a safeguarded sand and gravel area (although it is considered highly unlikely that extraction would ever be permitted to take place at this location and the Splashpoint Project has already been completed in this area), the following is considered to be relevant:

- **POLICY MWS/3 - SAFEGUARDING HARD ROCK AND SAND AND GRAVEL RESOURCES**
 - *“1. The following resources and related facilities are included within the Safeguarded Hard Rock or Sand and Gravel designation:*
 - *f) Sand and Gravel resources as identified on the Proposals Map.*
 - *2. Planning permission will not be granted for any development within the Safeguarded Hard Rock or Sand and Gravel designation which could directly or indirectly harm the long-term viability of working those resources unless:*
 - *a) It can be demonstrated that the need for development outweighs the need to protect the mineral resource or;*
 - *b) Where such development would not have a significant impact on the viability of the mineral being worked or;*
 - *c) Where the mineral is extracted prior to the development.*
 - *3. In cases where the quality and depth of safeguarded hard rock or sand and gravel resources has not been proven, other forms of development may be consistent with the safeguarding approach provided that the applicant submits evidence, such as borehole samples, demonstrating that no commercially viable hard rock or sand and gravel resources would be affected”.*

5 EIA Screening and Scoping

5.1 EIA Regulations

5.1.1 EIA Directive

The amended EIA Directive (2014/52/EU) (hereafter referred to as the EIA Directive) requires an EIA to be carried out in support of an application for development consent for categories of project listed in the Directive at Annexes 1 and 2. For schemes included within Annex 1, EIA is mandatory, while within Annex 2, an EIA is required if the development is likely to have *significant* effects on the environment.

5.1.2 EIA Regulations

The Scheme requires consent under the Town and Country Planning Act 1990 and must be assessed under the T&CP EIA Regulations.

In addition, the MW EIA Regulations transpose the EIA Directive so that where applicable, EIAs are carried out prior to granting permission for the deposit of substances or articles within UK waters or UK controlled waters, either in the sea or under the sea bed, from various structures, vessels, containers or structures on land, or anywhere in the sea (where a Marine Licence is required). UK Waters include any area which is submerged at mean high water spring tide. A Marine Licence is required for the elements of the Scheme below mean high water and consideration is necessary under the MW EIA Regulations.

5.1.3 The EIA Process

In general, the main stages in the EIA process are as follows:

- Screening – determine whether EIA is required;
- Data Review – draw together and review available data;
- Scoping – identify significant issues, determine scope of EIA;
- Baseline Surveys – undertake baseline surveys and monitoring;
- Assessment and iteration – assess likely significant effects of development, evaluate alternatives, provide feedback to design team on adverse effects, incorporate any necessary mitigation, assess effects of mitigated development; and
- Preparation of the ES.

5.2 Screening

The Scheme does not fall within Annex 1 of the EIA Directive (Schedule A1 of the MW EIA Regulations, Schedule 1 of the T&CP EIA Regulations), within which EIA would be mandatory.

However, the Scheme does fall under Annex 2 of the EIA Directive (Schedule A2(69) in the MW EIA Regulations, Schedule 2 Clause 10(m) of the T&CP EIA Regulations) – Infrastructure Projects, which includes certain coastal works (including land reclamation):

- *“Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works”.*

While in the EIA Regulations for coastal works there is no minimum area limit for triggering EIA (all development has to be considered), Welsh Office Circular 11/99 identifies the

'Indicative Thresholds and Criteria for identification of Schedule 2 Development Requiring EIA' determining significant effects as detailed in Table 1.

Table 1: Indicative Criteria and Threshold

Development Type	Schedule 2 Criteria and Thresholds	Indicative Criteria and Threshold
Coastal works to combat erosion and maritime works capable of altering the coast	All development	Works would exceed 1ha.

The maximum area of coastal defence works north of the sea wall totals approximately 6ha including a 20m working buffer, which exceeds the indicative criteria and threshold of 1ha with an additional approximately 3.6ha of landward promenade improvements.

Therefore, the requirement for EIA needed to be established, based on whether the Scheme is considered to have potential 'significant' effects on the environment.

A screening opinion was requested from CCBC on 29th February 2020 and a response was received on 12th March 2020 confirming that an EIA would be required for the Scheme for the following reasons:

- I. "The area of the proposal exceeds the 1ha threshold above which paragraph A29 of Welsh Office Circular 11/99 advises that an EIA is more likely to be required.*
- II. The area of the proposal is situated on and above the intertidal zone, which is of biodiversity interest, and is close to the Liverpool Bay SPA. The proposal is likely to have significant effects on biodiversity interests within and neighbouring the development site, including potential impacts on the SPA (subject to further Habitat Regulations Assessment Screening).*
- III. The Promenade and beach form recreational and tourism assets which are significant to the economic and social well-being of Colwyn Bay. The proposal could have potentially significant impacts on the appearance, amenity and accessibility of those assets."*

5.3 Scoping

As discussed in Section 1.3, under Regulation 15 of the T&CP EIA Regulations and Regulation 13 of the MW EIA Regulations, a Scoping Opinion can be requested from the appropriate authority to determine the scope and level of details required in the ES.

According to Regulation 15 of the T&CP EIA Regulations and Schedule 4 of the MW EIA Regulations, the Request for a scoping opinion must be accompanied by:

- a) A chart, plan or map sufficient to identify the land, location of the regulated activity and of other activities to be carried out in the course of the project/development;
- b) A brief description of the nature and purpose of the project/development, including its location and the regulated activity;
- c) An explanation of the likely significant effects of the development on the environment; and
- d) Such other information or representations as the applicant may wish to provide or make.

6 Consultation

6.1 Consultation Completed to Date

The Applicant has initiated consultation to date with the following:

- Internal CCBC Officers (including planning, highways, harbour master and open spaces representatives);
- Network Rail;
- Dŵr Cymru;
- Sustrans; and
- Local anglers.

A consultation meeting with Colwyn Bay Town Council was held on 21st October 2019 and provided an update on the proposals for both the next two phases of the Colwyn Bay Waterfront Project - Phase 2b at Rhos on Sea and the Scheme at Old Colwyn.

Initial consultation has also been completed with NRW and CPAT with respect to the Marine Licence required for the intrusive ground investigations proposed for the Scheme.

6.2 Future Consultation

6.2.1 Scoping Consultation

On receipt of this Scoping Report, CCBC would consult with statutory and non-statutory consultees in order to provide a robust Scoping Opinion.

The following are considered statutory consultees for the purposes of EIA:

- CCBC;
- NRW;
- Cadw; and
- Crown Estates.

A number of other consultees would also be consulted by CCBC and/or the Applicant on the Scoping Report. The organisations to be consulted directly on the Scoping Report would be identified in consultation with CCBC, and are likely to include:

- Network Rail;
- Dŵr Cymru;
- Scottish Power;
- Sustrans;
- Local anglers associations;
- Clwyd Powys Archaeological Trust;
- Colwyn Bay Town Council;
- Conwy Access Group; and
- North and Mid Wales Trunk Road Agent (NMWTRA).

The Scoping Opinion and comments received from Council officers and consultees would be taken into account in the EIA and in preparing the ES. The ES would summarise the comments received and describe how the feedback influenced the scope of the EIA and

ES. When submitted, the ES would be publicised by the Council and subject to consultation with the above organisations, other notified parties, and the public.

In accordance with the EIA Regulations, the Council have a 5 week period to consider this report and adopt a formal Scoping Opinion.

6.2.2 Scoping Consultation

Given the current restrictions relating to Covid-19, it is proposed that an online public information event will take place in April/May 2020 to be followed by a physical event in the future as and when restrictions are lifted.

7 Potential for Cumulative Effects

7.1 Overview

The EIA Regulations require the assessment of the likely significant effects from the cumulation of effects with other existing and/or approved projects.

A full assessment would be completed as an ES chapter, however at the current time, the principal potential for cumulative impacts during operation is when the Scheme is considered in the context of the wider Colwyn Bay Waterfront Project Works which have already provided improved coastal protection from Porth Eirias westwards, through the Phase 1a/b/c and 2a areas.

7.2 Colwyn Bay Waterfront Project

Phase 2b to improve coastal defence and amenity from the Horizon Shine kiosk round to Rhos-on-Sea Harbour (including beach recharge and promenade improvement works) is currently at the outline design stage.

The extension of coastal protection and promenade improvements from Porth Eirias to the east within the Scheme area is therefore considered to have a beneficial in-combination effect by ensuring the continuation of coastal defence improvements in an area where key national infrastructure is at particular risk and by preventing the loss of a key connecting stretch of the Promenade vital for the continuation of active travel routes.

The improvement of the landscape and visual aspects of the Old Colwyn promenade would also ensure it ties in with the much enhanced public realm areas to the west.

7.3 Creation of Truncated Pier

It is understood that construction works on the new truncated pier located on the site of the former Victoria Pier should be commencing imminently. However, these are located a minimum of 600m to the west with a much smaller scope and footprint. It is understood that these works would be completed by the time the Scheme would move to the construction phase.

The operational in-combination effect with the pier is considered to be beneficial relating to ensuring the quality of the Old Colwyn promenade is in-keeping with the Colwyn Bay Waterfront Project Phase1 area.

7.4 Cumulative Effects Chapter

A review of all committed developments (including both approved schemes and applications yet to be determined) within the locality of the Scheme would be completed and recorded within the ES as a Cumulative Effects Chapter.

8 Air Quality

8.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on air quality, namely:

- Nuisance, loss of amenity and health impacts caused by construction dust. These have been considered in line with the Institute of Air Quality Management's (IAQM) *'Guidance on the assessment of dust from demolition and construction'*¹; and
- Air quality impacts caused by additional traffic generation during construction and operation of the Scheme.

Concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀² and PM_{2.5}³) only are considered, as these are the key pollutants of concern associated with the Scheme.

8.2 Study Area

The study area for the air quality assessment covers human health receptors within 350m and ecological sites within 50m of the Scheme site for dust impacts. For traffic impacts this covers human health receptors and designated ecological sites close to roads that meet the Environmental Protection UK (EPUK) and the IAQM⁴ criteria of:

- a change of Light Duty Vehicles (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) and/or
- a change of Heavy-Duty Vehicles (HDV)⁵ flows of more than 100 AADT.

These roads are hereafter referred to as 'affected' roads. Where the above criteria are met, sensitive human and ecological receptors, at worst-case⁶ locations up to 200m from the kerb of an affected road would be assessed.

8.3 Baseline Conditions

Information on air quality in the UK can be obtained from a variety of sources including local authorities, national network monitoring sites and other published sources. The baseline data most representative of the Scheme site has been obtained from the North Wales Combined Authority Air Quality Progress Report 2019⁷ and Defra⁸. The most recent full year of monitoring data available is for 2018.

¹ Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction.

² Particulate matter with a diameter of less than 10 microns

³ Particulate matter with a diameter of less than 2.5 microns

⁴ Environmental Protection UK and Institute of Air Quality Management (January 2017) Land-Use Planning and Development Control: Planning for Air Quality (version 1.2)

⁵ A heavy-duty vehicle is any vehicle with a gross weight greater than 3.5 tonnes and usually consists of HGVs, buses and coaches

⁶ Worst case refers to locations that are closest to the road, roads with the largest flows, where the Scheme causes the greatest change in traffic and where ambient air quality is known to be poor.

⁷ North Wales Combined Authority (2019) Air Quality Progress Report

⁸ Defra (2019). Background mapping data for local authorities. Available at: <https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2015>, accessed March 2020

8.3.1 Local Authority Monitoring

CCBC has declared no Air Quality Management Areas (AQMAs)⁹ for its administrative area as there are no monitored exceedances of the relevant national objectives.

CCBC has no automatic monitoring stations and monitors NO₂ using passive diffusion tubes at 18 locations within Conwy County Borough. Four diffusion tubes are within 1.5km of the Scheme, the monitoring data for which are presented in Table 1.

No exceedances of the NO₂ annual mean objective have been recorded at any of the nearby diffusion tube locations. The highest 2018 concentration, measured at Theatre Colwyn, is 18.6µg/m³, less than half of the annual mean objective of 40µg/m³.

Table 1 Air Quality Monitoring Data for NO₂

Site ID	Site name	Site classification	National grid reference		Annual mean concentration (µg/m ³)		
			X	Y	2016	2017	2018 ^(a)
DT/CCBC001	Theatre Colwyn, Colwyn Bay	Roadside	285119	378817	19.1	16.9	18.6
DT/CCBC017	Kingsway, Colwyn Bay	Roadside	284526	379417	24.4	16.5	17.3
DT/CCBC033	Coed Pella Rd, Colwyn Bay	Roadside	284789	378985	13.7	13.0	14.0
DT/CCBC035	Ysgol Bod Alaw, Colwyn Bay	Roadside	285506	378295	-(b)	15.5	16.5

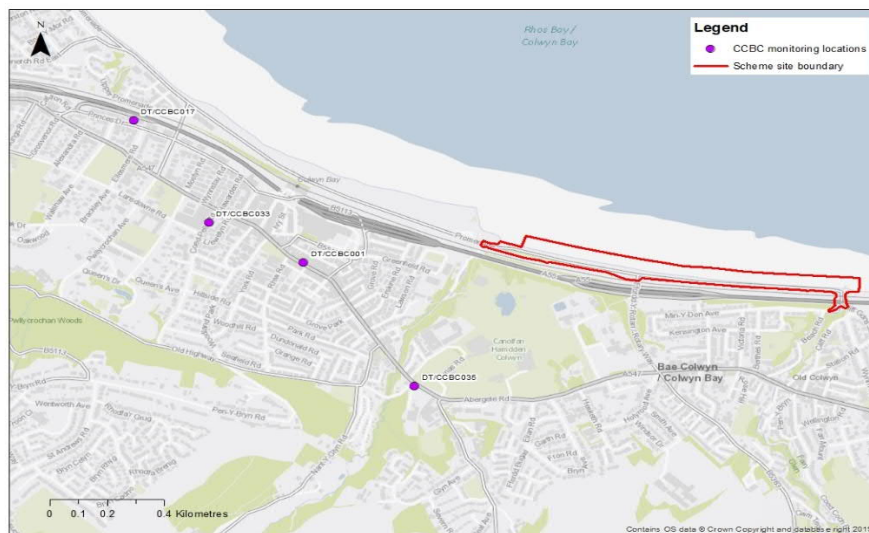
Source: North Wales Combined Authority, 2019

Note: ^(a) Data capture for all site was 100%. Bias adjustment factor for 2018 was 0.76

^(b) Monitoring at this location began in 2017

The location of these sites is presented in Figure 1.

Figure 1: Local Authority Monitoring Locations



Source: North Wales Combined Authority, 2019

⁹ Part IV of the Environment Act 1995 requires local authority to periodically carry out a review of air quality within its area. As part of this review, the authority must assess whether air quality objectives are being achieved. Locations where they are not or are unlikely to be achieved within the relevant period must be identified and declared as an Air Quality Management Area (AQMA).

8.3.2 Defra Projected Background Concentrations

Defra provides mapped future year projections of background pollution concentrations for NO_x, NO₂, PM₁₀ and PM_{2.5} for each one-kilometre grid square across the UK for all years between 2017 to 2030¹⁰. The maps include a breakdown of background concentrations by emission source, including road and industrial sources, which have been calibrated against 2017 (the baseline year) UK monitoring data.

Table 2 presents background concentrations for the 1km grid squares containing the Scheme in the current year of 2020. The maximum background concentrations at the site are all within the relevant objectives.

Table 2 Projected background concentrations (µg/m³) of NO_x, NO₂, PM₁₀ and PM_{2.5} (maximum concentrations across Scheme)

Pollutant	2020
NO _x	12.9
NO ₂	9.7
PM ₁₀	10.2
PM _{2.5}	6.6

Source: Defra 2020. <https://uk-air.defra.gov.uk/data/laqm-background-maps>

8.3.3 Summary

The closest monitoring locations to the Scheme met the annual mean NO₂ objective in 2018. The monitoring sites are located in Colwyn Bay Town Centre where there are several busy intersecting roads, as opposed to the Site where there is a road adjacent to the seafront, backed by the NWC Railway Line embankment with a higher likelihood of emissions being more readily dispersed. It is, therefore, likely that the objectives are met at the Site.

CCBC does not monitor particulate matter (PM₁₀ and PM_{2.5}) but it is recognised that where concentrations of NO₂ are low and road traffic is the primary source of emissions, the concentration of PM₁₀/PM_{2.5} would also likely be lower than the air quality objectives. In the case of the Scheme, another primary source of particulate matter is contributions from sea salt due to its coastal location. It can be seen in the Defra predictions, however, that these are not expected to exceed the objectives for PM₁₀ or PM_{2.5}.

Defra's TG16¹¹ document indicates that the hourly NO₂ air quality objective of 200µg/m³ (not to be exceeded more than 18 times per year) is unlikely to be exceeded at roadside locations where the annual mean concentration is less than 60µg/m³. Following this guideline, the hourly objective is therefore considered to also be met, as the monitored mean NO₂ concentrations are less than 60µg/m³.

The Defra predictions indicate that the background concentrations at the Scheme site are unlikely to exceed the relevant objectives.

8.4 Assumptions and Limitations

The number of LDV and HDV movements required and the traffic management measures during the construction and operational phases are currently unknown.

In scoping in construction traffic, assumptions have been made that the Scheme may lead to an increase in operational vehicle movements exceeding the EPUK/IAQM thresholds

¹⁰Defra Background maps (2017) available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps>, accessed March 2020

¹¹ Defra (February 2018) Local Air Quality Management – Technical Guidance (16)

and assessment of local air quality during the construction phase would be required. This is due to the closure of the Promenade for an extended period during construction and the associated redistribution of vehicles on the public highway. ***The scoping in of this discipline may be revised when more detailed traffic information is available.***

It is currently assumed that the transport of rock revetment will be via road from local quarries rather than barged in by sea.

In scoping out operational traffic, assumptions have been made that the Scheme:

- Will not lead to an increase in operational vehicle movements exceeding the EPUK/IAQM thresholds;
- Will encourage usage of non-motorised transport along the Promenade due to improvements to the pedestrian and cycle path; and
- Proposed additional car parking spaces would not exceed 20.

8.5 Key Guidance and Best Practice

In the UK, the Air Quality Standards Regulations (2010)¹² came into force in June 2010 to implement EU Directive 2008/50/EC¹³ on ambient air quality. The air quality objectives, specifically for use by local authorities in carrying out their air quality management duties, are set out in the Air Quality (Wales) Regulations 2000¹⁴ and the Air Quality (Wales) (Amendment) Regulations 2002¹⁵. In most cases, the air quality objectives have the same numerical values as limit values specified in the EU Directives although compliance definitions and dates differ.

The Welsh Government are currently consulting upon a 'Clean Air Plan' for Wales, as an equivalent to the Clean Air Strategy (CAS)¹⁶ produced for England in 2019 to provide a framework for air quality improvements.

Table 3 presents the relevant air quality objectives and limit values against which the Scheme has been assessed.

Table 3 Air Quality Objectives and Limit Values

Pollutant	Averaging Period	Air Quality Objectives and Limit Values		Attainment Date	
		Concentration	Allowance	Air Quality Objectives	EU Limit Values
Nitrogen dioxide (NO ₂)	Annual	40 µg/m ³	-	31 December 2005 ^(a)	1 January 2010 ^(b)
	1-Hour	200 µg/m ³	18	31 December 2005 ^(a)	1 January 2010 ^(b)
Nitrogen oxides (NO _x) ^(c)	Annual	30 µg/m ³	-		31 December 2000 ^(b)
Particulates (PM ₁₀)	Annual	40 µg/m ³	-	31 December 2004 ^(a)	1 January 2005 ^(b)

¹² Statutory Instrument. (2010), 'The Air Quality Standards Regulations', No. 1001. Queen's Printer of Acts of Parliament.

¹³ European Union. (April 2008) Directive on ambient air quality and cleaner Air for Europe, Directive 2008/50/EC Official Journal, vol. 152, pp. 0001-0044

¹⁴ Statutory Instrument. (2000) Air Quality (Wales) Regulations, No. 1940 (W.138).

¹⁵ Statutory Instrument. (2002) Air Quality (Amendment) (Wales) Regulations, No. 3182 (W.298).

¹⁶ Department for Environment Food and Rural Affairs. (January 2019), 'The Clean Air Strategy'.

Pollutant	Averaging Period	Air Quality Objectives and Limit Values		Attainment Date	
		Concentration	Allowance	Air Quality Objectives	EU Limit Values
	24-Hour	50 µg/m ³	35	31 December 2004 ^(a)	1 January 2005 ^(b)

Notes: (a) Air Quality (Wales) Regulations 2000 as amended in 2002.
 (b) EU Directive 2008/50/EEC on ambient air quality and cleaner air for Europe and The Air Quality Standards Regulations 2010. Derogations (time extensions) have been agreed by the EU for meeting the NO₂ limit values in some zones/agglomerations.
 (c) Designated for the protection of vegetation and ecosystems and referred to as the 'critical level' for NO_x.

It should be noted that the UK air quality objectives only apply at locations where the members of the public might reasonably be exposed to pollutants for the respective averaging periods.

Table 4 provides details of where the respective objectives should and should not apply and therefore the types of receptors that are relevant to the assessment.

Table 4: Locations Where the Air Quality Objectives Apply

Averaging Period	Objectives Should Apply at:	Objectives Should Not Apply at:
Annual	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
24 Hour	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
1 Hour	All locations where the annual mean and 24 mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

Source: LAQM-TG16¹⁷

This scoping assessment has been carried out in accordance with methodology set out within:

- IAQM's 'Guidance on the assessment of dust from demolition and construction';
- EPUK and IAQM's 'Land-Use Planning and Development Control: Planning for Air Quality'; and

¹⁷ Department for Environment, Food and Rural Affairs (2018), Local Air Quality Management – Technical Guidance (16)

- Defra Technical Guidance 2016 (TG16).

8.6 Potential Effects

There are human health receptors within 350m and ecological receptors within 50m of the Scheme boundary, including the statutory Liverpool Bay / Bae Lerpwl (Wales) Special Area of Conservation (SPA), which is located 100m to the north of the Scheme site.

As traffic data is not yet available, it is unknown where the affected roads may be in relation to sensitive receptors. The high density of residential properties along local roads would suggest, however, if the above criteria are met, that sensitive receptors would likely be found within 200m of the affected roads.

There may be adverse impacts on air quality as a result of the construction and operation of the Scheme. Table 5 summarises whether the impacts have the potential to cause significant effects, and whether they have been scoped out of the ES.

8.6.1 Construction Dust and Site Plant Emissions

The main risks to sensitive receptors during the construction phase include dust emissions arising from construction activities and vehicle movements on-site. Dust can arise from numerous construction activities such as concrete-batching, piling, wind erosion on material stockpiles and earth-moving activities. It can be mechanically transported either by wind or through the movement of vehicles onto the public highway (transport of debris on vehicle wheels, or uncovered loads).

It is anticipated that dust and particulate matter emissions produced during construction activities and emissions from site plant would be controlled through the implementation of a Construction Environmental Management Plan (CEMP). The mitigation incorporated within the CEMP would be informed by the Institute of Air Quality Management (IAQM) guidance¹⁸ and would include prevention measures in line with a 'Medium Risk' site, as a minimum, such as: screening stockpiles of materials, deployment of windbreak netting, dampening exposed soils as appropriate and liaison with the local community and CCBC. Assuming the above mitigation measures are in place, effects of dust and particulate matter emissions and emission from site plant are unlikely to be significant and would not be considered within the ES. A dust risk assessment would be completed and submitted as part of the planning application.

8.6.2 Construction Traffic

The construction phase of the Scheme has the potential to impact upon air quality due to:

- Road closures on the section of the Promenade (between Porth Eirias and Splash Point). The closures may be partial or total and potentially phased over the anticipated 18-24 construction period and would redistribute traffic from the Promenade onto other local roads, closer to sensitive receptors; and
- Changes in emissions associated with changes in traffic flows along affected roads (including composition and speed) on the local road network, as a result of road closures.

At this stage, there is no detailed information pertaining to construction traffic movements or traffic management measures. When available, they would be scoped against best

¹⁸ Holman et al (2014). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London. www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf

practice indicative criteria for requiring an air quality assessment as suggested by EPUK/IAQM guidance¹⁹.

There is the potential for adverse effects on local air quality at sensitive human and ecological receptors. The likelihood of significant effects is dependent upon baseline ambient air quality and the number of construction traffic movements or traffic management measures. It is considered likely that given the scale of the Scheme it may be phased which would reduce overall effects. Specific measures for the mitigation of effects including the careful selection of construction traffic and diversion routes would be undertaken in consultation with CCBC.

Based on the above, it is proposed that the ES would scope in the assessment of construction traffic and traffic management measures, however, the scoping in of this discipline may be revised when more detailed construction traffic information is available.

8.6.3 Operational Traffic

Once operational, the improved public realm and Promenade with increased parking may encourage vehicle use in the area, however, the total number of additional proposed parking spaces is currently fewer than 20. The improvement of active travel routes along the promenade would encourage use of non-motorised forms of transport. Based on the above, it is proposed that the ES would scope out the assessment of operational traffic, however, the scoping of this discipline may be revised when more detailed traffic information is available.

8.6.4 Summary of Potential Effects

Table 5 presents whether construction or operational effects have currently been scoped out of the ES. A scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees to determine whether the mitigation proposed would sufficiently mitigate effects such that they would no longer be considered as significant.

Table 5 Potential Effects

Effects	Construction	Operation
Effects Potentially Not Significant	Construction dust – adverse effects on human and ecological receptors due to dust impacts.	Operational traffic – adverse effects on human and ecological receptors due to air quality impacts.
Effects Potentially Significant	Construction traffic – adverse effects on human and ecological receptors due to air quality impacts.	N/A
Scoped In/Out	Scoped In	Scoped Out

8.7 Additional Information Required

In order to complete the ES, a Transport Statement (TS) would be required to provide additional clarity on the vehicle distribution across local roads during closure of the Promenade during construction. This would enable a revised scoping to be undertaken and, if necessary, further assessment within the ES.

8.8 Proposed Methodology

The proposed EIA methodology for the assessment of Air Quality effects can be found in Appendix C.1.

¹⁹ Moorcroft and Barrowcliffe, et al. (2017) Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London.

9 Archaeology and Cultural Heritage

9.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on archaeology and cultural heritage.

The Old Colwyn area forms the eastern end of the Victorian age promenade around Colwyn Bay, however the area included within the Scheme boundary is not considered to include any specific features from this period.

Overall there are few issues from this scheme in relation to Cultural Heritage due to the minimal amount of intrusive works and the planned outcomes of the Scheme which do not include the construction of tall buildings or other features which may affect the setting of heritage assets.

9.1.1 Reference Reports

- Colwyn Bay Waterfront Project Phase 1 Engineering Works Environmental Statement Supplementary Report: Cultural Heritage Impact Assessment, Mott MacDonald Ltd, November 2020, and
- Colwyn Bay Waterfront Project, Archaeological and Historical Assessment, Birmingham Archaeology October 2010.

9.2 Study Area

The study area used consists of an approximate 500m buffer from the Scheme boundary, this allows a consideration of all known heritage assets which may indicate the presence of heritage assets within the Scheme boundary

9.3 Baseline Conditions

The Scheme includes an area of beach and the existing promenade and beach defences which originally date to the Victorian period. The promenade now consists of modern asphalt walkways and car parks. The beach defences consist of the sea wall and intermittent rock revetment immediately north of the sea wall.

9.3.1 Geology

The geology within the site boundary consists of a bedrock of Elwy Formation - Mudstone, Siltstone and Sandstone the superficial geology is of Marine Beach deposits. Other areas within the site boundary consist of manmade features including existing coastal defences, the promenade, paths and roads.

9.3.2 Historic Mapping and Aerial Imagery

A search of available Historic Mapping²⁰ demonstrates the development of the promenade into the Scheme boundary from west to east and aerial imagery shows the additional rock to reinforce the sea defences (as summarised in Table 6). However little other evidence of historical interest was recorded.

²⁰ National Library of Scotland Mapping resources: <https://maps.nls.uk/>, Accessed March 2020

Table 6 Historic Mapping Summary (within Scheme boundary)

Date	Map	Development
1879	Denbighshire III	This map shows the original coastline to the north of the NWC Railway Line which is already present. No promenade or defences are in place at this time.
1900	Denbighshire III.NE	The Promenade extends slightly into the Scheme Boundary from the west.
1914	Denbighshire III.NE	The Promenade extends the full length of the Scheme boundary and a slipway is shown at the eastern extent.
1945-1949	Denbighshire III.NE	No Change
1954	Denbighshire III.NE	The map seems to demonstrate that much of the original rock sea defence is no longer in place.
Satellite imagery	Google Earth	The timeline feature demonstrates the deposition of additional rocks to reinforce the beach defences within the last ten years.

Source: Historic Mapping²⁰

9.3.3 Archaeology

The only archaeological evidence recorded within 20m of the Scheme boundary is a chance find of a broken Neolithic Stone axe, recovered in the 19th century²¹.

The sites of four Post Medieval buildings are recorded on the Historic Environment Record²² within the approximate 500m Study Area and a brooch from the same period was recovered from peat delivered to a house for fuel²³.

Approximately 600m West of the Scheme are the remains of the Victorian Pier which is examined in detail in the studies related to earlier phases of this project²⁴.

Over 1km to the west of the site the approximate site of wreck of the Flatfish²⁵ is recorded. Further wreck sites are recorded along the coast in the wider area.

9.3.4 Built Heritage and Designated Assets

The Old Colwyn Conservation area²⁶ sits to the south of the Scheme, separated by the A55 Expressway and NWC Railway Line.

There are 17 listed buildings²⁷ within the approximate 500m study area of the project. These buildings all lie to the south of the Scheme boundary and date from the Post Medieval to the Modern period.

9.4 Assumptions and Limitations

- The Scheme would have no detrimental effect on the setting of the Old Colwyn Conservation area or any assets;

²¹ Archwilio website: <https://archwilio.org.uk/arch/query/page.php?watprn=CPAT100457&dbname=cpat&tbnname=core>, accessed March 2020

²² Historic Wales website: <https://historicwales.gov.uk/#zoom=6&lat=378455.07194&lon=287022.87099&layers=BTTTTTFFFTTT>, accessed March 2020

²³ Archwilio website: <https://archwilio.org.uk/arch/query/page.php?watprn=CPAT120557&dbname=cpat&tbnname=core>, accessed March 2020

²⁴ Colwyn Bay Waterfront Project Phase 1 Engineering Works Cultural Heritage Impact Assessment. Mott MacDonald 2010

²⁵ Coflein website: <https://coflein.gov.uk/en/site/271456/details/flatfish>, accessed March 2020

²⁶ Archwilio website: <https://archwilio.org.uk/her/chi1/arch.html?county=Conwy&lang=eng>, accessed March 2020

²⁷ Historic Wales website: <https://historicwales.gov.uk/#zoom=6&lat=378162.01959&lon=286875.09246&layers=BTTTTTFFFTTT>, accessed March 2020

- The Scheme would not have any significant effect on areas further along the coast which may affect the preservation of wreck sites; and
- The available online resources and previous studies contain enough detail to make sound judgements.

