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YOUR SAFETY IS MY SAFETY

BAU.4670 Aberaeron Coastal Defence Scheme

Project Execution Plan

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Revision	Purpose description	Originator	Checked	Reviewed	Authorised	Date	Review Date
01	Draft issue for review	ET	APB			03/10/23	
02	For Review	ET	APB			11/10/23	
03	For Review	ET	APB / JC			9/11/23	
04		ET	APB			13/11/23	

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Section A Project Execution Plan

A1.0 Introduction

This Project Execution Plan (PEP) describes the methods to be implemented to control the health safety and environmental requirements with regard to project scope of works detailed in section 2.1 of this plan. The BAM Nuttall policy and systems under which this plan is prepared are described in the BAM Nuttall management manual.

This plan is primarily in four parts that define the way in which each aspect of this project will be managed. Part A of this document contains the common BAM Nuttall core set of requirements. When this section is read in conjunction with Part B, Part C or D and associated schedules these interlink to form the following documents as defined in **Table A1.0** below:

Table A1.0 PEP Layout

Section A Common Requirements and schedules	+	Section B Health and Safety and schedules	=	Construction phase plan as required under CDM
	+	Section C Environment and schedules	=	Environmental management plan
	+	Section D Quality and schedules	=	Quality plan
	+	Section B, Section C, Section D and schedules	=	Project Execution Plan

The arrangements for the management of health, safety, environmental and quality issues during site activities within this project are detailed in the sections, schedules of this document. They make provision for the development and use of subsidiary documents – procedures, activity plans, inspection and test plans.

The overall purpose of the plan is to record the initial risk assessment, how we are going to proceed and establish a project system capable of meeting customer, statutory and regulatory requirements. It gives assurance that systems are in place and guides BAM Nuttall staff in implementing them.

A1.1 Project execution plan administration

Authorisation

The plan meets BAM Nuttall, customer and legislative requirements. It is verified as meeting system requirements of BAM Nuttall and those of ISO 9001, ISO 14001 and ISO 45001. This plan is authorised for use by the agent, area health and safety advisor, area environment advisor and quality manager. The Divisional Director confirms acceptance of overall responsibility for effective operation of this plan. Confirmation is either by e-mail, electronic signature or information management system.

Distribution

The plan once approved and verified is distributed by the agent or document controller via e-mail and stored as detailed in the project document control procedure, Projectwise.

Revisions to the plan

Major revisions to this plan are made and approved in the same way as the originals including the obtaining of customer approval and authorisation where required by the conditions of contract. Minor amendments to the plan are not referred to the original plan authorisers, Minor amendments to procedures are dealt with by the agent through the document management system.

Inputs into the plan

This plan is based on the contract documents referenced in **Table A2.1** and any pre-construction information provided by the customer, the designer and/or forwarded by the Principal Designer

It has been prepared taking account of:

- ISO 10005 *Quality management guidelines for quality plans*
- ISO 9004 *Management for the sustained success of an organisation – A quality management approach,*
- BS 6079 *Project management. Principles and guidance for the management of projects,*
- PAS 99 *Specification of common management system requirements as a framework for integration*
- 'The Construction (Design and Management) Regulations Guidance on Regulations (L153)– *Managing health and safety in construction'*

Control measures defined within subsidiary documents to this plan (risk assessments, procedures, activity plans, work package plans and inspection and test plans), are primarily based on the following information sources:

Normative References and Definitions ***MG00: Management System Definitions***

Normative references and definitions are defined in the contract specification and documents. These are detailed in **Table A2.1**

A2.0 The project

A2.1 The project works

The project to which this execution plan relates is described in **Table A2.1** this plan is subject to continual development as the project progress and information becomes available.

Table A2.1: The project

Project overview			
Client	**Ceredigion County Council**		
Client representative	**Steffan Davies**		
Principal Contractor	**BAM Nuttall**		
Lead designer	**Atkins**		
Other designer(s)	BAM TW department, Floodgates tbc, Glass panels tbc		
Principal Designer	**Dunk Roberts, Atkins**		
Others			
Contract terms and conditions	NEC3 Option B		
Specification	5182114-ATK-MAR-GEN-CD-C-6003 Specification document		
F10	Date Applied for	Start Date	Finish Date:
	12/10/23	6/11/23	2/5/24
Site working hours	Mon to Friday- 0700-19000hrs No weekend work unless cleared All local authorities embargos to be adhered to		
Scope of work (Project works covered by this plan)	Aberaeron Coastal Defence Scheme comprising of: • Construction of a new rock breakwater extending out from the North Pier. • Refurbishment and re-building of the pier-head of South Pier, including grouting repairs of the walls.		

	• Flood wall construction at the following locations: a. Removal of the existing set back flood wall along Quay Parade/Pen Cei and reconstruction of a new masonry and glass wall, as well as grouting repairs of the existing quayside wall; b. Raising of the existing River Aeron flood wall between the rear of the Monachty Hotel and the A487 referred to as the River Aeron wall; and c. Construction of a new masonry and glass wall flood wall between Pwll Cam and the Monachty Hotel (and connecting with the existing adjacent River Aeron flood wall between the Monachty Hotel and A487). • Construction of a flood gate at Pwll Cam inner harbour. • Improvements to the existing defences on South Beach: a. Replacement of existing timber groynes; b. Replacement and extension of the existing rock revetment; and c. Beach renourishment.	
Significant works to be subcontracted	Rock Armour Placing Formwork and concrete Grouting Pwll Cam gate	
Key Risks and Opportunities	Unforeseen inflation for plant and materials. Weather. Rock Supply. Road traffic accidents, disruption to supply. Noise and vibration	Buying gains on PCC. Buying gains on rock armour. Programme efficiencies. Improvements in rock placing.

A2.2 Project location and Green Travel Plan

Project location

Table A2.2: Project location

Project Name and address	
Aberaeron Coastal Defence Scheme, Penmorfa, Aberaeron SA46 0PA.	
	Site Compound is located adjacent to Ceredigion County Council Offices. Access is off the A487 South of the main town via the County Council Office access road.

Green Travel Plan

In line with our corporate requirements to consider the impact our works activities have on the environment, the agent has considered transport arrangement to and from site for personnel and visitors. **Schedule A2** defines the arrangements.

A2.3 Site security

Appropriate site security arrangements are selected by the agent following an assessment of the risks of injury to members of the public. Outline arrangements are defined in **Table 2.3**

Table A2.3: Site security

Security fencing	Site Compound perimeter to be timber hoarding. Work areas around quay with proprietary secure site fencing.
Controlled access points	tbc
Warning signs	To be erected on compound perimeter
Security cameras	tbc
Security guarding	Tbc
Material and plant	Materials and plant will where possible be returned to the site compound at end of shift or stored in agreed secure location on site.
Fuel security	A lockable fuel tank will be stored within the storage compound area for mobile plant. The fuel storage will be: 1) distanced from water 2) double bunded, (Bund capacity of110% of fuel tank). 3) within fenced site area 4) in an area which is lit at night (theft / vandalism) 5) provided with pollution response equipment 6) flood / storm resistant 7) padlocked and checked daily
Any other relevant matter	

A2.4 Project objectives and targets

Specific objectives and targets with measurable performance indicators, including those set by the client, are defined for this project within the **Table 2.4** below**.** These targets are monitored by the agent for distribution to other interested parties.

Objective /Target	Performance indicator	Responsibility
Programme -	Completion on programme.	Project Manager / Agent
Cost	Completion within Budget	Project Manager / Agent
Health and safety	No lost time injuries	All
Environment	No significant spills or environmental near misses. Minimal disruption to wildlife and ecology.	All
Collaboration	A collaborative environment that achieves a positive outcome for all parties.	All
Industry recognition	Win an award.	All
Personnel wellbeing	Positive results from 360 feedback forms.	All
Sustainability	Reuse as much demolition waste as possible within the new development.	All
Handover	To deliver a successful phased handover to high quality standards	All
Community engagement	Engagement register. Promotion of apprenticeship scheme within Bam	Community Liaison Officer

A2.5 Management arrangements

The agent is responsible for the implementation of this plan and ensures that it is communicated to all those who require to work in accordance with it directly and indirectly, including the supply chain.

A2.5.1 Project Organisation

The organisation chart contained in **Schedule A1** describes the project team, their relationships, contracted and nominated / designated roles. This includes any off site support staff who may be called upon for assistance by the project team. The project team is constantly reviewed against contract needs and requirements including any changes in the scope.

A2.5.2 Personnel selection (competence, knowledge, awareness)

Personnel are selected on the basis of qualifications, skills, knowledge, behaviours and experience (competence) to suit the scope of project works. The aim of this is to ensure that the selected project team has complimentary skills to meet the engineering delivery and requirements of the customer. A record of this knowledge skills analysis process is listed

Schedule A4 in the project personnel file. This schedule contains confidential information, which must be stored securely at all times in accordance with data protection requirements.

A2.5.3 Project appointment - *NP17: Signatory Powers*

The agent gives written notice to individual personnel of the responsibility for the nominated / designated roles listed in **Schedule A1**. Health and safety duties are further detailed in the BAM Nuttall health and safety policy booklet.

A2.5.4 Drugs and alcohol - *NP3.2: Monitoring for drugs and alcohol NP3.3: Monitoring for drugs and alcohol, NP3.4: Declaration of medical restrictions, NP3.13 Discipline*

BAM Nuttall expects employees and subcontractors to take a responsible approach to drugs and alcohol.

BAM Nuttall carries out pre-employment drug screening. On this project BAM Nuttall reserves the right to:

- carry out random tests for alcohol and drug use
- to test employees and subcontractors who are involved in industrial accidents
- where a manger believes that substance abuse has contributed to an incident, changed behaviour or affected work performance.

BAM Nuttall takes disciplinary action, including, counselling, which may lead to dismissal or removal from site. This includes personnel who refuse to undertake any testing which may or may not result in a positive test. In the case of subcontractors, this will lead to removal from the project.

A2.5.5 Project charter

As a commitment to working together a project charter has been prepared for this project. A copy of the signed document is contained in Appendix 1 of this document.

A2.6 Supply chain management - *NP5: Supply chain management*

Supply chain management within BAM Nuttall is carried out in accordance with the requirements defined in NP5: Supply chain management and associated procedures. A list of vendors for this project is contained within the project procurement schedule SCF01

A2.6.1 Procurement of good and services for the project - *NP5.3 Procurement of material goods, NP5.4 Procurement of sub-contractors and equipment*

The agent reviews the procurement schedule or equivalent document prepared during the bid process in conjunction with the relevant company buyer or estimator. This joint review is to ensure that nominated vendors have the necessary skills, knowledge, experience and training to allow them to fulfil their requirements on this project. Procurement dates and special arrangements will be agreed and monitored by the agent and buyer. This is achieved through regular communication as the project progresses. Client supplied goods are subject to the same process of evaluation as those supplied by BAM Nuttall.

A2.6.2 Management of sub-contractors - *NP5.6 Management of vendors on site*

Subcontractors are required to submit documented information to illustrate how they intend to meet the contract and specification requirements to demonstrate compliance. Key sub-contractors are informed of the documents to be provided within their initial enquiry, for

subsequent discussion and agreement during the start-up meeting carried out for sub-contractors and major suppliers.

Sub-contractors performance on site is continually managed over the course of the project works. This is the responsibility of the agent, who monitors and provides feedback on the vendor's performance as described within the company procedure.

A2.7 Product Traceability

Product traceability is a contract requirement of this project as defined in **Table 2.7.**

Table A2.7: Traceability requirements

Products and materials where traceability is required
Timber Reinforcement

Materials may be incorporated in the works as 'status unknown' and held traceable until tests confirm acceptability.

A2.8 Equipment control - *NP11: Measuring equipment control*

Monitoring, measuring and test equipment is inclusive of all surveying instruments, laboratory equipment, cable locators, field testing equipment, gas and noise monitors and any other specific items identified by the agent. The need for monitoring, measuring, testing and calibration of site equipment is identified within the projects inspection and test planning, company procedures and work specific activity plans.

Control of equipment is the responsibility of the site equipment engineer who is appointed in writing by the agent to ensure project equipment is controlled, checked and calibrated.

A3.0 Risk Management

The effective management of risk is fundamental to the control of work delivery and to the ultimate successful completion of this project. Continual forward thinking and introduction of appropriate controls prevents the occurrence of the unexpected, ensuring project objectives are achieved. The risks to health, safety, quality and environment have been identified during the preparation of this plan. These risks have been detailed in **Section 3.2** and **Section 3.3** of this plan.

A3.1 Management of project risk - *NP22.5: Risk and opportunity management of project works*

Risk and opportunity management at the construction stage commences with preparation of this project execution plan following a review of the contract requirements. Ongoing management of risk and opportunity is undertaken throughout the project. This is monitored using the live threats and opportunity management register (ROMR).

A3.2 Health, safety, quality and environmental risk - pre-construction and designers - *NP23: Health safety and environmental risk assessment*

The hazards identified from pre-construction information, including design risk assessments, that incorporate design lifecycle are listed in **Table 3.2** which provides a checklist for where they are dealt with in this plan.

Table A3.2: Hazards from pre-construction information

Hazard	Section of plan addressing hazard
Delay in obtaining licences and consents	C2.4
Works in operational harbour	B4.10
Road traffic adjacent to site	
Falls from height – existing quay walls	B4.3
Existing services	B4.1
Ground contamination	C3.4
Works near PROW's	
Dismantling of existing pier	B4.6
Stability of existing structures	B4.6
Works adjacent to water	B4.10

A3.3 Health, safety, quality and environmental risk - construction phase - *NP23: Health safety and environmental risk assessment*

The risks from safety, health, quality and environment are identified during detailed planning of work activities. This includes work carried out in the design phase. Actions to prevent and reduce risks are identified with any remaining (residual) risks clearly understood and communicated to the workforce.

- **Section B** details health and safety risks
- **Section C** details environmental risks
- **Section D** details quality risks

Risk assessment may identify the need for an activity plan as a necessary control to manage the outcome and it is appropriate to prepare an activity plan for all activities of significant risk.

A3.4 Emergency procedure - *SG23: Emergency planning*

Site specific emergency procedures are prepared to ensure limitation of injury and damage should an incident occur.

The emergency procedures listed and included in **Table A3.4** below apply. Site notices describing these procedures are included in **Schedule A6**. A list of key personnel and organisations for contact or liaison in the event of an emergency, together with contact telephone numbers, is displayed as a site notice and included in **Schedule A6**.