9.5 Key Guidance and Best Practice

The assessment would be carried out with due regard to the following:

- TAN 24: The Historic Environment;
- Cadw planning advice available at: <https://cadw.gov.wales/advice-support/placemaking/legislation-and-guidance/policy-advice-and-guidance> (accessed March 2020);
- Cadw Heritage Impact Assessment in Wales 2017;
- Cadw Setting of Historic Assets in Wales 2017; and
- Highways England *et al.* Design Manual for Roads and Bridges: LA 106 Cultural heritage assessment 2019.

9.6 Potential Effects

Potential effects from construction and operation of the Scheme are limited due to the nature and location of the Scheme and negligible potential for further archaeological remains to be present within the Scheme boundary.

There would be no effects on any known built heritage sites, designated assets or listed buildings or their settings due the separation of the Scheme from these features by the A55 Expressway and the NWC Railway Line as well as the design, nature and overall aim of the Scheme itself.

The Scheme would have no effect on the conservation area to the south of the Scheme. The promenade itself is of negligible value as there is little left of its original appearance and it's condition has been degraded following years of storm damage.

Table 7 Potential Effects

Effects	Construction	Operation
Potential Non Significant Effects	Potential for discovery of previously unidentified archaeological assets.	None
Potential Significant Effects	None	None
Scoped In/Out	Out	Out

While the potential of removal of previously unidentified archaeological assets would constitute a significant effect, the potential of finding any such features within the Scheme area is considered to be negligible and as such no mitigation would be recommended.

A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

9.7 Additional Information Required

- None identified.

10 Biodiversity

10.1 Introduction

The Biodiversity Chapter will identify and assess ecological features that can be significantly affected by the Scheme using ecological baseline data gathered from desktop records and field surveys.

The site itself comprises habitats of largely local value but there is significant ecological value in the habitats adjacent to the site, which form part of the Liverpool Bay Special Protection Area (SPA). There is potential for temporary construction effects on the SPA and the species it supports, which will be require a Habitats Regulations Assessment (HRA).

10.1.1 Reporting/Assessment Completed to Date

The ecological reports produced for this Scheme to date include the:

- Colwyn Bay Splashpoint Project: Preliminary Ecological Appraisal Report (07 January 2020);
- Colwyn Bay Splashpoint Project: Wintering Bird Survey Report (07 January 2020);
- Colwyn Bay Splashpoint Project: A Report to Inform a Habitats Regulations Assessment Appropriate Assessment (07 January 2020);
- Colwyn Bay: Preliminary Ecological Appraisal Report (20 February 2020) (included as Appendix D); and
- Colwyn Bay: Over Wintering Bird Survey Report (11 February 2020) (included as Appendix D).

10.2 Study Area

The Scheme site boundary has been defined in Chapter 2.1 and the survey boundary is shown on the Phase 1 Habitat Plan (Appendix D).

The current guidance on ecological impact assessments (Chartered Institute of Ecology and Environmental Management; CIEEM, 2018) recommends that all ecological features that occur within a 'Zone of Influence' (Zol) for a proposed development are investigated.

The Zol includes:

- Areas directly within the land take for the proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The Zol is variable depending on the nature of the construction activities and the ecological receptors affected. For this assessment zones have been defined as outlined in Table 8.

Table 8 Zone of Influence

Ecological Feature	Zone of influence
Statutory designated sites	2.0km
European designated sites	10.0km

Ecological Feature	Zone of influence
Non-statutory designated sites	1.0km
Protected species records	1.0km
Protected species evidence	Within the survey area

Source: Mott MacDonald Limited

10.3 Baseline Conditions

This baseline condition is assessed through considering the statutory and non-statutory designated sites as well as the ecologically valuable or protected habitats and species within the Zol. This has been informed by a desktop study, Phase 1 Habitat Survey and assessment of buildings for bats and overwintering bird surveys (see Chapter 9.8.2).

10.3.1 Designations

A total of seven statutory designated sites were identified within 2.0km of the Scheme in addition to four non-statutory designated sites (these are listed in the PEAR; Appendix D). Of these, the only ecological designation considered likely to be affected by the Scheme is the Liverpool Bay SPA, located along the boundary of the survey area (approximately 100m from the boundary at its closest point). This is designated at an international level for the wetland bird species and assemblages present. Given the proximity of this designation, it is to be considered within a Habitats Regulations Assessment (HRA).

All other statutory and non-statutory designations are considered sufficiently separated from the Scheme with no clear impact pathways. As such, these are considered unlikely to form a constraint to any proposals and are not considered further.

10.3.2 Habitats

The majority of the site is characterised by the intertidal habitats, in the form of mud and sand, boulders, shingle and gravel. The southern areas of the site, beyond the revetment, comprise hardstanding and structures (including the promenade and cycleway, with multiple structures including bus shelters, kiosks, railway bridges and public convenience blocks) along with associated amenity grassland and landscaped trees. Other habitats present include areas of semi-improved grassland, scrub and tall ruderal vegetation, largely associated with the railway embankment. The majority of these habitats are considered to be of low ecological value and do not pose a constraint.

The following habitats are considered to be of elevated value in the contact of the site and could qualify as Priority Habitats (as listed under Section 7 of the Environment (Wales) Act):

- Subtidal sands and gravel;
- Blue mussel beds on sediment (immediately east of the survey area outside the Scheme footprint); and
- *Sabellaria alveolata* Reefs.

10.3.3 Protected Species

A number of protected species were identified from records provided by North Wales Environmental Information Service (Cofnod), many of which have the potential to be present in the habitats within the survey area with some confirmed on site. Based on the records returned, the species considered to be the potential constraints for the scheme are:

- Bats (roosting and foraging);

- Badgers and other mammals;
- Nesting and wintering bird species;
- Reptiles;
- Fish;
- Marine mammals; and
- Marine invertebrates.

Further surveys has been completed in respect of overwintering birds which confirmed the presence of groups of common scoter (*Melanitta nigra*) coming to within 500m and red-throated diver (*Gavia stellata*) within 1.0km of the coastline. Both of these species are protected under the Liverpool Bay SPA. The overwintering bird surveys also identified the presence a number of species protected under Section 7 of the Environment (Wales) Act (2016) within 500m of the coastline (see Appendix D for bird survey report).

In respect of bats, the westernmost of the shelters and toilet block have been identified as having low bat roosting potential from the initial survey work completed. Further survey work is proposed to inform the EIA. It is anticipated that survey work will be undertaken in summer 2020 [please note this is subject to guidance from the government on Covid-19 and survey visits] to inform the EIA.

10.4 Assumptions and Limitations

It is possible that certain species may have been overlooked or under-recorded during the assessment for reasons including the following:

- Biological records obtained from third parties and presented in the desk study do not represent a full and complete species list for the area;
- Ecological surveys are limited to factors which affect the presence of plants and animals, such as time of year, migration patterns and behaviour. The Phase 1 habitat survey was undertaken outside of the optimal survey window although this is unlikely to have affected identification of the broad habitat types; and
- Due to the government restrictions in place from Covid-19, survey visits from March 2020 onward (including the intertidal walkover and bat roosting assessment of buildings), have been suspended. An assessment has therefore been made by specialist marine ecologists from detailed photographic surveys completed by an experienced local environmental consultant for the purposes of the enhancement and by experienced bat surveyors for the building assessments, both interpreted on a precautionary basis where relevant.

10.5 Key Guidance and Best Practice

Ecological assessments were undertaken in compliance with relevant guidance and best practice including:

- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland –2nd edition;
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey -a technique for environmental audit;
- Relevant industry standard, best-practice guidance from Natural England (also adopted by Natural Resources Wales) or from relevant conservation groups (i.e. British Trust for Ornithology); and
- Relevant Industry standard, best practice guidance including:
 - The Bat Conservation Trust ‘Bat Surveys Good Practice Guidelines’ (Collins, 2016);

- The British Trust for Ornithology’s Wetland Bird Survey, ‘look-see’ methodology (Bibby *et al.* 2000);
- The Mammal Society’s guidance on badger field survey methodology ‘Surveying Badgers’ (Harris *et al.* 1989); and
- The Marine Habitat Classification for Britain and Ireland (Connor *et al.* 2004).

10.6 Potential Effects

An initial assessment of the anticipated potential effects from the Scheme on biodiversity is included in Table 9.

This assessment has been undertaken on the assumption that best practice working measures and safeguards will be implemented as part of a Construction Environmental Management Plan (CEMP). In particular, it is assumed that this CEMP would include pollution control measures (hydrological, noise, dust and lighting) and sensitive working measures to safeguard protected species such as nesting birds and reptiles. On this basis, effects from construction which would be mitigated by measures in the CEMP or other best practice safeguards are highlighted below as “potential non significant”.

It is also anticipated that environmental enhancements will be incorporated into the scheme as part of the target for an overall net biodiversity gain. Consideration has also been given to this in the below assessment.

Ecological receptors that have been scoped out on the basis of the baseline assessment are described separately in 9.

Table 9 Potential Effects

Effects	Construction	Operation
Potential Non Significant Effects	Adverse effects (mitigation already accounted for in CEMP or best practice): <ul style="list-style-type: none"> • Construction pollution (hydrological, dust and plastics) to adjacent habitats; • Damage or adverse effects to intertidal habitats*; • Lighting disturbance to nocturnal mammals (bats and badger); • Loss, damage or disturbance of roosting habitat for bats**; • Effects on foraging badger (if present) from construction activities; • Effects on other mammals (burrows) from works to embankments; • Loss or modification of nesting bird habitat (potential for damage or disturbance to nests); • Modification to suitable reptile habitat and potential for killing / injury during works; • Adverse effects on fish from localised increase in sedimentation or pollution, disruption to foraging behaviour and displacement of movements; • Acoustic disturbance (during high tides) to marine mammals; and • Adverse effects on marine invertebrates and submerged seaweed from construction activities and water quality effects*. 	Anticipated effects: <ul style="list-style-type: none"> • On-going maintenance and use of beach will be in line with current levels (no additional significant disturbance anticipated); • Changes to lighting design in foraging areas could affect bats. As site is already lit, sensitive lighting design could result in a betterment; • Effects on foraging badger from operational activities unlikely; • Effects on other mammals (burrows) from maintenance works to embankments will be mitigated through best practice measures etc.; • Maintenance works, notably landscaping or habitat management, could affect nesting birds (subject to timing of works); • Potential of change of the available habitat for reptiles (targeting an overall enhancement) and maintenance works could risk killing or injury of reptiles (if present); • Maintenance could result in localised impact expected to fish from operational use; and • No significant adverse impact anticipated on marine invertebrates*.
Potential Significant Effects	Adverse effects (requiring mitigation): <ul style="list-style-type: none"> • Disturbance to birds (designated interest features) of the Liverpool Bay SPA 	Adverse effects: <ul style="list-style-type: none"> • Any significant repair works could result in disturbance to birds in the SPA; and

Effects	Construction	Operation
	<p>[requiring further assessment under HRA process;</p> <ul style="list-style-type: none"> ● Potential damage or disturbance of intertidal priority habitats including blue mussel beds (outside working area), subtidal sands and gravels and <i>Sabellaria alveolata</i> Reefs*; ● Loss, damage or disturbance of roosting habitat for bats*; ● Adverse effects on marine invertebrates and submerged seaweed from construction activities and water quality effects*. <p>Beneficial effects (subject to enhancements):</p> <ul style="list-style-type: none"> ● There is potential for significant beneficial effects on habitats from habitat creation and enhancement measures designed into the scheme, both for intertidal and terrestrial habitats (see below for list of enhancements). 	<ul style="list-style-type: none"> ● Any significant repair works could result in damage or degradation of habitats (notably intertidal habitats). <p>Beneficial effects:</p> <ul style="list-style-type: none"> ● Long-term management of new and enhanced habitats will deliver a significant overall ecological benefit (see below for list of proposed enhancements).
<p>Scoped In/Out</p>	<p>Scoped in:</p> <ul style="list-style-type: none"> ● SPA; ● Mussel beds; ● Other priority habitats; ● Wintering birds; ● Nesting birds; ● Badger; ● Other mammals; ● Reptiles; ● Invertebrates; ● Marine mammals; and ● Fish. <p>Scoped out:</p> <ul style="list-style-type: none"> ● Water vole and otter; ● GCN; ● Other habitats; and ● Non-statutory designations. 	<p>Scoped in:</p> <ul style="list-style-type: none"> ● SPA; ● Priority habitats; ● Overwintering birds; ● Reptiles; and ● Nesting birds. <p>Scoped out:</p> <ul style="list-style-type: none"> ● All other receptors.

* Subject to the results of the intertidal walkover and feedback from marine specialists (notably their assessment of the importance of the mussel beds and any invertebrate communities present).

** Subject to the results of the survey work, status of roost and mitigation requirements. It is anticipated that, in the event a bat roost is present, mitigation or compensation could be provided under licence under Scheme design.

For potentially significant effects, mitigation and enhancement will be included within the ES chapter and Habitat Regulations Assessment (HRA) but broadly will include supervision by a specialist Ecological Clerk of Works (ECoW) to mitigate for disturbance to overwintering birds, protection of habitats (where possible), replacement of bat roosts (if present) and safeguard measures or compensatory habitat creation for invertebrates.

Enhancement measures will be outlined in line with those set out in the PEAR (Appendix D) and broadly include:

- Rocky Shore Habitat Creation – with a focus to support and enhance coastal biodiversity (by increasing environmental heterogeneity and creating more possible ecological niches), promoting local biodiversity and valuable ecosystem support services for birds, anglers and more. Proposed enhancements include:
 - Creation of artificial rock pool areas at locations identified as being of optimum value*;

- Creation of enhanced rock revetment areas (primarily areas of more complex rock) to encourage colonisation;
- Enhancement of existing outfall/groyne areas through adding complexity;
- Creation of 'vertipool' features to retain water on vertical surfaces at lower tidal states, including some in accessible areas for educational purposes;
- Marine art features;
- Enhancement of fishing platform piles to provide additional possibilities for colonisation;
- Initiatives to reduce plastic usage – the potential for a single plastic free beach zone is being considered;
- Wildflower Grassland – (Subject to Network Rail Approval) Enhancement of existing landscaped areas and the adjacent railway embankment through planting and the sowing of wildflower mixes**, to include:
 - Scrapes along the railway embankment sown with a coastal grassland species mix to increase diversity; and
 - Wildflower meadow mix along amenity road verges to be attractive as well as ecologically beneficial for pollinators;
- Landscaping Planting - New or existing landscape planting to incorporate native species or species of wildlife value (i.e. fruit bearing shrubs and trees);
- Habitat management - retained and newly created habitats to be subject to an ecologically sympathetic management regime; including rotational or low-intensity cutting to encourage fruits and flowers; re-use of arisings for habitat piles; and avoiding use of herbicides;
- Bat and bird boxes - bat boxes integrated into, or installed on, any buildings and trees to provide enhanced roosting and nesting opportunities within the site in appropriate locations; and
- Insect boxes - insect boxes installed in retained or enhanced landscaping areas to provide enhanced nesting opportunities for invertebrates.

* Careful placement to consider water depth and risk of sediment smothering would be required.

** This may require initial management to reduce the nutrient load in the soil

10.7 Additional Information Required

The following ecological surveys will be required to inform the assessment and mitigation in the biodiversity ES chapter:

- Emergence / re-entry surveys of the shelter and toilet block to ascertain presence / likely absence of roosting bats;
- Walkover survey for badgers and other mammals 8 weeks prior to construction; and
- Terrestrial and intertidal habitat survey to assess existing condition of the habitats for CEEQUAL assessment (rescheduled due to Covid-19 restrictions).

Based on the ecological baseline, it is anticipated that the following reports will be produced in order to inform biodiversity ES chapter:

- Report to Inform a HRA Screening and Appropriate Assessment;
- Marine Licence Application;
- Construction Environmental Management Plan (CEMP); and potentially
- Landscape and Ecology Management and Monitoring Plan (if determined necessary in support of CEEQUAL).

10.8 Proposed Methodology

The proposed EIA methodology for the assessment of Biodiversity effects can be found in Appendix C.2.

11 Climate

11.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on climate.

Climate Change impacts are considered with a focus on greenhouse gas (GHG) emissions arising from the Scheme, as these contribute to climate change, covered under effects on climate. During the construction phase, embodied carbon emissions from the use of construction materials are considered to be the main contributor to climate change, with additional greenhouse gas emissions arising from the use of plant and transport of materials.

The resilience of the Scheme to climate change is also considered as part of this chapter. The Scheme design would take into account climate change including predicted sea level increases when considering the design of the coastal defences and promenade height.

A CEEQUAL assessment is proposed to be completed for the Scheme.

11.2 Study Area

The study area for the Climate Change Risk Assessment (CCRA) would include all areas of permanent land take and would consider all elements of the Scheme design.

Impacts of climate change on the construction phase are scoped out of this assessment due to the relatively short timescales of the construction phase. The focus of the assessment would be on the resilience of the operational infrastructure to climate change.

The climate change risk assessment would consider the 2070s (2060-2079) as the timeline for analysis. This choice is informed by the long lifespan of the key structures within the Scheme, with the revetment having a lifespan of 50 years. The UK Climate Projections²⁸ are used to set the future baseline, and the furthest projections available are for the 2080s time period. Where structures have a shorter lifespan (e.g. street lighting) this would be taken into account in the assessment.

11.3 Baseline Conditions

11.3.1 Effects on Climate Change

The UK construction industry is the largest consumer of natural resources and this accounts for approximately 10% of the total UK carbon emissions²⁹. Therefore, approximately 36.6 million tonnes of CO₂ are attributed to the embodied carbon of construction materials.

No operational baseline has been provided due to the insignificant operational emissions expected with the Scheme. However, due to the 50-year life-time of the current design with the potential for the scheme to be altered to cope with increasing sea level change the

²⁸ Met Office, 2019 <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/high-res-projections>, accessed March 2020.

²⁹ Institute of Civil Engineers (ICE) (2014): Energy Briefing Sheet: Embodied Energy and Carbon [online] available at: https://www.ice.org.uk/ICEDevelopmentWebPortal/media/Documents/Disciplines%20and%20Resources/Briefing%20Sheet/Embodied_Energy_and_Carbon.pdf, accessed March 2020.

maintenance and repair of the scheme will be assessed contributing to the natural materials baseline stated above

11.3.2 Resilience of the Scheme to Climate Change

The Met Office holds historical regional climate information, in which Colwyn Bay is included in the Wales region³⁰. High-level climate observations for the Wales region over a 30-year averaging period between 1981-2010 are available (see Table 10). The climate variables used to describe current and future climate are temperature, precipitation and wind. These climate variables can also lead to changes in extreme climate events (for example, floods, droughts, soil moisture deficit, heatwaves, snow and ice). The information obtained on changes in the climate variables would be used to provide insight into future changes in extreme climate events.

Table 10 Climate Baseline Observations

Weather variables	Climate Observations
Temperature	Mean daily minimum temperatures in Wales can range from 0°C to 3°C in winter, with January being the coldest month, and in summer daily maximum temperatures are in the region of 18°C, with the hottest days being observed in July.
Heatwaves	Extreme maximum temperatures can occur in July or August. A temperature of 35.2°C was recorded in Hawarden Bridge, Flintshire on 2 nd August 1990. When a hot airstream arrives from the east, maxima along the coasts can equal those inland, an example being the 31.8°C achieved at Aberporth, Ceredigion on 2 nd August 1995.
Rainfall	Throughout Wales, the months from October to January are significantly wetter than those between February and September, unlike places in eastern England where July and August are one the wettest months of the year. This seasonal pattern is a reflection of the high frequency of winter Atlantic depressions and the relatively low frequency of summer thunderstorms. The number of days with a rainfall total of 1 mm or more ('wet days') tends to follow a pattern similar to the monthly rainfall totals. In the higher parts, over 50 days is the norm in winter (December-February) and over 35 days in summer (June-August).
Wind	Wales is one of the windier parts of the UK, with the windiest areas being over the highest ground and along the coasts, particularly those facing directions between north-west and south. Coastal areas average 15 days or more of gale each year with the number of days decreasing inland to 5 days or fewer. Wind gusts are the highest in November – February with the ability to reach 80 knots.

Source: Met Office³⁰

11.3.3 Future Baseline

11.3.3.1 Effects on Climate Change

The 2018 projections show that the third carbon budget (2018 to 2022) is very likely to be achieved with a central margin of 88 MtCO_{2e}. However, For the fourth carbon budget (2023 to 2027), the UK's emissions are currently projected to be greater than the cap set by the budget. Significant effort is required to ensure that all contributing emissions are reduced as far as possible through the design, construction and operation of the Scheme.

11.3.4 Resilience of the Scheme to Climate Change

The UK Climate Projections developed by the Met Office Hadley Centre include regional climate projection data, for which Colwyn Bay is included Wales. Wales is projected (under a range of emissions scenarios modelled in UKCP18) to experience hotter and drier

³⁰ The Met Office (2016) Wales: Climate available at: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/wales-climate---met-office.pdf>, accessed March 2020.

summers, and warmer and wetter winters (See Table 11). Key to the design of this scheme is the projected sea level rise.

For the EIA, climate projections data for the 2070s (2060-2079) under RCP 8.5³¹ (the highest scenario available in UKCP18) have been selected.

Projected changes in key climate variables and sea levels under the RCP 8.5 emissions scenario, are summarised in Table 11 and Source: UKCP18 Climate Projections

Table 12.

Table 11 Future Climate Projections Over Land for the 2070s (RCP 8.5 scenario)

Climatic Conditions	Climate Projections
Temperature	The average summer temperature is projected to increase by 3.2°C under the central estimate, which represents “as likely as not” probability of change (50th percentile), and average winter temperature is estimated to increase by 2.4°C (50th percentile).
Rainfall	The average summer rainfall rate is estimated to decrease by 29%, whereas the average winter rainfall rate is estimated to increase by 16% (in the 50th percentile for both)
Sea Level Rise	Sea level rise is expected to increase to 0.3-0.64 m in 2070 for Cardiff (in the 95th percentile). The future impact of sea level rise would be included as part of the Flood Risk Assessment (FRA) carried out for the Scheme.
Wind	Climate projections for wind are more uncertain than those for temperature and precipitation, due to inherent difficulty in modelling future wind conditions. However, overall an increase in extreme weather, including wind, is projected.

Source: UKCP18 Climate Projections³²

Table 12 Future Climate Projections – Project Sea Level Rise by 2070 (RCP 8.5 Scenario)

Climatic Conditions	Climate Projections
Sea Level Rise	Sea level rise is expected to increase 0.59m in 2070 for Cardiff (in the 95th percentile). The future impact of sea level rise would be included as part of the Flood Risk Assessment (FRA) carried out for the Scheme.

Source: UKCP18 Climate Projections³³

11.4 Assumptions and Limitations

- Emissions associated with the end of the life stage (lifecycle stages C1-4), decommissioning, shall not be considered given the uncertainty of the length of operation of the Scheme;
- There would be assumptions made in estimating the GHG emissions from the construction and operation of the Scheme. Calculating GHG emissions is reliant on selection of appropriate emissions factors (the quantity of emissions per unit of activity), and where specific emissions factors are unavailable (for example the exact specified material is unknown at the design stage, or vehicle types are being forecast) then average factors would be used;

³¹ RCP: Representative Concentration Pathways. RCPs are the new scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) and used by the UKCP18 climate projections. RCPs are based on the projected concentration of greenhouse gases in the atmosphere in 2100, e.g. RCP 8.5 is a radiative forcing of 8.5 in 2100. These replace the previous Low, Medium and High scenarios. There are 4 RCPs in UKCP18 (2.6, 4.5, 6.0 and 8.5). These do not directly map onto the Low, Medium, High scenarios used previously.

³² Met Office (2018): UKCP18 Climate Projections: Key results [online] available at: <https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Key-results.xlsx> (last accessed June 2019)

³³ Met Office (2018): UKCP18 Climate Projections: Key results [online] available at: <https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/UKCP18-Key-results.xlsx> (last accessed June 2019)

- Information on the climate baseline and future projections are based on freely available information from third parties, including the historical meteorological variables recorded by the Met Office and the UK Climate Projections (UKCP18) developed by the Met Office. In addition, the assessment has been informed by a selected range of existing climate change research and literature, available at the time of writing this assessment; and
- Generally global projections are more certain than regional, and temperature projections more certain than those for precipitation. Further, the degree of uncertainty associated with all climate change projections increases for projections further into the future.

11.5 Key Guidance and Best Practice

Key legislation, policy and guidance regarding GHG emissions includes:

- Climate Change Act, 2008 (2019 amendment sets a NetZero target by 2050 compared to 1990 baseline);
- The Environment (Wales) Act, 2016 (requires net 2050 emissions are at least 80% lower than baseline set in legislation);
- Conwy Local Development Plan, 2007 - 2022 (especially Policy DP/1 – Sustainable Development Principles);
- Prosperity for All: A Low Carbon Wales (2019);
- The Carbon Plan, 2011 (the plan sets out how the UK will achieve decarbonisation within the framework of the energy policy);
- Infrastructure Carbon Review, 2013 (sets out carbon reduction actions required by infrastructure organisations); and
- Publicly Available Specification 2080:2016 (sets out a common approach and understanding of whole life carbon management in the provision of economic infrastructure as a result of the Infrastructure Carbon Review).

11.6 Potential Effects

The potential effects of the Scheme are as detailed in Table 13. A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

Table 13 Potential Effects

Effects	Construction	Operation
Effects on Climate Change		
Potential Non Significant Effects	Transport emissions from site workers commuting to site.	Operational emissions from any lighting required along the Scheme.
Potential Significant Effects	Embodied carbon emissions from the use of construction materials, plant and transport.	Embodied carbon of maintenance, and repair.
Scoped In/Out	Scoped In	Scoped In
Resilience of the Scheme to Climate Change		
Potential Non Significant Effects	Delays to construction programme and damage to construction materials if an extreme weather event occurs during the short construction period.	Promenade flooding due to large waves overtopping the revetment. Melting or deformation to pavement surfacing due to increased temperatures.
Potential Significant Effects	N/A	N/A
Scoped In/Out	Scoped Out	Scoped Out

The assessment for the Scheme's effect on climate change would consider the GHG emissions potential throughout the lifecycle of the Scheme for both construction and operation.

For the resilience of the Scheme to climate change, construction has been scoped out due to the short-term construction period in relation to climate change. The Scheme design has already taken into account climate change including predicted sea level increases when considering the design of the coastal defences and promenade height. The potential significant effects have already been assessed and mitigation incorporated into the design and therefore, operational effects have now been scoped out of the assessment.

In line with the Welsh Government's carbon reduction plan, throughout the design the Scheme shall seek to reduce GHG emissions as far as practicable in all cases to contribute to the UK's net reduction in carbon emissions and maximise the potential for reducing GHG emissions. The following high-level options shall be applied and developed when seeking to reduce GHG emissions on projects as stipulated within PAS 2080:

- Build nothing: they shall evaluate the basic need for an asset and/or programme of works and shall explore alternative approaches to achieve outcomes set by the asset owner/manager;
- Build less: they shall evaluate the potential for re-using and/or refurbishing existing assets to reduce the extent of new construction required;
- Build clever: they shall 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; or
- Build efficiently: they shall use techniques (e.g. construction, operational) that reduce resource consumption during the construction and operation phases of an asset or programme of work.

Where this carbon emissions reduction hierarchy is not applied the value chain member would provide documented justification for not doing so. These principals would be used during the Design for Resource Efficiency (D4RE) workshops run throughout the Scheme design to further value engineer and mitigate the effect on climate where possible.

The potential effects arising from future climate risk have been considered during the design, and the design has taken these into account, for example the projected sea-level rise has been taken into account in the design of the scheme. Sea-level rise for the 50-year lifespan of the project has been mitigated against in the design. Additionally, the design would enable additional resilience to sea-level rise beyond the 50 years.

11.6.1 Construction

A CEMP would be prepared by the appointed Contractor and implemented during the construction period. The CEMP would ensure that the construction of the Scheme allows for adaptation to impacts of changes in climate, such as ensuring construction materials are covered when stored and pro-active planning to minimise adverse effects.

The reduction of raw material usage, recycling, the use of local suppliers and ensuring vehicle engines and plant motors are switched off when not in use would limit emissions.

11.6.2 Operation

Combined effects would be reduced as far as possible through the implementation of best practice mitigation which would be identified following the assessment to be included within the ES.

During operation, additional visitors arriving by motorised vehicles may result in additional CO₂ emissions, however the active travel improvements proposed would encourage the use of non-motorised travel methods.

11.7 Additional Information Required

In order to complete the ES the following supplementary/supporting information is required for this discipline:

- CEMP; and
- SWMP.

11.8 Proposed Methodology

The proposed EIA methodology for the assessment of Climate effects can be found in Appendix C.3.

12 Coastal Processes

12.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on coastal processes.

The evolution and development of a shoreline is linked to the interaction between the natural processes applying both offshore and, more significantly, inshore and the geological/geomorphological form and profile of natural shoreline features and the form/profile of artificial coastal defence structures.

Once operational, the Scheme would provide additional coastal protection for a section of the waterfront which currently experiences frequent storm damage and that has been identified as being at risk of significant damage in the short term³⁴. The Scheme has been designed to operate in conjunction with existing coastal processes.

Assessment of coastal and sedimentary processes would include:

- Direct effects on hydrodynamics and sediment dynamics;
- Indirect effects of these on other environmental aspects; and
- Effects upon coastal water quality.

Planning permissions would be sought from CCBC and a Marine Licence application would be made to NRW with consultation completed where necessary.

12.1.1 Reference Reports

The following relevant reporting/ assessments have been undertaken to date:

- Detailed Modelling Studies for Colwyn Bay Coastal Defence Scheme: Physical Model Tests of Linear Defences (2010)³⁵
- Colwyn Bay Detailed Modelling Study for Coast Defence Scheme, Phase 1 Interim Modelling Technical Note (2010)³⁶;
- Colwyn Bay Physical Model, Coastal Defence Schemes Modelling Report (2017)³⁷ (covers area west of site); and
- Colwyn Bay Old Promenade Wave Overtopping Assessment (2020)³⁸

12.2 Study Area

The study area for the coastal processes assessment is based on the area which the Scheme could be reasonably expected to have an effect.

For this scheme this is anticipated to be the shoreline between Rhos Point to the west and Tan Penmaen Head to the east.