Table A3.4: Incident and emergency arrangements

Site specific emergency arrangements	Are arrangements to be drilled?	Frequency of drill
Accident	Yes	At start and quarterly
Fire	Yes	At start and quarterly
Confined space rescue	Yes/No	
Rescue from height	Yes/No	
Person in water	Yes	At start and quarterly
Oil and chemical spill	Yes	At start and quarterly
Watercourse pollution	Yes	At start and quarterly

Following an incident, the emergency services and senior members of the management team are informed immediately and where applicable the relevant enforcing authority is also informed. Communication with the media and public is managed and controlled. Thereafter, all communication is referred to the Head of Communications at Head Office.

A3.5 Site tidiness

The agent ensures that facilities are kept clean and tidiness (housekeeping) is maintained in the following areas by completing **table A3.5** below:

Table A3.5: Site tidiness

Area	Action	Minimum Frequency
Offices,	Cleaner employed	Daily
Welfare and toilets	Cleaner employed	Daily
Access routes	Foreman	Weekly
Materials storage	Storeman	Daily
Work areas	Foreman	Daily

A4.0 Project design, planning and programming

A4.1 Design - *NP7: BAM Nuttall design services NP20: Design management for design services*

BAM Nuttall is responsible for the following elements of permanent works design:
Tide Gate
Precast units
Tilt barriers
Glass panels

Communication contacts for the designers are listed in **Table** A4.1

Table A4.1: Communication with designer(s)

Name of Lead Designer	**Name of representative**	**Position**	**Contact details**
Atkins	Rob Morgan, Matthew Tierney	Design Coordinator	rob.morgan@atkinsrealis.com matthew.tierney@atkinsrealis.com
Method of communication			
Meetings			
Document transfer arrangements	CEMAR for contractual communications		
Other			
Name of Other Designer	**Name of representative**	**Position**	**Contact details**
Method of communication			
Meetings			
Document transfer arrangements			
Other			

The BAM Nuttall nominated project design co-ordinator ensures that design information, including all design changes and risk assessments, is issued to the Principal Designer. For

projects containing design elements this project execution plan is updated to reflect designer risk assessments.

The Lead Designer is also responsible for ensuring:

- Safe by design review is carried out
- That the work of all other designers meets the overall design requirements
- Design is subject to an interdisciplinary check
- That a constructability review is carried

The agent ensures any subcontractor designed temporary works, including formwork and falsework, are referred to the BAM Nuttall Design Department for the relevant categorised checking.

Design validation

The arrangements for any design validation, as defined in the, customer's requirements, specification, or designer's quality plan, are set out in the quality control plan of **Schedule D1**.

The design co-ordinator ensures that testing or trials are supervised appropriately, the designer is notified of the results and that the lead designer reviews them.

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A4.2 Engineering Management

The agent appoints an engineering management team in accordance with BAM Nuttall procedures. Engineering appointments for this project are defined in schedule A1 of this plan.

If required a separate engineering management plan is produced and detailed in Section E of this plan. This section should be read in conjunction with Section A together they form the Engineering Management Plan for this project.

A4.3 Project planning - *NP2: Planning and programming*

For the project, the bid programme is used as the basis for the contract programme submitted for the approval of the client or his representative. From this programme, activities are identified and arrangements made for detailed planning.

In addition to work activities, arrangements are planned for the establishment of capability in terms of system, resources and competence. The planning process enables the timely identification and provision of these requirements in sufficiently robust form to allow the works to progress as programmed to the satisfaction of all stakeholders.

A4.4 Project programme - *NP2: Planning and programming*

The outline programme for the works is as described in the following table. Whilst the anticipated completion date stated is updated as necessary in revisions to this plan, it is indicative only and has no contractual significance.

Table A4.4: Project programme key dates

Contract award date	28.08.23
Start on site date	06.11.23
Appointment / arrival on site of critical / key contractors	27.11.23
Key consent dates	27.11.23
Key sectional/milestone completion dates	nil

Anticipated completion date	27.01.25

The bid programme has been used as the basis for the contract programme. From this programme, activities are identified and arrangements made for detailed planning

A4.5 Access and egress / traffic routes (on and off the project) - *NS2: Access and egress*

The agent ensures that sufficient time and resources are allocated to maintain access routes for pedestrians and vehicles. Arrangements in place are listed in table A4.5 below.

Table A4.5: Access and egress / traffic route maintenance

Route	Responsibility	Action
Deliveries	Buyer / Agent / Foreman	Traffic management and delivery plan has been issued to all incoming delivery drivers.
	Foreman	Ensure the delivery route is kept clean of obstructions and access routes are kept clean of debris.
	Buyer / Agent / Foreman	Plan deliveries for appropriate times of day to ensure there is sufficient time and resource to unload the wagons and to avoid adjacent school start and finish times
Personnel segregation	Foreman / Agent	Segregated walking routes are established through the site.
Plant and equipment	General Forman	Moving plant is segregated from pedestrians. Plant and equipment are assessed as fit for use in line with Bam Nuttall procedures before arriving on site. Suitable unloading arrangements are made to ensure items can be safely mobilised and demobilised from site.
Monitoring	Foreman	Access routes are assessed daily to ensure the routes are free from spoil, pollution, and debris.
Access to point of work	Foreman	Ensure that all personnel entering the works area are qualified to perform their role within the site and have been briefed on the daily briefing.

		Ensure access point is clearly delineated, signposted, and controlled to avoid accidental entrance to site.
Zonal working		Ensure access point is clearly delineated, signposted, and controlled to avoid accidental entrance to each zone.

A4.5.1 Work place transport plan

The layout of access to and egress from the site, traffic routes, parking and loading/unloading areas, restricted areas are prominently displayed on a Site Transport Plan, including rules can be found in Schedule A8.

A4.6 Budget and financial control - *NP9: Budget and financial control*

BAM Nuttall seeks to deliver a sustainable business result by implementing a process of comprehensive, effective and consistent budget and financial control.

The project team are responsible for establishing financial controls as described below:

- Establishment of a robust performance monitoring systems that provides a basis for subsequent commercial monitoring during the life of the project.
- Obtaining a timely understanding of the projects performance against budget, taking into account the programme position.
- Providing management with a report of accurate and auditable costs at the end of each monthly accounting period.
- Ensuring that applications for payment, certification and cash received are all in accordance with the contract.
- Providing a reliable and clear forecast of the expected financial outcome of the project.
- Preparing clear, accurate and comprehensive commercial plans and reports.
- Cashflow management

A5.0 Communication

The agent determines and implements effective arrangements for formal communication with all stakeholders. Details of communication routes for this project are detailed in **Tables A5.1 to A5.5**

A5.1 Customer communication

On this project, such communication is achieved as indicated in the following table.

Table A5.1: Customer communication

Name of customer's representative	Position and organisation	Contact details
Customer's representative name	Alan Haird	alan.haird3@ceredigion.gov.uk
Name of safety manager	Steve Phillips	steve.phillips@atkinsrealis.com
Name of environmental manager	George Riley, Hannah Miller	Ryley.George@ceredigion.gov.uk hannah.miller@atkinsrealis.com

Name of quality manager	Steve Phillips	steve.phillips@atkinsrealis.com
Arrangements for other meetings / forums	1 Monthly Progress Review 1 Risk Reduction Meeting	

A5.2 Principal Designer

The agent will provide information to the Principal Designer in the ways described in the following table.

Table A5.2: Principal Designer Communication

Name of Principal Designer	**Position and organisation**	**Contact details**
Dunk Roberts	**Atkins**	
Meeting / communication arrangements	**Monthly Progress Meetings**	
Information transfer method	*Pre-construction information, designer and health and safety file.*	

A5.3 Contractors

The agent will provide information from contractors to the Principal Designer in relation to construction information and for inclusion within in the health and safety file in the ways described in table 5.3. Alternatively this may be added as a separate schedule.

Table A5.3: Communication with other contractors

Name of contractor	**Name of contractor representative**	**Position**	**Contact details**
Ashley Contracts	Frank Haslett	Commercial and Quality Manager	07817 015467
Method of communication			
Meetings	Weekly Progress Meeting / As required / tbc		
Document transfer arrangements	As per site document control		
Other			
Name of contractor	**Name of contractor representative**	**Position**	**Contact details**
Doohan Civil Engineers	Peter Doohan	Managing Director	01248 722010
Method of communication			
Meetings			
Document transfer arrangements			
Other			

Name of contractor	Name of contractor representative	Position	Contact details
Hunton Engineering	Sean Trow	Engineering Director	07900 826 592
Method of communication			
Meetings			
Document transfer arrangements			
Other			
Name of contractor	**Name of contractor representative**	**Position**	**Contact details**
Method of communication			
Meetings			
Document transfer arrangements			
Other			
Name of contractor	**Name of contractor representative**	**Position**	**Contact details**
Method of communication			
Meetings			
Document transfer arrangements			
Other			
Name of contractor	**Name of contractor representative**	**Position**	**Contact details**
Method of communication			
Meetings			
Document transfer arrangements			
Other			
	Add additional rows for each contractor		

A5.4 Other Interested Parties

The agent establishes communication links with other interested parties such as the, local authority, regulators, community representatives. Details of these are listed in **Table A5.4** below. Details of community links are provided in the community action plan contained in **schedule A3.**

A separate **Stakeholder Engagement Plan BAU4670-BNL-ZZ-YYY-SP-W-0002**

The project will be registered with the Considerate Constructers Scheme (CCS) in accordance with criteria defined in BAM Nuttall Management Bulletin MB123 unless the client restricts such membership. Community investment activity data is recorded monthly on BAM Nuttall Ltd. Central database.

Table A5.4: Other interested parties

Designated Parties	Name & Address	Contact Name (s)	Contact Details (email, mobile, telephone)
Ceredigion Press Office			pressoffice@ceredigion.gov.uk
Ceredigion Planning Department		Catrin Newbold	planning@ceredigion.gov.uk
EA / NRW	tbc		
HSE	tbc		
MCA	tbc		
Local groups			
Harbourmaster		Owen Morgan	owen.morgan@ceredigion.gov.uk

A5.5 Workforce - *NP24 Activity Plan, SG26 Workforce consultation*

The agent identifies workforce representatives to be involved in discussions pertaining to the ongoing methodology and programming of the works. People and personnel consulted are listed in the relevant activity plans or work package plans.

In addition the following formal arrangements have been established to consult with the workforce generally

Table A5.5: Other communication arrangements

Information discussed	Method	Frequency
Induction	On site presentation in briefing room	As new personnel arrive to site and as the induction is updated
General site information	Safety Committee	Monthly
Alerts and bulletins	Face to face as determined by issue	As released
Tool box talks	Face to face as determined by site needs	As released, or minimum weekly
General observations	Observation cards	
Briefings		Daily pre-start and at the end of the shift

A5.6 Induction and site rules

The induction and site rules are developed from pre-construction information and these can be found in **Schedules A5** and **Schedule A6**. Documents are subject to review and revision as work or information changes or develops.

A5.7 Project Documented Information - *NP10: Disposal and retention of company documents*

Documented information used in the management of the project is defined by the agent. The agent is responsible for ensuring that the relevant documents are available to personnel required to use them and personnel carrying out work are responsible for ensuring that current documentation is used.

Project data - NP10.3: ***Management of documents during the contract phase of a project***

The agent establishes a formal project data management system in accordance with division specific requirements. All documents received or issued by the project are controlled and maintained in accordance with this project system. It is fully described in a project specific procedure, listed in **Schedule D2** of this plan. The relevant parts of which are communicated to all project personnel required to work with documents.

Project documents are maintained throughout the duration of a project as evidence of the compliance, conduct, progress and certification of the project works, and to provide assurance that requirements have been met.

These documents include all correspondence, instructions, minutes of meetings, as-built programmes, resource schedules, registers, test certificates, inspection checklists, training records etc. Project documents are maintained and archived in accordance with the project document control system defined within this project management plan.

A5.8 Health and Safety File

The Health and Safety File details the information needed to alert those carrying out future construction work, including cleaning, maintenance, alterations, demolition and refurbishment. It identifies information to help those carrying out these works to determine a safe system of work.

The file will contain information for the client who has a duty to provide information about their premises and infrastructure, to those who carry out work there.

A5.8.1 Layout, format and storage

The template for the Health and Safety File will be agreed with the client

Information will be collected throughout the project for the Health and Safety File by all parties. BAM Nuttall is responsible for preparing and submitting the Health and Safety File to the Principal Designer in an agreed format. The Health and Safety File will be submitted to the Principal Designer within a time frame identified by the contract from the date of substantial completion.

A5.9 Management of change - *NP21: Change management*

All changes to contract requirements, together with changes to arrangements, resources and subcontracts are recorded in accordance with any relevant contract requirements, and on the project change management register (CMR).

Superseded documents are promptly withdrawn from use and are clearly marked as superseded. All changes to construction requirements are reviewed for possible effects on existing risk assessments and subsequent control arrangements.

A5.10 BIM - *BIMG A1.4 BAM Nuttall BIM Standard*

BIM utilisation has been deployed on this project. A BIM execution plan (BEP) has been prepared using template BIMG A1.6. This plan is contained in **Appendix 7** to the project execution plan.

A6.0 Project Performance, Evaluation and Improvement

A6.1 Project Non conformity, complaints and corrective action

A6.1.1 Quality nonconformity - *NP14: Non-conformity and corrective action*

Nonconformities may be errors in work items or failures of management systems. Any person discovering a potential nonconformity reports it to the engineer responsible for inspections of that element of work so that it can be resolved immediately wherever possible. The engineer also informs his line manager. All project non-conformities are recorded on the project improvement register contained in BAM Flow.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Monthly reviews are made and analysed by the Quality Manager to ensure that all necessary action has been taken. All non-conformities are referred to quarterly divisional system review meetings for the initiation of suitable longer term actions.

A6.1.2 Health and safety nonconformity - *NP1.14: Reporting and investigation of incidents*

Nonconformity in respect of health and safety is recorded as an accident or incident, i.e. reportable accident, a lost time accident, an accident book entry, a reportable dangerous occurrence, significant incident, health and safety incident, near-miss / observation or inspection finding as appropriate.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Periodic reviews of accidents and incidents are made and analysed by the Director, Health and Safety to ensure that all necessary action has been taken. Recurrent problems or those relevant to other projects are referred to divisional system review meetings for the initiation of suitable longer term actions.

A6.1.3 Environmental nonconformity - *NP27.7: Reporting environmental incidents*

Nonconformity in respect of environmental matters is recorded as an environmental incident, near miss or inspection finding. Incidents are reported and inspection findings are recorded on the environment department database in accordance with departmental procedures.

Investigation concentrates on identification of root causes in order that appropriate action can be taken to avoid recurrence. Periodic reviews of incidents are made and analysed by the Head of Environment to ensure that all necessary action has been taken. Recurrent problems or those relevant to other projects are referred to divisional system review meetings for the initiation of suitable longer term actions.