³⁴ CCBC 'Colwyn Bay Waterfront Project Phase 3 – Phasing Review' (2019)

³⁵ Royal Haskoning, 'Detailed Modelling Studies for Colwyn Bay Coastal Defence Scheme: Physical Model Tests of Linear Defences' (2010)

³⁶ Royal Haskoning, 'Colwyn Bay Detailed Modelling Study for Coast Defence Scheme: Phase 1 Interim Modelling Technical Note' (2010)

³⁷ HR Wallingford, 'Colwyn Bay Physical Model, Coastal Defence Schemes Modelling Report' (2017)

³⁸ Mott MacDonald, 'Colwyn Bay Old Promenade Wave Overtopping Assessment' (2020)

The water quality assessment would consider the marine waters of Colwyn Bay.

12.3 Baseline Conditions

Previous work has been carried out on behalf of CCBC to ascertain baseline conditions for the frontage. This has included the development of a coastal strategy and project appraisal report (draft)³⁹.

During Phases 1a/b/c and 2a of the Colwyn Bay Waterfront Project, baseline conditions have then been used to develop both numerical and physical models for the area in order to gain a thorough understanding of the hydrodynamics⁴⁰, and the potential effect of any reconfiguration of beach control and coastal protection structures. Information from these studies has been used to inform the detail design.

12.3.1 Hydrodynamics

12.3.1.1 Tides and tidal currents

The tidal range along this section of the frontage has an important influence on coastal processes. The spring tidal range is up to 7.1m and a neap tidal range of 3.8m.

Tidal currents in Liverpool Bay are generally in an easterly direction on the flood tide and westerly on the ebb tide with a residual net current from west to east. At Colwyn Bay the tidal streams are generally in a west to east direction which dictates sediment transport. The tidal currents, together with the agitation of wave action are sufficiently high to induce shear stresses which exceed the critical shear stress for initiating the movement of sand on the seabed⁴¹.

12.3.1.2 Wave climate

The wave conditions at Colwyn Bay are generally generated by local wind or as a result of longer period swell waves that have propagated into the Irish Sea from the Atlantic Ocean via the St Georges Channel and Cardigan Bay to the south, or the channel between Scotland and Northern Ireland to the north.

12.3.2 Geology and Geomorphology

The backshore of the area is bound by cliffs comprising glacial sands and gravels. The superficial geology includes glacial sands and gravels and boulder clays overlying the Elwy Formation.

12.3.3 Sediment Processes

The net littoral drift along the frontage is in a west to east direction with sediment transport around Rhos Point limited to fine sand and silt-sized material offshore. Inshore the beaches in Penrhyn Bay have largely been denuded of fine material and the protrusion of Rhos Point limits the transport of material around the headland.

The majority of alongshore sediment transport within Colwyn Bay is thought to take place on the lower foreshore. Observations and monitoring suggest material between low and high water is moved on/offshore by wave activity and interaction with the defences.

³⁹ CEUK (2008) – CEUK, Colwyn Bay Proposed Coastal Defence Improvements Preliminary Project Appraisal Report. (2008)

⁴⁰ Royal Haskoning, 'Colwyn Bay Detailed Modelling'.

⁴¹ CEUK (2006) – CEUK Colwyn Bay Coastal Defence Strategy Plan, Natural Processes and Coastal Defence Baseline Report (2006)

12.3.4 Hydrological Setting

12.3.4.1 Catchment Description

The hydrological catchment surrounding Old Colwyn is primarily urban, namely the town of Colwyn Bay. The upper reaches of the catchment are predominantly agricultural, in particular grazing land and forestry, with isolated dwellings. The Nant y Fynnon and Nant-y-Groes streams drain from the upper catchment, picking up surface water outfalls in Colwyn Bay, before discharging directly onto the beach.

12.3.4.2 Surface Water Bodies

The adjacent marine waters are part of the North Wales Coastal Waterbody (Western Wales River Basin District) Water Framework Directive (WFD) Waterbody ID GB641011650000⁴². Its current overall status is Moderate (ecological: Moderate and chemical: Fail).

According to NRW, blooms of the algae *Phaeocystis* do occur along this coastline during warm and calm weather in May and June. This typically produces a cream or brown coloured scum along the water's edge, but is otherwise harmless⁴³.

12.3.4.3 Surface Watercourses

There are three fluvial watercourses in the vicinity of the site:

- The Nant-y-Groes (classified as a Main River by NRW flood mapping⁴⁴) is present to the immediate west of the Scheme area, discharging to the beach via a culvert that passes beneath Porth Eirias at approximate NGR 285760, 378946. The Nant y Groes is classified as a Main River by NRW flood mapping;
- A small Ordinary Watercourse is culverted and is understood to discharge to the beach at approximate NGR 285877, 378888 within the Scheme area to the east of Porth Eirias. The culvert flows beneath a sports centre and recreational ground before discharging to the beach; and
- The Nant-y-Fynnon (classified as a Main River by NRW flood mapping⁴⁴) passes through Old Colwyn, flowing in an artificial channel down Beach Road and beneath the A55 Expressway before being culverted beneath the NWC Railway Line and outfalling directly onto the beach at Splashpoint at approximate NGR 287008, 378709.

12.3.4.4 Bathing Water Quality

There are two Bathing Water Quality monitoring points in the wider Colwyn Bay area – to the west of Porth Eirias (approximate NGR 285566, 379291) and further west at Rhos-on-Sea, although there is no specific monitoring point within the Scheme area.

In 2019 the results of sampling and analysis of water quality at Porth Eirias (along with the sampling point at Rhos on Sea) against the revised Bathing Water Directive by NRW resulted in an Excellent classification⁴³. Water quality at designated bathing water sites in Wales is assessed by NRW from May to September including testing the numbers of Intestinal enterococci and *Escherichia coli* present.

⁴² Water Watch Wales website: <https://waterwatchwales.naturalresourceswales.gov.uk/en/>, accessed March 2020

⁴³ NRW Bathing Water data: <https://environment.data.gov.uk/wales/bathing-waters/profiles/profile.html?site=uk11301-40425>, accessed March 2020

⁴⁴ NRW Flood Risk Mapping: <https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk/?lang=en>, accessed March 2020.

Streams are typically affected by sewage or industrial run off from further up the catchment. The Nant-y-Ffynnon and Nant-y-Groes both drain directly onto the bathing beach. Reduced water quality may persist in the rivers for some time after rainfall has occurred. There is also the potential for reduced water quality in the adjacent area where the rivers enter the sea.

According to NRW “*there are no sewage treatment works that discharge directly into Colwyn Bay bathing waters. A major improvement scheme was completed by Dŵr Cymru Welsh Water for Conwy, Deganwy, Llandudno and Colwyn Bay in 1999. The sewage from the immediate catchment of the Llandudno, Conwy, Deganwy and Colwyn Bay areas is now pumped to the Ganol Wastewater Treatment Works, at Llandudno Junction*”⁴³.

Within the catchment there are a number of storm and surface water outfalls, that discharge to the rivers and streams. After periods of rainfall these discharges could have an adverse effect on bathing water quality.

12.3.4.5 Drainage

In general, current surface water runoff from the Promenade and highway area drains directly to the foreshore and into the sea.

12.4 Assumptions and Limitations

The impacts of coastal processes along this frontage have been reviewed using modelling from the previous schemes.

A CEMP would be prepared by the appointed Contractor and implemented during the construction period. The CEMP would ensure that reasonable and practical steps are implemented to prevent the pollution of the coastal environment and protect local water quality.

12.5 Key Guidance and Best Practice

The following have specific relevance to the coastal processes impact of the Scheme:

- TAN14 (Coastal Planning): This policy provides guidance on protection of the coastal zone from inappropriate development. Consideration is given to visual amenity, physical processes and ground conditions; sensitivity and conservation of designated marine and coastal sites; the requirement for remedial works and defence works; and recreational resource development;
- The Conwy Local Development Plan 2007-2022, Adopted October 2013:
 - Specifically Policy NTE/5 The Coastal Zone; and
- The North West England and North Wales Shoreline Management Plan (SMP22, sub-cell 11a) August 2016, within which the policy for the frontage is to Hold the Line: “*This policy includes those situations where work is carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. It also includes work behind existing defences (such as building secondary flood defences) where this work would form an essential part of maintaining the current coastal defence system*”⁴⁵.

⁴⁵ Halcrow, ‘North West England and North Wales Shoreline Management Plan 2’ (2011).

12.6 Potential Effects

The potential effects the Scheme could have on both the direct impacts to hydrodynamics, sediment dynamics and coastal water quality and indirect impacts of these on other environmental aspects are presented in Table 14.

Table 14 Potential Effects

Effects	Construction	Operation
Potential Insignificant Effects	<p>There is potential for local marine water quality to be adversely affected during construction due to the disturbance and mobilisation of sediment during excavations and potential pollutions associated with construction activities. However construction effects would be managed through the production and implementation of the CEMP and would be temporary in nature. In addition, revetment works would need to be completed at low tide (above the water line) which would minimise effects associated with sediment mobilisation and the creation of suspended solids.</p> <p>During construction, contamination risks to surface waters from, for example, spillages, accidents and direct runoff would be managed through the CEMP.</p> <p>There is potential for pollutants to be introduced in the revetment construction materials being placed at the site.</p>	<p>In the longer term, there is potential for coastal processes such as longshore drift to be impacted, although providing full consideration is given to coastal processes during design and all mitigation methods are adhered to, the long-term impacts on the natural environment of the bay should be minimal.</p>
Potential Significant Effects	None	<p>The Scheme strongly complies with policy objectives to improve sea defences as it would prevent frequent tidal flooding, beach erosion and storm damage to assets along the waterfront.</p>
Scoped In/Out	Scoped Out	Scoped In

It is anticipated that coastal processes would require ‘scoping in’ to the ES for Scheme operation only. However, a confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

A thorough review of findings of the previous modelling work⁴⁶ would be undertaken as part of the EIA process, considering the potential receptors that may be subject to change.

The construction methodology and CEMP should seek to minimise the suspension of sediment in the water column. During construction, there may need for monitoring of any sediments being re-suspended in the water column.

Particular consideration would be given in the CEMP to effects on water quality during the Bathing Season (May-September).

12.7 Additional Information Required

The following studies are anticipated to be required:

- Existing modelling review – determine if the identified baseline from previous modelling studies is affected by recently built coastal defence schemes;

⁴⁶ Royal Haskoning, ‘Colwyn Bay Detailed Modelling Study for Coast Defence Scheme: Phase 1 Interim Modelling Technical Note’ (2010)

- Coastal processes impacts – As a result of the Scheme; outline the prediction of the impacts on the baseline conditions, cumulative impacts, proposed mitigation and residual impacts post mitigation; and
- Marine Licence application.

12.8 Proposed Methodology

The proposed EIA methodology for the assessment of Coastal Processes effects can be found in Appendix C.4.

13 Flood Risk

13.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on flood risk.

The promenade is currently at risk of flooding with frequent overtopping events occurring at Spring Tides, especially if onshore west to north-west winds occur concurrently. Following construction, the presence of the revetment would reduce wave energy and hence damage of the sea wall, promenade and other adjacent infrastructure during future storm events.

Overtopping events would also be reduced in frequency and severity due to the revetment and raised promenade level. The operational effects of the Scheme are therefore considered to be beneficial.

13.1.1 Reference Reports

The following relevant reporting/ assessments have been undertaken to date:

- Detailed Modelling Studies for Colwyn Bay Coastal Defence Scheme: Physical Model Tests of Linear Defences (2010)⁴⁷
- Colwyn Bay Detailed Modelling Study for Coast Defence Scheme, Phase 1 Interim Modelling Technical Note (2010)⁴⁸;
- Colwyn Bay Physical Model, Coastal Defence Schemes Modelling Report (2017)⁴⁹; and
- Colwyn Bay Old Promenade Wave Overtopping Assessment (2020)⁵⁰

13.2 Study Area

The study area for the flood risk assessment is based on the area which the Scheme could be reasonably expected to have an effect. This is currently considered to be the promenade, adjacent road and London-Holyhead Railway embankment to the immediate south which are currently impacted by overtopping from the sea.

13.3 Baseline Conditions

13.3.1 Coastal Flood Risk

Tidal water levels are recorded to the west of the proposed site, with a typical tidal range of approximately 5m. The spring tidal range is up to 7.1m and a neap tidal range of 3.8m. The highest astronomical tide level recorded is 4.74mAOD.

The wave conditions at Colwyn Bay are generally generated by local wind or as a result of longer period swell waves that have propagated into the Irish Sea from the Atlantic Ocean via the St Georges Channel and Cardigan Bay to the south, or the channel between Scotland and Northern Ireland to the north.

⁴⁷ Royal Haskoning, 'Detailed Modelling Studies for Colwyn Bay Coastal Defence Scheme: Physical Model Tests of Linear Defences' (2010)

⁴⁸ Royal Haskoning, 'Colwyn Bay Detailed Modelling Study for Coast Defence Scheme: Phase 1 Interim Modelling Technical Note' (2010)

⁴⁹ HR Wallingford, 'Colwyn Bay Physical Model, Coastal Defence Schemes Modelling Report' (2017)

⁵⁰ Mott MacDonald, 'Colwyn Bay Old Promenade Wave Overtopping Assessment' (2020)

The area of interest lies within or close to 'TAN15: Development Advice Maps' Zone C2; this is described as an area "without significant flood defence infrastructure" (shown in Figure 2). This zone is based on NRW's extreme flood outline, which is greater than or equal to a 0.1% Annual Exceedance Probability (AEP) event. However, there are known overtopping risks on the promenade occurring during spring tides. There is no formal record of road closures of the promenade highway from Rotary Way to Beach Road. However, it has been noticed that the number of closures has increased in recent years. The promenade is routinely closed whenever spring tides coincide with forecast north or northwest winds.

In the past, overtopping has caused the surfacing of the promenade to become severely damaged, the handrails failed, sections of the seawalls have suffered from risk of undermining / voids to rear of the promenade, and the rear wall along the toe of the NWC Railway Line embankment has been damaged. These are repaired by the Client on a reactionary basis.

The baseline overtopping risk have been quantified in Colwyn Bay Old Promenade Wave Overtopping Assessment⁵¹. Under the baseline the following interpretations were made:

- Extremely high wave discharge volumes are predicted (both average and peak);
- Promenade frequently flooded at two profiles for present day;
- Overtopping volumes exceeds defined overtopping limits;
- The promenade is unsafe for the public for all extreme events; and
- Severe damage to the promenade, the highway and the highway equipment is predicted.

Figure 2: Colwyn Bay Development Advice Map



Source: Welsh Government Development Advice Maps, 2020

⁵¹ Mott MacDonald, "Colwyn Bay Old Promenade Wave Overtopping Assessment" (2020)

13.3.2 Fluvial Flood Risk

There are three fluvial watercourses in the vicinity of the site;

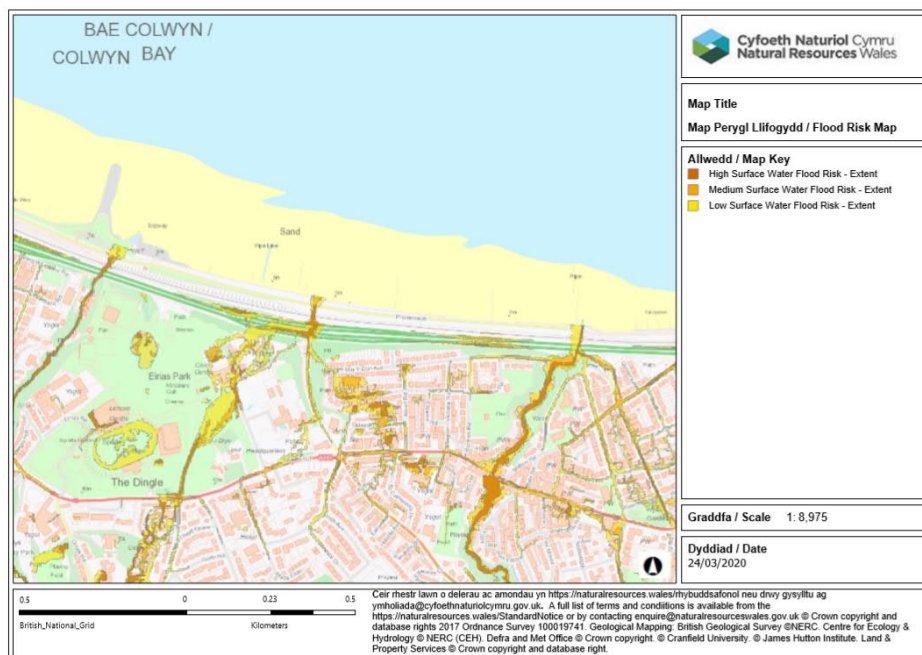
- The Nant-y-Groes (classified as a Main River by NRW flood mapping⁴⁴) is present to the immediate west of the Scheme area, discharging to the beach via a culvert that passes beneath Porth Eirias at approximate NGR 285760, 378946. The Nant y Groes is classified as a Main River by NRW flood mapping;
- A small Ordinary Watercourse is culverted and is understood to discharge to the beach at approximate NGR 285877, 378888 within the Scheme area to the east of Porth Eirias. The culvert flows beneath a sports centre and recreational ground before discharging to the beach; and
- The Nant-y-Fynnon (classified as a Main River by NRW flood mapping⁴⁴) passes through Old Colwyn, flowing in an artificial channel down Beach Road and beneath the A55 Expressway before being culverted beneath the NWC Railway Line to outfall directly onto the beach at Splashpoint at approximate NGR 287008, 378709.

The Nant-y-Groes and Nant-y-Fynnon rivers are classified as ‘main rivers’. None of these fluvial watercourses would pose a flood risk to the Scheme or construction (shown in Figure 2). This scheme focuses on the impact of overtopping on the frontage. The scheme is not considered to have an impact on the fluvial flood risk, as where rivers currently outfall onto the beach this will be maintained.

13.3.3 Surface Water Flood Risk

The Environment Agency’s ‘Risk of Flooding from Surface Water’ online maps shows that there is some surface water flood risk in the area of interest (shown in Figure 3 below). However, the majority of these surface water sources are culverted under the Promenade before discharging to the beach. In general, surface water runoff from the Promenade and highway area flows into outfalls and directly to the foreshore and into the sea.

Figure 3: Colwyn Bay Surface Water Flood Risk



Source: Natural Resources Wales 2020

13.4 Assumptions and Limitations

It is also assumed that the Contractor would develop and implement a robust flood management plan during the works.

13.5 Key Guidance and Best Practice

The following have specific relevance to the flood risk impact of the Scheme include:

- TAN15 (Development and Flood Risk), this TAN aims to prevent new development in areas of high flood risk and provides guidance on policy objectives for the management and reduction of flood risks;
- There is guidance in the EurOtop Manual^{52,53} on wave overtopping criteria for the safety of people and vehicles; and
- The North West England and North Wales Shoreline Management Plan (SMP22, sub-cell 11a) August 2016, within which the policy for the frontage is to Hold the Line: *“This policy includes those situations where work is carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. It also includes work behind existing defences (such as building secondary flood defences) where this work would form an essential part of maintaining the current coastal defence system”*⁴⁵.

13.6 Potential Effects

The impacts on flood risk during the construction of the Scheme are considered to be mostly negligible. The construction site, equipment and timing of construction activity would need to consider the risk of flooding from tidal and wave conditions as best practice.

Table 15 Potential Effects

Effects	Construction	Operation
Potential Insignificant Effects	Construction site and equipment could be at risk of getting inundated from overtopping. It is assumed the Contractor would have a flood risk management plan in place.	The Scheme would provide additional tidal flood protection for Colwyn Bay, however, there is still a residual risk and the Flood Management Plan would need to be reviewed and updated.
Potential Significant Effects	N/A	The installation of the new coastal defences strongly complies with policy objectives. Overall, the impact of the Scheme is considered to be significantly beneficial as it would provide additional tidal flood protection for Colwyn Bay.
Scoped In/Out	Scoped Out	Scoped In

It is anticipated that flood risk would require ‘scoping in’ to the ES for the operational phase only. However, a confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

13.7 Additional Information Required

The following studies are anticipated to be required:

⁵² EurOtop Second Edition 2018. Manual on wave overtopping of sea defences and related structures: An overtopping manual largely based on European research, but for worldwide application, December 2018.

⁵³ EurOtop Second Edition 2007. Manual on wave overtopping of sea defences and related structures, August 2007.

- Flood Management Plan – Defining the conditions requiring promenade/road closures during the operational phase; and
- Flood Consequence Assessment in accordance with TAN 15: Development and Flood Risk (if determined to be necessary).

13.8 Proposed Methodology

The proposed EIA methodology for the assessment of Flood Risk effects can be found in Appendix C.5.

14 Geology and Soils

14.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on geological sites, soil as a valuable resource, hydrogeology and considers effects from contaminated land on the Scheme.

Effects in relation to minerals resources and waste are considered within Chapter 15.1.

14.2 Reference Reports

- Old Colwyn Coastal Defence Geotechnical Desk Study (including Phase 1 contaminated land risk assessment), Report No. 415437-MMD-G-R-00-XX-1500, 24 January 2020. Mott MacDonald Ltd.

14.3 Study Area

The study area for the assessment of geology and soils encompasses the area over which the Scheme could be reasonably expected to have an effect, which generally only relates to the areas anticipated to be directly disturbed by the proposed physical works and ground disturbance.

However, when considering the potential for contaminated land, sensitive off-site receptors which may feasibly be affected by the uncontrolled migration of contaminants off-site also need to be considered. In this instance, given the segregation of the Scheme from neighbouring sensitive residential receptors by the NWC Railway Line and A55 Expressway, this is anticipated to comprise the marine waters of Colwyn Bay. Off-site current and historic sources of contamination within 100m of the Scheme boundary have also been considered.

14.4 Baseline Conditions

14.4.1 Geological Setting

14.4.1.1 Underlying Geology

According to British Geological Survey (BGS) mapping⁵⁴, bedrock geology across the Scheme comprises the Elwy Formation – Silurian mudstone, siltstone and sandstone. Superficial deposits comprise a combination of Devensian Till (diamicton) and Devensian Glaciofluvial Deposits along the Promenade and NWC Railway Line embankment, with Marine Beach Deposits present in the intertidal area.

14.4.1.2 Designated Sites of Geological Interest

There are no Geological Conservation Review Sites, Regionally Important Geological Sites (RIGS) or geologically designated Sites of Special Scientific Interest present within the study area⁵⁵.

⁵⁴ BGS Website: <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>, accessed March 2020

⁵⁵ Lle Geo portal for Wales website: <http://lle.gov.wales/home>, accessed March 2020

14.4.1.3 Mining

On historic mapping in 1900 an 'old gravel pit' is indicated to the immediate south of the NWC Railway Line in the western most area of the Scheme⁵⁶. There are no other formal records of any mining within, or in close proximity to, the Scheme area.

14.4.1.4 Hydrogeology

The underlying bedrock deposits are classed as a Secondary B Aquifer (predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering), while the Glaciofluvial Deposits are classed as undifferentiated Secondary Aquifers due to their variable nature⁵⁷.

Groundwater beneath the Scheme area is part of the Water Framework Directive (WFD) Conwy Groundwater Body (Waterbody ID GB41002G203000) which has overall Poor status (Quantitative: Good, Chemical: Poor)⁵⁸. Given the location on the coast there are no abstractions of groundwater.

The Scheme area is not considered to be sensitive from a groundwater perspective.

14.4.2 Soils

14.4.2.1 Site Soil Resources

There is no agricultural land and no topsoils/subsoils present within the main Scheme construction area. The NWC Railway Line embankment to the immediate south highlighted for biodiversity enhancement has sufficient soil cover to support vegetation.

14.4.2.2 Potential Contamination Risks

Land Use History

According to historic mapping⁵⁶, in 1875, the London and North Wales Railway Chester and Holyhead Branch Line was already present with the Scheme area land to the north beyond the railway embankment comprising undeveloped land above the level of ordinary high tides and the intertidal area beyond. To the south the land comprised open fields, woodland and isolated residential properties. The railway bridges were also present at the current locations of Splashpoint in the east along with the bridge at Eirias Park to the west and streams (now culverted) pass beneath both.

By 1900, the promenade had been constructed in the western half of the Scheme area and by 1913, the promenade has been extended to the current location of Splashpoint where the road turns southward beneath the railway. From this point on the Scheme area remained relatively unchanged. The area to the south of the railway became progressively more developed with residential, commercial and leisure related land uses.

In the mid-1980s the A55 Expressway opened to the south of the railway with Rotary Way passing beneath this and the railway to access the central Scheme area.

In 2014 the adjacent Port Eirias headland, control structure, beach recharge and promenade improvements were completed to the immediate west.

⁵⁶ Old Maps Website: <https://www.old-maps.co.uk>, Accessed March 2020

⁵⁷ Multi Agency Geographic Information for the Countryside website: <http://lle.gov.wales/home>, accessed March 2020

⁵⁸ Water Watch Wales website: <http://lle.gov.wales/home>, accessed March 2020

Contamination Potential

There are no current or historic potentially contaminative land uses present within the Scheme area. The only potentially contaminative land use in close proximity to the Scheme is the adjacent NWC Railway Line and A55 Expressway to the south. In addition, there is likely to be Made Ground present beneath the promenade from its construction.

In general, there is considered to be a very low potential for there to be contamination present beneath the Scheme.

There are no landfills present within or in close proximity to the study area.

14.5 Assumptions and Limitations

- The Scheme-specific Ground Investigation (GI) has not yet been completed, therefore the current understanding of the geology underlying the Scheme is from desk based studies;
- The effects of material import and export along with waste generation would be considered in Chapter 15.1;
- It has been assumed that there would be no loss of soils along the NWC Railway Line embankment; and
- It has been assumed that an outline CEMP would be developed as part of the ES which would be used to inform a full CEMP to be produced by the appointed contractor. This CEMP would be in place for the construction period and would include the reasonable and practical measures required to prevent the pollution of underlying soils/geology along with the erosion, deterioration and consolidation of adjacent soils along the NWC Railway Line embankment (if applicable).

14.6 Key Guidance and Best Practice

The key legislation and guidance used in determining whether geology and soils should be scoped in or out of the ES includes the following:

- The Wildlife and Countryside Act 1981 (as amended) and Countryside Rights of Way Act 2008 (For Geological Sites of Special Scientific Interest (SSSI));
- Planning Policy Wales, Edition 10 (December 2018), which specifically identifies the protection of soils as helping to meet the Well Being of Future Generations Act Goal 'A Resilient Wales';
- The Environmental Protection Act 1990 – contamination associated with land that is being redeveloped is managed through the planning system. Contaminated land must be considered in the context of the development proposals and remediated such that the land is suitable for its intended use. Once remediated, land should not be capable of being determined as “contaminated land” under the provisions of Part 2A of the Environmental Protection Act 1990;
- The Contaminated Land (Wales) Regulations 2006; and
- The most current framework for the assessment of potential land contamination – the Environment Agency Land Contamination Risk Management Guidance (December 2019)⁵⁹.

⁵⁹ UK Government website for land contamination assessment advice: <https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks>, accessed March 2020

14.7 Potential Effects

The potential effects of the Scheme on geology and soils are summarised within Table 16. The effects assume the application of best practice construction methods throughout the construction period. A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

Table 16 Potential Effects (Assuming Standard Mitigation)

Effects	Construction	Operation
Potential Non Significant Effects	<p>There are no geologically designated sites within the Scheme area. Effects in relation to the underlying geology are anticipated to be negligible given the proposals are predominantly concerned with raising levels rather than lowering them (with the exception of anticipation of minor localised excavations in relation to services).</p> <p>There are no agricultural soils within the Scheme area. While there are proposals to enhance the embankment ecologically, it is assumed that this would not include the removal of any topsoils or subsoils and with best practice applied during the construction period, effects are anticipated to be negligible.</p> <p>From the assessment of site history, the Scheme area does not include any potentially contaminative past land uses. Contaminated land is not anticipated to be encountered and therefore significant adverse effects associated with contaminated land are not anticipated.</p> <p>Effects on groundwater within this non-sensitive area are anticipated to be negligible.</p>	The completed and operational scheme is not expected to result in any impacts on geology or soils.
Potential Significant Effects	None	None
Scoped In/Out	Out	Out

The construction of the Scheme as well as its operation are not expected to result in any significant adverse effects on geology or soils, and this discipline is therefore be proposed to be scoped out of the Environmental Statement.

There are no opportunities for additional enhancement in relation to geology and soils for the Scheme given the nature of the development.

14.8 Additional Information Required

While Geology and Soils have been scoped out of the EIA process, the following has been identified as being necessary to manage non-significant effects:

- The GI for the Scheme would include the collection of samples for laboratory analysis to enable full determination of risks from contamination to human, environmental and structural / utilities receptors along with waste classification. A Contaminated Land Risk Assessment (CLRA) would be prepared for the Scheme on completion of the ground investigation prior to the commencement of construction. This would inform the conceptual site model, identify any unacceptable contamination risks and enable the selection of appropriate mitigation measures to ensure the protection of human and environmental receptors (including controlled waters) during construction. Any mitigation measures required would be incorporated into the CEMP on completion of the CLRA. Following the completion of the CLRA, a Remediation Strategy would be prepared if deemed necessary. If areas of contamination are identified, the Remediation Strategy would manage all identified risks and ensure that the Scheme does not result in the creation of additional contamination transport pathways. To mitigate risks associated with potentially contaminated materials the producer would ensure that all

material created on site undergoes basic characterisation prior to re-use / disposal and that it is managed in-line with best practice and the waste hierarchy.

15 Landscape and Visual

15.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on landscape character and visual amenity.

The landscape and visual impact assessment (LVIA) would address two separate but related issues:

- Effects on landscape as a resource in its own right; and
- Effects on people's views and visual amenity.

The assessment of landscape effects is also linked to the following environmental disciplines: historic environment, ecology, socio-economy, noise and traffic.

15.1.1 Reference Reports

- LVIA as part of the ES for the Phase 1a of the Colwyn Bay Waterfront Project, 2010;
- Landscape and Visual Amenity chapter as part of the Colwyn Bay Waterfront Project Phase 1b and 1c ES Addendum, 2013; and
- Landscape and Visual Amenity Appraisal as part of the Colwyn Bay Waterfront Project Phase 2a Environmental Reporting (area located to the west), 2015.

15.2 Study Area

In the absence of a Zone of Theoretical Visibility (ZTV) for the Scheme, the study area has been defined from a desk based study using online mapping and aerial imagery tools. The visual envelope is defined as an area 150m to the south of the red line boundary due to the raised landform of the A55 Expressway, and 1km north of the redline boundary. It extends approximately 2.8km to Rhos on Sea in the west and 1km to the Rainbow bridge over the A55 Expressway in the east.

The site consists of approximately 1.2km of linear area of shoreline and adjacent infrastructure in between Porth Eirias car park in the west, to Splashpoint in the east. It includes the easternmost section of the Promenade at Old Colwyn. The NWC Railway Line runs on a well vegetated embankment to the south of the site, beyond which lies the A55 Expressway. The embankment limits north-south connectivity, with limited crossing points over or under the NWC Railway Line and dual carriageway for motorised and non-motorised users. The embankment is a visual barrier to views from the seafront to Eirias Park, a 50 acre public park and leisure facility, and the residential areas of Colwyn Bay and Old Colwyn town which lie on elevated land to the south. The North Wales Coast Path long distance footpath and Sustrans North Wales Coast Cycle Route follow the coastline before heading inland at Beach Road.