A6.2 Audit and inspection

A6.2.1 Project audit - *NP12: Audit*

A programme of audit for the project is set by the divisional director at system review meetings. Audits are carried out by trained internal auditors who are independent of the project. A copy of the audit programme for this project is available from the ***area quality manager***.

The agent makes arrangements to accommodate internal audits, together with any external audits requested by the customer or his representative, or arranged by the Head of Business Process and Quality, Director Health and Safety or Head of Environment for the registration bodies.

A6.2.2 Project Inspection - *SG05: Safety tours, EG42: Closing out issues raised in BIM 360 Field Environmental inspection report*

It is a requirement that health, safety, quality and environment are monitored continuously as a day to day activity. A site safety and environmental engineer is appointed to carry out routine weekly site inspections. Reports of these inspections are passed to the project agent who ensures that timely action is taken, usually confirming this at weekly site meetings.

Safety, environmental and quality inspections are carried out by divisional safety and environmental advisors and divisional quality manager(s). Results are reported in writing to the agent. The agent confirms to the divisional director in writing actions taken as a result of these visits.

In addition to the inspections detailed above project inspection visits will be conducted by senior managers. These visits not only act a monitoring tool for improvement, they provide valuable interaction and communication for project personnel with senior managers.

A6.3 Review - *NP13: Review*

A6.3.1 Project review (meetings)

Regular reviews are undertaken throughout the duration of the project at internal meetings of the project team to verify that planned arrangements remain suitable and are effective in controlling the work. These meetings also review the results of audits, nonconformities and problems and establish actions to prevent recurrence and improve the system.

Attendance and agenda for meetings are set out in **Tables A6.3.1a and b**.

Table A6.3.1a: Review meetings

Alter table to suit site requirements		
Meeting	**Frequency**	**Attendance**
Progress	Monthly	Project Manager Agent Senior site managers. Senior site QS Client representatives
Internal site co-ordination	Weekly Thursday pm	Project Manager Agent Sub-agent Section agents QSs
Internal health, safety environment and quality review	Monthly	Agent Sub-agent Section agents QSs Site safety and environment engineers Site quality engineer
Design management/ review meeting	Monthly	Agent Design coordinator All designer's representatives

Table A6.3.1b: Review meeting agendas

Alter table to suit site requirements					
Minimum agenda items	**Progress**	***Internal site co-ordination***	***Internal HS&E***	**Section**	**Design Management meeting**
Review and agree previous minutes/actions	✓	✓	✓	✓	✓
Health, safety and welfare, including review of CPP	✓	✓	✓	✓	
Environment	✓	✓	✓	✓	✓

Alter table to suit site requirements					
Minimum agenda items	**Progress**	***Internal site co-ordination***	***Internal HS&E***	**Section**	**Design Management meeting**
Progress and programme	✓	✓		✓	✓
Resources – plant, materials and labour		✓		✓	✓
Client requirements and information required against programme. Review registers of TQs/RFIs, SIs/CVIs, and drawings.	✓	✓		✓	✓
Commercial matters	✓	✓		✓	✓
Risk assessments, activity plans, inspection and test checklists and approvals	✓	✓	✓	✓	✓
Suppliers and subcontractors performance, future programme, client approval.	✓	✓	✓	✓	✓
Nonconformities, problems, complaints, improvements.		✓	✓	✓	✓
Results of audit, audit plan.		✓	✓		
Quality control plan and allocation of inspection duties and approvals	✓	✓			✓
Contract records (as-built drgs, test results, completed checklists, maintenance manuals)	✓	✓			✓
Objectives and targets	✓	✓	✓		
Design delivery risks	✓				✓
Value engineering	✓	✓			✓
Next meeting date	✓	✓	✓	✓	✓

A6.3.2 Technical review – *NP25 Technical and engineering delivery*

To ensure that the best available technical knowledge is provided to the project agent, technical / quality reviews are held for matters where there is significant risk in terms of:

- health and safety
- activities/ items critical to quality
- quality of construction
- environmental impact
- company image and/or reputation

Activities to be subject to technical review, together with approximate timing, are listed in **Table A6.3.2**

Table A6.3.2: Technical review

Project activities subject to technical / quality review	Approximate date of review
Gate **Electrical** **South Pier**	

Project activities subject to technical / quality review	Approximate date of review
Temporary works	

Records are maintained of all reviews in the form of meeting notes, records of actions, correspondence, and requests for information or as required by the contract.

A6.3.3 Customer feedback - *NP26: Customer relationship management*

The aim of the project team is to work in collaboration with the customer to achieve a project that is on time and budget. Customer satisfaction is monitored from project meeting and formal feedback.

A6.4 Improvement

The agent continually seeks to identify opportunities to improve the effectiveness and efficiency of the project, and of the BAM Nuttall business. All personnel are made aware of the need to recognise errors as opportunities for improvement. Without this awareness, mistakes are ignored or concealed and data for the improvement activity lost.

Improvement opportunities on this project are identified from:

- formal reviews of performance (**see Section 6.3**)
- feedback on performance from clients, vendors and regulatory bodies
- review of audit results
- analysis of nonconformities and complaints

A6.4.1 Delivering value and continual improvement through Lean

The project will utilise **"Lean Construction Thinking"** to allow conception, development and delivery of value innovation and continual improvement.

To initiate the improvement process the agent will act as the ***"Lean Leader"*** who will be responsible for the development of a sustainable lean culture on the project, selection of the lean projects and the improvement plan..

In addition to the *lean leader a* ***"Lean co-ordinator"*** will be appointed who will identify improvement projects, select suitable tools and techniques for improvement, such as collaborative planning, deploy tools such as visual management, collect the data and monitor and report results to the Lean Leader. This organisational structure is detailed in the project organisation chart contained in **Schedule A1** of this plan.

Aberaeron Coastal Defence Scheme Organisation Chart

CEREDIGION COUNTY COUNCIL

- Environmental Directorate
- Planning
- Marine Licensing
- Highway Maintenance
- Planning & Environmental Advisor

Stakeholder Groups

- Aberaeron Yacht & Watersports Club
- Aberaeron Longboat Rowing Club
- Aberaeron Town Angling Club
- Aberaeron Primary School
- Beach users
- Bus Operator – Traws-Cymru
- CADW
- Ceredigion County Council
- Commercial Fisherman
- Crown Estates
- Cyngor Tref Aberaeron Town Council
- Cymdeithas Aberaeron Society
- Dyfed Archaeological Trust
- Emergency Services
- Harbour Master
- Natural Resources Wales
- Local land owners
- Local businesses including Aberaeron Sea Food, The Hive, Arosfa Guest House, The Cellar restaurant, Evans & Davies, Harbourmaster Hotel, 3 Pen Cei Guest House, Cadwgan Inn, New Celtic Restaurant, The Monachty Gwelfor Holiday Flat, G F Developments
- Local wildlife trusts including Friends of Cardigan Bay
- Mariners & Boat Owners
- Maritime & Coastguard Agency
- Min y Mor Residential Care Home
- Residents of Aberaeron
- Sea Anglers
- Statutory Undertakers
- Tourist Information Centre
- Water Sport Participants
- Welsh Government

Key

Site Based Team | Visiting / Support Team

Reporting Lines

Ceredigion County Council | ATKINS | BAM | Supply Chain

Project Board

- Design Director, ATKINS: **Derek Fenn**
- Project Director, Ceredigion County Council: **Rhodri Llwyd**
- Business Unit Manager, BAM Nuttall: **Mike O'Neill**

Project Leadership Team

- Designer: **Rob Morgan / Matthew Tierney**
- ECC Project Manager: **Steffan Davies**
- Contracts Manager: **Ray Jones**
- Commercial Manager: **Dominic Iglinski**
- Client Representative: **Alan Haird**
- ECC Supervisor: **Steve Phillips**
- CDM Co-ordinator
- Project Manager: **Andrew Pointon Bell**
- Environmental Clerk of Works: **George Riley / Hannah Miller**
- Construction Clerk of Works

Project Delivery Team

Supply Chain

- Rock Armour Installation: **Ashleigh Contracts**
- Rock Armour Supply: **GD Harris / Hanson / KML**
- Timber Groynes: **Arnold Laver**
- Grout Installation: **BAM Ritchies**
- Glass Panel Supplier: **Flood Control International**
- Stone Masons: **Celtic Heritage Construction & Stonemasonry**
- RC Works: **Doohan Civil Engineers**
- Tilt Barriers: **Flood Control International**
- Gate and Controls: **Huntons**

- Quantity Surveyor: **Abby Davies**
  - Quantity Surveying Technician
    - Commercial Assistant
- Programme Planner: **John Cheval**
- Site Agent and Stats Co-ordinator: **Emyr Thomas**
  - Sub-Agent Beach
    - Foreman: Rhodri Llewelyn
      - **Beach**: Section Engineer → Site Engineer → Apprentice
  - Works Manager: Keith Hughes
    - General Foreman: Damion Hopkins
      - **General**: Section Engineer → Site Engineer → Apprentice
  - Sub-Agent Land and Pwll Cam
    - Foreman
      - **Land and Pwll Cam**: Section Engineer → Site Engineer → Apprentice
- Health & Safety Manager: **Wayne Harding**
- Environmental Advisor: **John Clancy**
- Public Liaison Officer: **Tony Bajjada**
  - Trainee / Locally Employeed Assistant Public Liaison Officer

Locally Employed Beach Wardens

Magor Regional Office and Camberley Head Office

- Quality
- Environmental
- Health & Safety
- Human Resources
- Technical Services
- Digital Construction
- Social Value
- IT
- Purchasing
- Accounts
- Publicity
- Training

- Council's Community Benefits Manager
- Social Impact Advisor: **Kathy Brewington**
- Quality Manager: **Paul Dixon**
- Digital Construction Specialist: **Oliver Oversby**

Nominated Roles

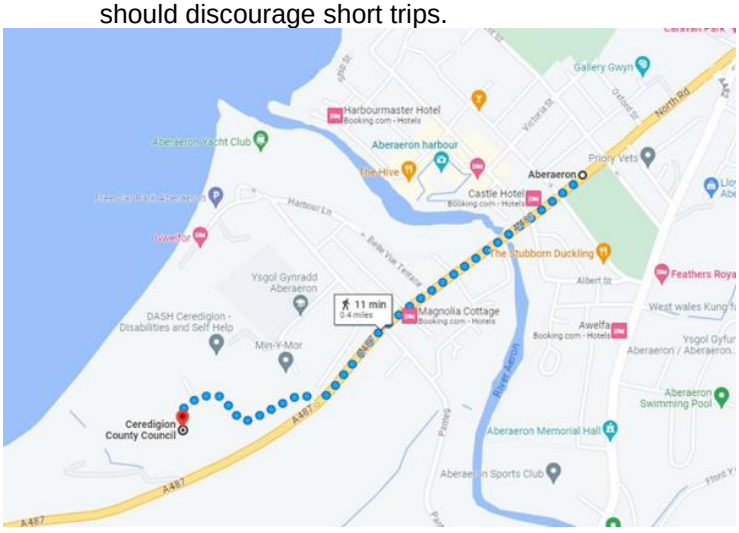
- Public Liaison Officer: **Tony Bajjada**
- **Carbon & Sustainability Lead: Sarah Jolliffe**
- Environmental & Ecology Engineer: **Daria Cechowicz** (Thompson Ecology)
- Traffic Safety & Control Officer: **Keith Hughes**
- Site Safety Engineer: **Gethin Thomas**
- Risk Manager: **Abby Davies**

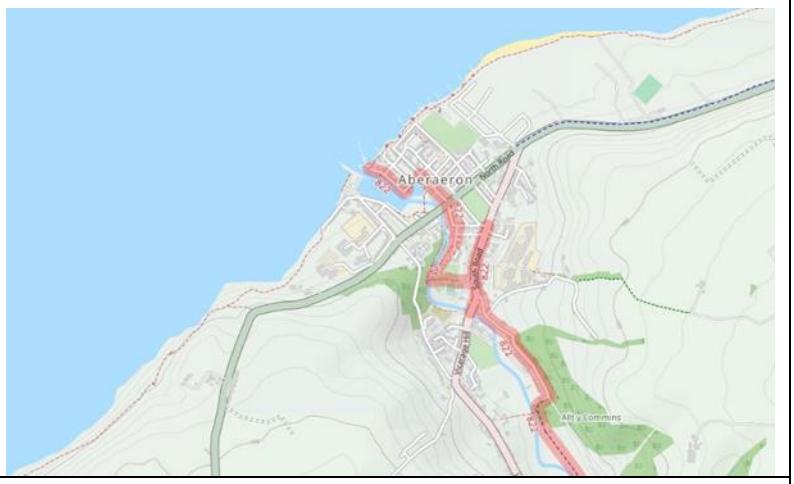
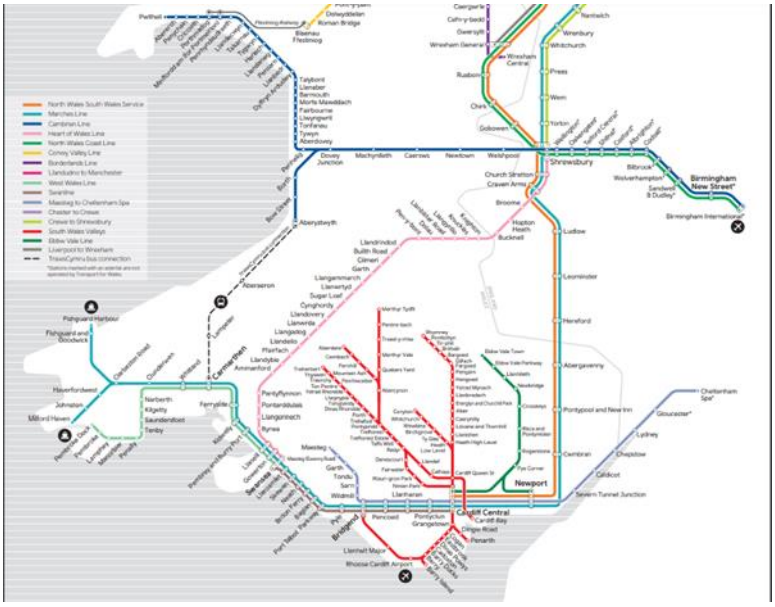
Name	Appointment
Damion Hopkins / Keith Hughes	Incident Coordinator
Emyr Thomas	Appointed Person (Lifting)
Rhodri Llewelyn	Lift Supervisor
Emyr Thomas	Temporary Works Coordinator
Gethin Thomas	Temporary Works Supervisor
Phil Webber	Temporary Works Designer
Gethin Thomas	Buried & Overhead Services Coordinator
Andrew Pointon Bell Damion Hopkins Rhodri Llewelyn Gethin Thomas	First Aiders
Damion Hopkins	Plant Coordinator
Emyr Thomas	Electrical Safety Coordinator
Sophie Rice	Fire Safety Coordinator
Awais Haider	COSHH Coordinator
Awais Haider	Site Testing Engineer
Sophie Rice	Site Equipment Engineer
Gethin Thomas	Site Safety Engineer
Sophie Rice	Site Environment Engineer
Sophie Rice	Site Quality Engineer
Abby Davies	Lean Coordinator

Note
Signatory powers on this project are issued by the agent are in accordance with NP17 Signatory powers.

Schedule A2 Green Travel Plans

Public Right of Way Routes

Icon	Description	Description of route
	Pedestrian	The site is accessible from the town by the A487 which has pavements running both sides of the road. The site is a short walking distance from the town centre which should discourage short trips. 

	Disabled	Access to the site address is step free via the pedestrian route.
	Cycle	National cycle route 822 connects Aberaeron with Llanchaeron and is 68% traffic free 
	Bus	Bus stops are located at the entrance to the site from the A487 in both directions: the T1 bus travels from Carmarthen to Aberystwyth and the T5 bus travels from Haverfordwest to Aberystwyth via Cardigan and New Quay. T1: Runs hourly from 0600 to 2100 Monday to Saturday T5: Runs hourly from 0630 to 2100 Monday to Saturday
	Train	There nearest train stations to Aberaeron are Aberystwyth on the Cambrian line, or Carmarthen on the West Wales line. TrawsCymru bus connections are available between these two stations and Aberaeron. 
	Car/Motor cycle	The site is accessible from anywhere in the country using the roads network. Access to site is from the A487 trunk road that goes from Haverfordwest, Pembrokeshrire to Bangor, Gwynedd. The road is 20mph at point of entry.

Schedule A3 Community Action Plan

1.0 Introduction

BAM Nuttall Ltd is a socially responsible organisations committed to meeting the expectations of our stakeholders, while adding value to the environment and society. We aim to fully engage with local community groups, individuals, organisations and stakeholders directly impacted by our projects.

We recognise that how we recruit and retain employees, purchase goods and services can create opportunities to improve the community we operate in as well as improving our business performance.

BAM Nuttall Ltd believes we can make a significant and sustained improvement to the community by:

- Recruiting from and having a workforce profile that reflects the local community.
- Removing barriers to employment.
- Considering local suppliers when purchasing.
- Building local education and training links.
- Investing resources including time and money to support community groups, and charities.
- Listening and communicating with the community.
- Liaising with the community.

Our intention is to identify opportunities for community involvement within a two mile radius of each of our sites and offices. This plan sets site specific objectives for engagement with the relevant parties. It also designates responsible persons to the tasks and where appropriate, actions and timescales.

The community action plan is divided into four sections. Each section in turn details how we plan to eliminate any negative impacts of the works on the local community and where possible how we will endeavour to bring positive benefits to the local community, residents and supply chain as a result of the works.

- **Section 2: Implementation of plan on site**
- **Section 2: Identifying opportunities for community action**
- **Section 4: Record of community involvement**
- **Section 5: Review**

2.0 Implementation of plan

2.1 Community Liaison

BAM Nuttall Ltd will maintain effective liaison with landowners and the local community about ongoing construction activities and any potential disruption. We will use open days and letter drops to keep the community up to date.

All residents adjacent to the works will be informed about the detailed plans and construction timetable in advance of works starting and all necessary detailed mitigation agreed that relate to access and reducing disturbance.

2.2 BAM Nuttall Contacts

BAM Nuttall Ltd will establish a project contact telephone number, manned during operational hours and with access to representative(s) with authority to resolve key issues. A log of all comments and actions taken will be kept and made available for inspection.

Contact Name	Organisation	Position	Tel:	Email
Ray Jones	Bam Nuttall	Contracts Manager	07876 332012	Ray.jones@bam.com
Andrew Pointon Bell	Bam Nuttall	Project Manager	07734577883	Andrew.Pointon-Bell@bam.com
Keith Hughes	Bam Nuttall	Works Manager	07891 667426	Keith.Hughes@bam.com
Emyr Thomas	Bam Nuttall	Agent	07584 771 276	Emyr.thomas@bam.com
Damion Hopkins	Bam Nuttall	General Foreman	07947 787576	Damion.Hopkins@bam.com

2.3 Community disturbance

BAM Nuttall Ltd will ensure disturbance to the local community from construction activities is minimised to that required for safe implementation of the works. We will also minimise disruption to access for all properties. Any interruptions to access will be agreed with the householder and kept to the minimum time required. Emergency access will be available at all times. Where required diversions and alternatively pedestrian crossings will be setup to avoid endangering the general public

3.0 Community Action Opportunities

3.1 Community Liaison

Our site will support suitable local causes and events that are nominated or participated in by our employees; however we also seek to interact with suitable organisations and charities within the area that we are working. The following opportunities for involvement have been identified within a two mile radius of the site.

3.2 Education and training links and work experience opportunities

We will work with the following education and training institutions to share knowledge and provide work experience opportunities.

Institution name	Type of institution	Contact name	Contact details	Opportunity for involvement	Approve?
TBC					

3.3 Employment opportunities

BAM Nuttall Ltd will strive to employ the members of our current workforce who live closest to the site wherever possible. The following roles cannot be provided by our available local employees and will be recruited from the local community:

eg
Qualified plant operators (excavators/dump trucks)
Joiners
Steelfixers
General Civil Engineering Operatives (GCEOs)
Secretary/ administration
Cleaner
Quantity surveyor etc

The opportunities to be actioned have been approved by:		Date:	

4.0 Record of Community Action

This section is to be used to record all aspects of community liaison and communication.

Date(s)	Description of community liaison (e.g. meeting; open day; visits etc)	Number of attendees / properties	Feedback from community	Contact details	Actions carried out as a result of feedback

This section is to be used to record all information issued to the community, e.g. letter drops, web pages and newsletters etc.

Date(s)	Document name	Content of document	Document reference or web address	Recipient area /details	Number of documents issued

This section is to be used to record all aspects of community involvement, volunteering, sponsorship and donations.

Date(s)	Description of involvement	Recipient	Man hours	Plant hours	Material or equipment donation	Financial donation value (£)

5.0 Review of Community Action

Objective	Yes	No	If yes, what do we do? If no, why not?
Does the workforce include members of the local community?	☐	☐	
Are people with disabilities actively employed? Have we removed barriers to employment – correct site setup and provision of welfare facilities etc?	☐	☐	
Were local suppliers considered when purchasing?	☐	☐	
Do we work with local educational and training institutions?	☐	☐	
Do we invest resources to support the local community and charities?	☐	☐	
Do we liaise with the community about our project?	☐	☐	

Review carried out by:		Date:	

Objective	Yes	No	If yes, what do we do? If no, why not?
Does the workforce include members of the local community?	☐	☐	
Are people with disabilities actively employed? Have we removed barriers to employment – correct site setup and provision of welfare facilities etc?	☐	☐	
Were local suppliers considered when purchasing?	☐	☐	
Do we work with local educational and training institutions?	☐	☐	
Do we invest resources to support the local community and charities?	☐	☐	
Do we liaise with the community about our project?	☐	☐	

Review carried out by:		Date:	

Other comments (e.g. lessons learned, feedback, etc)

Schedule A4 Skills Matrix

Role	Qualifications	Competence	Evidence
Project Manager	Degree qualified CSCS / CPCS card SMSTS	Similar experience for Earthwork's operations and or marine projects	CV's
Agent	Degree qualified CSCS / CPCS card SMSTS	Similar experience for Earthwork's operations and or marine projects	CV's
Sub-agent	Degree qualified / HND CSCS / CPCS card	Similar experience for Earthwork's operations and or marine projects	CV's
Foreman	NVQ L3 CSCS / CPCS card SSSTS	Similar experience for Earthwork's operations and or marine projects	CV's
Engineer	Degree qualified / HND CSCS / CPCS card SSSTS	Similar experience for Earthwork's operations and or marine projects	CV's
Workforce	Plant operator cards. CPCS CSCS cards. SSSTS (Gangers)	Foreman's assessment in trial week. Similar experience in role.	Scanned copies of cards.

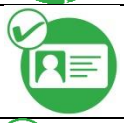
Schedule A5 Induction and Site Rules

Schedule A5.1 Induction

Site induction agenda
Company vision
An overview of the project, including management arrangements on the site.
Senior management commitment to health safety, environment and quality on this project
The part people can play in the successful delivery of the project, including individuals responsibilities
Identification, awareness and measures to control the project risks, including relevant information from the Project Execution Plan
Importance of ‘right first time’
Familiarisation with key personnel, project organisation and structure. This includes customer, principal designer etc.
Arrangement for briefing workers on an ongoing basis
Arrangement for consulting the workforce
Appreciation of fair treatment and respect for all
Site layout, facilities and security
Areas of restricted access including exclusion zones
Site rules familiarisation
First aid and emergency arrangements , including accident and incident arrangements
Mandatory permit requirements
Observation reporting and ‘Your Safety is My Safety’
Occupational health checks
Monitoring for drugs and alcohol

Schedule A5.2 Site rules

The following rules have been made to ensure the health and safety of you and your work mates on this site and protection of the environment. They apply to everybody on site.

Rule	Logo	Strapline
I never enter an exclusion zone		Mobile plant Seen is safe
I understand my job, and I am aware of the associated risks. If anything is unclear, I will ask for additional information.		Plan dropped? Work is stopped
I call other people to account about unsafe behaviour, and I accept that others can also call me to account about unsafe behaviour.		Choose to be safe together
I only start with my work after I have been instructed correctly (formally). I follow these instructions.		Sign up for safety Stick to the plan
I work with approved equipment and only if I am authorised to use it.		Competence starts with the card
I use my compulsory personal protection equipment.		PPE keeps you safe If you wear it
I do not work with installations or cables that are charged, unless I am authorised to do so.		No permit No dig No pins
I exclusively give safe instructions and exclusively follow safe instructions.		Safety is a team game
I do not work when I am under the influence of drugs, medication or alcohol.		D&A Keep dry Keep clean
I always use the designated access routes and keep them clear at all times		Choose the safe path Not the quick one
I always use the welfare facilities provided and keep them clean and tidy		Respect your Own welfare
I keep my workplace clean, safe and tidy.		Tidy site Safe site

Rule	Logo	Strapline
I never enter an exclusion zone (Lifted loads)		Lifted loads Look up Let go
I never enter an exclusion zone (Load release)		Secured materials Release with caution
Always drive safely with your phone off and seatbelt on		Drive safely Phone off Belt up
I work with approved equipment and only if I am authorised to use it.		Defective plant? Report it
Never use plant or equipment unless you are authorised, competent and it is safe to do so		Switch off and secure
Never use your mobile phone unless you are in a designated safe location		Safe answer Safe call
Never alter edge protection or scaffold unless you are authorised, competent and it is safe to do so		Hold onto handrails

These rules are common sense and easy to follow
Failure to follow them may lead to disciplinary action or your removal from site
And remember ‘Your Safety is My Safety’

Schedule A5.3 Rules for Contaminated Land or Red Sites

Be on the lookout for:

- Signs of contamination during boring, excavating, soil stripping and similar operations (these could include discoloured soil, unexpected odours, a fibrous texture to the soils (e.g. asbestos), presence of foreign objects (e.g. chemical/oil, containers/waste), evidence of previous soil workings, underground structures or waste pits, evidence of made ground, old drain runs and contamination within buildings).

If contamination is suspected:

- Work will be stopped immediately;
- The discovery will be reported to the Agent who will seek expert advice and provide guidance on required controls / mitigation;
- The area will be sealed off to contain spread of contaminants;
- A risk assessment will be carried out to minimise the risk to health and safety of site workers. This will identify acceptable working methods, PPE, contact, and other required procedures;
- Any unexpected contaminated land that has been disturbed by construction activities will to be dealt with as hazardous waste and disposed of to a suitably licensed site in line with the relevant waste management regulations, Client notified prior to action;
- Ensure that the suspected contamination is tested and characterised and agree changes to the existing site proposals and method statements;

Known areas of contamination

The site is not known to be contaminated, however site will need to be vigilant when carrying out excavation works. Potential for contamination at Pwll Cam but there is no SI confirming this.

Schedule A5.4 Rules for handling and disposal of sharps

- Never handle discarded needles or syringes – unless you are trained to do so and have the correct equipment
- Warn others close by to stay away
- If safe to do so, stay close to it and report it to your Supervisor
- If you are not able to stay close to it highlight it if possible
- Report it to the Supervisor

In the event of contact with a discarded needle encourage the puncture injury to bleed and wash well under cool running water with soap and cover with a dry (sterile) dressing. Seek medical advice as soon as possible, within 48 hours at the nearest local Accident & Emergency department.

Disposing of sharps

- Place needles and syringes into a sharps container. Always use tongs to pick up
- Dispose of as clinical waste

Schedule A6 Emergency procedure - injury, dangerous occurrence or significant incident

In the event of an accident:

- Do not endanger your own life.
- Ensure that the injured person will not come to further harm.
- Notify the site office of:
  - the injured person's name and/or employer
  - location
  - type of incident
  - likely injuries
  - special requirements

The site office will:

- contact the first aider
- call an ambulance and/or other emergency services by dialling 999
- ensure access route is cleared
- arrange reception of ambulance/fire brigade/police at the nearest public road
- direct emergency services to location
- provide injured person’s information to the emergency service
- notify injured person’s employer if a subcontractor
- contact divisional director and area health and safety advisor
- initiate for cause drug and alcohol screening

The first aid kit is held in the Site Office & Mobile Welfare Units
Defibrillator is located in main Site office reception

The site address is:

BAM Nuttall Site Office, Penmorfa, Aberaeron SA46 0PA.

Emergency procedure – fire

In the event of a fire in the site offices or other site accommodation:

- Alert all personnel of fire, evacuate all site offices and other units and assemble at the site compound assembly point.
- Do not stop to collect personal belongings.
- Contact the emergency services by dialling 999, or ensure that someone else does.
- Use appropriate fire extinguishers to contain or extinguish the fire **ONLY** if trained to do so.
- Do not put yourself or others at risk.
- Do not attempt to re-enter offices until approval is given by a senior member of staff.

In the event of a fire on site:

- Leave the area and assemble at the site compound assembly point.
- Notify a member of staff at the site offices.
- Use appropriate fire extinguishers to contain or extinguish the fire **ONLY** if trained to do so.
- Do not put yourself or others at risk.
- Do not return to the area of the fire until approval has been given by a senior member of staff.