To the north of the site boundary lies Colwyn Bay. As the coast curves to the west the headland of Rhos on Sea is visible to the west against the skyline.

15.3 Baseline Conditions

15.3.1 Landscape

15.3.1.1 National Character Areas Assessments

The study area lies within National Landscape Character Area 08 (NLCA08)⁶⁰: North Wales Coast. The key characteristics of relevance to the study area are:

- Seaside resort towns – urban development and arterial road and railway routes along the coast, constricted in places by topography and rising hills. Much 19th century development with more recent suburban development; and
- A generally man-made coastal edge – promenades, sea walls, groynes, rock armour and other forms of protecting the coastal edge run along the majority of the coastline.

15.3.1.2 Marine Character Areas

The study area lies within Marine Character Area 02 (MAC02)⁶¹ Colwyn Bay and Rhyl Flats. The key characteristics of relevance to the study area are:

- Constantly shifting sandbanks with changing depths; hazards marked by numerous buoys, lights and fog horns;
- Developed coastline with many seaside resort towns, notably Llandudno (and pier), Colwyn Bay (and former pier location), Rhyl and Prestatyn, the latter having many caravan and chalet parks on their fringe. The coast serves as a traditional holiday destination;
- Recreational activity includes water sports such as jet skiing and speed boating;
- North Wales Coast Path and a popular cycleway run the length of the coastline. Collectively the A55 Expressway, A548 and NWC Railway Line follow close to the coastline; and
- Both Colwyn Bay and Rhyl are popular shore and boat angling areas. Rhyl includes the main harbour along this stretch of coast.

15.3.1.3 Local Landscape Character

The waterfront is characterised by the long promenade and seascape views. Some stretches of the promenade have been re-configured as part of Phases 1 & 2 of the Colwyn Bay Waterfront Project.

The A55 Expressway and NWC Railway Line embankment forms a physical barrier between Colwyn Bay town centre and the waterfront.

There is a gentle rise in topography from the beach to the existing promenade and road level before meeting the base of the embankment. On the southern side of the embankment the topography rises steeply up a series of hills bordering the south of the town.

15.3.1.4 Landscape Designations

There are several designations within the vicinity to the Scheme or the local area which are of note. These are:

- Snowdonia National Park; approximately 8km west and south of the Scheme;

⁶⁰ Natural Resources Wales; 2015; <https://cdn.naturalresources.wales/media/682560/nlca08-north-wales-coast-description.pdf?mode=pad&rnd=131550577050000000>

⁶¹ Natural Resources Wales; 2015; <https://cdn.naturalresources.wales/media/674480/mca-02-colwyn-bay-and-rhyl-flats-final.pdf?mode=pad&rnd=131502219930000000>

- Much of the Creuddyn peninsula is designated as a Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI), and Heritage Coast;
- Areas within Colwyn Bay (predominantly town centre) and Rhos-on-Sea (village centre and sea front) are designated as Conservation Areas; and
- Listed Buildings within Colwyn Bay.

15.3.1.5 Landscape Quality

The quality of the existing landscape is mixed with the high quality of the setting undermined by a lowering beach and the quality of the public realm which is in decline both physically and visually.

15.3.2 Visual

Visual receptors potentially affected by the Scheme include:

- People in residential properties;
- Walkers and visitors using Public Rights of Way (PRoW), national trails and paths through a high-quality landscape;
- Visitors to local assets;
- People walking along footways in residential areas; and
- People travelling on rural roads.

The following visual receptors may experience views of the Scheme:

- Walkers along the beach, Promenade and the North Wales Coastal Path;
- Pedestrians crossing the A55 Expressway on Rainbow Bridge;
- Visitors to Porth Eirias;
- Cyclists along the Sustrans North Wales Coast Cycle Route;
- People in the sea;
- Transport users along the Promenade; and
- Residents along Rhos Promenade.

15.4 Assumptions and Limitations

- Future baseline and cumulative effects were not considered as part of this study;
- Consultation with stakeholders was not undertaken as part of this study to confirm the key sensitive landscape and visual receptors;
- Night-time visual effects were not considered as part of this study;
- No protected views were identified as part of this study;
- In the absence of ZTV modelling for the Scheme the visual baseline was established as part of a desktop study; and
- In the absence of details regarding the construction programme and construction logistics, it is assumed that construction traffic would access the Scheme using the existing roads (A55 Expressway and the Promenade) and a section of the Promenade and sea front would be closed to users during the construction period.

15.5 Key Guidance and Best Practice

The assessment would be carried out with due regard to the following:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA), 3rd Edition: (Landscape Institute and Institute of Environmental Management and Assessment, 2013);
- Natural Resources Wales; National Landscape Character Areas and Marine Character Areas;
- LVIA as part of the ES for the Phase 1a of the Colwyn Bay Waterfront Project, 2010;
- Landscape and Visual Amenity chapter as part of the Phase 1b and 1c ES Addendum, 2013; and
- Landscape and Visual Amenity Appraisal as part of the Environmental Reporting (non-EIA) from the Phase 2a area to the far west, 2015.

15.6 Potential Effects

The following have been considered in the determination of the potential landscape and visual amenity effects (as summarised in Table 17) associated with the Scheme:

- The likely nature, extent and scale of the Scheme to determine effects of change and development;
- The likely nature and scale of landscape effects (adverse, neutral or beneficial) during the construction and operation of the Scheme;
- The likelihood of the Scheme to affect aesthetic and perceptual aspects of the landscape, its distinctive character and its elements; and
- Issues likely to require further assessment together with the methods to be applied

15.6.1 Construction

The most apparent change to the character of the landscape and the visual amenity of walkers, drivers and residents would result from the presence of construction plant and compounds during construction of the new revetments, headland structures and Promenade. The effects, however, would be temporary and would last for the duration of the construction period only.

The potential impacts on landscape character and visual amenity during construction would include:

- Presence of construction traffic, construction plant and equipment;
- Construction activity, generating noise and movement;
- Earthworks, changes in landform and storage of soils and rock revetment materials;
- Presence of construction compounds, temporary security fencing and hoardings;
- Vehicle movements including private vehicles belonging to site staff; and
- Use of lighting, if night-time works are required and security lighting.

15.6.2 Operation

The most apparent changes to landscape and views would result from raising the level of the Promenade by approximately 1.2m, new fishing platform in Area 2 of the Scheme, new concession buildings to replace the existing, the horizontal realignment of the Promenade road and pedestrian footways and the 30m deep rock revetment that covers a stretch of 1.2km.

15.6.3 Summary of Potential Effects

A summary of the potential landscape and visual amenity effects for both construction and operation is provided within Table 17. A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

Table 17 Potential Effects

Effects	Construction	Operation
LANDSCAPE EFFECTS		
Potential Non Significant Effects	There would be a direct effect on landscape character areas NLCA08 and MCA02 during construction. It is assumed that a section of the Promenade and North Wales Coastal Path would be diverted during construction resulting in reduced connectivity and therefore adverse landscape effects.	There would be landscape effects for NCLA08 and MCA02. However, the nature of the Scheme is in keeping with the existing character of the local area.
Potential Significant Effects	There would be a direct effect on landscape character areas NLCA08 and MCA02 during construction.	None identified.
Scoped In/Out	Scoped In	Scoped Out
VISUAL EFFECTS		
Potential Non Significant Effects	For residents along Rhos promenade, construction elements and activity would be visible in the distance across a proportion of the view.	There would be changes to views in the near distance for recreational receptors on the beach and in the sea, motorised and non-motorised users of the Promenade, walkers along the North Wales Coast Path long distance footpath and cyclists on Sustrans North Wales Coast Cycle Route, during operation of the Scheme. The raising of the Promenade, horizontal realignment and new design would increase its prominence within existing views of the beach and seafront. Residents of Rhos Promenade would have distant views to the Scheme which would be seen in the context of the wider landscape, seascape, and Phases 1 and 2 of the Colwyn Bay Waterfront Project.
Potential Significant Effects	It is assumed that the Promenade and sections of the North Wales Coast Path long distance footpath and Sustrans North Wales Coast Cycle Route would be inaccessible for walkers and cyclists during the construction phase of the Scheme. The effect of construction on the visual amenity of these receptors would depend upon the route of the diverted footpath/cycle route.	None Identified.
Scoped In/Out	Scoped In	Scoped Out

The Scheme is likely to result in significant landscape and visual effects during construction.

Landscape and visual effects during operation are likely to be minor adverse or minor beneficial and therefore non-significant, for the following reasons:

- The character of the landscape would remain comparable to the baseline with no significant changes to land use and slight benefits to connectivity for motorised and non-motorised users; and

- For the majority of visual receptors, elements within the view including road and rail infrastructure, promenade, beach and the sea, would be comparable to the baseline. Although the rock revetment and increased height of the promenade would increase its prominence within views from the beach, there is great opportunity for any adverse visual effects to be minimised through careful design and integration of the Scheme into the existing landscape and seascape.

15.7 Additional Information Required

- A full site survey; and
- Running a ZTV for the Scheme.

15.8 Proposed Methodology

The proposed EIA methodology for the assessment of Landscape and Visual effects can be found in Appendix C.6.

16 Materials and Waste

16.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on materials and waste.

The materials, resources and waste assessment within the EIA would assess the potential impacts on material resources and waste management infrastructure which are likely to arise from the construction and operation of the Scheme. This chapter provides a description of the baseline, identifies the potential impacts and sets out the proposed methodology for informing the EIA. For the purposes of this Scoping Report, the assessment scope comprises:

- The use of material resources; and
- The generation and management of waste.

16.1.1 Reference Reports

A Design for Resource Efficiency (D4RE) workshop was carried out on 4 March 2020 to record opportunities to reduce or reuse resources within this Scheme. The output can be used for a Resource Management Plan or other such plans to include resource efficiency at the early design stage.

16.2 Study Area

The assessment would use two geographically different study areas to examine the use of material resources and the generation and management of waste impacts. The first study area is based on the area of the completed works within the boundary of the Scheme, as this constitutes the area within which construction materials would be consumed (used, reused and recycled) and waste would be generated.

The second study area usually focuses on an area sufficient to identify the suitable waste infrastructure that could accept arisings or waste generated by the Scheme options, and feasible sources and availability of construction materials typically required for the works. For this Scheme this second study area would be the county of Conwy and the North Wales region in which the works are being undertaken.

16.3 Baseline Conditions

16.3.1 Use of material resources

Information on the demand for key construction materials, within the second study area has been used to provide the baseline for material resources. In addition, information for the UK has also been provided as a national comparison. This information has been determined through a desk-study using a number of readily available resources, in particular from the Minerals Products Association, International Steel Statistics Bureau, British Geological Society (BGS), NRW and CCBC⁶².

⁶² Where information is not available for Wales, the UK has been used to provide the national comparison.

Table 18 outlines the UK demand, in terms of sales, of minerals and mineral products in 2016 (and 2018 for steel) and Table 19 outlines the production of minerals within Wales in 2018 and available mineral workings.

Table 18 UK Demand of Materials and Minerals / Mineral Products

Mineral	UK Demand (year)
Aggregates	247 million tonnes
Of which:	
Crushed rock	113.9 million tonnes
Sand and gravel – land won	48.6 million tonnes
Sand and gravel – marine won	14.1 million tonnes
Recycled and secondary	70.4 million tonnes
Cementitious (including imports)	15 million tonnes
Of which:	
Cement	12 million tonnes
Other cementitious materials (fly ash, ground clay bricks)	3 million tonnes
Ready-mixed concrete	56.1 million tonnes
Concrete products	25.8 million tonnes
Asphalt	25.2 million tonnes
Dimension stone	1 million tonnes
Steel	10.7 million tonnes

Source: Minerals Products Association (2016)⁶³ and International Steel Statistic Bureau (2018)⁶⁴

Table 19 Wales Production of Minerals in 2018

Mineral	Wales Production in Tonnes	Number of Mineral Workings in Wales
Igneous rock	12,711,000 (excluding building stone)	50
Limestone and dolomite		
Sandstone		
Sand and gravel	1,517,000	18

Source: BGS⁶⁵

At a regional level, Table 20 outlines the aggregate sales and reserves in Conwy and North Wales. It is outlined in the Welsh Government and North Wales and South Wales Regional Aggregate Working Parties⁶⁶ Regional Technical Statement that Flintshire's Carboniferous Limestone quarries and the regions in north east of Wales are major markets for crushed rock.

Conwy (reported with Snowdonia National Park Authority (NPA) for confidentiality reasons) produced an average of 1.23 million tonnes per year of crushed rock in a 10-year period from 2001 to 2010 with 67.43 million tonnes in permitted reserves in 2010. Wrexham

⁶³ Minerals Products Association (2018) Profile of the UK Mineral Products Industry: 2018 Edition [online] available at: <https://mineralproducts.org/documents/Facts-at-a-Glance-2018.pdf> accessed March 2020

⁶⁴ International Steel Statistics Bureau (2018) Steel Demand [online] available at: <http://issb.co.uk/news/news/uk.html> accessed March 2020

⁶⁵ British Geological Society (2019) United Kingdom Minerals Yearbook 2019 [online] available at <https://www.bgs.ac.uk/mineralsuk/statistics/UKStatistics.html> accessed March 2020

⁶⁶ Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties (2014) *Regional Technical Statement for the North Wales and South Wales Regional Aggregate Working Parties - 1st Review* [online] available at: [http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20\(endorsed\)%20\(1\).pdf](http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20(endorsed)%20(1).pdf) accessed March 2020

dominates the supply for natural sand and gravel from one major quarry, but a further two or three quarries in Flintshire produce these materials to meet demands⁶⁷.

Table 20 Aggregate Sales and Reserves in North Wales and Conwy

Aggregate	North Wales Sales (2014)	Conwy (Aberconwy & Colwyn) Sales (2014)	Conwy (with Snowdonia NPA) Reserve	Conwy (with Snowdonia NPA) Land-bank (years)
Sand and gravel	0.927 million tonnes	0 tonnes	0 tonnes	0
Crushed rock	4.17 million tonnes	0.74 million tonnes	67.43 million tonnes	54.7

Source: British Geological Survey⁶⁸, Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties⁶⁹

The Regional Technical Statement⁷⁰ does not quantify the recycled aggregates from industrial and commercial development and redevelopment.

The Local Development Plan for Conwy⁷¹, under Policy MWS/3, expresses that areas of hard rock and sand and gravel have been identified requiring protection (safeguarding) to ensure these resources remain available throughout 2007-2022. Safeguarded Sand and Gravel Reserves just extend into the Scheme boundary from the east are in the east of the Scheme and adjacent to the western boundary, and a Safeguarded Hard Rock Reserve is located adjacent to the eastern boundary⁷².

16.3.2 Generation and Management of Waste

The most recent information available relating to current waste generation and operational waste infrastructure in North Wales region, and where possible Conwy, has been gathered to provide the baseline for this assessment. Information on the current waste arisings and the capacity of waste management infrastructure has been determined through a desk-top study, using a number of readily available resources, in particular data from NRW, Welsh Government, and CCBC.

16.3.2.1 Waste Generation in North Wales and Wales

The latest published data from the NRW indicated that Conwy produced over 0.17 million tonnes of waste in 2018. This equates to 1.8% of the 10 million tonnes of waste generated

⁶⁷ Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties (2014) *Regional Technical Statement for the North Wales and South Wales Regional Aggregate Working Parties - 1st Review* [online] available at: [http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20\(endorsed\)%20\(1\).pdf](http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20(endorsed)%20(1).pdf), accessed March 2020

⁶⁸ British Geological Society (2014) Collation of the results of the 2014 Aggregate Minerals survey for England and Wales. Available online at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England_Wales_2014.pdf, accessed March 2020

⁶⁹ Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties (2014) *Regional Technical Statement for the North Wales and South Wales Regional Aggregate Working Parties - 1st Review* [online] available at: [http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20\(endorsed\)%20\(1\).pdf](http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Main%20Document%20-%20Final%20Edition%20(endorsed)%20(1).pdf), accessed March 2020

⁷⁰ Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties (2014) *Regional Technical Statement (1st Review) Appendix A (North Wales)* [online] available at [http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Appendix%20A%20\(North%20Wales\)%20-%20Final%20Edition%20\(endorsed\).pdf](http://www.nwrawp-wales.org.uk/html/publications/1/RTS%20First%20Review%20-%20Appendix%20A%20(North%20Wales)%20-%20Final%20Edition%20(endorsed).pdf), accessed March 2020

⁷¹ CCBC (2013) Conwy Local Development Plan 2007-2022 Adopted October 2013 [online] available at <http://www.conwy.gov.uk/en/Resident/Planning-Building-Control-and-Conservation/Strategic-Planning-Policy/Adopted-Local-Development-Plan-LDP/Assets-written-proposals-maps/Conwy-Local-Development-Plan-2007-2022.pdf> Accessed April 2020

⁷² CCBC (n.d.) Map: Adopted LDP [online] available at <http://conwy.opus3.co.uk/ldf/maps/Adopted%20LDP#x=286368.23958809&y=378647.50677331&scale=10000&1223> accessed March 2020

in Wales in 2018⁷³. The latest publicly available, information of waste received by site type in Wales and its regions is from 2013, shown in (Table 21).

Table 21 Waste Breakdown by Site Type (2013)

Site Type	North Wales (tonnes)	Wales (tonnes)
Landfill	449,000	2,138,000
Transfer	346,000	1,022,000
Treatment (excluding metal recycling sector)	577,000	2,667,000
Metal Recovery	78,000	829,000
Incinerated	35,000	48,000
Land Disposal	81,000	162,000
Total	1,566,000	7,910,000

Source: Natural Resource Wales⁷⁴

Construction and Demolition Waste

With respect to construction and demolition (C&D) waste, the NRW recorded that 0.74 million tonnes C&D waste was generated in 2012 in North Wales, with approximately 50,000 tonnes sent to landfill.

Data was obtained from The Wales Construction and Demolition Waste Generation Survey 2012⁷⁵, which showed that approximately 0.68 million tonnes of C&D waste being recovered or recycled in 2012 (92% of the total generated). It did not clarify the quantities of inert, non-hazardous and hazardous C&D waste generated in North Wales.

Hazardous Waste

Regarding hazardous waste, Table 22 outlines the quantities managed and deposited in 2013 in Wales. An estimated 37,580 tonnes of hazardous waste were generated by the C&D sector, which made up 1% of the total waste generated by this sector in 2012.

North Wales does not have any hazardous waste landfill facilities. Therefore, any hazardous waste from the Scheme that requires landfilling would need to be moved to other Welsh regions or exported. In 2013, 65% of hazardous waste was exported to England and 30% transported to other regions in Wales⁷⁶.

Table 22 Hazardous Waste Managed and Deposited in 2013

Hazardous waste fate	North Wales (tonnes)	Wales (tonnes)
Incineration with energy recovery	3,897	3,897
Incineration without energy recovery	4,157	4,203
Landfill	-	64
Long term storage	-	-
Other Fate	-	-

⁷³ Natural Resources Wales (2019) Waste Permit Returns Data Interrogator [online] available at <https://data.gov.uk/dataset/71d7279f-a6aa-4a60-a9fa-51406b223277/waste-permit-returns-data-interrogator> accessed March 2020

⁷⁴ Natural Resources Wales (2013) Wales waste data information 2013 [online] available at <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/wales-waste-data-information-2013/?lang=en> accessed March 2020

⁷⁵ Natural Resources Wales (2012) Construction and Demolition waste generated in Wales 2012 <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/construction-demolition-waste-survey/?lang=en> accessed March 2020

⁷⁶ Natural Resources Wales (2012) Survey of Construction & Demolition Waste Generated in Wales 2012. Available at <https://cdn.naturalresources.wales/media/1988/survey-of-construction-an-demolition-waste-wales-2012.pdf?mode=pad&rnd=131471843040000000> accessed March 2020

Hazardous waste fate	North Wales (tonnes)	Wales (tonnes)
Recovery	54,514	167,420
Rejected	-	87
Transfer (D)	476	44,037
Transfer (R)	1,914	36,286
Treatment	600	54,500
Total	65,557	310,493

Source: NRW (2013)⁷⁷

16.3.2.2 Potential Sources of Hazardous Waste Arisings

To identify potential sources of contamination an initial review of the landfill sites, both authorised and historic, in the area was undertaken. Potential sources of contamination that are greater than 500m away from the study area have not been considered, as these are considered unlikely to affect the Scheme.

No historic landfill sites are located within or adjacent to the boundary of the Scheme.

16.3.2.3 Waste Management Facilities

Landfills

Wales waste data information from 2013, is the latest publication regarding the remaining capacity of landfill in North Wales⁷⁸. This information is provided in Table 23 below.

Table 23 Landfill capacity in 2013 in North Wales

Landfill type	North Wales (m ³)	Wales (m ³)
Hazardous Restricted	0	191,000
Inert	1,715,000	3,176,000
Non-hazardous	4,074,000	17,751,000
Non-hazardous (SNRHW)*	0	3,126,000
Restricted user	66,000	5,926,000
Permitted, but not constructed	0	1,090,000
Total	5,855,000	31,261,000

Source: Natural Resources Wales (2013)⁷⁹ Note: *Some non-hazardous sites can accept some Stable Non-Reactive Hazardous Wastes (SNRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

North Wales region's total lifespan for landfill is less than the other regions in the country, with an estimated 8.3 years from 2013⁸⁰. However, 30% of the total capacity of landfill in North Wales is for inert waste at 1,715,000 cubic metres, in 2013. Conwy region has two operational landfill facilities, Ty Mawr Farm Landfill and Llandulas Landfill, as shown in Table 24.

⁷⁷ Natural Resources Wales (2013) *Wales waste data information 2013* [online] available at <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/wales-waste-data-information-2013/?lang=en> accessed March 2020

⁷⁸ Natural Resources Wales (2013) *Wales waste data information 2013* [online] available at <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/wales-waste-data-information-2013/?lang=en> accessed March 2020

⁷⁹ Natural Resources Wales (2013) *Wales waste data information 2013* [online] available at <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/wales-waste-data-information-2013/?lang=en> accessed March 2020

⁸⁰ Natural Resources Wales (2013) *Wales waste data information 2013* [online] available at <https://naturalresources.wales/evidence-and-data/research-and-reports/waste-reports/wales-waste-data-information-2013/?lang=en> accessed March 2020

activities identified as possibly being suitable to received wastes from construction and demolition activities⁸⁵. However, these exempt sites are often short-lived, and therefore, should be identified upon commencement of construction.

Reuse, recycling and recovery of wastes, on- or off-site, would be prioritised. However, if these options are not available or feasible the last resort option is to adopt the Proximity Principle for disposal to land. Ty Mawr Farm Landfill being within the 10km radius may be suitable for inert construction and demolition waste and should be considered first as means of disposal before arranging for waste to be transported at greater distance.

16.4 Assumptions and Limitations

Given the early stages of design, estimates relating to the quantity of materials required are not available nor are there estimates available relating to the quantity of waste arisings anticipated. As such, a qualitative assessment has been carried out at this stage, limited to identifying activities that are likely to require significant quantities of materials, or are likely to produce significant quantities of waste. The following assumptions are made:

- This assessment would not consider the environmental effects associated with the extraction of raw materials used for the manufacture of products (which may occur outside of the UK). These stages of the products' or materials' lifecycles are outside of the scope of the assessment, due to the range of unknown variables associated with the processes involved;
- Adverse environmental effects through transportation (both to and from site), contaminated land and sterilisation of mineral safeguarding areas or peat resources from the use of material resources and the generation and management of waste is more logically to be dealt with in other relevant discipline chapters; and
- The procurement of the materials required for the construction of the Scheme is unknown at this stage. It has been assumed that not all materials would be available to be sourced regionally, and that the majority would be sourced nationally or elsewhere in the UK, which represents the (environmentally) worst case scenario.

16.5 Key Guidance and Best Practice

The following legislation would underpin the assessment and would be described in detail in the assessment:

- Waste Framework Directive (2008/98/EC)⁸⁶;
- The Environmental Protection Act (1990)⁸⁷;
- The Hazardous Waste (England and Wales) Regulations (2005)⁸⁸ as amended;
- The Waste (England and Wales) Regulations (2011)⁸⁹ as amended; and
- The Environmental Permitting (England and Wales) Regulations (2016)⁹⁰.

⁸⁵ Natural Resources Wales (2020) Waste Management License Current Exemptions [online] available at <http://lle.gov.wales/catalogue/item/WasteManagementLicenseCurrentExemptions/?lang=en> accessed March 2020

⁸⁶ European Commission (2008) Directive 2008/98/EC on waste (Waste Framework Directive) [online] available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098> accessed March 2020

⁸⁷ Her Majesty Government (UK) (1990) Environmental Protection Act 1990 [online] available at <http://www.legislation.gov.uk/ukpga/1990/43/contents> accessed March 2020

⁸⁸ Her Majesty Government (UK) (2005) Hazardous Waste (England and Wales) Regulations 2005 [online] available at <http://www.legislation.gov.uk/uksi/2005/894/contents/made> Accessed March 2020

⁸⁹ Her Majesty Government (UK) (2011) Waste (England and Wales) Regulations (2011) [online] available at <http://www.legislation.gov.uk/uksi/2011/988/contents> accessed March 2020

⁹⁰ Her Majesty Government (UK) (2016) Environmental Permitting (England and Wales) Regulations [online] available at <http://www.legislation.gov.uk/uksi/2016/1154/contents> Accessed March 2020

The following guidance would underpin the assessment and would be described in detail in the assessment:

- Interim Advice Note (IAN) 125/09(W) Supplementary Guidance for Users of DMRB Volume 11 'Environmental Assessment'⁹¹;
- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 13 LA110 'Sustainability and Environment Appraisal - Material Assets and Waste'⁹²;
- Minerals technical advice note (MTAN) Wales 1: aggregates⁹³;
- Technical advice note (TAN) 21: waste⁹⁴;
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)⁹⁵; and
- CL:AIRE Definition of Waste: Development Industry Code of Practice (2011)⁹⁶.

16.6 Potential Effects

16.6.1 Use of Materials

The Scheme is likely to require large quantities of material resources for the construction of the coastal defence and associated structures. This would, therefore, have permanent direct adverse effects on the environment, specifically through the depletion of non-renewable resources, and the subsequent impact on the national demand for materials.

Specific quantities of materials have not been quantified at this stage, however the types of material resources likely to be required, for the construction of the Scheme, are as follows:

- Concrete;
- Cement;
- Aggregate;
- Large natural rock; and
- Bitumen.

Materials required for the operation and maintenance of the Scheme mostly include aggregates and other materials for coastal defence repairs and other maintenance activities.

Judgement of aspects scoped in or out is taken from the baseline information and the understanding of the known and estimated demand for materials resources. Table 26 describes the potential sensitive effects of the use of materials from this Scheme during

⁹¹ Welsh Government (2010) INTERIM ADVICE NOTE 125 /09(W) Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment' [online] available at <https://gov.wales/sites/default/files/publications/2017-10/interim-advice-note-12509w-supplementary-guidance-for-users-of-design-manual-for-roads-and-bridges-dmrb-volume-11-environmental-assessment.pdf> accessed March 2020

⁹² Highways England (2019) Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (formerly IAN 153/11) [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20110%20Material%20assets%20and%20waste-web.pdf> accessed March 2020

⁹³ Welsh Government (2004) Minerals technical advice note (MTAN) Wales 1: aggregates [online] available at <https://gov.wales/minerals-technical-advice-note-mtan-wales-1-aggregates> Accessed March 2020

⁹⁴ Welsh Government (2017) Technical advice note (TAN) 21: waste [online] available at <https://gov.wales/technical-advice-note-tan-21-waste> accessed March 2020

⁹⁵ DEFRA (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites [online] available at <https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites> accessed March 2020

⁹⁶ CL:AIRE (2011) Definition of waste: Code of practice CoP Main Document [online] available at <https://www.clare.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document> Accessed March 2020

construction and operation It summarises which aspects of the Scheme would be scoped in for a subsequent ES.

Table 26 Potential Effects on Materials

Effects	Construction	Operation
Potential Non Significant Effects	None identified.	The receptors likely to be subject to impacts as a result of the use of material resources include quarries and other sources of minerals, and other finite raw material resources. Maintenance activities would be infrequent with associated materials volumes expected to be in small quantities.
Potential Significant Effects	The receptors likely to be subject to impacts as a result of the use of material resources include quarries and other sources of minerals, and other finite raw material resources. The potential impacts associated with the use of material resources on these receptors include: <ul style="list-style-type: none"> • The depletion of non-renewable resources; and • The impact on the national demand for materials. The Scheme is likely to require large quantities of material resources for the construction of the coastal defence and associated structures.	None identified.
Scoped In/Out	Scoped In	Scoped Out

It is likely that any significant effects due to the quantity of materials resources required could be appropriately mitigated through the implementation of mitigation measures such as the completion of the D4RE workshop to identify measures to minimise the requirement for imported materials and reuse wastes generated.

However, without accurate material quantification at this stage, this assumption cannot be confirmed. Where possible, recycled aggregates would be used within the Scheme and utilise existing material resources located locally, for example sand along the coast where permitted. Care will need to be taken to not remove resources from the Safeguarded Reserves designated in the LDP, unless permission is granted by the CCBC. Three local key quarries identified to source materials are from Llanddulas, Penmaenmawr and Halkyn. The project would require a supply for approximately 18 months. Currently, however, there is no available quarry capacity to supply the rock required for the revetment locally, due to increased demand for this material, during 2020, and would therefore, need to be transported from elsewhere. It is, currently, proposed that this rock is supplied from a quarry in Scotland and brought to the site by barge.

16.6.2 Generation and Management of Waste

Waste would predominantly arise from demolition of existing structures (shelters, kiosks, benches and other structures along the existing promenade), excavations of hard surfaces and sand, and from materials brought to site, not used for their intended purposes, damaged items, cut offs and surplus materials. Some types of waste, generated from construction projects, may be harmful to human health, or to the environment, either immediately or through an extended period of time (defined as hazardous wastes). However, these are not anticipated to be generated from the Scheme, the majority of wastes would be inert and non-hazardous.

Exact quantities of waste likely to be generated by the construction of the Scheme have not been quantified at this stage. However, waste may result from the following:

- Surplus excavated materials (soils or substrata);
- Waste from the demolition of existing structures; and
- Surplus construction materials (e.g. concrete, aggregates, asphalt).

During the operation of the Scheme waste would be likely to arise from the following activities:

- Street cleaning;
- Replacement signage and lighting;
- Hard surface repair and resurfacing; and
- Coastal defence maintenance.

Judgement of aspects scoped in or out is taken from the baseline information and an understanding of the typical wastes generated. Table 27 describes the potential effects of the generation of waste from the Scheme during construction and operation. It summarises which aspects of the Scheme would be scoped in for a subsequent Environmental Statement.