The site office staff must:

- call the fire brigade by dialling 999 when informed of a fire
- ensure the access route is cleared
- arrange reception of fire brigade at the nearest public road
- direct emergency service to location

The site address is:

BAM Nuttall Site Office, Penmorfa, Aberaeron SA46 0PA.

Adjust or add to make site specific

Emergency procedure – confined space rescue

Prior to normal entry into a designated 'confined space' check:

- first aid and fire extinguisher readily available by entrance.
- underground and external communication systems available and operational
- names/numbers of persons entering/leaving confined space are logged
- atmospheric testing has indicated it is safe to enter
- each person entering confined space is wearing full body harness and carrying escape breathing apparatus set
- top man is in attendance
- permit to work certificate (SF 901) is complete
- safe means of access is available for emergency services

If an emergency condition occurs:

- evacuate the confined space immediately
- do not attempt to rescue a collapsed person unless they can be moved to safety immediately
- ensure ‘top man’ summons fire brigade and ambulance by dialling 999 giving exact location and access route
- send a person to direct emergency services to location
- notify the agent

ONLY if you have had the necessary training and if a rescue kit and breathing apparatus are available:

- re-enter to attempt a rescue
- use forced air ventilation system to improve atmosphere
- take drag sheets and life line(s) into confined space
- ensure two people are available to assist
- have resuscitator and first aid kit available

The site address is:

BAM Nuttall Site Office, Penmorfa, Aberaeron SA46 0PA.

Emergency procedure – pollution incident

In the event of an oil, fuel or silt pollution incident, take action to:

Raise the alarm	you may need assistance
Identify the source	what risks are involved, can you handle it yourself or are the emergency services required?
Protect yourself	are you wearing the correct PPE to deal with the incident?
Help any injured	but do not put yourself or colleagues at further risk
Stop the source	prevent further pollution if safe to do so by plugging leaks, righting drums, closing valves or turning off pumps
Contain the pollution	use emergency materials held on site and ensure that the pollution cannot escape by blocking drains, or creating a trench or bund to protect rivers and other watercourses
Prevent spread	if the pollution has already entered water, prevent its further spread downstream using booms for spills or silt fencing for silt
Notify your supervisor	as soon as it is possible to do so
Notify NRW	0300 065 3000 pollution incidents
Clean up	using appropriate absorbent materials or skimmers
Dispose of contaminated materials	used clean up materials will be classed as ‘hazardous’ or ‘special waste’
Restock	emergency clean up materials should be replenished and restocked following their use

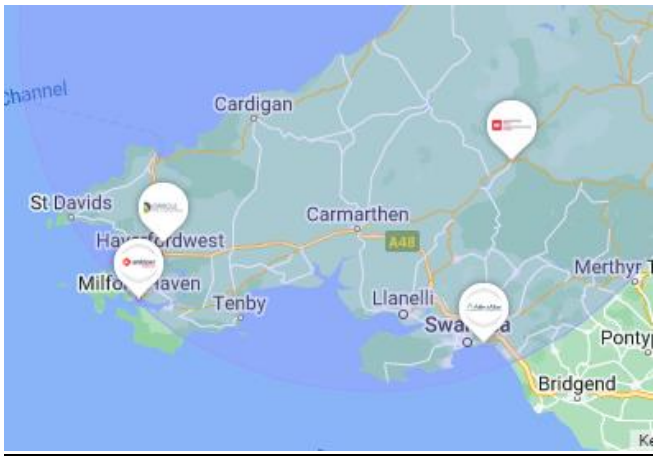
Emergency spill kits and absorbent materials are located at:
Refuelling point in main compound
On plant working on the beach / river areas
At satellite welfare units at Quay parade etc.

Locations shown on site layout plan

In the event of a major spillage to water (an incident that the project team cannot handle or contain) contact your environment advisor for further guidance and advice.
List of nearest responders below.

Emergency spill providers – nearest locations to Aberaeron

https://isasaccreditation.org/directory-isas/?drts-search=1&search_keyword%5Btext%5D=&search_keyword%5Bid%5D=&search_keyword%5Btaxonomy%5D=&search_location_address%5Btext%5D=Aberaeron%20harbour%2C%20Aberaeron%2C%20UK&search_location_address%5Bradius%5D=1



Marine

Alder & Allan

Baldwin`s Crescent, Crymlyn Burrows, Skewen, Swansea SA1 8QQ, UK

0800592827

garry.cormack@adlerandallan.co.uk

Ambipar response

The Mpsc, Point St, The Docks, Milford Haven SA73 3AQ, UK

+44 (0)1202653558

response.sitrep@ambipar.com

Land

As above + below

Spill Response Wales

Sustainable Technology Centre, Maes y Fforch, Babel, Llandovery, SA20 0AJ

01550721301

alex@spillresponsewales.com

Oracle Environmental Experts

Unit 12 Withybush Showground, Haverfordwest, SA62 4BW

01684252858

info@oracle-environmental.com

Emergency procedure – person in water

In the event of a person falling into water:

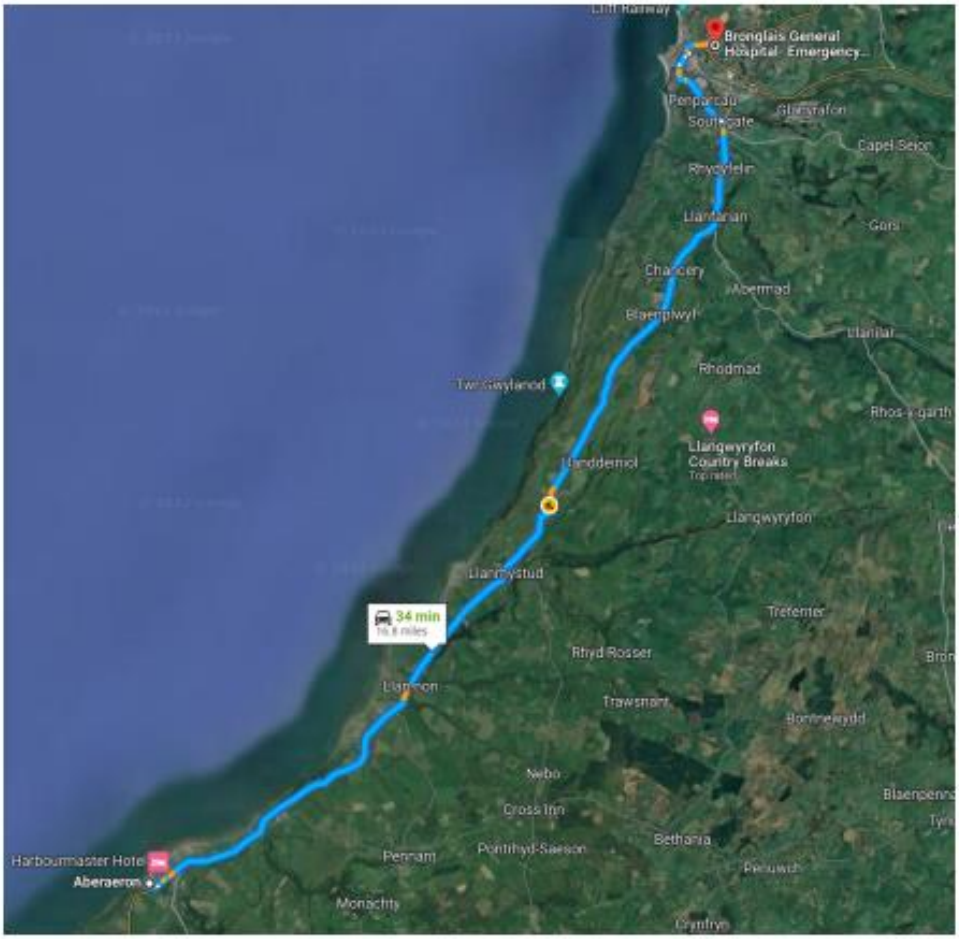
- Raise the alarm by an appropriate means such as
  - shouting ‘person in water’
  - sounding a klaxon
  - continuously sounding of a crane or vehicle horn
  - summoning the safety boat via site radio
- Keep the person in view.
- Make your way to the nearest lifebuoy station. Keeping hold of the end of the line, throw the buoy or grab-line to the person in the water, if they can reach it. If not, let a loose lifebuoy float downstream with them.
- Provide assistance by drawing in the lifeline until the person is at a landing point. If the landing point is difficult, do not attempt to pull the person out – call for assistance.
- Once the person has been recovered from the water, keep them warm until transport is available to take him to the first aid station.
- Whilst giving priority to the rescue, send a message to the main office as soon as possible to enable coordinated support. Notify the office of:
  - the person’s location
  - likely injuries, if any

Employees are advised not to make a rescue attempt by entering the water unless they have been trained in life-saving techniques.

Directions to nearest A&E hospital (poster for noticeboard)

bam nuttall

Bronglais General Hospital Directions



Aberystwyth, SY23 1ER

what3words///earmarked.unloading.daring

From site compound by car: follow site access road to A487, turn left onto A487 towards Aberystwyth, keep on A487- after 16.6 miles the A&E is on the right

List of key personnel and organisations for emergency and liaison			
Name	**Position**	**Location**	**Tel. no.**
Ray Jones	Construction Manager	Site	07876 332012
Andrew Pointon Bell	Project Manager	Site	07734577883
Emyr Thomas	Site agent	Site	07584771276
Keith Hughes	Works Manager	Site	078910667426
Damion Hopkins	General foreman	Site	07947787576
Wayne Harding	Health and safety advisor	visiting	07769304078
John Clancy	Environment advisor	visiting	07717341813
Tony Bajada	Public Liaison		
Name	Public relations	Camberley	01276 63484

Emergency liaison			
Organisation	**Contact (name)**	**Telephone no.**	**Emergency tel. no. e-mail or reporting line**
Incident co-ordinator	Keith Hughes	078910667426	078910667426
Client PM CCC	Alan Haird	07977633531	
ECC PM	Emanuel Otemu	07584337393	
Principal designer	Dunk Roberts	07919267572	
Project Ecologists (Client)	George Riley Hannah Miller	07977186169	
Fire	Mid and West Wales Fire Brigade	mail@mawwfire.gov.uk	999
Police			999
HM Coastguard			999
RNLI			999
Hospital	Bronglais General Hospital, Caradoc Rd, Aberystwyth SY23 1ER	01970 623131	999
HSE	Contact should be made through the company's health and safety advisor- Wayne Harding	07769304078	Wayne.Harding@bam.com
EHO			
NRW			0300 065 3000 pollution incidents
Local authority			
Electricity supplier			
National Grid			105
Telecom			
Water			

NRW – Natural Resource Wales

Schedule A7 Storage / Management of hazardous substances

Storage / management of hazardous substances / Summary of COSHH Assessments						
Hazardous substances to be stored on site	**Storage arrangements**	**Volume of substance**	**Assessment available/ Expiry Date of assessment**	**Briefing arrangements**	**Health monitoring**	**Exposure monitoring**
Diesel– mass storage	Locked and bunded metal fuel bowsers. Lockable fencing	10,000l at any one time		COSHH Briefing – Refuelling RA briefing	N/A	
Petrol – small storage	Green metal 5 gallon containers	20 gallons		COSHH Briefing – Refuelling RA	N/A	
Mortar	Silo or secure dry store container	15m3		COSHH Briefing. AP briefing	**N/A**	
Shuttering Oil	25l drums in locked COSHH container	25l				
Small quantities of miscellaneous item, spray paints, cleaning products etc	To be stored in locked/bunded COSHH store in line with individual COSHH assessments.	25l				
Resin Mortar	Locked in COSHH container	25 Kg x 100 no at any one time.				
Solplug /Sol patch – concrete repair mortar	In a COSHH store	Small quantities and of when required.				
Cement & Grout	Bagged cement will be stored in bags, on pallets wrapped in plastic. Cement stores will be kept at least 10m away from water.	25kg bags. 1ton pallets				
Aerosol – line marking paint	Locked in the COSSH store	5 boxes of various colours – each box has 12 cans				
Absorbent Granules for Oil spills	Stored in the COSSH store and at	As the requirements of the				

Storage / management of hazardous substances / Summary of COSHH Assessments						
Hazardous substances to be stored on site	**Storage arrangements**	**Volume of substance**	**Assessment available/ Expiry Date of assessment**	**Briefing arrangements**	**Health monitoring**	**Exposure monitoring**
	designated work areas with emergency spills kits	works in progress dictate				
Bleach	Locked in the COSSH store	750ml bottles				
Cleaning product	Locked in the COSSH store	750ml bottles				
Washing up Liquid	Locked in the COSSH store	750ml bottles				

Schedule A8 Works Transport Plan

Please refer to:

Construction Traffic Management Plan

Doc ref: BAU4670-BNL-ZZ-YYY-SP-W-0003

Section B Construction Phase Plan

B1.0 Foreword

This section of the plan should be read with section A and with the current editions of the schedules for **Section A and B**. Together these documents define the arrangements for achieving health and safety standards on the project. They form the construction phase plan required under CDM Regulations.

B2.0 Health and safety arrangements including welfare

B2.1 Fire safety - *SG11: Assessment of fire safety*

The fire safety co-ordinator gives attention to the prevention and limitation of the effects of fire by avoiding stocks of flammable materials and provision of adequate emergency instruction and arrangements.

On this project, the applicable arrangements for fire safety are detailed in **Table B2.1** below.

Table B2.1: Fire safety arrangements

Flammable substances	Flammable materials are to be stored in lockable store in main compound or specifically designed storage areas away from sources of ignition. All gas bottles will be stored within a secure compound. Different types of gas bottles will be kept separate (as will empty & full bottles). Insert any rules for bringing flammable substances to site
Banned activities	Any unauthorised use of fuels or flammable materials. No lighting of fires or burning waste
Hot work permits	Hot work permits are required prior to commencing any burning, grinding, welding or cutting activities. Fire extinguishers will be available at the site compound and designated areas throughout the works locations.
Smoking	Smoking is permitted in the designated smoking area in the compound. Smoking is not allowed in site vehicles, plant, offices, stores, compounds etc. Insert details of no smoking policy
Waste	Waste will be segregate in accordance with the Site Waste Management Plan and is to be stored in designated skips away from sources of ignition. General waste is to be collected in a covered skip. Dry recycling is to be stored in closed recycling bin, kept in a tidy manner and emptied at regular periods.
Fire points	The fire points to be established at compound areas. Fire points will consist of powder type extinguishers and the Fire Safety Coordinator will ensure these are checked in line with the inspection regime and recalibrated as required. Any defective extinguishers will be removed from site and replaced. Insert details of the nature, location and number of fire points.
Fire equipment	Firefighting equipment is to be checked monthly. All fire extinguishers will be inspected and certified by an independent body. The maximum permissible time between inspections is 12 months. Any faulty equipment will be removed immediately and replaced.
Alarm	Fire alarm and smoke detectors are to be checked monthly.
Emergency supply	*N/A*
Accommodation	*Insert details of arrangements for any accommodation units*
Personnel	
Fire marshal	Abby Davies

Fire co-ordinator	Damion Hopkins

B2.2 First aid - *SG03: First aid*

The location of first aid equipment and names of first aiders are prominently displayed so that assistance can be obtained in the shortest possible time.

The specific arrangements for first aid are as detailed in **Table B2.2** below:

Table B2.2: First aid arrangements

Materials, equipment and facilities	
First aid boxes	Located in main compound reception
Travelling first aid kits	In all site vehicles / mobile welfare units
First aid rooms	Site Office
Defibrillators	Located in main compound reception
Personnel	
First aiders	• Damion Hopkins • Rhodri Llewleyn • Gethin Thomas • Andrew Pointon-Bell
Appointed persons	
Management of first aid equipment and supplies	Damion Hopkins

B2.3 Site utility arrangements - *SG20: Temporary electrical installations*

This section describes the arrangements for planning site requirements for utilities to meet site requirements. Wherever practicable information on depths and location should be provided.

Table B2.3: Site utilities

Utility	Requirement	Inspection and Test Requirement	Routine inspection	Supplier
Electricity (mains)	Main Compound	Earthing arrangements Handover certificate – *Supplied by BAM solutions when installed*	Weekly fuse test Visual examination of cable condition	tbc
Electricity (generated)including all voltages		*As above*	*Weekly fuse test Visual examination of cable condition Generator checks*	tbc
Water	Main Compound and site accommodation fed from existing water supply	*Water quality certificate*		Welsh Water
Telecom / internet	Main compound			tbc
Utility supply in emergency situations	In event of failure a generator will be ordered.	As per manual		Hire Company TBC

B2.4 Welfare arrangements - *SG21: Welfare facilities*

The agent ensures the provision of suitable facilities at all stages of the project and their maintenance to the highest possible standards of cleanliness and hygiene.

Outline arrangements are defined in **Table B2.4** below**: and** on a sketch inserted in **Schedule B1**

Table B2.4: Outline welfare arrangements

Toilets	• Main compound (include disabled and female) • Satellite compounds
Washing	Male & female showers available in main compound. All satellite units contain washing basins.
Changing	Main compound
Rest/food	Main compound & satellite welfare units
Drinking water	Mains water supply and bottled water coolers
Waste segregation	Segregated skips within main compound.
Responsibility for maintenance	tbc

B2.5 Zones – *NS1.5: Zonal working*

Certain areas of the project will have no or restricted access throughout the project and will not be picked up any specific activity plan. This is due to Client requirements or the hazards in these areas. Areas with no access are exclusion zones. Areas of access limited to certain people are restricted zones.

Zonal areas not associated with a specific construction activity on this project are listed in **Table B2.5** below.

Table: Project Zones

Type of Zone	Description
Identify whether the zone is Exclusion or segregated.	*Give the location of the zone, nature of hazard and how it is closed off. For segregated zones describe procedure for access.*

B3.0 Health Management - *NP1.17: Management of occupational health*

The following hazards to health resulting from activities to be carried out on site are listed in **Tables B3.1** and **B3.2** below. Arrangement for health assessment and monitoring linked to the hazards identified are detailed in **Table B3.3** below:

B3.1 Noise - *NP1.5: Control of occupational noise*

Table B3.1: Occupational Noise

Operation	Anticipated noise level (dBA)	Actual noise level (dBA)	Control	Time	PPE
Piling works (Vibro-Hammer)	120 dBA	120 dBA	Acoustic barrier	7:30 – 18:00	Hearing protection for those inside the acoustic barrier - Earplugs and / or Earmuffs in vicinity of work
Excavators 80t (Standard Works) 20t (Standard Works) 15t (Standard Works) 40t (Breaking Rock)	106 dBA 98 dBA 100 dBA 107 dBA	tbc tbc tbc tbc		7:30 – 18:00	Noise reduction PPE not required externally Use Earplugs & Earmuffs in vicinity of works
Dump trucks 30t 9t	104 dBA 102 dBA	tbc tbc		7:30 – 18:00	Noise reduction PPE not required
Rollers 120 Bomag 14t Roller	96 dBA 104 dBA	tbc tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
17m Telehandler	106 dBA	tbc		7:30 18:00	
Disc cutter	102 dBA	tbc		7:30 18:00	Earplugs and / or Earmuffs to be used when operating
Generators	95 dBA	tbc		7:30 – 18:00	
Floor Saw	110 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Plate Compactor	98 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating

Cordless Circular Saw	102 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Standard Drill	102 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Impact wrench	102 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Cordless Drill	102 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Compressor	102 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating
Air Hand Tools	108 dBA	tbc		7:30 – 18:00	Earplugs and / or Earmuffs to be used when operating

B3.2 Vibration - *SG08: Control of occupational vibration*

Table B3.2: Occupational Vibration

Operation	Anticipated vibration level (m/s^2)	Tools used	Control	Time (minutes)
General Cutting	2.2	Petrol Disc Cutter	Rotation of work force / re-selection of tools. SF 106 risk assessment to be completed for all handheld vibrating tools	458Max
Formwork / General Carpentry	3	Cordless Circular Saw	Restrict time on tool . SF 106 risk assessment to be completed for all hand held vibrating tools	246 Max

Drilling & Fixing Shutters		Cordless rotary hammer	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	61 Max
Cutting Concrete	6.2	Floor Saw	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	57 Max
Earthworks Compaction	3.1	Forward Reverse whacker plate	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	230 Max
General Cutting / Formwork	5.3	Cordless Angle Grinder	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	78 Max
General Fixing / Formwork	10.5	Cordless Impact Wrench	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	20 Max
General Drilling / Formwork	5	Hammer Drill	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	88 Max
Concreting Works	5	Concrete Poker	Restrict time on tool. SF 106 risk assessment to be completed for all hand held vibrating tools	88 Max

B3.3 Dermatitis

Table B3.3: Dermatitis

Operation	Hazard	Control	PPE
Concreting	Cement	Minimal exposure Toolbox talks	Full skin coverage with impermeable clothing

			Non-permeable gloves
Mortar	Cement	Minimal exposure Toolbox talks	Full skin coverage with impermeable clothing Non-permeable gloves
COSHH Substances	COSHH	Minimal exposure COSHH Assessment	Non-permeable gloves Face masks Goggles etc.
Grouting	Cement particles, silica dust	Grout bags to be held low and close to mixer when pouring to prevent it becoming airborne. RPE and Gloves to be used during long grouting activities e.g. during phase 3 works or piling.	RPE, Mandatory PPE to be worn, Concrete gloves if responsible for mixing the grout.
Cleaning / Hand washing	Alcohol concentrated Gels.	Avoid using huge amounts of hand cleaning gels. Wash hands instead more often.	N/A

B3.4 Health assessment and monitoring arrangements *- NP1.17 Management of occupational health*

Health assessment monitoring arrangements for this project are defined in **Table B3.4** below:

Table B3.4: Health assessment monitoring arrangements

Hazard	By whom	Frequency
Noise	Competent person Occupational hygienist	Monthly Annual
Vibration	Competent person Occupational hygienist	Monthly Annual

B3.5 Manual handling - *SG22: Manual handling*

Exposure to manual handling, and the associated risk of injury, particularly back injury must be controlled. Manual handling training is given to all personnel at risk and the results of assessments are notified to those involved in the activity.

The activities listed in **Table 3.5** are likely to require a manual handling assessment.

Table B3.5: Manual handling

Activity likely to require a manual handling assessment
Site mobilisation/ demobilisation
Piling operations (hoses)
Services (ducting, drainage pipes, cables etc.)
Bolts & fasteners
Reinforcement construction
Concreting activities
Grouting operations
General site operations
Site setting out and surveys by Engineers
Office deliveries (manual handling around the office, papers, printers etc)

Activity likely to require a manual handling assessment

B3.6 COSHH (Chemical and biological hazards including dust and fumes) - *NP1.18: COSHH SG18: COSHH*

The COSHH coordinator, ensures that all reasonable steps are taken to ensure that exposure of employees and others to hazardous substances is assessed and prevented or at least controlled to within statutory limits.

On this project, arrangements for storage of hazardous substances are detailed in **Schedule A7.**

B3.7 Temperature and weather protection for personnel on site

The following **Table B3.7** below details suitable and sufficient controls are in place to minimise the risks regardless of location.

Table B3.7: Weather Protection

Temperature and weather hazards	Control
High temperature	Briefings Sheltered welfare facilities, Plentiful supply of drinking water
Low temperature	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve. Briefings Sheltered welfare facilities Pedestrian walkways to be gritted if required. PPE
UV	Sunscreen should be provided to personnel. Shaded welfare area Cover up where necessary
Poor visibility	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve. Site lighting available.
Rain	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve. Drying rooms in welfare
Snow	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve.
Humidity	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve. Foreman and barge master to monitor conditions. Works to stop should conditions become dangerous. Ensure site secure/review of fencing & lifting operations Restricted lifting operations. Daily monitoring and forward planning with amended shift patterns if required.
Wind	Conditions are to be assessed by foreman and if required works are to be stopped until conditions improve.

	Foreman to monitor conditions. Works to stop should conditions become dangerous. Ensure site secure/review of fencing & lifting operations Restricted lifting operations. Daily monitoring and forward planning with amended shift patterns if required.
Wave	Daily forecast monitoring PPE (life jackets on rock groyne?)

B3.8 Fatigue

The planned working hours and monitoring regime on this site are given in the **Table B3.8** below:

Table B3.8: Fatigue management

	Dayshift		Nightshift		Control to minimise fatigue
	Hours worked	Breaks	Hours worked	Breaks	
Monday to Friday	12	2	0	0	
Saturday					
Sunday					
Weekly / fortnightly break arrangements					

Information in relation to travel and working time should be recorded for all personnel.

B4.0 General arrangements that apply to the works

Other significant risks are covered in **Tables B4.1 to B4.20**. **Table B4.20** is provided to allow the agent to develop any customer requirements as defined in the pre-tender information, or other unusual risks that may be applicable to the works.

B4.1 Underground and overhead services - *NP1.3 Control of excavation in the vicinity of buried services*

The following information has been taken from the pre-construction information, service providers, Linesearch (www.linesearchbeforeudig.co.uk) and site surveys.

Any known to exist in the vicinity of the site are listed in **Table B4.1** below. With specific details held in the services register **Schedule B3.**

Table B4.1: Major underground / overhead assets

Identified major underground / overhead asset	Location	Activities affected	Control
Main sewer	Full width of site compound	Compound set up / Rock stockpiling	tbc

Identified major underground / overhead asset	Location	Activities affected	Control
Main sewer	Crossing harbour and quay parade	tbc	
tbc			

Responsibility for ensuring arrangements for safety in the vicinity of overhead services in accordance with BAM Nuttall procedures is that of a **Buried and Overhead Services Coordinator**, appointed by the agent, whose duties are described in the BAM Nuttall health and safety policy booklet.

B4.1.1 Services, isolation points and diversion works

In association with these works the following services shall be disconnected / connected:

Service	Location of services and isolation point(s)	Planned date for connection (c) or disconnection (d)

B4.2 Temporary works - *NP19: Control of temporary works*

A description of any erection sequences, temporary propping arrangement etc. taken from the pre-construction and designer information should be included here ensuring safe by design.

Table B4.2: Temporary Works

Temporary work requirements	Influence on the permanent structure	Controls	Access arrangements required
South pier cofferdam			
South pier lifting platform			
Pwll Cam cofferdam			
Pwll Cam access ramp			
Pwll Cam piling / lifting platform			
Pwll Cam formwork design			
Groyne piling platform			
Lifting checks on PCC lifting points			
Access ramp and platform for sheet piling from river bed.			
Trench support drainage			

Additional information in relation to temporary works are recorded on the temporary work register.

B4.3 Working at height - *SG15: Working at height*

Table B4.3: Working at height

Activity	Height hazard	Controls	Monitoring and inspection
Work on Quaysides	Fall from Quayside	Suitable edge protection or scaffold	Before first use After adverse weather conditions Daily visual Weekly formal
Excavations for drainage or wall bases etc	Fall in to excavation	Edge protection	Before first use After adverse weather conditions Daily visual Weekly formal
Cofferdam for Pwll cam gate	Fall in to excavation	Edge protection	Before first use After adverse weather conditions Daily visual Weekly formal

B4.4 Lifting - *NP1.1: Management of lifting operations*

All lifting operations are subject to a lift plan that describes a safe system of work. A schedule of lift plans is maintained on Projectwise.

Responsibility for ensuring the establishment of this safe system of work is that of an appointed person (lifting), appointed by the agent.

Table B4.4: Lifting operations

Lift Plan Reference	Type of lift	Ground / platform information
	Basic *Standard* *Complex*	
Site Accommodation and Welfare	Basic	Existing field / TW design req.
General telehandler lifts.	Basic	General ground conditions
Drainage materials		Existing roadway / site compound
Install precast South pier		Temporary works design required
Concrete skips	Basic	Existing roadway / site compound
shuttering	Basic	Existing roadway / site compound / TW design may be required ?
Pwll Cam tidal gate	Standard	Temporary works design required
Tilt gates	Basic	Existing roadway / site compound
Glass panels	Basic	Existing roadway / site compound
Grouting ?		

B4.5 Excavation

Table B4.5: Excavation

Activity	**Description**	**Controls / support arrangements**	**Monitoring arrangements**
Bulk earthworks	Beach excavation for rock armour or beach replenishment	Activity Plans Exclusion zones around plant and excavations	Daily compliance monitoring. Regular reviews Check competence at induction

Imported material	Stockpiling & loading materials	Activity Plans Exclusion zones around plant and excavations	Daily compliance monitoring. Regular reviews Check competence at induction
Drainage	Detail temporary works design	Restricted access zones	Daily compliance monitoring. Regular reviews Check competence at induction
Other			

B4.6 Ground stability

Table B4.6: Ground Stability

Activity	Stability issue	Mitigation	Inspection
Piling	Ground collapse	Designed piling platform	Before use Daily visual Weekly formal
Lifting	Ground collapse	Designed lifting platform	Before use Daily visual Weekly formal
cuttings	Slope collapse	monitoring	Daily visual Weekly formal
Soft ground	Sinking plant	Design ground check Bog mats	Daily visual Weekly formal
Scaffold / temporary works	Collapse/ sinking	Ground design check	Daily visual Weekly formal
Other			

B4.7 Stability of existing structures

Table B4.7: Structural Integrity of existing structure

Activity and effect	Existing structures	Type of inspection
We recognise that a number of existing structures will be adjacent to our works we cannot accept responsibility for the structural stability of these structures in any designs for the permanent works. We will however work with the Client's designer to ensure the works remain independent of these structures and develop temporary works solutions to maintain their integrity during construction.	South Pier Construct tide gate The Hive	*tbc*

B4.8 Contaminated land

BAM Nuttall will investigate, excavate and dispose of any potentially contaminated areas if any are found in accordance with contaminated land, environmental and health and safety legislation.