Table 27 Potential Effects from the Generation of Waste

Effects	Construction	Operation
Potential Non Significant Effects	<p>The receptors likely to be subject to impacts as a result of waste generation and management are landfills and other waste management infrastructure. The potential impacts assessment with the generation and management of waste on these receptors include:</p> <ul style="list-style-type: none"> • Utilisation and depletion of the remaining local landfill capacity; and • Occupation of available waste management infrastructure. <p>No significant effects anticipated, relating to the construction of the Scheme, as waste generated would be unlikely to generate large volumes requiring treatment or disposal and limited to inert or non-hazardous wastes.</p> <p>There is an understanding that there is sufficient capacity within the existing waste infrastructure within Conwy and North Wales to deal with any wastes arising from the construction of the Scheme.</p> <p>Mitigation measures would be put in place to adequately deal with waste that may be generated during construction.</p>	<p>The receptors likely to be subject to impacts as a result of waste generation and management are landfills and other waste management infrastructure. The potential impacts assessment with the generation and management of waste on these receptors include:</p> <ul style="list-style-type: none"> • Utilisation and depletion of the remaining local landfill capacity; and • Occupation of available waste management infrastructure. <p>No significant effects anticipated relating to the operation of the Scheme as waste generated through maintenance activities would be unlikely to generate large volumes of waste requiring treatment or disposal.</p> <p>There is an understanding that there is sufficient capacity within the existing waste infrastructure within Conwy and North Wales to deal with any wastes arising from the operation of the Scheme.</p>
Potential Significant Effects	None identified.	None identified.
Scoped In/Out	Scoped Out	Scoped Out

The Scheme would aim to minimise the generation of waste as much as possible, through the completion of a D4RE workshop, and development of a Site Waste Management Plan (SWMP). Additionally, it is assumed at this stage that the surplus materials would be suitable to be re-used in the landscaping for the Scheme. As long as waste is managed

appropriately, implementing the mitigation measures it is unlikely that the generation and management of waste would result in significant effects.

Completion of a D4RE workshop and SWMP would minimise the requirement for imported materials and waste generated. Materials requirements and waste arisings associated with the annual maintenance regime are expected to be minimal. By applying the waste hierarchy to C&D the Scheme would contribute to the Welsh construction and demolition waste set target to recycle this waste at a rate increasing by at least 1.4% each year to 2050, using 2006/2007 as a baseline. In addition, the Mineral Technical Advice Note: Aggregates⁹⁷ sets objectives to encourage the production of aggregates from secondary and recycles resources including an overall target for 40% of construction and demolition waste recycled as aggregates by 2025.

A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

16.7 Additional Information Required

The following would be required to be developed following scoping of the Scheme:

- Further assessment is required for the assessment of significant effects of the use of materials during construction:
 - Accurate material quantification;
 - Further design information; and
 - Scheme schedule and the availability of and access to material from quarries (especially within Conwy) and other such sources of material throughout the phases of construction.
- A SWMP:
 - To be produced prior to the commencement of construction;
 - Detail how waste would be managed and disposed of during the construction of the Scheme;
 - Define the use of the waste hierarchy to manage waste and implementing mitigation measures to minimise and reduce the amount of waste needing treatment and disposal; and
 - Taking account of any changes in design as the project progresses.

16.8 Proposed Methodology

The proposed EIA methodology for the assessment of Materials effects can be found in Appendix C.7.

⁹⁷ Welsh Government (2004) Minerals technical advice note (MTAN) Wales 1: aggregates [online] available at <https://gov.wales/minerals-technical-advice-note-mtan-wales-1-aggregates> Accessed March 2020

17 Noise and Vibration

17.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on noise and vibration impacts to nearby noise sensitive receptors (NSRs). This assessment is aimed to gain an understanding of the need to undertake further assessment should any of the following apply:

- Does construction or operational noise and vibration generated by the project have the potential to adversely affect any noise sensitive receptors? and,
- Are there any noise receptors where there would be a reasonable stakeholder expectation that a construction or operational noise assessment would be undertaken?

The baseline utilises desk study information only, no quantitative testing or monitoring has been undertaken to inform it.

17.2 Study Area

The study area of this chapter predominantly focuses on the closest sensitive receptors within 150m of the Scheme, however consideration has been given to receptors up to 300m from the Scheme that could be affected by traffic generated at the construction stage.

17.3 Baseline Conditions

17.3.1 Existing Noise Sources

Local background noise conditions are likely to be dominated by the adjacent A55 Expressway and the North Wales Coast Railway.

The A55 Expressway is a busy dual carriageway in close proximity to the residential areas of Colwyn Bay. Speed limits along the section of the A55 Expressway passing through Colwyn Bay are restricted to 50mph.

The NCW Railway which runs through Colwyn Bay is the main link between Holyhead and Chester including direct services to London.

17.3.2 Potential Sensitive Receptors

There are several sensitive receptors in the vicinity of the site, including schools, nurseries, places of worship, residential care homes and a hospital. The closest of these is Glan Y Mor School, located approximately 125m southwest of the western extent of the Scheme.

The closest residential areas are located on Min-Y-Don Avenue, approximately 70m south of the Scheme at its closest point. All sensitive receptors are separated from the Scheme by the A55 Expressway and the NWC Railway Line.

17.4 Assumptions and Limitations

- Traffic movements and traffic management measures required during the construction and operational phases are currently unknown. As discussed in the Traffic, Transport and Access Chapter 18, it is assumed that existing traffic volumes and travel patterns would not change significantly on completion of the works;

- It is assumed that rock breaking would not be undertaken within the Scheme area and would be completed at the area the rocks are to be sourced;
- It is assumed that the noisiest works (for example piling works) would be undertaken during daytime hours; and
- Underwater impacts of construction noise and vibration on marine life is excluded, as it is assumed that sheet piling would be undertaken at low tide and there would therefore be no transfer of associated noise and vibration into the marine environment.

17.5 Guidance and Best Practice

Key legislation, policy and guidance relevant to noise and vibration in Wales include:

- The Environmental Noise (Wales) Regulations 2006⁹⁸;
- Land Compensation Act 1973⁹⁹;
- Noise Insulation Regulations 1975 (as amended 1988)¹⁰⁰;
- Well-being of Future Generations Act (Wales) 2015¹⁰¹;
- Control of Pollution Act 1974¹⁰²;
- Planning Policy Wales¹⁰³ and TAN 11 (Noise)¹⁰⁴;
- BS5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'¹⁰⁵; and
- BS5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'¹⁰⁶.

17.6 Potential Effects

17.6.1 Construction Noise

There are potential adverse effects from noise impacts arising from the construction of the rock revetments, promenade raising and improvement works, compound and from construction traffic. Driven piles and sheet piling would also be necessary to construct the beach access steps, fishing platform and the headland build out, and this is likely to be for a duration of several months. Due to the long duration of piling activities the construction phase could cause a significant adverse effect to NSRs due to an increase in noise levels throughout several weeks and months at a time, which has the potential to cause significant disturbance to NSRs if left unmitigated. Effects would be mitigated through the selection of the most appropriate piling techniques and restricting piling to hours as specifically agreed with CCBC.

Road traffic flows during the construction phase may also be impacted by the daily movement of construction vehicles and construction personnel to and from the site, to the

⁹⁸ *Environmental Protection Wales: The Environmental Noise (Wales) Regulations 2006*. SI 2006/2629 (W.255). UK: The Stationery Office Limited.

⁹⁹ *Land Compensation Act 1973*. (ch. 26). England: C. H. Baylis, CB.

¹⁰⁰ *The Noise Insulation (Amendment) Regulations 1988*. SI 1988/2000. UK: The Stationery Office Limited.

¹⁰¹ *Well-being of Future Generations (Wales) Act 2015*. (anaw 2). UK: The Stationery Office Limited.

¹⁰² *Control of Pollution Act 1974*. (ch. 40). London: Her Majesty's Stationery Office.

¹⁰³ Welsh Government (2018). *Planning Policy Wales - Edition 10*. [online]. Available at: <https://gov.wales/sites/default/files/publications/2019-02/planning-policy-wales-edition-10.pdf>. accessed March 2020

¹⁰⁴ Welsh Government (1997). *Planning Policy Wales Technical Advice Note (TAN) 11: Noise*.

¹⁰⁵ British Standards Institution (BSI) (2008). *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*. BSI Limited 2008.

¹⁰⁶ British Standards Institution (BSI) (2014). *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration*. BSI Limited 2014.

extent that nearby residences may experience traffic noise impacts. This is contingent to the number of people needed to carry out the works and the number of deliveries required.

NSRs located close the construction works could experience adverse noise effects from this construction. However this is likely to be insignificant for the majority of the construction phase due to the existing elevated embankment located between the Scheme and all NSRs. This embankment provides some degree of screening of the construction noise levels received by the NSRs. It is anticipated that piling works may pose adverse impact at the NSRs.

A Construction Noise Management Plan (CNMP) would be produced either as a stand-alone document, or as part of a CEMP including mitigation measures related to construction noise. This would identify various ways to reduce the environmental effects and cover environmental and safety aspects to safeguard the wellbeing of residents and general public during construction. Additionally, the CEMP is expected to include definitive haul and construction routes leading into and out of the site to minimise potential disturbance to sensitive receptors. Construction traffic would be designed and agreed with CCBC to ensure no significant adverse effects would result. For instance, through setting limits on the time of day and amount of construction traffic allowed and ensuring any diversion route is the most appropriate.

Specific measures for the mitigation of noise would be discussed and agreed with CCBC and described within the contractor method statements. Noise impacts would be minimised through agreeing construction working methods and hours with CCBCs Environmental Health department (particularly for piling works) taking into account that working around tidal restrictions would be necessary in some circumstances.

17.6.2 Operational Noise

The main operational phase noise impacts of the project are expected to relate to changes in traffic due to increased vehicle movements from both the increased usage of the waterfront area for business and leisure usage and the increased number of business and leisure visitors to the town centre. However as one of the Schemes intentions is to increase active travel, it is likely that the establishment of active travel improvements would remove some vehicle movements in the long-term.

The new activity zone and flexible open space area to the north of Rotary Way is not anticipated to result in significant changes to baseline conditions as its use is likely to be for small scale local events during the daytime only.

As discussed in the Traffic, Transport and Access Chapter (19), it is not anticipated that existing traffic volumes and travel patterns would change significantly on completion of the works. The increased parking provision is also considered to have a negligible impact at the operational level.

17.6.3 Vibration

The assessment of the potential impacts of vibration from construction and operation phase is generally limited to occupied properties at which perceptible vibration is predicted and any building where vibration may affect its structural integrity. However construction vibration impacts are not anticipated to be significant due to the distance between the construction works and the receptors. It is not anticipated vibration would be an issue during the operational phase.

17.6.4 Potential Effects Summary

Table 28 summarises that in conclusion, construction vibration and operational noise and vibration are considered to be insignificant and are therefore scoped out. It is recommended that a quantitative assessment for construction noise is scoped in.

Table 28 Potential Effects

Effects	Construction	Operation
Adverse Effects	Construction traffic and diversion route could cause temporary but negligible impact to NSRs. Construction activity would produce noise at the nearest NSRs.	It is anticipated that existing traffic volumes and travel patterns would not change significantly due to the Scheme so any impact would be negligible.
Potential Significant Effects	Construction piling may produce significant adverse effects depending on the piling methodology, time of operation and other factors. The CNMP and CEMP would be produced to minimise piling related effects. No night-time piling would be permitted.	None identified.
Scoped In/Out	Scoped In (construction noise) Scoped out (construction vibration)	Scoped out (Operational noise and vibration)

Construction noise has been scoped in at the current time, however a scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees to determine whether the mitigation proposed would sufficiently mitigate effects such that they would no longer be considered as significant.

17.7 Additional Information Required

To inform the ES chapter the following information would be required:

- Construction traffic data. If no quantitative traffic data is available, an assumption of proposed requirements for construction traffic would be applied;
- Baseline noise survey data to inform the construction assessment;
- Detail of the piling methodology and pile sizes; and,
- Confirmation of likely plant inventories, location of construction compounds and construction programme.

17.8 Proposed Methodology

The proposed EIA methodology for the assessment of Noise and Vibration effects can be found in Appendix C.8.

18 Population and Health

18.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on population and health.

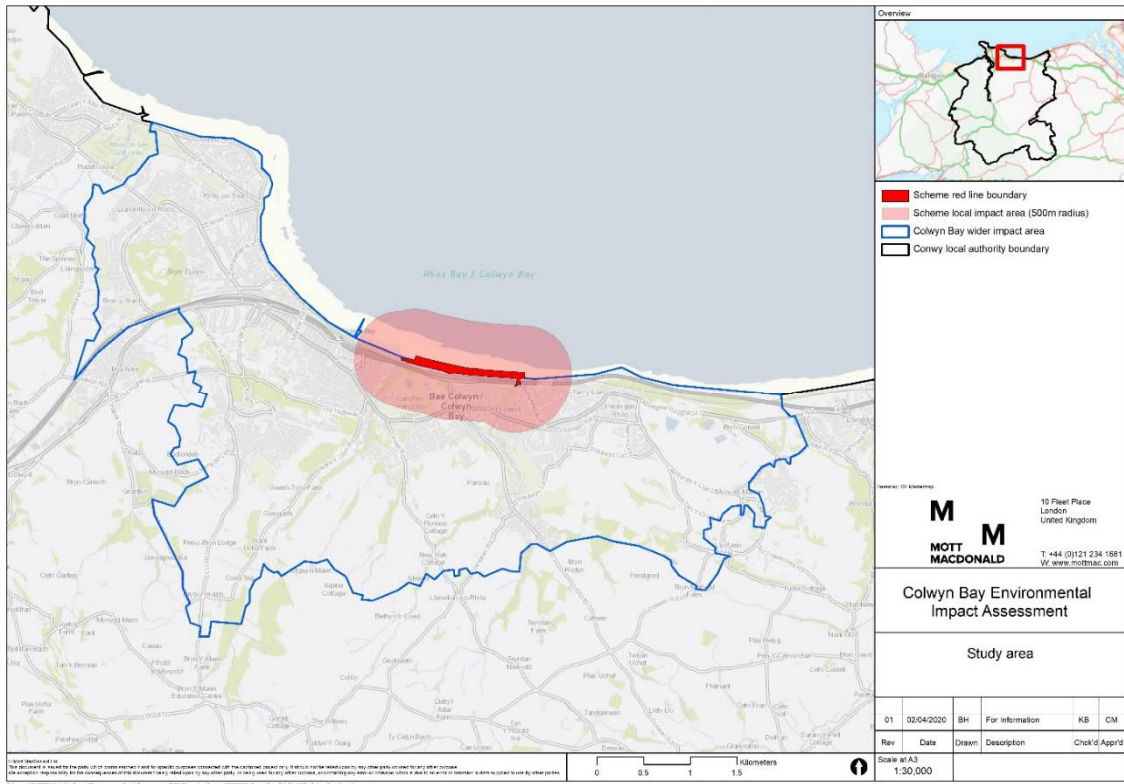
The likely impacts on population and human health receptors during the construction and operation of the Scheme are considered and an overview of the population and human health baseline within the study area and details the likely significant population and human health effects is provided. The proposed methodology for assessing the impact of the Scheme on population and health is set out, identifying those impacts which can be scoped out of the EIA.

18.2 Study Area

Baseline data has been calculated for a Local Impact Area (LIA) and Wider Impact Area (WIA). The LIA and WIA have been created based on guidance and professional judgement and are defined as follows:

- LIA – The area located within 500 m of the Scheme would be referred to as the LIA. This is the primary study area for this discipline and is designed to capture most potential population and human health effects of the Scheme. This is shown on Figure 4 and comprises the eastern part of the Colwyn Bay Waterfront known as Old Colwyn and
- WIA – The town of Colwyn Bay would be referred to as the WIA. This is also shown on Figure 4. This area be used to assess potential active travel and tourism effects as impacts would be on receptors which are greater than 500 m from the Scheme.

Figure 4: Map of the Study Area Showing the LIA and WIA



Source: Mott MacDonald

In addition to the LIA and WIA, potential economic impacts would be assessed at a local authority level (CCBC).

18.3 Baseline Conditions

18.3.1 Population

Colwyn Bay is a seaside town in Conwy County Borough on the North Wales coast. The main settlements are Rhos-on-Sea to the west, the town of Colwyn Bay in the centre and Old Colwyn to the east, which is the closest to the Scheme. The A55 Expressway passes through the town, running parallel to the NWC Railway Line, both of which separate Old Colwyn and Colwyn Bay town from the waterfront. Table 29 shows the population and age structure of the LIA, WIA, CCBC and Wales.

Table 29 Population Baseline Data

Area	Total population	Under 16	Age 16-64	65+
LIA	4,935	19%	59%	22%
WIA	26,806	17%	56%	23%
CCBC	117,181	16%	56%	27%
Wales	3,138,631	18%	61%	21%

Source: ONS Population Estimates 2018

The proportion of children in the LIA (19%) is consistent with the proportion in the WIA (17%) and in Wales (18%). It is slightly higher than the proportion in CCBC (16%). The

proportion of people aged 65 and older in the LIA (22%) and WIA (23%) is consistent with the proportion in Wales (21%) but lower than the proportion in CCBC (27%). People aged between 16 and 64 make up the majority of the population in the LIA and WIA.

18.3.2 Deprivation

The Welsh Index of Multiple Deprivation (WIMD) is used for the measurement and comparison of relative level of deprivation (poverty). Table 30 below shows the income deprivation quintiles across the LIA, WIA, CCBC and Wales.

Table 30 Population by Deprivation Quintiles

Location	Most deprived	Second most deprived	Third most deprived	Fourth most deprived	Least deprived
LIA	20%	8%	0%	44%	27%
WIA	22%	18%	7%	25%	17%
Conwy	12%	22%	18%	24%	25%
Wales	20%	20%	20%	20%	20%

Source: Indices of Multiple Deprivation, 2019

Most of the residents in the LIA live in either the least deprived (27%) or fourth most deprived (44%) neighbourhoods in the country. The proportion of people living in the two least deprived quintiles is higher than for the WIA, CCBC and Wales. The population in the LIA is therefore less deprived in comparison to WIA, CCBC and Wales populations.

18.3.3 Employment and Economic Activity

Table 31 shows the economic activity for the working age population (16-64) for each of the study areas.

Table 31 Economic Activity Baseline Data

Area	Economically Active (16-64)	Economically Inactive
LIA	70%	30%
WIA	65%	35%
CCBC	66%	34%
Wales	66%	30%

Source: ONS Population Estimates 2018

The proportion of working age individuals aged 16-64 in the LIA and WIA is 70% and 65% respectively. The proportion of people economically active in the WIA is broadly in line with the CCBC (66%) and Wales statistics (66%). There are more people economically active in the LIA compared to the three other areas.

The Office for National Statistics provides data on employment estimates by industry.¹⁰⁷ The largest industries of employment in the WIA are 'health', 'education', 'arts, entertainment, recreation and other services' and 'retail', (27%, 17%, 7% and 9% respectively). The proportion of employees within the health sector is 11% which is higher than the CCBC and Wales proportion as there is a community hospital and a number of General Practitioner clinics within the WIA.

¹⁰⁷ Office for National Statistics 2018

18.3.4 Businesses

There are several businesses within the LIA located at the western end of Old Colwyn adjacent to the Porth Eirias Car Park, and accessible from the Promenade and beach. These include water sports providers and a restaurant. Other businesses within the LIA are located in Colwyn Bay, to the south of the A55 Expressway.

18.3.5 Tourism

North Wales attracts 3% of domestic tourism nights and accounts for around a third of tourism in Wales, which is more than any other region in Wales.¹⁰⁸ In 2018 tourism generated around £887 million to the CCBC economy.¹⁰⁹

Colwyn Bay's long promenade, ease of access to blue-flag beaches and nearby harbours attracts tourists, particularly in the summer months. The area has been a popular seaside destination since Victorian times.

18.3.6 Health

Table 32 presents key health indicators within CCBC and Wales. CCBC generally performs consistent to the national statistics in relation to public health indicators, including for conditions sensitive to environmental factors such as respiratory diseases. Physical activity levels in CCBC (61%) are higher than national average (53%).

Table 32 Public Health Baseline Data

Measure	CCBC	Wales
Long-term health problem or disability (2011) (%)	24	24
Life expectancy at birth (male 2015-17) (years)	79	78
Life expectancy at birth (female 2015-17) (years)	83	82
Under-75 mortality rate, cardiovascular diseases (per 100,000, 2016-18)	84	86
Physically active adults (% 2017/18)	61%	53%

Source: NHS Wales, Public Health Indicators

18.3.7 Residential Properties

The nearest residential properties to the Scheme are located to the south on Queens Avenue, Beach Road, Wynn Ave North and Min-Y-Don Ave. These properties are also located to the south of the Promenade, A55 Expressway and NWC Railway Line which provide a buffer between the properties and the Scheme. No properties are directly accessible from the A55 Expressway.

18.3.8 Community Resources

There are multiple community resources located within the LIA. Amongst these are a number of churches (7) and schools (3). The closest community resources to the Scheme include Ysgol Eirias, a secondary school to the south of Colwyn Leisure Centre, Ysgol Nant Y Groes, a junior school approximately 100 m south of the Scheme and St Augustine's Priory a church located on Cliff Road, approximately 150 m south of the Scheme.

¹⁰⁸ Mott MacDonald (2013) Colwyn Bay Waterfront Project: Environmental Statement Addendum for Phase 1b

¹⁰⁹ Conwy Borough Council (2019) Destination Conwy Management Plan. Available here: <http://www.conwy.gov.uk/en/Council/Strategies-Plans-and-Policies/Destination-Conwy>

18.3.9 Open Space and Recreation Including Active Travel Routes

National Cycle Route 5 passes through the LIA from the east and along the Promenade in Old Colwyn. This is a main cycle route in CCBC. There are Public Rights of Way (PRoW) in the LIA which provide pedestrians and cyclists access around Colwyn Bay town. A PRoW and a Recreational Route provide access to the Promenade beneath the A55 Expressway and NWC Railway Line, joining the promenade just west of the western Scheme boundary and intersecting the eastern end of the Scheme respectively. Beach access is currently provided through slipways and steps (generally in very poor condition) located at regular intervals.

Eirias Park, which includes amenities such as tennis courts, play areas, sports fields, a skate park and an indoor leisure centre, is located within the LIA.

18.3.10 Development Land

The Conwy LDP¹¹⁰ shows the location and extent of allocated developments in Colwyn Bay. Within the LIA there is one site allocated for housing on Lawson Road which is to the south of the Scheme and west of Eirias Park. The 'Shopping Zone' is also within the LIA, located along Abergele Road.

18.4 Assumptions and Limitations

- The assessment of the potential for significant effects has been carried out against a benchmark of current baseline conditions within the LIA and WIA. As with any dataset, these may be subject to change over time, which may influence the findings of the assessment and could lead to the assessment being subject to statistical time lag;
- No formal consultation or primary research has been undertaken in the production of this chapter;
- Qualitative assessments of the impacts to businesses and residents, in terms of disruption, access and quality of life, have been based on professional judgement; and
- It is assumed that the construction process would not render local properties unusable and there would be no displacement of local residents.

18.5 Key Guidance and Best Practice

The population and human health assessment is guided by European EIA regulations¹¹¹ as well as legislation and national and local planning policy including:

- TAN 16: Sport, Recreation and Open Space;
- TAN 20: Planning and the Welsh Language;
- TAN 23: Economic Development;
- Countryside Rights of Way Act, 2000;¹¹²
- Planning Policy Wales 2018¹¹³; and
- Conwy LDP 2007-2022.

¹¹⁰ Conwy Local Development Plan 2007- 2022 Proposals Map See - <http://conwy.opus3.co.uk/ldf/maps/Adopted%20LDP#x=287267.96421247&y=378610.80546075&scale=10000&1266&1199&1197&1198&1201&1202&1203&1200&1204&1210&1208&1206&1205&1207&1209&1211&1275&1212&1213&1214&1215&1268&1267&1269&1270&1271&1216&1217&1218&1219&1234&1241&1230&1231&1232&1222&1221&1220&1223&1224&1225&12225&1229&1228&1227&1242>, accessed March 2020

¹¹¹ The Town and Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017

¹¹² Countryside and Rights of Way Act, 2000

¹¹³ Planning Policy Wales, Edition 10, (2018) See - <https://gov.wales/sites/default/files/publications/2019-02/planning-policy-wales-edition-10.pdf>, accessed March 2020

The assessment is also guided by the Health Impact Assessment ‘A practical guide’ which outlines human health assessment methods for Wales¹¹⁴. This is considered the most up-to-date and relevant piece of guidance for human health assessments within EIA in Wales. However, professional judgement is also used to guide the assessment, particularly in relation to population impacts.

18.6 Potential Effects

Table 33 below shows the potential effects identified in construction and operation of the Scheme. A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

Table 33 Potential Effects

Effects	Construction	Operation
Potential Insignificant Effects	<p>Effects on community receptors are not likely to be significant as the closest community receptor is over 100m away from proposed construction works. Appropriate construction management processes would be implemented, in relation to potential traffic, noise and air quality impacts so effects are likely to be not significant.</p> <p>The potential effects on development land is not likely to be significant as the Scheme is over 900m from allocated sites. The construction of the Scheme would therefore not impact on the ability for these sites to be developed.</p> <p>There is not expected to be any loss of residential land as a result of the construction of the Scheme. Therefore, effects are likely to be not significant.</p> <p>There may be temporary disruption to access for the small number of properties located in close proximity to the construction of the Scheme. However, these effects would be temporary, and access would be maintained to properties. The effects on residents, in relation to access to their properties, are not likely to be significant..</p> <p>One of the main attractions for tourists to come to Colwyn Bay is the beach. However, as the construction of the Scheme is only along a short section of the beach, this is unlikely to deter tourists from wanting to visit the area. Therefore, potential effects on tourism are not likely to be significant.</p> <p>Access to the beach is likely to be temporarily impacted as a result of construction with some access points being required to be temporarily closed. However, as there are multiple access points, people would still be able get to the beach so effects on recreational receptors are not likely to be significant.</p>	<p>Effects on community receptors are not likely to be significant as the operation of the Scheme would not impact the ability for people to access and use community resources within the LIA.</p> <p>The potential effect on development land from operation of the Scheme is likely to be not significant as the development of the Scheme is over 900m from allocated sites. The operation of the Scheme would therefore not impact on the ability for these sites to be developed.</p> <p>There is not expected to be any loss of residential land or disruption to access as a result of the operation of the Scheme. Therefore, effects are not likely to be significant.</p> <p>There is the potential for beneficial impacts on the Welsh language from increased exposure of visitors to dual language signage.</p>
Potential Significant Effects	<p>There are anticipated to be positive effects on the local economy and employment in relation to job creation, the supply chain, and employment opportunities during construction of the Scheme.</p> <p>There may be temporary disruption for cyclists and pedestrians in the LIA as the construction of the Scheme would temporarily impact on</p>	<p>Improved coastal protection as a result of operation of the Scheme may enhance opportunities for businesses to relocate to the promenade and increase opportunities for employment.</p> <p>There are likely to be benefits for NMUs, due to improvements to the cycleway, the Promenade, particularly widening between</p>

¹¹⁴ Health Impact Assessment A practical guide see - https://whiasu.publichealthnetwork.cymru/files/1415/0710/5107/HIA_Tool_Kit_V2_WEB.pdf, accessed March 2020

Effects	Construction	Operation
	<p>people’s use and enjoyment of the national cycling trail and the Promenade.</p> <p>Construction of the Scheme could potentially have human health effects and reduce amenity for nearby residents during construction through environmental impacts such as noise or air quality impacts. Therefore, combined effects on residents from a temporary reduction in amenity and human health effects have the potential to be significant.</p> <p>There are a small number of businesses within the LIA which could be impacted due to changes to access, and other environmental impacts such as noise and air quality, during construction of the Scheme. This has the potential to disrupt local business activity, particularly footfall, which has the potential to be significant.</p>	<p>Rotary Way and Splashpoint within Area 2. Both access to active travel facilities and amenity are likely to be improved.</p> <p>There are likely to be benefits to human health as a result of enhanced active travel facilities from the Scheme.</p> <p>Improved access to the beach is likely to have a beneficial effect on recreational opportunities for residents in Colwyn Bay. Additionally, the platform at Splashpoint, to allow for fishing and other activities increases the number of recreational opportunities available for both tourists and residents.</p> <p>There is the potential for beneficial effects on tourism as a result of the Scheme as the enhanced protection makes the Promenade more attractive for cyclists and pedestrians as well as landscape and ecological enhancements may also attract more tourists to the area.</p>
Scoped In/Out	Scoped In	Scoped In

Population and human health effects are scoped in for both construction and operation of the Scheme.

Potential additional mitigation measures include:

- Working with local businesses along the Promenade to mitigate potential adverse construction effects. Potential mitigation could include understanding access requirements to maintain footfall and undertaking construction during months when patronage is reduced. This may enable businesses to stay open during construction;
- Configuration of alternative cycling and pedestrian routes to minimise disruption to both visitors and local population during construction; and
- Implementation of best practice construction management procedures to mitigation air quality, noise and traffic effects.

18.7 Additional Information Required

- Outline CEMP; and
- Air quality, noise and traffic EIA Chapter review, to determine human health effects.

18.8 Proposed Methodology

The proposed EIA methodology for the assessment of Population and Health effects can be found in Appendix C.9.

19 Traffic, Transport and Access

19.1 Introduction

This chapter sets out the proposed scope for the assessment of the potential effects of the Scheme on traffic, transport and access. The ES chapter would be supported by a Transport Statement (TS).

During the construction phase it is anticipated traffic would be diverted away from the promenade via Old Colwyn, whilst cyclists using Route 5 of the National Cycle Network (NCN) would be re-routed through Min-Y Don Avenue and Eirias Park.

19.1.1 Reference Reports

- Colwyn Bay Waterfront Phase 1 Construction Traffic Assessment, October 2010; and
- Colwyn Bay Waterfront Phase 2 Construction Traffic Assessment, September 2015.

19.2 Study Area

The study area will be defined in the TS and will consider the likely impact of the construction traffic upon the road network. IEMA guidance recommends the following when considering the impact of traffic on a highway:

- Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
- Include any other specifically sensitive areas where total traffic flows will increase by 10% or more.

At this stage it is considered that operationally (post construction) the scheme will have a negligible impact on existing transport and travel patterns. During the construction phase it is not anticipated that many links will experience an increase in traffic of more than 10%. However, when diversion routes or closures are in place traffic flows could increase by more than 10% on specific links. The exact study area and scope of the TS will be agreed with the Local Highway Authority, when construction routes and traffic management proposals are known in more detail. However, the area of study is broadly defined by the following highway links:

- Promenade;
- A55;
- A457; and
- Cliff Gardens/Wynnstay Road.