Table B4.8: Contaminated Land

Signs of Contamination	Test Results *Actual Levels*	Contamination Identified	Exposure Level Health Maximum Level	Action Taken
From boreholes, excavations, soil strip etc.	*In-situ or analyst,*	*Insert contaminant.*		

B4.9 Cofferdams, caissons and tunnels

Table B4.9: Cofferdams, caissons and tunnels

Design Responsibility	Design Check	Layout Arrangements	Access Arrangements	Inspection / Maintenance Frequency
BAM TW department	*Phil Webber*	Cofferdam for South pier construction. Cofferdam for Pwll Cam gate structure	TBC	Daily Recorded Weekly Adverse weather

B4.10 Working over or near water/drowning - *SG16: Work over or near water*

Table B4.10: Working over or near water / drowning

Activity	Location	Controls	Rescue Arrangements	Drill arrangement
Placing Rock armour on, following on works on groyne.	North pier groyne	Life jackets	Life buoy	Quarterly
Excavation, formwork, concrete etc	Quay walls	Erect rigid edge protection before commencing any works.	Lifebuoy	Quarterly
Describe the location e.g. river or inland waterway (use the MCA guidance 1837(M) for this. Describe the rescue arrangements and training of the crew including information on the type of boat to be used contact the local MCA office for advice. Provide a description of the works and controls to be put in place to minimise risk				

An assessment of the whole body of water to be used has been carried out and this forms the basis of the Water Safety Management Plan. The Water Safety Management Plan is located in Schedule B4.

B4.11 Diving - *SG17: Diving operations*

Table B4.11: Diving

Activity	Location	Depth	Dive team size	Dive Times	Nearest de-compression chamber
tbc					If applicable

B4.12 Piling

Table B4.12: Piling

Type of piling operation	Piling platform design	Laydown areas	Operational controls
Sheet piling – by Movax rig	tbc	Supply as required from storage area in main compound	tbc
Timber piles	tbc	Supply as required from storage area in main compound	

B4.13 Lighting

Table B4.13 describes the lighting arrangements for all aspects for the work. Arrangements should be designed to minimise glare and provide suitable and sufficient lighting to allow work to be carried out safely.

Table B4.13: Lighting

Access	When required	Lighting arrangements
Car park	Hours of darkness / poor weather	Lighting towers or cabin mounted lighting to show spacing arrangements and route to pedestrian walkway
Office	Hours of darkness / poor weather	Sensor lighting to allow safe access to office building
Traffic and pedestrian routes	Hours of darkness / poor weather	Lighting tower
Work area	Hours of darkness / poor weather	Lighting tower
Operation		
Excavations	Hours of darkness / poor weather	Lighting tower and/or Task lighting for excavation/ helmet light for emergency

B4.14 Demolition and assembly including pre-fabricated components

B4.14.1 Demolition

Table B4.14.1: Work involving demolition

A description of demolition activities and associated check and control measures are stated in Tables B4.14.1a and B4.14.1b. Information in relation to temporary works is contained in section B4.2

Demolition activity	Information from demolition survey/ pre-construction information/designers	Temporary works required	Stability checks required in temporary and permanent condition	Operational controls to minimise risk
Removal of existing South Pier head		tbc		List all relevant AP / WPP's and identify those that are high risk

B4.14.2 Assembly of pre-fabricated components

Table B4.14.2: Assembly of pre-fabricated components

Activity	Ground information for lifting operation	Component information	Method information
Erection of precast concrete units to South pier	tbc	Pre-cast concrete panel with eccentric loading with designed lifting points	Check of lifting points required to ensure balance of load.
Glass wall panels	tbc		
Tilt gates			
Pwll Cam Flood gate			

B4.14.3 Dismantling of pre-fabricated items

Table B4.14.3: Dismantling of pre-fabricated components

Activity	Information for removal	Component information	Method information

B4.15 Radiation n/a

B4.16 Explosives n/a

B4.17 Asbestos - *NP1.6: Control of asbestos at work*

BAM Nuttall only undertakes work with asbestos in limited circumstances, i.e. contaminated land, the removal of asbestos cement sheets or pipework encountered in the course of excavation and as an incidental part of the works. BAM Nuttall manages those who undertake work with asbestos on its premises or sites in accordance with BAM Nuttall Procedure NP1.6: *Control of asbestos at work*.

Details of asbestos anticipated on this project are provided in **Table B4.17**

Table B4.17: Asbestos

Asbestos anticipated on the project
None at present

B4.18 Railways n/a

B4.19 Highways

Highways works are carried out within traffic management. This traffic management will have been designed before works commence.

Operations involving work on highways on this project are listed in **Table 4.19**

Table B4.19: Work on highways

Operation involving work on highways	
List all operations likely to involve work on or involving highways.	Detail responsibility for traffic management design and layout.
Drainage	
Light column removal	
New wall construction	
Resurfacing / reinstatement	
Installation of glass panels	

B4.20 Other significant hazards

Other unusual significant safety hazards are listed in **Table 4.20**, together with outline control measures.

Table B4.20: Other significant safety hazards

Hazard	**Activities affected**	**Proposed control method**
List additional hazards,	List affected activities	Outline how risks are to be controlled, this should include long term zonal requirements
Pressure pipelines	grouting	Set up restricted access or exclusion zones and segregate from other operations and public.

Schedule B1 Welfare Layout

Provisional TBC

Schedule B2 Works Transport Layout

See Construction Traffic Management Plan in Section A8

Schedule B3 Register of Service Drawings

Utility Type	Drawing Reference	Issue Date	Date Received
Clean Water – utility search	Aberaeron coast defence Ceredigion SA46 0BR	15/0923	15/0923
Foul Water – utility search	Aberaeron coast defence Ceredigion SA46 0BR	15/0923	15/0923
Electricity – utility search	Job Reference: 30818532	12/09/23	12/09/23
BT – utility search			
GPR Survey	45136-002	09/21	tender
BT (Aberaeron Beach)	BGW1104G	18/01/2019	tender
BT (Aberaeron Bridge)	RFG010830	18/01/2029	tender
BT (Aberaeron Harbour)	CFP01105E	18/01/2029	tender
More to be added, as received			

Schedule B4 Water safety management plan

Tbc

Section C Environmental Management Plan

C1.0 Introduction

This Environmental Management Plan (EMP) has been prepared to support the construction phase of the Aberaeron Coastal Defence Scheme.

This document has been produced to demonstrate compliance with the requirements identified in the following documents:

- HRA (5182114-ATK-MAR-GEN-RP-EN-3014 | 5.0 | October, 2022).
- Environmental Statement – Ceredigion County Council, dated June / November 2021 by Atkins).
- CCC Planning Conditions, Application A211019.
- NRW consultation response of 16/12/2022

This plan should be read in conjunction with **Section A** of this Project Execution Plan. This is intended to be a high level EMP that outlines the general principles with additions made as information becomes available.

C2.0 General Environment Requirements

C2.1 Environmental Aspects and Impacts Assessment

Pre-construction phase ES, HRA and NRW consultation documents have assessed likely impacts from construction activities

Sensitivity scores from these assessments, and assessed residual effects, are tabulated at Table 20-1 of the **ES 5182114-ATK-MAR-GEN-RP-EN-3012 | 3.2 | 8th November 2021** extracted and pasted below for reference.

Table 20-1 Summary of Effects During Construction

Receptor	Summary of impact	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Recreation and Tourism					
Local Businesses, visitors	Tourists disturbed from noise and visual/ landscape impacts	High	Temporary, moderate adverse	Effect limited as the tourist season peaks over July and August	Moderate adverse
Visitors and residents	Access to South Beach prevented	Moderate	Temporary, minor adverse	Maintain access to North Beach and other recreational locations	Minor adverse
Visitors and residents	Tourists disturbed from noise and visual/ landscape impacts and short periods of restricted access	High	Temporary, moderate adverse	Ensure access restrictions are short duration and maintain access to majority of harbour quayside routes.	Moderate adverse
Visitors and residents	Localised diversions to walking routes	Moderate	Temporary, minor adverse	Ensure access restrictions are short duration, provide well marked diversionary routes	Minor adverse
Visitors and residents	Impact on navigation from the main harbour due to construction	Moderate	Temporary, moderate adverse	Issue Notice to Mariners and mark and buoy working areas	Moderate adverse
Visitors and residents	Impact on navigation from Pwll Cam due to construction	Low	Temporary, minor adverse	Provide alternative mooring locations.	Minor adverse
Visitors and residents	Fishing from South Beach and Piers prevented during construction	Moderate	Temporary, moderate adverse	Provide alternative mooring locations.	Moderate adverse

Receptor	Summary of impac	Sensitivity of recepto	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Human Health					
Local residents/ businesses	Loss of landscape and visual amenity	High	Temporary, minor adverse	See landscape and visual amenity.	Minor adverse
Local residents/ businesses/ Visitors	Potential to 'put off' tourists due to disruption, noise, restricted access to South Beach	High	Temporary, minor adverse	See recreation and tourism.	Minor adverse
Local residents /businesses	Noise impacts from construction activities	High	Temporary, minor adverse	See recreation and tourism.	Minor adverse
Local residents/businesses	Air quality impacts such as dust risk and emissions.	High	Temporary, minor adverse	See air quality.	Minor adverse
Socio-Economics					
Local Businesses/residents	Disturbance/Disruption impacts - activities such as noise and visual	High	Temporary, moderate adverse	See noise and vibration.	Moderate adverse
Local Businesses/residents	Access issues/alternative route impacts	High	Temporary, minor adverse impact	See traffic and transport.	Minor adverse
Local Businesses/residents	Increased traffic flow and disturbance to transportation and access	High	Temporary, minor adverse	See traffic and transport.	Minor adverse
Local Businesses/residents	Impacts to tourism such as festivals and other events	High	Temporary, minor adverse	See recreation and tourism.	Minor adverse

Receptor	Summary of impac	Sensitivity of recepto	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Local fishermen	Impacts to fishing	Medium	Temporary, minor adverse	See ecology and traffic and transport.	Minor adverse
Local Businesses/residents	Potential local employment opportunities	High	Temporary, minor beneficial	N/A	Minor beneficial
Ecology					
S.alveolata reef	Direct disturbance and damage from breakwater construction.	High	Temporary, minor adverse	As much of the construction of the breakwater as possible will take place from the top of the breakwater itself i.e. building the breakwater seawards and using sections already built as a working platform. Prior to construction, a habitat survey of the *S. alveolata* reef will be undertaken on South Beach and in the footprint of the breakwater to confirm that there is no reef present within the working area of South Beach and the piers. Should areas of reef have developed since the	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				2020 walkover survey, the contractor will avoid unnecessary movement over newly established reef areas. There will be no anchoring or beaching of any marine vessels on the reef. The contractors will be informed of the presence of the reef and its protected status.	
Mussel beds	Direct damage and disturbance during breakwater construction	High	Permanent, minor adverse	To reduce damage as much as possible, the construction of the breakwater will take place from the top of the breakwater itself to limit the working area. The contractor will be informed of the protected status of the mussel beds.	Minor adverse
S.alveolata reef and mussel beds and intertidal/subtidal ecology	Smothering from turbidity caused by work in the sea, harbour and river.	High	Temporary, minor adverse	Excavation will be carried out at low tide for the sections of breakwater that will be above MLWS.	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				For sections of the breakwater below MLWS, excavation is to take place under water. Geofabric mat to be positioned onto the seabed in the excavated footprint of the breakwater, to reduce washout of bed material beneath the rocks both during construction and in the future. Construction vehicles to utilise upper beach as much as possible, to avoid beach materials being washed out into the sea. Tipping of rock from the barge and rock stockpiling on the beach to take place as high up the intertidal zone as possible to reduce wash out of fines into the sea, with a nominated area identified for the rock delivery point on the beach which will be provided to the vessel operators Silt buster to be used before water from Pwll	

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				Cam is pumped into the harbour during cofferdam installation.	
Intertidal and subtidal ecology including *S.alveolata* reef and mussel beds	Pollution from spills and leaks from machinery for work in the sea, harbour and river.	High	Temporary, minor adverse	Best practice industry guidance to be followed by the Contractor.	Negligible
Fish	Entrapment from cofferdam during flood gate work in Pwll Cam dock	Medium	Temporary, minor adverse	Fish rescue to take place by a suitably qualified ecologist before water is pumped out of the dock.	Negligible
Marine mammals and fish	Noise and visual disturbance from marine works.	High/medium	Temporary, minor adverse	Piling operations will be undertaken at low tide and outside of the water column to reduce the generation of percussive noise in the water and a soft start approach will be used. The construction working hours are 7am to 7pm and therefore underwater night time sound will not be generated. Percussive noise will not be constant throughout the construction period and will be short term for the groynes and South Pier work only	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Marine mammals and fish	Turbidity from marine works	High/medium	Temporary, minor adverse	Excavation will be carried out at low tide for the sections of breakwater that will be above MLWS. For sections of the breakwater below MLWS, excavation is to take place under water. Geofabric mat to be positioned onto the seabed in the excavated footprint of the breakwater, to reduce washout of bed material beneath the rocks both during construction and in the future. Construction vehicles to utilise upper beach as much as possible, to avoid beach materials being washed out into the sea. Tipping of rock from the barge and rock stockpiling on the beach to take place as high up the intertidal zone as possible to reduce wash out of fines into the sea, with a nominated area identified for the rock delivery point on the beach which will be	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				provided to the vessel operators.	
Marine mammals	Risk of collision from vessels delivering rock.	High	Permanent, minor adverse	The following mitigations will be implemented to reduce potential impacts: All vessel operators working on the Scheme will be given a briefing, alerting them to the possible presence of marine mammals in the area, and the guidelines for safe vessel operation in the presence of cetaceans. With implementation of this measure, the chance of boat strike resulting in physical injury or mortality of marine mammals will be extremely unlikely. Similarly, by observing the guidelines, vessels will be operated in an appropriate manner so that marine mammals will not be subjected to undue disturbance or harassed.	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				Vessel operators will be required to use predefined and regular routes, as these will become known to marine mammals using these waters. This measure will further serve to minimise disturbance to marine mammals due to vessel movements. The use of competent observer(s) to spot marine mammals along the Aberaeron frontage during high noise and vibration activities, in particular rock placement and piling operations. If cetaceans are observed, works will be delayed until they have left the area. This measure will ensure the area in the vicinity of works is clear of marine mammals prior to the commencement of works and will serve to reduce any disturbance to marine mammals. The need for marine mammal observers should be	