19.3 Baseline Conditions

19.3.1 Existing infrastructure and access

The Colwyn Bay promenade is split into two sections; a single carriageway road and a pedestrianised section which includes Route 5 of the NCN. Vehicular access to the promenade is via three main underpasses, which cross to the promenade from the town to the south, under the A55 Expressway and NWC Railway Line, and along the coast road from the west. In addition to kiosks being dotted along the promenade, several slipways and steps lead from the promenade parking areas to the beach itself.

19.3.2 Public Transport

Colwyn Bay Railway Station is located immediately south of the beach close to the former location of the Victoria Pier, whilst the NWC Railway Line embankment runs along the landward side of the coast road. Colwyn Bay Railway Station is served by both local and national train services, whilst the town is connected to local and national destinations.

19.3.3 Colwyn Bay Beach Usage

Parking meter data for the year ending 31st March 2020 recorded that the total number of parking meter uses for the area of the promenade from Rotary Way in the east (boundary between the Scheme Areas 1 and 2) through to Marine Drive in the west (just west of the boundary between Colwyn Bay Waterfront Project Phases 1 and 2) was 33,827 although there is no information about the specific subsequent use of the promenade or beach in these areas. The parking meter data shows that the main area of usage is to the west of Porth Eirias within the completed Phase 1 area.

19.4 Assumptions and Limitations

- For the construction phase, the number of Light Duty Vehicles (LDV) and Heavy Duty Vehicles (HDV) movements required on the Promenade along with the necessary traffic management measures are currently unknown. These would be confirmed and considered in the TS;
- It is currently assumed that the transport of rock revetment will be via road from local quarries rather than barged in by sea; and
- More information on the distribution of traffic across the local road network following the closure of the Promenade during the construction phase would be detailed in the TS.

19.5 Key Guidance and Best Practice

The assessment would be carried out with due regard to the following:

- Highways England (2019) The Design Manual for Roads and Bridges (DMRB), Volume 11: Environmental Assessment;
- The Institute of Environmental Management and Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment;
- The Institute of Environmental Management and Assessment (IEMA) (2003) Guidelines for the Assessment of Road Traffic;
- Planning Policy Wales;
- TAN 18: transport;
- Manual for Streets (2007);
- Conwy Local Development Plan, 2007 – 2022; and
- Active Travel (Wales) Act, 2013.

19.6 Potential Effects

19.6.1 Construction Phase

It is expected that during the construction phase, anticipated to last between 18 and 24 months, there would be a temporary short-term increase in traffic flows due to the delivery of plant, rock armour, construction materials and construction vehicles. Whilst appropriate traffic management and construction routes would be agreed with the Council, the section of Promenade between Porth Eirias and Splash Point would be closed (although it is understood that due to the scale of the Scheme it is likely to proceed in phases with

phased closures accordingly). Non-construction traffic would be diverted around the closure via the local road network.

The impact of construction traffic would be relatively low, as direct access to the promenade can be provided from Junction 22 of the A55 Expressway, to prevent greater traffic flows routing through the town centre or via nearby residential areas.

19.6.2 Operational Phase

Transport related effects could arise from an increased travel demand, which would be identified through the TS. In advance of the assessment, detailed discussions would be held with the Highway Authority to ensure the assessment is appropriate. However, it is anticipated that on completion of the works the operation of the local highway network would remain largely unaffected in terms of motorised traffic, with any increase in demand resulting from active travel modes, such as walking and cycling.

On completion of the Scheme active travel provision would be significantly improved. Cyclists and pedestrians would have an improved, attractive and safe route, which is expected to result in an increase in recreational and commuter use, encouraging sustainable travel and improved health and wellbeing.

19.6.3 Effect Summary

It is not anticipated that existing traffic volumes and travel patterns would change significantly on completion of the works. The active travel improvements are expected to result in increased trips made on foot or by cycle, reducing the number of motorised trips. However, this may be offset by a slight increase in motorised trips due to a small increase in parking provision.

The principal construction stage effects are anticipated to relate to the diversion of traffic. A TS will be produced for Scheme. This would focus on the construction phase and the impact this could have on the local highway network. It would include a Construction Traffic Management Plan to inform construction and minimise adverse effects.

Assumptions about site access and traffic management would be discussed with CCBC with the aim of minimising any construction related impact.

Table 34 details the anticipated construction and operational effects of implementing the Scheme.

Table 34 Potential Effects

Effects	Construction	Operation
Potential Non Significant Effects	<p>Construction traffic could temporarily impact on the quality of life of residents.</p> <p>The transportation of construction material may have a short-term environmental impact.</p> <p>The temporary closure of pedestrian and cycle routes would have a small impact on users, but alternative and suitable diversion routes are available.</p> <p>Temporary increase in traffic volumes on the local road network due to diversions and lorries delivering construction material (depending on construction traffic routes from different locations).</p> <p>Temporary traffic management and highway diversions are likely to be required during the</p>	<p>Changes to parking provision may cause minor disruption to daily routine of residents and businesses.</p> <p>More vehicular movements could occur due to the increased use of waterfront, and the increased number of business and leisure visitors to the town centre.</p>

Effects	Construction	Operation
	construction period, resulting in some access difficulties. Temporary alterations to parking facilities could impact residents and businesses.	
Potential Significant Effects	None identified, assuming the measures identified in TS are implemented during construction.	None identified.
Scoped In/Out	Scoped Out	Scoped Out

A confirmatory scoping opinion for this discipline is requested from CCBC and any relevant statutory consultees.

19.7 Transport Statement

A TS would be prepared and developed based on the following principal activities:

- Review of existing transport conditions to identify the characteristics of the local road network, which would assist in determining the sensitivity of potential nearby receptors;
- Review of highway safety – where the proposed construction works are expected to produce a change in the character of the traffic on the local road network.
- Junction and link analysis – where there is material change in traffic flow the road capacity of would be assessed to determine the effect on the local road network.

To support the production of the TS:

- Existing CCBC traffic survey data would be utilised. Where necessary, additional traffic survey counts would be agreed with CCBC and commissioned;
- Existing CCBC active travel survey data would be utilised. Where necessary, additional traffic survey counts would be agreed with the CCBC and commissioned; and
- Road Traffic Collision data would be obtained and reviewed in the TS.

A Construction Management Assessment would also be required to provide additional clarity on the vehicle movements and temporary traffic management arrangements during construction. This would enable a revised scoping to be undertaken and, if necessary, further assessment within the ES.

20 Proposed ES Scope and Methodology

20.1 Technical Scope

The ES must include a description of the aspects of the environment, which are likely to be significantly affected by the Scheme. Table 35 therefore sets out those disciplines that are proposed to be scoped into and out of the ES based on the scoping assessments completed within Chapters 8 to 19 of this report.

A confirmatory scoping opinion for each discipline is requested from CCBC and any relevant statutory consultees.

Table 35 Disciplines to be Scoped In/Out of the EIA

Topic	Construction	Operation
Air Quality	IN	OUT
Archaeology and Cultural Heritage	OUT	OUT
Biodiversity	IN	IN
Climate: Climate Change	IN	IN
Climate: Resilience	OUT	OUT
Coastal Processes (including Water Quality)	OUT	IN
Flood Risk	OUT	IN
Geology and Soils	OUT	OUT
Landscape and Visual	IN	OUT
Materials and Waste: Materials	IN	OUT
Materials and Waste: Waste	OUT	OUT
Noise and Vibration: Noise	IN	OUT
Noise and Vibration: Vibration	OUT	OUT
Population and Health	IN	IN
Traffic, Transport and Access	OUT*	OUT
Cumulative Impacts	IN	IN
Risk of Major Accidents and Disasters	OUT**	OUT**

* Assuming a TS is produced in support of the Scheme.

** Given that the principal aim of the Scheme is to provide coastal defence and reduce the risk of damage to key infrastructure in the Old Colwyn area and that construction best practice would be utilised, the risk of major accidents and disasters is not considered to be significant and has been scoped out of the EIA.

20.2 Temporal Scope

20.2.1 Environmental Baseline

As a general principle, environmental effects would be assessed by comparing the predicted state of the environment without the Scheme and with the state of the environment with the Scheme for a particular year. This would include an outline of the likely evolution of the site environment without implementation of the development as far as changes from the baseline scenario can be predicted. This baseline evolution may include future trends such as air quality and traffic growth.

20.2.2 Duration of Effects

Environmental effects would be classified as either permanent or temporary, as appropriate. Permanent changes are those which are irreversible or would last for the foreseeable future.

The duration of temporary environmental effects would be defined as short, medium or long term based on the likely durations of the construction and operational phases of the development. These definitions would be considered within the assessment of the likely significant effects and would be set out in the ES.

Where environmental effects would be infrequent or intermittent this would be noted in the ES and the frequency considered in the assessment.

20.2.3 Phases of the Scheme

20.2.3.1 Construction

Certain environmental effects would only occur during construction of the Scheme and would cease once construction activities have ceased. These would typically be the temporary effects of the Scheme and would be described as “short-term” or “medium-term”, as appropriate, using the definitions determined to be appropriate and set out in the ES.

20.2.3.2 Operation

Environmental effects that occur during the operation of the project would typically be permanent or “long-term”.

20.2.3.3 Decommissioning

The Scheme is anticipated to be operational in perpetuity due to the requirement to defend the NWC Railway Line and A55 Expressway. Therefore it is not proposed that the ES would address decommissioning.

20.3 Spatial Scope

The spatial extent of each of the technical assessments would vary from one to another in accordance with the relevant policy and guidance for the assessment of that discipline as detailed in Chapters 8 to 19. Typically, the study area would comprise the site and those areas that are surrounded by the site but excluded from it.

For some disciplines it would extend further from the site boundary where there is the potential for effects to be significant over a wider area (e.g. as a result of traffic generated by the development).

The study area for each technical assessment would be identified and described as appropriate in each of the discipline chapters of the ES.

20.4 Assessment of Effects

20.4.1 Types of Effects

The EIA would report on the likely significant effects for the construction and operational phases of the Scheme.

Account would be taken as appropriate as to whether effects are:

- Direct Effects – effects that are caused by activities which are an integral part of the Scheme;
- Indirect Effects – effects arising indirectly from the construction or use of a development;
- Secondary Effects – arising in consequence of indirect effects;
- Cumulative Effects – effects that result from different sources but which affect a common receptor resulting in a greater combined effect;
- Transboundary Effects – effects caused by a Scheme that are experienced across a boundary;
- Temporary Effects – Environmental effects that occur during the construction of a project would typically be temporary;
- Permanent Effects – Permanent effects are those which are irreversible, would last for the foreseeable future or are effects considered to last greater than ten years;
- Beneficial Effects – Effects that have a positive influence on the environment; and
- Adverse Effects – Effects that have an adverse influence on the environment.

20.4.2 Methodology for Assessing Significance

The method for assessing significance of effects varies between environmental disciplines and a proposed outline for each discipline is provided in Appendix C.

In principle, as this is a linear scheme with highway elements, the overarching - Environmental Assessment Methodology to be followed would be the one outlined in the Design Manual for Roads and Bridges (DMRB) document LA104¹¹⁵. For many chapters, the assessment methodology would be based on the environmental sensitivity (or value/importance) of a receptor and the magnitude of change from the baseline conditions as represented by the significance of effect matrix in Table 36.

It should be noted that the assignment of significance would be based on professional judgement and the matrix below is only a tool to assist with the process.

Table 36 Significance of Effect

		Value/Sensitivity of Effect				
		Very High	High	Medium	Low	Negligible
Magnitude of Effect	Major	Very Large	Large to Very Large	Moderate to Large	Slight to Moderate	Slight
	Moderate	Large to Very Large	Moderate to Large	Moderate	Slight	Neutral to Slight
	Minor	Moderate to Large	Slight to Moderate	Slight	Neutral to Slight	Neutral to Slight
	Negligible	Slight	Slight	Neutral to Slight	Neutral to Slight	Neutral
	No change	Neutral	Neutral	Neutral	Neutral	Neutral

Where the significance of effect can be summarised as follows:

- **Very Large:** Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource

¹¹⁵ DMRB LA104 Environmental Assessment and Monitoring Revision 1, July 2019

integrity. However, a major change in a site or feature of local importance may also enter this category.

- **Large:** These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
- **Moderate:** These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
- **Slight:** These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
- **Neutral:** No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

For some specific discipline assessments, guidance or the nature of the effect requires that differing criteria or scales for determining significance are to be used, however, wherever possible there would be consistency of terminology and conclusions would tie in with the above.

Effects that are described as 'very large', 'large' or 'moderate' are determined to be significant; and effects that are described as 'minor' or 'negligible' are determined to be not significant.

20.4.3 Impact Interactions (Cumulative Impacts)

The EIA Regulations require the consideration of the potential impact of inter-relationships of impacts from the development and cumulative effects of existing and/or approved development with the development. The EIA would consider as appropriate the potential for impact interactions leading to a cumulative environmental effect on a receptor being greater than each of the individual effects that have been identified.

Cumulative impacts would be assessed within a specific chapter of the ES.

20.5 Mitigation

One of the most important functions of the EIA process is to identify ways to mitigate adverse environmental effects and identify opportunities that the Scheme may have for environmental enhancements. For mitigating significant adverse effects, in order of preference the following hierarchy would be followed:

- Enhancement – Opportunities that the Scheme may provide to enhance the local and wider environment;
- Avoidance – Designing a Scheme in such a way that avoids effects on the environment;
- Reduction – Design the development or employ construction methodologies such that significant effects identified are reduced; and
- Compensation – Providing off-site enhancement to compensate for where onsite mitigation has not been possible.

20.5.1 Embedded Mitigation

There is a difference between mitigation that is incorporated (embedded) into the design of the development and mitigation that is subsequently identified to prevent, reduce or offset any remaining significant adverse effects (supplementary mitigation).

Embedded mitigation evolves through the iterative design process and early consideration of the likely significant impacts is essential to incorporating suitable embedded mitigation measures. The ES would document the embedded mitigation measures that have been employed within the design in response to the identification of potentially significant effects.

20.5.2 Supplementary Mitigation

Supplementary mitigation measures are defined as those which require additional activity to be achieved, identified through carrying out appropriate assessments. Where significant adverse effects have been identified through assessments, supplementary mitigation measures would be identified to reduce residual environmental impacts to an acceptable level.

20.5.3 Residual Effects

Environmental effects remaining after mitigation measures have been incorporated are termed residual effects and these would be fully described in the ES.

20.6 Monitoring

The EIA Regulations require “*the monitoring of any significant adverse effects on the environment of proposed development*”. It is important to note that the Regulations only require the monitoring of effects that are both significant and adverse. The ES would therefore ensure that it is clear to the reader which, if any, effects are both adverse and significant and may therefore require monitoring and provide a schedule of proposed monitoring to clearly identify the monitoring that is proposed in relation to any significant adverse effects that have been identified.

20.7 Environmental Statement Summary

Following the submission of this Scoping report to, and receipt of a scoping opinion from, CCBC, the ES would be prepared in compliance with the EIA Regulations. Reference would also be made to current and emerging best practice.

The ES would document the EIA process, describing the Scheme and setting out the policy context; giving full detail of the EIA methodology and any technical methodologies and data used in support of the assessment; present the assessment of likely significant environmental effects; detail any mitigation and enhancement measures that have been employed; and provide a schedule of proposed monitoring arrangements.

The ES would present the residual effects, and an assessment of the cumulative effects and impact interactions.

The ES would comprise of three volumes:

- Volume 1 – Main Text and Figures;
- Volume 2 – Technical Appendices; and
- Volume 3 – Non-Technical Summary.

20.8 Consideration of Alternatives

The EIA process provides an opportunity to influence the design evaluation of a development taking potential environmental constraints and opportunities into consideration before a final decision is taken on design. Early consideration of potential

alternatives to the Scheme would ensure minimisation of risks and could also help to avoid likely environmental effects.

In accordance with the EIA Regulations, the ES would consider the reasonable alternatives to the preferred Scheme and compare the environmental effects with other alternatives qualitatively at high level using professional judgment. The alternatives would include the 'do nothing' scenario

20.9 EIA Team Competence

EIA Regulations require that, to ensure the completeness and quality of environmental statements, *"the developer must ensure that the environmental statement is prepared by competent experts"*.

In line with the EIA Regulations, all contributors to the EIA are competent experts in EIA and this would be demonstrated in the ES with an overview of each key expert's qualifications, professional accreditations and experience.

21 Abbreviations

Table 37 Abbreviations

Abbreviation	Details
AADT	Annual Average Daily Traffic
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
BGS	British Geological Society
CAS	Clean Air Strategy
C&D	Construction and Demolition
CCBC	Conwy County Borough Council
CCRA	Climate Change Risk Assessment
CEMP	Construction Environment Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CL:AIRE	Contaminated Land: Applications in Real Environments
CLRA	Contaminated Land Risk Assessment
CNMP	Construction Noise Management Plan
D4RE	Design for Resource Efficiency
DEFRA	Department for Environment, Food & Rural Affairs
DMRB	Design Manual for Roads and Bridges
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement
GCN	Great Crested Newt (<i>Triturus cristatus</i>)
GHG	Greenhouse Gases
GI	Ground Investigation
HDV	Heavy Duty Vehicles
HGV	Heavy Goods Vehicles
HRA	Habitats Regulations Assessment
IAN	Interim Advice Note
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment (IEMA)
LDP	Local Development Plan
LDV	Light Duty Vehicles
LIA	Local Impact Area
LVIA	Landscape and Visual Impact Assessment
MTAN	Minerals technical advice note
NCN	National Cycle Network
NO2	Nitrogen dioxide
NMU	Non-Motorised User
NRW	Natural Resources Wales

Abbreviation	Details
NSR	Noise Sensitive Receptor
NWC	North Wales Coast
OEMP	Outline Environmental Management Plan
PAS 2080	Publicly Available Standard 2080
PM10	Particulate matter with an aerodynamic diameter of less than 10 microns
PRoW	Public Rights of Way
RIGS	Regionally Important Geological Site
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SWMP	Site Waste Management Plan
TAN	Technical Advice Note
TS	Transport Statement
UKCP18	United Kingdom Climate Projections 2018
WFD	Water Framework Directive
WIA	Wider Impact Area
ZOI	Zone of Influence
ZTV	Zone of theoretical Visibility

A. EIA Screening Opinion

Oliver Edwards
CCBC
Mochdre Offices
Conway Road
Mochdre
LL28 5AB

Gofynnwch am / Please ask for **Ceri Thomas**

 **01492575391**



 **ceri.thomas@conwy.gov.uk**

Ein Cyf / Our Ref **DC/ENQ/29321**

Eich Cyf / Your Ref

Dyddiad / Date **12/03/2020**

Site / Location: Promenade
(Splash Point to Porth Eirias)
Colwyn Bay
Conwy
LL29 8AR

Proposal: EIA Screening Opinion

Dear Oliver Edwards

**Town and Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017
Request for Screening Opinion**

Further to your letter dated 17th February 2020, I hereby attach the local planning authority's Screening Opinion, which determines that any planning application for the development will need to be accompanied by an Environmental Statement.

We would be happy to advise on the scope and level of detail of the information to be provided in the environmental statement following receipt of an application for a Scoping Opinion

We would also like to draw your attention to the requirement in The Town and Country Planning (Development Management Procedure)(Wales)(Amendment) Order 2016 for the applicant to conduct pre-application consultation, and would again invite you to carry out discussions with the local planning authority on these matters.

Yn ddiffuant / Yours sincerely



Paula Jones

Rheolwr Rheoli Datblygu ac Adeiladu / Development and Building Control Manager



**TOWN AND COUNTRY PLANNING
(ENVIRONMENTAL IMPACT ASSESSMENT)
(ENGLAND AND WALES) REGULATIONS
1999 - REGULATION 7**

**DETERMINATION AS TO WHETHER OR NOT A DEVELOPMENT PROPOSAL IS
SUBJECT TO ENVIRONMENTAL IMPACT ASSESSMENT - SCREENING OPINION**

SECTION A

Enquiry reference:	ENQ/29321
Date of receipt of enquiry:	20 th February 2020
Address of site:	Colwyn Bay Promenade and beach
Applicant	Name: Conwy County Borough Council Address: Bodlondeb, Conwy
Proposed developments	Coastal defence works and enhancements to the Promenade
The applicable thresholds/criteria from column 2 of Schedule 2 of the Regulations for the type of development proposed	Paragraph 10(m) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works -- All development
Is the proposal in a Sensitive Area as defined in Regulation 2(1)	No (but close to Liverpool Bay Special Protection Area)

Rydym yn croesawu gohebiaeth yn Gymraeg / We welcome correspondence in Welsh
Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi /
We will respond to any correspondence in Welsh which will not lead to a delay



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BT Cyfnewid Testun / BT Text Relay Service 18001 01492 574000



SECTION B

Consideration has been given by the Local Planning Authority to the Selection Criteria in Schedule 3 of the Regulations, the general guidance contained in the EIA Circular, relevant indicative Criteria in Schedule 3 of the Regulations and, as applicable, the details contained in any request for a screening opinion and in the case of Schedule 2 development.


The Local Planning Authority hereby determines that:

The proposed development constitutes an Environmental Impact Assessment application within the Regulations and therefore you are **required** to submit an Environmental Statement to the Local Planning Authority.

SECTION C

The Local Planning Authority's reasons why it has requested an Environmental Statement in this case are:-

- (i) The area of the proposal exceeds the 1 hectare threshold above which paragraph A29 of Welsh Office circular 11/99 advises that an EIA is more likely to be required
- (ii) The area of the proposal is situated on and above the inter-tidal zone, which is of biodiversity interest, and is close to the Liverpool Bay Special Protection Area. The proposal is likely to have significant effects on biodiversity interests within and neighbouring the development site, including potential impacts on the SPA (subject to further Habitat Regulations Assessment screening).
- (iii) The Promenade and beach form recreational and tourism assets which are make a significant to the economic and social well-being of Colwyn Bay. The proposal could have potentially significant impacts on the appearance, amenity and accessibility of those assets.


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Date of Determination: 12th March 2020

Paula Jones
Development Control Manager
On behalf of Conwy County Borough Council

Copy of this determination is placed on the Part 1 Register.

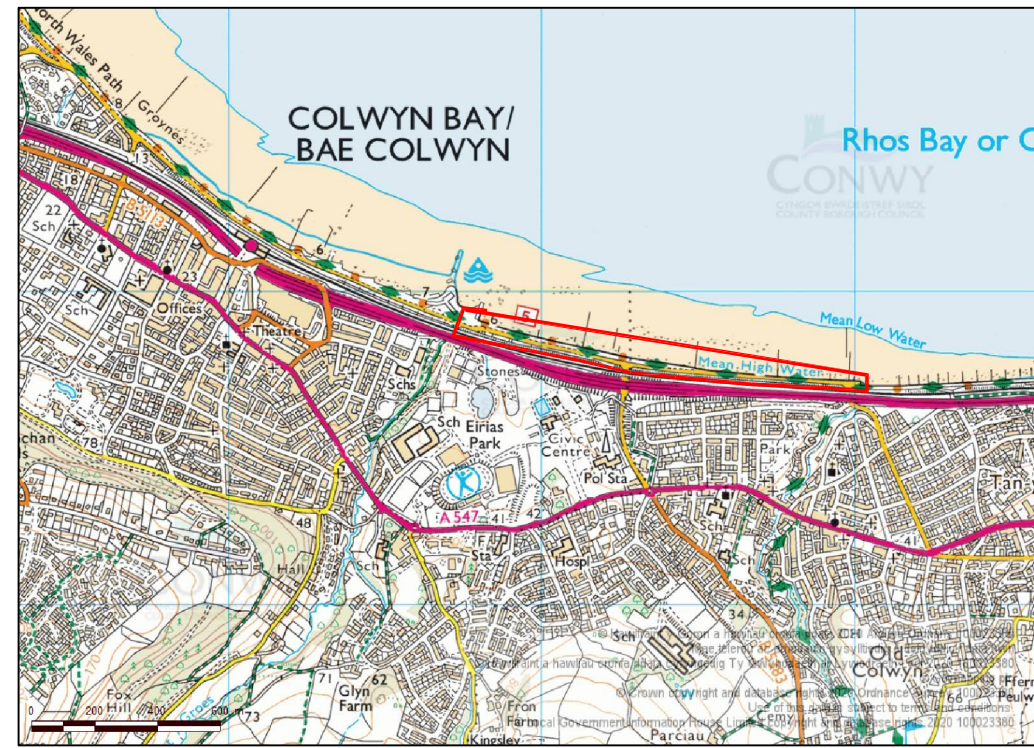


Rydym yn croesawu gohebiaeth yn Gymraeg / We welcome correspondence in Welsh
Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi /
We will respond to any correspondence in Welsh which will not lead to a delay

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B. Supporting Drawings

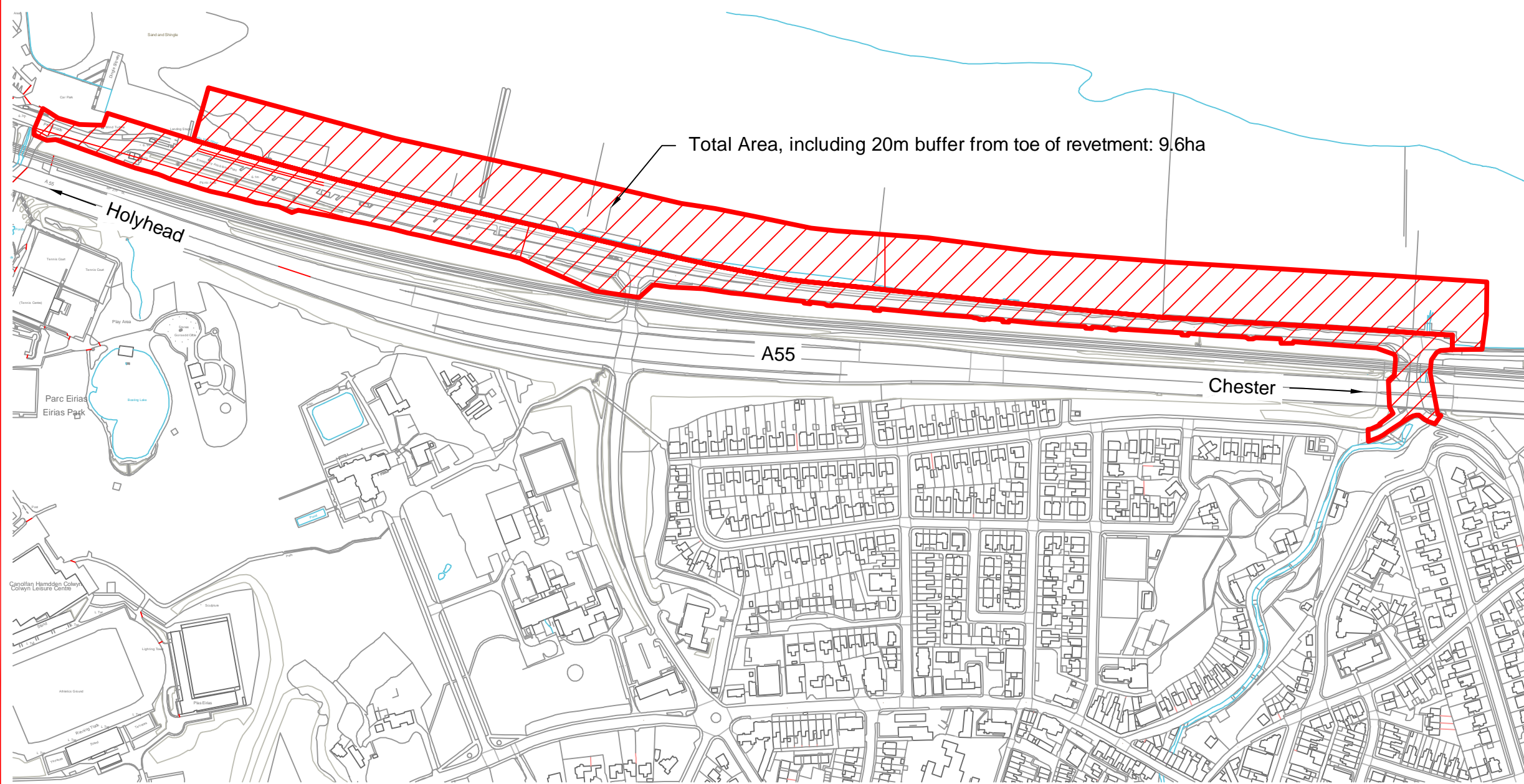


Reproduced from the Ordnance Survey Mapping with the permission of the Controller of H.M.S.O. Crown Copyright. Conwy County Borough Council, 100023380, 2018

NOTES

1. Any anomalies on this drawing should be brought to the attention of Conwy County Borough Council.
2. All dimensions in millimetres unless stated otherwise.

KEY



REV	DETAIL	DRAWN	CHECKED	DATE
B	MM comments incorporated	OPWE	OC	11-02-20
A	Initial Redline Drawing	OPWE		29-01-20

PROJECT
Old Colwyn Coastal Defence and Active Travel

TITLE
Red Line Boundary

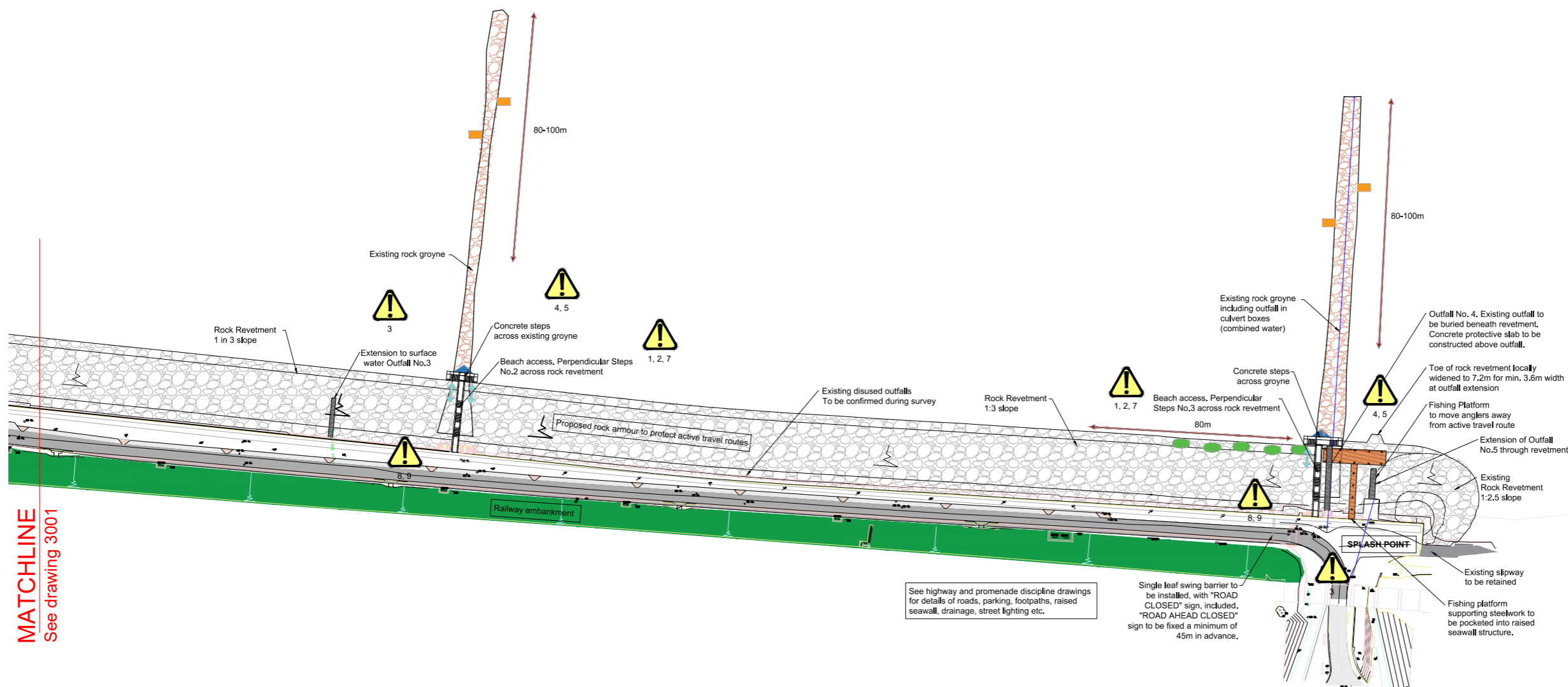
CLIENT
**Environment, Roads and Facilities
 Conwy County Borough Council**

SCALE @ A3:	DRAWN:	CHECKED:	APPROVED:	DWG STATUS:
1:2500	OPWE	OC	OC	Issue
	DATE:	DATE:	DATE:	
	11-02-20	11-02-20	11-02-20	



ENVIRONMENT, ROADS & FACILITIES
 G.B. Edwards BEng (Hons) CEng FICE
 Head of Environment Roads & Facilities,
 Mochdre Offices, Conwy Road,
 Mochdre, LL28 5AB.
 Tel. (01492) 575337
 Fax. (01492) 575199

PROJECT Ref:	DRAWING No:	REV
EP0802	012	B



Location Plan - Area 2
1:1000

Safety, Health & Environmental Information

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

⚠ In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following risks and information:

CONSTRUCTION

- 1 Depth and full extent of existing seawall foundations are unknown. Existing seawall becomes destabilised (DHER Ref. 19 & 23).
- 2 Unforeseen ground conditions/obstructions prevent sheet piles being driven (DHER Ref. 20).
- 3 The status (i.e. disused or live) and precise positions of some outfalls are unknown (DHER Ref. 21).
- 4 Falling from height. Falling objects from promenade (DHER Ref. 22).
- 5 Working in tidal zone (DHER Ref. 27).
- 6 Presence of Unexploded ordnances (UXOs). Site area categorised as low risk. (DHER Ref. 30).

OPERATION AND MAINTENANCE

- 7 Beach levels to be reinstated to existing levels or higher after completion of works. Beach levels shall be monitored at regular intervals including before and after storms and at least once a year in spring (DHER Ref. 4).
- 8 Marine growth to be removed periodically from pedestrian access surfaces (DHER Ref. 5).
- 9 Existing life savings appliances to be maintained (DHER Ref. 9).

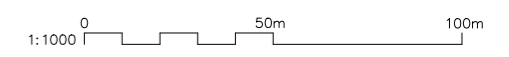
- Notes**
1. This drawing is to be read in conjunction with all discipline drawings, specifications and standards. Any discrepancies shall be referred to the Structural Design Engineer for decision before proceeding.
 2. Unless otherwise noted (UNO), all dimensions are in millimetres, all levels are in meters above ordnance datum (AOD), and all setting-out points in millimeters to the British National Grid (BNG). Do not scale from drawing, if in doubt ask.
 3. All relevant setting-out points, dimensions & levels are to be checked by Contractor on-site prior to commencement of the works.
 4. The onshore topographical survey was supplied by Survey Operations Ltd in April 2008. The offshore topographical (beach) survey was supplied by Environmental & Engineering Services in 2019.
 5. Drawings show approximate position of known services. See Pre-Construction Information for further information. Further unknown services maybe present. Contractor to undertake survey to determine full extent of services present within working area. Results to be forwarded to the Structural Design Engineer 2 week prior to commencement of works, or ordering of materials, whichever occurs first.
 6. See 415437-MMD-00-XX-DR-C-2000 series drawings for the proposed promenade works. See 415437-MMD-00-XX-DR-D-0000 to 1399 series drawings for the proposed highway & drainage works.
 7. Five outfalls are known to be live and shall be extended through the rock revetment as shown on drawing. Following receipt of a forthcoming drainage survey, which should determine the status of the remaining outfalls along the existing seawall, further outfall extensions may be required.

Key to symbols

	Existing railway embankment		Rock structures
	Proposed extent of highway		Fishing platform
	Pedestrian/ cycleway promenade		Outfall extension/ protection
	2 Vertipools fixed to wall at low level		
	5 Rock pools (spacing between pools comprised from 3m to 7m)		
	Bioblock		
	Textured outer walls in intertidal zone		
	Enhancement of rocks in lower intertidal zone		

- Reference drawings**
- 415437-MMD-00-XX-DR-C-3050 - Plans at Scheme Ends
 - 415437-MMD-00-XX-DR-C-3100 - Revetment Cross Sections
 - 415437-MMD-00-XX-DR-C-3200 - Access Build-Out Plan
 - 415437-MMD-00-XX-DR-C-3300 - Perpendicular Steps Plan
 - 415437-MMD-00-XX-DR-C-3400 - Fishing Platform Plan
 - 415437-MMD-00-XX-DR-C-3750 - Outfall and Culvert Cross Sections

TENDER ISSUE FOR CLIENT COMMENT
DO NOT USE FOR CONSTRUCTION



P03	27/04/2020	ZD	Tender Issue for Client Comments	FL	AD
P02	08/04/2020	ZD	Second Issue for Internal Comments	FL	AD
P01	13/03/2020	ZD	First Issue for Comments	FL	AD
Rev	Date	Drawn	Description	Ch'k'd	App'd

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CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL

Title
Old Colwyn Promenade Coastal Defence & Active Travel Improvements General Arrangement Plan - Area 2

Designed	N Sigalas	NS	Eng check	N Clarke	NC
Drawn	Z Dadabhai	ZD	Coordination	F Loy	FL
Dwg check	M Simpson	MS	Approved	A Douglas	AD
Scale at A1	1:1000	Status	TEN	Rev	P03
		Security			STD
Drawing Number 415437-MMD-00-XX-DR-C-3002					

C. Environmental Discipline EIA Methodologies

C.1 Air Quality

C.1.1 Methodology Overview

A detailed assessment using advanced dispersion model ADMS-Roads would be undertaken to determine the significance of the air quality impacts associated with the increase in traffic on diversion routes during the construction phase. The level of assessment would be dependent on the currently unknown construction traffic flows and traffic management measures associated with the Scheme and their respective durations.

The dispersion model would be used to predict NO₂, PM₁₀ and PM_{2.5} concentrations for a 'base' scenario and future 'without' and 'with' Scheme scenarios. The base scenario would be used to undertake model verification process in accordance with the Local Air Quality Management Technical Guidance (LAQM TG16)¹¹ and the future without and with scenarios would be used to demonstrate the impact of the Scheme on sensitive receptors.

The latest LAQM Support Pages¹¹⁶ provided by Defra provides current and future emissions factors, NO_x to NO₂ conversion factors and background concentrations and would be used as part of the assessment.

C.1.2 Establishing Baseline

No surveys are required for this Scheme, as sufficient local authority monitoring data is available to provide a robust baseline.

C.1.3 Assessment of Significance of Effects

Potential air quality effects of a development can be assessed for significance through a variety of methods, although there remains no universally recognised definition of what constitutes 'significant' for air quality effects.

Guidance is available from a range of regulatory authorities and advisory bodies on how best to determine and present the significance of effects within an air quality assessment. It is generally considered good practice that, where possible, an assessment should communicate effects both numerically and descriptively.

Any description of an effect of a development is informed by numerical results; an element of professional judgement must also be involved. To ensure that the descriptions of effects used within the assessment are clear, consistent and in accordance with the latest guidance, definitions for the assessment of changes in air quality concentration at individual human health receptors have been adopted from the EPUK/IAQM guidance¹⁹. Table C.1: Impact Descriptors for Individual Receptors provides impact descriptors for changes in pollutant concentrations as a result of the Scheme.

The magnitude of any concentration change identified must be considered in relation to the Air Quality Assessment Level (AQAL), which may be an air quality objective, EU limit or target value. The most important aspects to consider are the percentage of long-term average concentrations at the individual receptor in the assessment year in relation to the AQAL and the percentage of change in concentration in relation to the AQAL.

EPUK/IAQM recognises that professional judgement is required in the interpretation of air quality assessment significance. Table C.1 is intended as a tool to help interpret the results to the air quality assessment and would therefore be employed in conjunction with professional judgement. In general it would be considered that significant effects would be

¹¹⁶ Defra (no date) Local Air Quality Management (LAQM) Support [online] Accessed at: <https://laqm.defra.gov.uk/>, accessed March 2020

those classed as ‘moderate’ and above however this would need to be considered in combination with professional judgment.

Table C.1: Impact Descriptors for Individual Receptors

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76%-94% of AQAL	Negligible	Slight	Moderate	Moderate
95%-102% of AQAL	Slight	Moderate	Moderate	Substantial
103%-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Notes: ^(a) AQAL = Air Quality Assessment Level i.e. 40µg/m³ for annual mean NO₂. The table is only designed to be used with annual mean concentrations

^(b) Percentage pollutant concentrations are intended to be rounded to whole numbers. For example, the ‘<1%’ category in this table includes all changes from 0.5% to 1.4% (equivalent to an annual mean NO₂ absolute concentration change of between 0.2µg/m³ and 0.6µg/m³). Changes of 0% (i.e. less than 0.5%) are described as negligible.

^(c) When defining the concentration as a percentage of the AQAL, use the ‘do minimum’ concentrations where there is a decrease in pollutant concentration and the ‘do something’ concentration for an increase.

IAQM Guidance¹¹⁷ advises for ecological receptors, where the change in relevant predicted pollutant concentrations as a percentage of the relevant critical level or load is less than 1%, effects are deemed in be non-significant. The Project ecologist should be consulted where the change in relevant predicted pollutant concentrations as a percentage of the relevant critical level or load is greater than 1%. However, a change greater than 1% does not automatically indicate a significant effect.

¹¹⁷ Holman et al (2019). A guide to the assessment of air quality impacts on designated nature conservation sites – version 1.0, Institute of Air Quality Management, London. www.iaqm.co.uk/text/guidance/airquality-impacts-on-nature-sites-2019.pdf. accessed March 2020

C.2 Biodiversity

C.2.1 Methodology Overview

The biodiversity chapter and supporting assessment would be undertaken in line with industry guidance set out within the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland – 2nd edition;

C.2.2 Establishing Baseline

The baseline data has been gathered from a series of desktop studies and field surveys as follows:

- Desktop study (including sourcing records from North Wales Environmental Information Service; Cofnod) (January 2020);
- Phase 1 Habitat Survey (December 2019 and January 2020);
- Bat Assessment of Buildings (March 2020); and
- Overwintering bird surveys (December 2019 – February 2020).

In addition, the information outlined in Chapter 10.7 would also be required.

C.2.3 Assessment of Significance of Effects

C.2.3.1 Criteria for Determining Value/Sensitivity

The criteria for determining the value and sensitivity of ecological receptors are set out within Table C.2

Table C.2: Criteria for Determining Value/Sensitivity of Receptor

Value/ Sensitivity	Criteria
Very high	Very high importance and rarity, international scale and very limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • internationally designated sites.
High	High importance and rarity, national scale, and limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • National designated sites; • Regionally important sites within limited potential for substitution; and • Species protected by European Legislation (or equivalent transposed UK legislation).
Medium	High or medium importance and rarity, regional scale, limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • Regionally important sites with potential for substitution; • Locally designated sites; and • Species protected by National Legislation.
Low	Low or medium importance and rarity, local scale. Examples of this include: <ul style="list-style-type: none"> • Undesignated sites of some local biodiversity and earth heritage interest.
Negligible	Very low importance and rarity, local scale. Examples of this include: <ul style="list-style-type: none"> • Other sites with little or no local biodiversity and earth heritage interest.

C.2.3.2 Criteria for Determining Magnitude of Effect

The criteria for determining magnitude of effects in respect of ecology impacts is set out within Table C.3.

Table C.3: Criteria for Determining Magnitude of Effect

Magnitude of Effect	Criteria	
	Adverse	Beneficial
Major	The proposal would adversely affect the integrity of the site, habitat or species population, in terms of the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, the complex of habitats and/or the population levels of species of interest.	The proposal would improve the integrity of the site, habitat or species population, in terms of the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, the complex of habitats and/or the population levels of species of interest.
Moderate	The proposal would not adversely affect the integrity of the site, habitat or species, but would adversely affect the ecological objectives for the site or species. However, if, in the light of full information, it cannot be clearly demonstrated that the proposal would not have a negative effect on integrity, then the adverse impact should be assessed as major.	The proposal would not beneficially affect the integrity of the site, habitat or species, but would beneficially affect the ecological objectives for the site or species. However, if, in the light of full information, it cannot be clearly demonstrated that the proposal would not have a positive effect on integrity, then the beneficial impact should be assessed as major.
Minor	Some minor negative impact is evident with changes in the habitat or species population. However, ecological objectives for the site or species would not be adversely affected.	Some minor positive impact is evident with changes in the habitat or species population. However, ecological objectives for the site or species would not be beneficially affected.
Negligible	The habitats or species on the site are being adversely affected or changed, but there is no observable impact in either direction.	The habitats or species on the site are being beneficially affected or changed, but there is no observable impact in either direction.
No change	The site, habitat or species is either outside the zone of influence, or if inside the zone of influence, is not in any way altered by the works either adversely or beneficially.	

C.2.3.3 Significance of Effect Matrix

Based on Table C.2 and Table C.3, using the combination of conservation value of the receptor and the magnitude of change, the significance of the effect upon nature conservation features as a result of the Scheme would be identified and assessed (see Table C.4).

Table C.4: Significance of Effect Matrix

		Value/Sensitivity of Effect				
		Very High	High	Medium	Low	Negligible
Magnitude of Effect	Major	Very Large	Large to Very Large	Moderate to Large	Slight to Moderate	Slight
	Moderate	Large to Very Large	Moderate to Large	Moderate	Slight	Neutral to Slight
	Minor	Moderate to Large	Slight to Moderate	Slight	Neutral to Slight	Neutral to Slight
	Negligible	Slight	Slight	Neutral to Slight	Neutral to Slight	Neutral
	No change	Neutral	Neutral	Neutral	Neutral	Neutral

Note: See Chapter 20.4.2 for overarching effect descriptors.

For the purposes of this assessment, effects of moderate adverse or beneficial and above would be considered to be significant.

C.3 Climate

C.3.1 Methodology Overview

C.3.1.1 Effects on Climate Change

The assessment of the effects of the Scheme on climate would include an assessment of the greenhouse gases (GHGs)¹¹⁸ emitted during construction (production of the materials used to construct the Scheme), and operation over the lifecycle of the Scheme.

C.3.1.2 Resilience of the Scheme to Climate Change

The resilience of the scheme to climate change has been scoped out of the assessment as all potential significant risks have been mitigated against within the design of the scheme.

C.3.1.3 In combination climate impacts

A qualitative assessment of the in-combination climate impacts would be carried out in line with the IEMA EIA Guide to Climate Change Adaption and Resilience (2015). The assessment would be based on professional judgement of the information available where published quantifiable methods are not available.

C.3.2 Establishing Baseline

GHG assessments would be undertaken where possible to footprint the design informing the baseline. It is expected that due to limited information available before the tender design is finalised that the GHG footprint calculated for the ES would form the baseline for the future design stages.

C.3.3 Assessment of Significance of Effects

C.3.3.1 Criteria for Determining Value/Sensitivity

GHG do not have a local receptor and therefore there is no criteria for determining the value or sensitivity of the receptor.

C.3.3.2 Criteria for Determining Magnitude of Effect

There is at present no single accepted criteria for determining magnitude of effect of GHGs on climate change.

C.3.3.3 Significance of Effect Matrix

There is at present no single accepted criteria for determining the significance of GHGs on climate change. It is deemed that any emissions should be considered significant due to the current Net Zero targets¹¹⁹. An assessment of project GHG emissions against Welsh government carbon budgets shall be undertaken to contextualise the significance of the Schemes emissions.

¹¹⁸ A greenhouse gas is a gas that absorbs and emits radiant energy within the thermal infrared range. Greenhouse gases cause the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide and ozone.

¹¹⁹ IEMA, Environmental Impact Assessment Guide to : Assessing Greenhouse Gas Emissions and Evaluating their Significance (2017) [online] available at: https://www.iema.net/assets/uploads/EIA%20Guide_GHG%20Assessment%20and%20Significance_IEMA_16May17.pdf accessed March 2020

C.4 Coastal Processes

C.4.1 Methodology Overview

The methodology carried out to assess the impacts of the proposed coastal defence improvement works is as follows:

- Review of the relevant legislation and policies pertinent to the Scheme;
- Identification of the baseline conditions, including coastal processes, water quality information, hydrodynamic conditions and geomorphology through desktop surveys, site reconnaissance and preliminary ground investigation;
- Prediction of the impacts on the baseline conditions as a result of the proposed coastal defence improvement works;
- Identification of the mitigation measures that may be required to address any potential significant impacts on coastal processes;
- Assessment of residual impacts on coastal processes in the context of the proposed mitigation measures; and
- Assessment of cumulative impacts in relation to adjacent schemes and proposals.

C.4.2 Establishing Baseline

Modelling undertaken to date would be used to establish the baseline of coastal processes¹²⁰. Works have been undertaken to the west of the Scheme site since this modelling was undertaken. A thorough review of findings of the previous modelling completed¹²¹ would be undertaken considering the potential receptors that may be subject to change.

C.4.3 Assessment of Significance of Effects

C.4.3.1 Criteria for Determining Value/Sensitivity

The criteria for determining the value and sensitivity of ecological receptors that could be impacted by changes to coastal processes is presented in Table C.5.

Table C.5: Criteria for Determining Value/Sensitivity of Receptor

Value/ Sensitivity	Criteria
Very high	Very high importance and rarity, international scale and very limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • Internationally designated sites.
High	High importance and rarity, national scale, and limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • National designated sites; • Regionally important sites within limited potential for substitution; and • Species protected by European Legislation (or equivalent transposed UK legislation).
Medium	High or medium importance and rarity, regional scale, limited potential for substitution. Examples of this include: <ul style="list-style-type: none"> • Regionally important sites with potential for substitution; • Locally designated sites; and • Species protected by National Legislation.

¹²⁰ Royal Haskoning, 'Colwyn Bay Detailed Modelling Study for Coast Defence Scheme: Phase 1 Interim Modelling Technical Note' (2010)

¹²¹ Royal Haskoning, 'Colwyn Bay Detailed Modelling Study for Coast Defence Scheme: Phase 1 Interim Modelling Technical Note' (2010)

Value/ Sensitivity	Criteria
Low	Low or medium importance and rarity, local scale. Examples of this include: <ul style="list-style-type: none"> Undesignated sites of some local biodiversity and earth heritage interest.
Negligible	Very low importance and rarity, local scale. Examples of this include: <ul style="list-style-type: none"> Other sites with little or no local biodiversity and earth heritage interest.

C.4.3.2 Criteria for Determining Magnitude of Effect

The criteria for determining the magnitude of effects on coastal processes are presented in Table C.6.

Table C.6: Criteria for Determining Magnitude of Effect

Magnitude of Effect	Criteria	
	Adverse	Beneficial
Major	Long term (> 2 years) changes to beach erosion / sediment dispersion occurs / change in coastal processes / decrease in water quality	Major improvements to amenity beach resource.
Moderate	Medium term (6 months to 2 year) changes to beach erosion / sediment dispersion occurs/ change in coastal processes / decrease in water quality	Moderate improvements to amenity beach resource.
Minor	Short term (3 – 6 months) changes to beach erosion / baseline sediment dispersion occurs / change in coastal processes / decrease in water quality	Minor improvements to amenity beach resource.
Negligible	Very short term (less than 3 months) changes to beach erosion / baseline sediment dispersion occurs / change in coastal processes / decrease in water quality	Negligible improvements to amenity beach resource.
No change	No loss or alteration of sediment mobility/ beach erosion / medium baseline sediment dispersion occurs / change in coastal processes / changes to water quality	

C.4.3.3 Significance of Effect Matrix

The significance of effects matrix for coastal processes is presented in Table C.7. This table combines the value and sensitivity of the receptors with the magnitude of the effects in relation to coastal processes.

Table C.7: Significance of Effect

		Value/Sensitivity of Effect				
		Very High	High	Medium	Low	Negligible
Magnitude of Effect	Major	Very Large	Large to Very Large	Moderate to Large	Slight to Moderate	Slight
	Moderate	Large to Very Large	Moderate to Large	Moderate	Slight	Neutral to Slight
	Minor	Moderate to Large	Slight to Moderate	Slight	Neutral to Slight	Neutral to Slight
	Negligible	Slight	Slight	Neutral to Slight	Neutral to Slight	Neutral
	No change	Neutral	Neutral	Neutral	Neutral	Neutral

Note: See Chapter 20.4.2 for overarching effect descriptors.

For the purposes of this assessment, effects of moderate adverse or beneficial and above would be considered to be significant.

C.5 Flood Risk

C.5.1 Methodology Overview

The methodology carried out to assess the impacts of the proposed coastal defence improvement works is as follows:

- Review of the relevant legislation and policies pertinent to the Scheme;
- Identification of the baseline flood risk (this has been undertaken in the overtopping assessment);
- Prediction of the impacts on the baseline conditions as a result of the proposed coastal defence improvement works;
- Identification of the mitigation measures that may be required to address any flood risk during construction and any residual flood risk during operation; and
- Assessment of residual impacts on flood risk in the context of the proposed mitigation measures.

C.5.2 Establishing Baseline

The overtopping assessment establishes the current baseline overtopping risk.

C.5.3 Assessment of Significance of Effects

The potential effects the Scheme could have on both the direct impacts to flood risk; and indirect impacts of these on other environmental aspects.

The criteria for determining the magnitude of effects on flood risk is presented in Table C.8.

Table C.8: Criteria for Determining Magnitude of Effect

Magnitude of Impact	Criteria	
	Adverse	Beneficial
Major	Major increase in flood risk including to essential and highly vulnerable infrastructure	Major improvement in flood risk to infrastructure
Moderate	Moderate increase in flood risk including vulnerable infrastructure	Moderate improvement in flood risk to infrastructure
Minor	Minor increase in flood risk including less vulnerable infrastructure	Minor improvement in flood risk to infrastructure.
Negligible	Negligible increase in flood risk	Negligible improvement in flood risk to infrastructure
No change	No alteration of flood risk	

For the purposes of this assessment, effects of moderate adverse or beneficial and above would be considered to be significant.

C.6 Landscape and Visual

C.6.1 Methodology Overview

The methodology used for this scoping exercise would be based on the Guidelines for Landscape and Visual Impact Assessment (GLVIA), 3rd Edition: (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

C.6.2 Establishing Baseline

C.6.2.1 Landscape

The landscape baseline study would consider the constituent elements, features and other factors that contribute to existing landscape character within the study area including:

- The physical influences on the landscape resource - including topography, geology, soils, microclimate, water bodies and water courses;
- The influence of human activity - including land use, open space, transport routes, public rights of way, national trails, historic green lanes, land management, the character of settlement and buildings and the pattern and type of fields and enclosure;
- The aesthetic and perceptual aspects of the landscape - including scale, complexity, openness, tranquillity, and wildness; and
- Heritage features - including conservation areas, listed buildings, registered parks and gardens and other elements contributing to historic landscape character.

Key sources of information include OS mapping, aerial photography and published documents on the Conwyn County Borough Council (CCBC) web site. In accordance with the guidance in GLVIA 3, existing landscape character assessments (including the Natural Resources Wales Landscape Character Assessment) and historic characterisation documents, where appropriate and up to date, would be used to inform the LVIA.

The findings of the desk study would be reviewed in conjunction with the site survey to identify local landscape character areas (LCA). These are broadly homogeneous units of distinct features and elements.

The value of each LCA would be established by considering statutory and non-statutory landscape designations indicating national or local value (such as Areas of Outstanding Natural Beauty) and a range of factors including:

- Landscape condition, quality and intactness;
- Scenic quality;
- Rarity (rare elements, features or landscape character type);
- Representativeness (whether the landscape contains a character, feature or element that is an especially important example of the type);
- Presence of features of conservation interest (ecological, earth science, historical, cultural);
- Recreational value;
- Perceptual aspects of the landscape such as wildness and/or tranquillity; and
- Cultural or historical associations with, for example, writers, artists, historical events.

C.6.2.2 Visual

The baseline study identifies the people in the area and important, designated or protected views potentially affected by the development. Viewpoints would be selected to represent the various visual receptor types in the study area including recreational, transport, active travel and employment receptors. Viewpoints would also be selected to represent specific views valued for their scenic quality or cultural associations or to demonstrate a specific issue. The selection of viewpoints would be based on the extent of the ZTV, the findings of the site survey, a review of planning policy documents and discussion with CCBC.

Photographs would be taken to represent the character of the landscape and existing views.

C.6.3 Assessment of Significance of Effects

The assessment would identify the residual effects likely to arise from the development, taking into account mitigation measures and changes over time. The significance of effects would be assessed by considering the sensitivity of the receptor and the predicted magnitude of change in relation to the baseline conditions.

C.6.3.1 Landscape

The sensitivity of the landscape would be evaluated by considering the existing value of the landscape and its susceptibility to the type of change arising from the Scheme. There can be a complex relationship between the value attached to the landscape and its susceptibility to change, especially if the change is within or close to a designated landscape. The evaluation of sensitivity would be based on the criteria set out in Table C.9

Table C.9: Landscape Sensitivity

Landscape value and susceptibility to change	Sensitivity
Designated landscape (such as AONB). Landscape of high scenic quality with a distinctive combination of features, elements and characteristics, outstanding views and a strong sense of place. A scarce or fragile landscape with cultural, historic or ecological elements which make a major contribution to landscape character. No or very few landscape detractors. Has components which are difficult to replace (such as mature trees). A tranquil landscape in good condition, largely intact, with an unspoilt character. A high susceptibility to change due to the type of development proposed. No or very limited potential for substitution or replacement.	High
Landscape locally designated (such as conservation area, regional park) or locally valued (for its recreational facilities and footpath networks for instance). Some scenic quality and a moderate sense of place. A landscape with some distinctive features, elements and characteristics. Some cultural, historic or ecological elements which contribute to landscape character. Some high use areas, but overall medium tranquillity. Few landscape detractors. A landscape in moderate condition, with some unspoilt characteristics and a moderate susceptibility to change due to the type of development proposed. Some potential for substitution or replacement.	Medium
Undesignated landscape, not valued for its scenic quality, with a disparate combination of features, elements and characteristics and a weak sense of place. Mainly common features and few or no cultural, historic or ecological elements that contribute to landscape character. Many landscape detractors. A landscape of low tranquillity, in poor condition and a low susceptibility to change due to the type of development proposed. Good potential for substitution or replacement.	Low

Based on GLVIA 3 (LI and IEMA, 2013)

The magnitude of change to landscape character (Table C.10) would be determined by considering:

- The nature of an impact - whether the introduction of a Scheme would be of benefit or detriment to the existing landscape character;

- The scale of the change - extent of the loss of landscape elements, the degree to which aesthetic features or perceptual aspects of the landscape are altered (by the removal of hedgerows or introduction of new structures for example) and whether a key characteristic of the landscape is altered;
- The geographical extent of the area affected; and
- The duration of the change and its reversibility.

Table C.10: Magnitude of Change to Landscape Character

Magnitude	Criteria
High	Total loss or substantial alteration to key elements/features/characteristics of the LCA and/or its setting. Addition of new elements which conflict with key characteristics of the existing landscape. Changes that alter a substantial proportion the more LCA. Introduction of long-term and/or irreversible changes to an LCA or its setting.
Medium	Partial loss or alteration to key elements/features/characteristics of the LCA and/or its setting. Addition of new elements or features that are prominent in the landscape but which do not necessarily conflict with key characteristics of the existing landscape. Changes that alter part of an LCA or its immediate setting. Introduction of medium to long term and/or irreversible changes to part of an LCA or its setting.
Low	Slight loss or alteration to one or more key characteristics of the LCA and/or its setting. Addition of new elements or features that are largely characteristic of the existing LCA and/or its setting. Introduction of short to medium term changes to the LCA and/or irreversible changes to a small proportion of the LCA.
Negligible	No change to, or barely perceptible loss or alteration to key characteristics of the LCA and its setting. Addition of new elements or features that are characteristic of the existing LCA and/or its setting. Changes experienced close to the Scheme site at a very localised level.

Based on GLVIA 3 (LI and IEMA, 2013)

C.6.3.2 Visual Amenity

The sensitivity of visual receptors would be evaluated by considering the value attached to specific views and the susceptibility of visual receptor to changes to views and visual amenity. The value attached to a view could derive from a planning designation or an association with a heritage asset. The susceptibility to change depends on the occupation or activity of the receptor and the extent to which their attention is focused on the view and visual amenity.

The evaluation of view value and susceptibility to change would be based on the criteria set out in Table C.11 and Table C.12.

Table C.11: Level of View Value

View Value	Criteria for Assessing View Value
High	A view of high scenic value. A view identified as of value on an Ordnance Survey map, tourist map or guidebook, or one recorded in art or literature of national significance. A view where the composition was a fundamental aspect of the design or function of a heritage asset and is an integral part of the setting of a heritage asset. A view with cultural associations, including landscapes known historically for their picturesque and landscape beauty, those which became subjects for paintings of the English landscape tradition, and views which have otherwise become historically cherished and protected.
Medium-High	A view of medium to high scenic value. A view identified as of value in a local guidebook. A view where existing adverse elements do not form a clearly apparent part of the view composition of the view. A view that may be recorded in art or literature of regional or local significance. A view where a heritage asset makes a partial contribution to the view. A view where the composition was an important aspect of the design or function of a heritage asset and forms part of the setting of a heritage asset. A view that may be identified in character area appraisals.
Medium	A view of medium scenic value. A view where existing adverse elements may form a noticeable part in the composition of the view. A typical and/or representative view. A

View Value	Criteria for Assessing View Value
	view where the composition was a peripheral aspect of the design or function of a heritage asset.
Medium-Low	A view of medium to low scenic value. A view where existing adverse elements form a very noticeable part in the composition of the view.
Low	A view of low scenic value. An undistinguished or unremarkable view and / or a view where existing adverse element form a clearly apparent or dominant part of the view / composition of the view.

Based on GLVIA 3 (LI and IEMA, 2013)

Table C.12: Visual receptor Susceptibility to Change

Level of susceptibility	Receptor
High	Occupiers of residential properties orientated towards the development. Walkers and visitors to heritage assets whose attention is focused on a landscape of recognised high quality. Designated or protected views. Views from a recognised high-quality landscape such as a National Park or an AONB.
Medium	People travelling along scenic roads through the landscape. Walkers and visitors to heritage assets whose attention is focused on a landscape of moderate quality. People walking along residential streets. Occupiers of residential properties with oblique views of the development.
Low	People at work and in educational institutions. People engaged in formal sports activities. People walking through urban areas (for example commuters). People on main roads or railways whose attention is not focused on the landscape (such as commuters).

Based on GLVIA 3 (LI and IEMA, 2013)

The overall sensitivity of the receptor (based on combining the view value and the receptor's susceptibility) can be high, medium or low.

The magnitude of change to views would be determined by considering:

- The nature of an impact by judging whether the introduction of a Scheme would be of benefit or detriment to the existing view. The impact of a Scheme can be adverse or beneficial;
- The context of the existing view (e.g. whether it is across a natural landscape or an industrial site);
- The extent to which the view has been altered due to the loss/ addition of features and the proportion of the view the development would occupy;
- The scale and appearance of the Scheme and the degree of contrast/ integration with the existing view;
- The distance of the visual receptor from the development and the angle/ position of view;
- The duration and reversibility of the effect;
- The size and scale of the effect; and
- The geographical extent of the changes to the view.

The evaluation of the magnitude of change would be based on the criteria set out in Table C.13.

Table C.13: Magnitude of Change to Views

Magnitude	Criteria
High	<p>Total loss or substantial alteration to key characteristics of the view</p> <p>Addition of new features or components that are continuously highly visible across the majority of the view and incongruous with the existing view.</p> <p>Substantial changes in close proximity to the visual receptor and within the direct frame of view.</p> <p>Introduction of long term or permanent change uncharacteristic of the view</p>
Medium	<p>Noticeable change or alteration to one or more key characteristics of the view</p> <p>Addition of new features or components that may be continuously highly visible across much of the view, but are largely characteristic of the existing view.</p> <p>Changes a relatively short distance from the receptor, but viewed as one of a series of components in the middle ground of the view</p> <p>Substantial change partially filtered by intervening vegetation and/or built form, or viewed obliquely</p> <p>Introduction of medium to long term change uncharacteristic of the view and/or permanent changes largely characteristic of the existing view or affecting a small proportion of the view</p>
Low	<p>Slight loss or alteration to one or more characteristics of the view</p> <p>Addition of new features or landscape components that may be continuously or intermittently visible in part of the view, but are largely characteristic of the existing view from a receptor</p> <p>Changes within the background of the view, viewed as one of a series of components in the wider panoramic view from a receptor</p> <p>Change largely filtered by intervening vegetation and/or built form, or viewed obliquely</p> <p>Introduction of short to medium term change uncharacteristic of the view and/or long term/permanent changes in a small proportion of the view.</p>
Negligible	<p>No change to, or barely perceptible loss or alteration in the view.</p> <p>Addition of new features or landscape components that are largely inconspicuous and characteristic of the existing view.</p> <p>Changes within the background of the view, viewed as an inconspicuous element within the wider panorama.</p> <p>Change almost entirely obscured by intervening vegetation and/or built form.</p> <p>Short term change affecting a small proportion of the view.</p>

Based on GLVIA 3 (LI and IEMA, 2013)

C.6.3.3 Significance of Effects

Effects may be adverse or beneficial. Major and moderate effects are considered significant.

Professional judgement would be used to determine the overall level of significance of effects on landscape and visual receptors in weighing the sensitivity of the receptors against the magnitude of change. The evaluation of the significance of effects would be based on the criteria set out in Table C.14 and Table C.15.

Table C.14: Significance of Effects on Landscape Character

Significance of effects	Criteria
Major beneficial	A clear improvement or enhancement of existing character. Restoration of characteristic features previously wholly or largely lost through inappropriate management or previous development.
Moderate beneficial	A noticeable improvement or enhancement of existing character. Restoration of valued characteristic features previously largely lost through inappropriate management or previous development.

Significance of effects	Criteria
Minor beneficial	A small improvement or enhancement of existing character. Restoration of valued characteristic features previously partly lost through inappropriate management or previous development.
Negligible	Maintenance of the existing character, sense of place and/or local distinctiveness of the landscape.
Minor adverse	A small deterioration in the existing character due to the loss of characteristic features and or the introduction of uncharacteristic features which detract from the sense of place or local distinctiveness. Effects may relate to a small proportion of the character area.
Moderate adverse	A noticeable deterioration in the existing character due to the loss of characteristic features or the introduction of uncharacteristic features or elements which detract from the sense of place or local distinctiveness. Effects may relate to a medium proportion of the character area.
Major adverse	A clear deterioration in the existing character due to the loss of key characteristic features or the introduction of uncharacteristic features or elements which detract from the sense of place or local distinctiveness. Effects may relate to all or a large proportion of the character area.

Based on GLVIA 3 (LI and IEMA, 2013)

Table C.15: Significance of Effects on Visual Receptors

Significance of effects	Criteria
Major beneficial	A substantial improvement, affecting a large extent of the view.
Moderate beneficial	A noticeable improvement, affecting part of the view.
Minor beneficial	A small improvement, affecting a small extent of the view.
Negligible	No discernible deterioration or improvement in the existing view.
Minor adverse	A small deterioration, affecting a small extent of the view.
Moderate adverse	A noticeable deterioration, affecting part of the view.
Major adverse	A substantial deterioration, affecting a large extent of the view.

Based on GLVIA 3 (LI and IEMA, 2013)

To achieve consistency in the evaluation of the significance of effects within the ES (see Chapter 20.4.2), the assessment would also be guided by the conversion below:

- Negligible = Neutral;
- Minor = Slight;
- Moderate = Moderate; and
- Major = Large/Very Large (depending on professional judgement and in line with the descriptors in Chapter 20.4.2).

For the purposes of this assessment, effects of moderate adverse and above would be considered to be significant.

C.7 Materials

C.7.1 Methodology Overview

No specific industry guidance on significance criteria for the assessment on material resources exists, however, it is professional judgement that the significance criteria stated in Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 13 LA110 'Sustainability and Environment Appraisal - Material Assets and Waste, is suitable for this Scheme. The use of the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 13 LA110 'Sustainability and Environment Appraisal - Material Assets and Waste'¹²² is also endorsed through the IAN 125/09(W)¹²³. Despite the guidance being primarily for motorway and truck road projects it is regarded as suitable for other such large linear projects.

It is acknowledged that the use of material resources would likely cause adverse environmental effects, predominantly through transportation (both to and from site), from detrimental impacts to air quality and increased local noise levels. However, these effects are more logically dealt with in other chapters, and have, therefore, not been included within the scope of this assessment.

C.7.2 Establishing Baseline

The existing baseline conditions would be identified from desk-based studies and information from ground investigations. This information would be used to determine the nature of existing materials on site that would be used in the construction of the coastal defence.

The potential locations of material sources would also be considered. The assessment of effects on material assets would encompass effects arising during the construction of the Scheme, up until the point when the Scheme opens.

C.7.3 Criteria for Determining Value/Sensitivity of Receptor

The categories for the significance of effect from the use of materials is provided in Table C.16 and the level of significance in Table C.17 (stated as significant or not significant). For both these tables "Region" means the authority comprising the second study area, in this case Conwy and North Wales. "Primary materials" describes materials that are from a non-renewable source.

Professional judgement would also be used to provide an assessment of effects based on several factors, including:

- The availability of the material resources;
- The type of materials required, e.g. primary/virgin materials, manufactured materials, recycled materials;
- The type of materials expected to:
 - Arise in the largest quantities;
 - Are primary/virgin materials; and

¹²² Highways England (2019) Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (formerly IAN 153/11) [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20110%20Material%20assets%20and%20waste-web.pdf> accessed March 2020

¹²³ Welsh Government (2010) INTERIM ADVICE NOTE 125 /09(W) Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment' [online] available at <https://gov.wales/sites/default/files/publications/2017-10/interim-advice-note-12509w-supplementary-guidance-for-users-of-design-manual-for-roads-and-bridges-dmrb-volume-11-environmental-assessment.pdf> accessed March 2020

- Comprise a large proportion of the value of the Scheme.

Table C.16: Significance Categories and Descriptions for Material Assets

Significance category	Description
Neutral	<ul style="list-style-type: none"> ● Project achieves >99% overall material recovery / recycling (by weight) of non-hazardous Construction Demolition Waste (CDW) to substitute use of primary materials; and ● Aggregates required to be imported to site comprise >99% re-used / recycled content.
Slight	<ul style="list-style-type: none"> ● Project achieves 70-99% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials; and ● Aggregates required to be imported to site comprise re-used/recycled content in line with the relevant regional percentage target.
Moderate	<ul style="list-style-type: none"> ● Project achieves less than 70% overall material recovery / recycling (by weight) of non-hazardous CDW to substitute use of primary materials; and ● Aggregates required to be imported to site comprise re-used/recycled content below the relevant regional percentage target.
Large	<ul style="list-style-type: none"> ● Project achieves <70% overall material recovery / recycling (by weight) of non-hazardous Construction and Demolition Waste (CDW) to substitute use of primary materials; and ● Aggregates required to be imported to site comprise <1% re-used / recycled content; and ● Project sterilises ≥ 1 mineral safeguarding site and/or peat resource.
Very Large	<ul style="list-style-type: none"> ● No criteria: use criteria for large categories.

Source: Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (2019)¹²⁴

Table C.17: Significance Criteria for Material Assets

Significance	Description
Not significant	Category description met for Neutral, Slight effect.
Significant	Category description met for Moderate or Large effect.

Source: Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (2019)¹²⁵

Note: See Chapter 20.4.2 for overarching effect descriptors.

For the purposes of this assessment, effects of moderate adverse and above would be considered to be significant.

¹²⁴ Highways England (2019) Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (formerly IAN 153/11) [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20110%20Material%20assets%20and%20waste-web.pdf> accessed March 2020

¹²⁵ Highways England (2019) Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 13 LA 110 Sustainability and environment. Appraisal. Material assets and waste (formerly IAN 153/11) [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20110%20Material%20assets%20and%20waste-web.pdf> accessed March 2020

C.8 Noise and Vibration

C.8.1 Methodology Overview

Further assessment is recommended using the methodology and criteria outlined in the following sections so that aspects requiring mitigation can be identified at an early stage and can be considered and applied through management plans for the construction phase.

The construction noise assessment would include the following methods:

- Consultation with CCBA Environmental Health Officer (EHO) to confirm survey and assessment methodology;
- Confirmation of likely construction methodology including plant inventories, location of construction compounds, construction traffic movements and construction programme; and
- Construction noise would be predicted in accordance with methodologies for static and mobile plant from BS5228-1¹²⁶.

C.8.2 Establishing Baseline

It is recommended that baseline surveys are undertaken at representative NSRs to establish the baseline pre-construction noise level so that the most appropriate noise limit according BS5228 can be set. The surveys would be undertaken for a minimum of 24 hours at the nearest NSR during representative conditions (i.e. outside of school holidays and reduced noise levels due to the coronavirus).

C.8.3 Assessment of Significance of Effects

- Proposed assessment methodology:
 - The criteria for an adverse effect are for construction noise (free-field) to exceed 65dB $L_{Aeq,T}$ during the day or 45dB $L_{Aeq,T}$ at night (in both cases the lower cut-off value in example method 2 in BS5228-1);
 - The criteria for a significant adverse effect are for construction noise (free-field) to exceed 72dB $L_{Aeq,T}$, (daytime and Saturday mornings) or 55dB $L_{Aeq,T}$ (night-time) for a period of 10 or more days in 15 days or for 40 days in any six consecutive months (from BS5228-1 Table E.2 with daytime façade level converted to free-field);
- Mitigation measures for construction noise would be incorporated within the CEMP or CNMP for the Scheme.

The assessment above shows that there is potential for a significant adverse effect to arise and therefore careful consideration of piling methodology and of the time and duration of piling would be required to ensure that significant adverse effects are mitigated.

¹²⁶ British Standards Institution (BSI) (2008). BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. BSI Limited 2008.

C.9 Population and Human Health

C.9.1 Methodology Overview

The construction and operational of the Scheme has the potential to result in significant effects on population and human health within the study areas. The assessment would consider both direct and indirect effects arising as a result of the construction and operation of the Scheme.

The approach to assessing impacts on residential properties, businesses and active travel routes would be undertaken qualitatively, utilising professional judgement and analysing potential effects proportionately. Specific methodologies in relation to health, employment and tourism impacts are outlined below.

C.9.1.1 Health

There is no formal guidance on considering health within the context of EIA. The Institute of Environmental Management and Assessment (IEMA) have published 'Health in Environmental Impact Assessment; A Primer for a Proportionate Approach'.

The assessment of human health would be undertaken utilising this guidance as a basis as well as applying the Wales Health Impact Assessment Guidance¹²⁷ proportionately.

Establishing credible health pathways would determine the relationship between project activities and potential health impacts on the population and would therefore help to establish the scope of the assessment.

The assessment of each health effect would draw on quantitative and qualitative analysis. The assessment would be based on professional judgements with appropriate reference to supporting evidence.

C.9.1.2 Employment Impacts

The Scheme would deliver a range of direct and wider economic benefits, through the creation of employment during construction and the provision of active transport opportunities and enhancing the Promenade area. An assessment of employment and economic output that would be generated by the Scheme would be undertaken. Such outputs include data about the working age population, employment and unemployment levels and the economically active population. The gross employment generated by the temporary construction phase and operational can be estimated by applying an average gross output per construction industry employee to the estimated total construction cost or the total value which the Scheme would bring to the CCBC area during operation. Leakage, displacement, and multiplier effects are then taken into account to determine the total net employment. The English Partnerships Additionality Guide¹²⁸ would be used to undertake this assessment.

C.9.1.3 Tourism Impacts

A qualitative assessment of potential tourism impacts would be undertaken to determine whether the Scheme would change the visitor or user patterns in terms of numbers to the Colwyn Bay area (the WIA). This would be undertaken by qualitative reviewing existing data, including plans and strategies, on tourism in the Colwyn Bay area and analysing the

¹²⁷ See reference 13

¹²⁸ English Partnerships (2014) Additionality Guide 4th Edition

reasons why people visit the area. A qualitative assessment of whether the Scheme would impact visitor numbers during both construction and operational would be undertaken.

C.9.2 Establishing Baseline

The baseline would be established through undertaking a desktop review of background documents, local authority publications, GIS data, maps and datasets. These have all been collated and analysed to establish a relevant population baseline for the LIA and WIA for this scoping chapter and would be refined for the EIA chapter. No surveying is proposed to be undertaken. The baseline data gathering would be proportionate, reflecting the types of indicators that may inform assessment of the potential significant effects.

C.9.3 Assessment of Significant Effects

C.9.3.1 Criteria for Determining Value/Sensitivity

Table C.18 sets out broad criteria that would be used to describe and assess the sensitivity of population and health receptors.

Table C.18: Criteria for Determining Value/Sensitivity of Receptor

Value/Sensitivity	Criteria
High	<ul style="list-style-type: none"> • An already vulnerable receptor with very little capacity and means to absorb changes. • No alternative resources, access arrangements or opportunities are available within an easily accessible distance. • A highly or frequently accessed resource
Medium	<ul style="list-style-type: none"> • A non-vulnerable receptor with limited capacity and means to absorb changes. • A limited range of alternative resources, access arrangements or opportunities are available within and easily accessible distance. • A moderately or semi-frequently accessed resource.
Low	<ul style="list-style-type: none"> • A non-vulnerable receptor with sufficient capacity and means to absorb changes. • A wide range of alternative resources, access arrangements or opportunities are available within an easily accessible distance. • An infrequently accessed resource.

C.9.3.2 Criteria for Determining Magnitude of Effect

The magnitude of impacts would be assessed following the principles below. Table C.19 sets out tailored criteria that would be used to determine the magnitude of adverse or beneficial effects.

Table C.19: Criteria for Determining Magnitude of Effect

Magnitude of Effect	Criteria	
	Adverse	Beneficial
Major	<ul style="list-style-type: none"> • Affects receptors within LIA and potentially beyond • Affects many receptors • A substantial negative change from the baseline position. • A large widening of inequalities • Majority of communities affected by high levels of deprivation • The impact is permanent or long term (more than a year) • Requires considerable intervention to return to baseline 	<ul style="list-style-type: none"> • Affects receptors within LIA and potentially beyond • Affects many receptors • A substantial positive change from the baseline position • A wide narrowing of inequalities • The impact is permanent or long term (more than a year)

Magnitude of Effect	Criteria	
	Adverse	Beneficial
Moderate	<ul style="list-style-type: none"> • Affects receptors beyond the application site into the LIA • Affects a moderate number of receptors • A notable negative change from the baseline position • A widening of inequalities • Majority of communities affected have average or above average levels of deprivation • The duration over which the impact is experienced is medium term (between six months and a year) • May require some intervention to return to baseline 	<ul style="list-style-type: none"> • Affects receptors beyond the application site into the LIA • Affects a moderate number of receptors • A notable positive change from the baseline position • A narrowing of inequalities • The duration over which the impact is experienced is medium term (between six months and a year)
Minor	<ul style="list-style-type: none"> • Affects receptors in the LIA only, and mostly within the application site • Affects a small number of receptors • A slight negative change from the baseline position within the evidence available to demonstrate change • A slight widening of inequalities within the evidence available to demonstrate change • Few people in a community negatively affected • The duration over which the impact is experienced is short-term (between three and six months) 	<ul style="list-style-type: none"> • Affects receptors in the LIA only, and mostly within the application site • Affects a small number of receptors • A slight positive change from the baseline position within the evidence available to demonstrate change • A slight narrowing of inequalities within the evidence available to demonstrate change • Few people in a community positively affected • The duration over which the impact is experienced is short-term (between three and six months)
Negligible	<ul style="list-style-type: none"> • Negatively affects receptors within the site boundary only • Baseline remains consistent/no discernible negative change from the baseline position • Majority of communities affected are not deprived • Impact is very short-term (e.g. less than three months) • Affects the well-being of very few receptors 	<ul style="list-style-type: none"> • Positively affects receptors within the site boundary only • Baseline remains consistent/no discernible positive change from the baseline position • Majority of communities affected are not deprived • Impact is very short-term (e.g. less than three months) • Affects the well-being of very few receptors
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.	

C.9.3.3 Significance of Effect Matrix

The matrix that would be used to assess the significance of effects in the EIA is outlined in Table C.20 below.

Table C.20: Significance of Effect

	Sensitivity of Receptor			
	High	Medium	Low	
Magnitude of Effect	Major	Large to Very Large	Moderate to Large	Slight to Moderate
	Moderate	Moderate to Large	Moderate	Slight
	Minor	Slight to Moderate	Slight	Neutral to Slight
	Negligible	Slight	Neutral to Slight	Neutral to Slight

	Sensitivity of Receptor		
	High	Medium	Low
No change	Neutral	Neutral	Neutral

Note: See Chapter 20.4.2 for overarching effect descriptors.

For the purposes of this assessment, effects of moderate adverse or beneficial and above would be considered to be significant.

D. Supporting Reports

Updated Preliminary Ecological Appraisal Report provided within the ES Volume 2 Technical Appendix 8.

Basis of Design report provided within the ES Volume 2 Technical Appendix 2.

Appendix 1.4 – EIA Scoping Response

Mr Oliver Edwards
Project Officer
Environment, Roads & Facilities
County Borough Council

Gofynnwch am / Please ask for: **Katy Roberts**

 **01492575394**



 **katy.roberts@conwy.gov.uk**

Ein Cyf / Our Ref: **DC/ENQ/29466**

Eich Cyf / Your Ref:

Dyddiad / Date: **17/06/2020**

Site / Location: Old Colwyn
Colwyn Bay
Conwy
LL29 8AR

Proposal: EIA Scoping Opinion: Coastal
Defence and Active Travel
Works at Old Colwyn.

Dear Mr Edwards

Re: Your Recent Pre-Application Enquiry

I refer to your email dated 15th May 2020 requesting a Scoping Opinion under The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (as amended).

CCBC makes the following observations on the Scoping Report (SR).

CONTENT	CCBC's COMMENT
General	The SR fails to address the requirement in paragraph 2 of Schedule 4 of the EIA Regulations to provide "a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the applicant or appellant which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects".
General	The SR fails to address the requirement in paragraph 3 of Schedule 4 of the EIA Regulations to provide "A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge."

General	The SR fails to address the requirement in paragraph 9 of Schedule 4 of the EIA Regulations to provide “A non-technical summary of the information provided under paragraphs 1 to 8”.
Paragraph 3.1.3 Management and Maintenance	Natural Resources Wales advise that further information will be required in the ES on future management and maintenance actions, particularly beach management.
Paragraph 3.2 Preliminary Methodology	The SR is based only on ‘current best understanding’ and a preliminary outline methodology; advice may change depending on any alterations to the detailed design.
Paragraph 3.2.1 Timescales	Natural Resources Wales advise that further information will be required regarding timescales to be able to inform Water Framework Directive and Habitats Regulations Assessments.
Paragraph 3.2.2 Coastal Defence Works	In the event that delivery of rock could be via the sea, Natural Resources Wales advise that any potential significant impacts should be scoped into the EIA. Additionally, the ES and CEMP should include details of access routes across the foreshore and designated locations for stockpiling rock and sediment on the beach to ensure no significant effects occur.
Paragraph 4.2.1 The Conwy Local Development Plan 2007-2022, Adopted October 2013	The following LDP policies are also of relevance to the proposal: <ul style="list-style-type: none"> • DP/1 - Sustainable development principles • DP/3 - Design quality and crime reduction • DP/4 - Development criteria • DP/5 – Infrastructure and new developments • DP/6 - National planning policy and guidance • NTE/1 - The natural environment • NTE/3 – Biodiversity • CTH/1 Cultural Heritage • CTH/2 Development Affecting Heritage Assets • STR/3 - Mitigating travel impact • MWS/1 – Minerals and waste
Paragraphs 9.6 Potential Effects and 9.7 Additional Information Required	There is no real assessment for the potential of the beach excavation works to impact buried deposits related to the former prehistoric land surface. Clwyd-Powys Archaeological Trust (CPAT) advise that the beach between MHW and MLW has a moderate to high potential for prehistoric deposits related to the former land surface that has been submerged since the Palaeolithic and Mesolithic periods. Peat deposits and submerged forest remains are not uncommon to the east where they have been mapped around Rhyl and Prestatyn in association with coastal protection works.

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	<p>CPAT consider that the impact upon deposits sub-surface levels would be difficult to pick up in a walkover as it would need optimum conditions (no masking sand layer and a recent storm to scour the surface and reveal peat layers or trees) to see evidence. If any preliminary geotechnical works are proposed on the beach (e.g. excavated test pits or cores) CPAT consider it would be useful to have an archaeological contractor attached to the GI team conducting these works so that the beach deposits can be examined in profile and recorded.</p>
Paragraph 10.3.2 Habitats	<p>Natural Resources Wales advise that impacts to the blue mussel beds should be avoided as far as possible.</p> <p>If rocks are imported to the site via the sea this will create a risk of introducing invasive non-native species (INNS). Natural Resources Wales advise that any risk of INNS will need to be suitably managed to minimise introduction and spread as far as possible and the applicant should ensure that this is adequately assessed.</p>
Paragraph 10.3.3 Protected Species	<p>In the event that any significant wader/waterfowl roosts are present near or within the application area, Natural Resources Wales advise that works avoid the two-hour period either side of high tide to prevent disturbance during the critical period for roosting birds.</p>
Paragraph 12.1 Introduction	<p>Natural Resources Wales advise that further information on the assessment methodology will be required in the ES. Natural Resources Wales recommend you refer NRW guidance note GN041 Marine Physical Processes Guidance to inform EIA (see enclosed document).</p>
Paragraph 12.2 Study Area	<p>Natural Resources Wales advise that a map and justification of spatial extent should be provided in the ES.</p>
Paragraph 12.3 Baseline Conditions	<p>Natural Resources Wales caution against using past modelling where the baseline has since changed. Further information can be learnt from the schemes that have been implemented since previous modelling was completed. The ES should be a standalone document and not merely reference previous reports where that information is relied upon; it should discuss the information relevant to the coastal processes assessment for this proposal.</p>

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<p>Paragraph 12.3.3 Sediment Processes</p>	<p>Natural Resources Wales advise against any beach sediment being used as construction infill as this would deplete the local sediment budget and leave a negative legacy of sediment available for beach building in times of increased sea level rise. Locking the sediment within the proposal would create a deficit of marine sand to the environment and interrupt sediment downdrift to the east. Natural Resources Wales recommend that any marine sediment of the appropriate type, and which does not present contamination issues, should be retained within the marine environment for the sustainable management of natural resources. Quantification and further information should be provided in the ES regarding sediment infill requirements and options for sourcing from elsewhere.</p>
<p>Paragraph 12.3.4.2 Surface Water Bodies</p>	<p>Natural Resources Wales advise that a Water Framework Directive (WFD) compliance assessment is required, which should include an assessment of the construction and operational phases of the project. The WFD compliance assessment should assess any potential effects of the project on WFD waterbody status and objectives. These can be direct effects e.g. the physical footprint of the scheme, or they can be indirect i.e secondary impacts arising to processes or species through biotic or migratory routes. Please refer to the relevant guidance (OGN 72 and Clearing the Waters for All) for further information on how to carry out a WFD compliance assessment. Please note that OGN 72 is internal guidance for NRW staff and is currently under review, but can be provided externally to facilitate the WFD compliance assessment process (see enclosed document).</p> <p>The information utilised in the WFD compliance assessment will largely draw upon that gathered for the wider EIA where there are relevant topic areas.</p> <p>The WFD compliance assessment can be submitted as a chapter of the ES and its preparation fall under the EIA umbrella, along with HRA, or it can be submitted as an Appendix to the EIA.</p>
<p>Paragraph 12.3.4.3 Surface Watercourses</p>	<p>Natural Resources Wales advise that any works in, over, under or within 8m of either of the main rivers may be subject to a Flood Risk Activity Permit (FRAP).</p>

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Paragraph 12.6 Potential Effects	Natural Resources Wales strongly advise that coastal processes are scoped into the ES for the construction phase. The scheme is intended to be 32m in width and 1.2km long; this is a large intertidal working area. The length of construction has not yet been determined but could be up to 24 months or longer in stages. Release and storage of sediments on the beach could impact coastal processes, as could the stockpiling of rock.
Chapter 13 Flood Risk	Natural Resources Wales advise that a Flood Consequences Assessment (FCA) is submitted in support of any planning application. The scoping assessment (Section 11.6) refers to a 'design life' of 50 years and that the effects of climate change would be considered over this period. Natural Resources Wales suggest any FCA commissioned also considers the effect of climate change over a longer period (75 and 100 years), to allow the future flood risk to be fully understood and allow for informed decision on the design of the project in relation to the maximum benefit which could be achieved in terms of flood risk.
Chapter 19.2 Study Area	The Highways Authority has advised that the study area must include the following junctions <ul style="list-style-type: none"> • Rhos Promenade; • Cliff Gerdens; and • Beach Road.
Paragraph 19.7 Transport Statement	<p>The Highways Authority has advised that the Transport Statement (TS) must include:</p> <ul style="list-style-type: none"> • Surveys (including queue lengths) of the Rhos Promenade, Cliff Gerdens and Beach Road junctions on at least four separate days. Surveys must be carried out in a neutral month with the surveys undertaken in the following form: Tuesday one week, Wednesday on a second week and Thursday on a third week, Saturday on the fourth week. • A qualitative review of nearby bus stop usage and routes (to be shown in the TS). <p>The Highways Authority has advised that the TS must review year of application (as base assessment, with and without development) along with future assessment year for the detailed junction capacity assessment of year of application + 10 years. (For example - if the application is submitted this year the future assessment year will be 2030). The applicant must propose what growth rates are to be used which the HA must approve prior to use.</p>

The Highways Authority has advised that the TS must take account of any approved but as yet unbuilt committed developments within the traffic flow calculations within the TS work.

The Highways Authority has advised that the Construction Management Assessment must explain the traffic management solutions to be undertaken by the Contractor regarding:

- Closures;
- Deliveries;
- Diversion routes;
- Phased workings and timescales;
- Management of motorized and non-motorized routes;
- How access for properties and businesses access will be maintained (including deliveries);
- Site compound location details;
- Detail the temporary access to the development from the public highway showing an access road made from bound material, free of any obstruction including gates.
- On-site parking provisions for a minimum of 40 (this figure is subject to change to align with proposed development) vehicles which must adhere to CCBC SPG LDP2: Parking Standards and include provision for at least 10 oversized parking bays of 6m x 3m and 10 visitor parking bays as well as storage areas for plant . The approved layout must be available until all of the roadways have been constructed and at least 85% of the scheme completed in full. The parking area must also have a compliant turning head to allow vehicles to enter, turn around and exit in a forward gear;
- Scheduling and timing of deliveries;
- Loading and unloading proposals/method statements;
- Travel Management Plan;
- Details of on-site wheel washing facilities which must have a bound material or other approved equivalent temporary roadway between the wheel washing facilities and the public adopted highway for the duration of the works (this is to ensure that cleaned vehicles do not travel over/through mud/virgin ground/verge etc. afterwards, this in turn will secure that vehicles exiting the site do not deposit mud on the public highway which is a road safety issue and an offence);
- Cleansing proposals of the Public Highways due to the development;

	<ul style="list-style-type: none"> • Storage of plant and material used in constructing the development; • Information on the management of junctions; • Temporary lighting proposals to ensure that Illumination gear from any lighting source is not visible to motorists using the public highways; • Proposed TTRO to protect the free flow of traffic on highways to the site; • Bilingual (Welsh above English) traffic management signs schedule and location plan (to The Traffic Signs Manual and The Traffic Signs Regulations & General Directions specifications).
Paragraph C.4.2 Establishing Baseline	<p>Natural Resources Wales caution against using past modelling where the baseline has since changed. Further information can be learnt from the schemes that have been implemented since previous modelling was completed. The ES should be a standalone document and not merely reference previous reports where that information is relied upon; it should discuss the information relevant to the coastal processes assessment for this proposal.</p>

Please note that consultation responses remain outstanding from:

- Welsh Government Transport Division
- CCBC Community and Development
- CCBC Conservation Officer
- Network Rail
- Welsh Water

In light of the above, it may be necessary to raise additional points in due course following any additional representations received.

Yn ddiffuant / Yours sincerely

Paula Jones

Rheolwr Rheoli Datblygu ac Adeiladu / Development and Building Control Manager

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