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				agreed with CCC and NRW. Prior to construction start, an assessment for use of the beach by seal pups should be assessed with continuing surveillance during August – November. In the event of seal pups being present on the beaches at Aberaeron, there will be a need to wait for seal pups to mature and to have gone to sea.	
Fish	Noise and vibration from piling for Pwll Cam flood gate and South Pier work	Medium	Temporary, negligible	A soft start approach will also be used for the piling to reduce startling of fish.	Negligible
Coastal meadow habitat, species and invertebrates	Disturbance from presence of site compound on coastal meadow.	Medium	Temporary, minor adverse	The existing topsoil and grass will be removed as part of the compound set up and stored for re-planting following construction. Prior to construction and depending on the ecological survey recommendations, the meadow will be harvested by CCC to collect the	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				seeds for re-planting and site re-instatement following construction. Seeds will also be sourced externally from the site for re-planting to encourage increased biodiversity.	
Reptiles	Disturbance from presence of site compound on coastal meadow habitat.	High	Temporary, negligible	Existing management regime, undertaken by CCC, is maintained to ensure no suitable habitat features for reptiles are introduced to site before its use as a site compound commences. During vegetation clearance, works will take place under a Precautionary Method of Working (PMW), including a pre-works survey of the affected area by an appropriately experienced ecologist, to ensure that reptiles which may have colonised the site since the survey do not come to harm.	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Otters	Impacts from noise, vibration and changes in water quality, as well as potential obstruction to migratory routes from work in the river.	High	Temporary, minor adverse	A suitably experienced ecologist will carry out a daily pre work survey when working in the River Aeron for otter resting places immediately prior to site works. Measures to reduce the risk of harm to commuting and foraging otter will include covering open trenches at night or providing a means of escape (such as a plank of wood) at night to prevent mammals becoming trapped, and safe overnight storage of plant, materials and equipment. Any lighting of the site during the hours of darkness will also seek to avoid suitable habitats for this species, such as the banks of the River Aeron and adjacent intertidal habitat.	Minor adverse
Birds	Disturbance from noise, visual disturbance, light disturbance, and loss of	Medium	Temporary, negligible	A pre-construction walkover by an ecologist to check for nesting birds	Negligible

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
	habitat for feeding and nesting.			within the construction footprint and advise on any necessary action to avoid disturbance. Mitigation measures to reduce the impact of noise are presented in the section on noise. All works, with the exception of installing the Pwll Cam flood gate, will be carried out at low tide and during daylight hours. The contractor will follow best practice procedures for working at night, including measures to minimise noise and directional lighting.	
Historic Environment					
Aberaeron Outer Harbour (Asset 4)	Temporary adverse impact on setting from construction works.	Low	Temporary negligible	None	Negligible
South Pier (Asset 7) (grade II listed building)	Temporary adverse impact to the asset as a result of noise and visual intrusion, and restrictions to access associated with construction activity.	Medium	Temporary moderate adverse	None	Moderate adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
North Pier (Asset 9) (grade II listed building)	Temporary adverse impact to the asset as a result of noise and visual intrusion, and restrictions to access associated with construction activity.	Medium	Temporary moderate adverse	None	Moderate adverse
Harbourmaster Hotel (Asset 12) (grade II listed building)	Temporary adverse impact to the value the building derives from its setting from construction activity associated with the breakwater and the flood wall along the quay, resulting in noise and visual intrusion which could affect the way the Harbour is appreciated in its setting.	Medium	Temporary moderate adverse	None	Moderate adverse
No.3-11 Quay Parade (Asset 13) (terrace of 10 grade II listed buildings)	Temporary adverse impact to the value the building derives from its setting from construction activity associated with the breakwater and the flood wall along the quay, resulting in noise and visual intrusion which could affect the way the Harbour is appreciated in its setting.	Medium	Temporary minor adverse	None	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Northeast Quay (Asset 14) (grade II listed building)	Temporary adverse impact to the asset as a result of noise and visual intrusion, and restrictions to access associated with construction activity.	Medium	Temporary moderate adverse	None proposed	Moderate adverse
Building complex at entrance to Aberaeron Inner Harbour (Asset 26)	Temporary adverse impact to the asset as a result of noise and visual intrusion, from construction activity.	Low	Temporary minor adverse	None	Minor adverse
Aberaeron Inner Harbour (Asset 28)	Temporary adverse impact to the asset as a result of noise and visual intrusion, and restrictions to access associated with construction activity.	Low	Temporary minor adverse	None	Minor adverse
No.1-9 Cadwgan Place (Asset 31) (terrace of 9 grade II listed buildings)	Temporary adverse impact to the value the terrace derives from its setting due to noise and visual intrusion resulting from construction activity at Pwll Cam and the Northeast Quay.	Medium	Temporary minor adverse	None	Minor adverse
No.9-17 Market Street (Asset 35) (terrace of 9 grade II listed buildings)	Temporary adverse impact to the value the terrace derives from its setting due to noise and visual intrusion resulting from construction activity	Medium	Temporary negligible	None	Negligible

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
	at Pwll Cam and the Northeast Quay.				
A Slipway in Aberaeron Inner Harbour (Asset 38)	Incorporation into temporary access ramp.	Negligible	Temporary negligible	None	Negligible
Aberaeron (Asset 92) (Conservation Area)	Temporary adverse impact to the value the conservation area derives from its setting as a result of construction activity taking place within and in proximity to the asset	High	Temporary moderate adverse	None	Moderate adverse
Aberaeron Fish Trap 3 (Asset 93)	Damage during replacement of groynes	Medium	Permanent moderate adverse	Archaeological survey and recording Protection during construction	Negligible
Aberaeron Fish Trap 1 (Asset 94)	Damage during replacement of groynes	Medium	Permanent minor adverse	Recording Protection during construction	Negligible
Landscape and Visual Amenity					
LCA 1 Aberaeron Townscape	Historic character diminished by the presence of construction	High	Temporary, Major Adverse	N/A	Major adverse
LCA 3 Cardigan Bay Cliffs	Construction will be visible including temporary fencing will diminish character	Medium	Temporary, Moderate Adverse	Screening of the site compound for security will also hide plant, equipment and site cabins.	Moderate adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
LCA 4 Cardigan Bay Intertidal Area (beaches) – North Beach	Construction will be visible including temporary fencing will diminish character	Low	Temporary, Minor adverse	Screening of the site compound for security will also hide plant, equipment and site cabins.	Minor adverse
LCA 4 Cardigan Bay Intertidal Area (beaches) – South Beach	Construction will be visible including temporary fencing will diminish character	Medium	Temporary, Moderate Adverse	N/A	Moderate adverse
Viewpoint 1 - Coastal path, approaching from the south. Dist. – approx... 700m away	The construction work will be focused specifically the north and south beaches and won't detract from the wider long-distance view available here. The construction activities within the harbour will be obscured by residential properties from this location.	High	Temporary, Minor Adverse	Screening of the site compound for security will also hide plant, equipment and site cabins.	Minor Adverse
Viewpoint 2 - Coastal path, near South Beach and Council offices Dist. – approx... 350m away	The proposals to South Beach and the majority of the breakwater will become visible from this location, with direct views of the site compound and construction activities on the South Beach and implementation of the breakwater.	Medium	Temporary, Moderate Adverse	Screening of the site compound for security will also hide plant, equipment and site cabins.	Moderate Adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Viewpoint 3 - Harbour Master and Harbour from the end of Harbour Lane Dist. – approx... 120m away	From this location the view towards the coloured terraces on Quay Parade will still be visible and construction activities will be focused nearer the ground plane. There will be occasions of construction plant navigating through the view.	High	Temporary, Moderate Adverse	N/A	Moderate Adverse
Viewpoint 4 - Harbour Lane, looking towards Harbour Master hotel Dist. – approx... 100m away	This view will be altered during the construction phase as it overlooks the construction work	High	Temporary, Major Adverse	N/A	Major Adverse
Viewpoint 5 - View of Pwll Cam from Pedestrian footbridge. Dist. – approx... 50m away	There will be an elevated view of Pwll Cam harbour and the construction taking place	High	Temporary, Major Adverse	N/A	Major Adverse
Viewpoint 6 - View of pedestrian bridge from Pwll Cam. Dist. – within development area	There will be a view of the construction work from the corner of the car park looking towards the pedestrian bridge, A487 road, residential properties and Holy Trinity Church.	High	Temporary, Moderate Adverse	N/A	Moderate Adverse

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Viewpoint 7 - View of Quay Parade looking towards harbour entrance. Dist. – within development area	The view here is directly along Quay Parade towards the tourist information building and will overlook the construction works.	High	Temporary, Moderate Adverse	N/A	Moderate Adverse
Viewpoint 8 - View of north pier from the Coastal path approaching from the north. Dist. – approx... 50m away	The main views of the beach are obscured with an existing concrete sea defence wall.	High	Temporary, Minor Adverse	N/A	Minor Adverse
Coastal Processes					
S.alveolata reef	Physical disturbance and damage during construction of the breakwater.	High	Temporary, minor adverse	No construction work is to take place on North Beach. As much of the construction of the breakwater as possible will take place from the top of the breakwater itself i.e. building the breakwater seawards and using sections already built as a working platform. Prior to construction, a habitat survey of the *S. alveolata* reef will be	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				undertaken on South Beach and in the footprint of the breakwater to confirm that there is no reef present within the working area of South Beach and the piers. Should areas of reef have developed since the 2020 walkover survey, the contractor will avoid unnecessary movement over newly established reef areas. Construction vehicles are to restrict their movements to the upper areas of the beach as far as is practicable to reduce sediment mobilisation in the lower intertidal area. There will be no anchoring or beaching of any marine vessels on the reef. The contractors will be informed of the presence of the reef and its protected status.	
S.alveolata reef	Sediment disturbance from machinery and construction works.	High	Temporary, minor adverse	Excavation to be carried out at low tide for the sections of breakwater	Minor adverse

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
	releasing seabed and beach sediments into the water column.			that will be above MLWS. For sections of the breakwater below MLWS, excavation is to be carried out under water. Geofabric mat to be positioned onto the seabed in the excavated footprint of the breakwater, to reduce the washout of bed material beneath the rocks both during construction and in the future. Construction vehicles to restrict movement to the upper beach as much as possible, to avoid beach materials being washed out into the sea.	
Water Quality					
Surface water quality	Pollution from chemical leaks and spills	High/Medium	Minor adverse	Adherence to GPPs and CIRIA guidance. Contractor to produce a method statement detailing pollution prevention measures.	Negligible
Surface water quality	Sediment disturbance and release of sediment into the water column	High/Medium	Minor adverse	Use of geo-fabric mats in the breakwater footprint and within the Pwll Cam cofferdam. Construction	Minor adverse

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				vehicles to use the upper area of the beach where possible. Tipping of rock from boat to be as far up the intertidal zone as possible to reduce fines being washed into the sea.	
Surface water quality	Sediment disturbance and release of contaminated sediments into the water column	High/Medium	Negligible	N/A	Negligible
Bathing Waters	Risk of discharges from the site compound	High	Negligible	N/A	Negligible
Groundwater	Pollution from chemical leaks and spills from machinery and risks of increased saline intrusion to the groundwater body during excavation.	Medium	Minor adverse	Adherence to GPPs and CIRIA guidance. Contractor to produce a method statement detailing pollution prevention measures.	Negligible
Soils and Ground Conditions					
Physical Effects (Ground conditions)	Soil Erosion Soil compaction and ground stability Impacts of topography	Low	Not significant/Negligible	Undertake further ground investigation to define risks and undertake ground improvement works to reduce impacts, if required.	Negligible

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				Incorporate mitigation measures into the construction process, including the adoption of working methods to manage appropriately soil erosion and compaction, surface water runoff and groundwater during construction.	
Land Contamination (Human Health, controlled water and property receptors)	Contamination from un-identified sources	Medium	Not significant/Negligible	Undertake further ground investigation to define risks and undertake ground improvement works to reduce impacts, if required. Incorporate mitigation measures into the construction process, including the adoption of working methods to manage appropriately soil erosion and compaction, surface water runoff and groundwater during construction.	Negligible
Waste Soils and Soil Re-use:	Generation of waste soils	Low	Not significant/Negligible	Test any excavated materials and set re-use criteria. Minimise offsite disposal	Negligible

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Traffic and Transport					
Road users	Increased traffic flows on A487 for bulk deliveries to site compound	Medium	Temporary, minor adverse	Traffic management plan to be produced to manage deliveries to the site compound	Minor adverse
Road users	Increased traffic flows from employee traffic travelling to/from Aberaeron	Medium	Temporary, minor adverse	Traffic management plan to be produced to manage movements of employees travelling to site	Minor adverse
Road users	Increased traffic flows from on-site construction vehicles moving within the working area	Medium	Temporary, minor adverse	Construction vehicles to avoid using Wellington Gardens during school drop off and pick up times of between 8-9am and 3-4pm. Traffic management plan to be produced to manage movements of construction vehicles throughout the working area	Minor adverse
Road users	Construction traffic moving to/from site compound in close proximity to CCC/police station carpark	Medium	Temporary, minor adverse	5mph speed limit to be implemented CCC/police station employees to be informed of the presence of construction vehicles.	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Road users	Temporary loss of car park spaces	Medium	Temporary, minor adverse	Consultation to be undertaken with Aberaeron Yacht Club to agree contractor use of the car park, particularly during winter due to use of the car park for winter boat storage.	Minor adverse
Pedestrians/Cyclists	Access along the Wales Coast Path temporarily restricted at North Pier, River Aeron footbridge and South Beach	Low	Temporary, minor adverse	Diversion routes to be provided and clearly signposted. Due to the proximity of the site compound to the Wales Coast Path, signs will be erected alerting the public to the presence of the site compound and heavy machinery in the vicinity	Minor adverse
Pedestrians	Increased traffic movements in CCC carpark and on entrance road, impacting on the safety of pedestrians and school children.	High	Temporary, moderate adverse	Contractor to have a traffic management plan in place that considers the sensitivity of this car park. This will include signs alerting the public to the presence of heavy machinery and plant in the area, adherence to a 5mph speed limit as well as a temporary pedestrian crossing across the contractor's access route	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				to the site compound. During school pick up and drop off, the contractor should consider placing a marshal at the crossing to ensure the safety of school children at this peak time. The contractor should also inform CCC, the police station and the primary school of their management plan for the car park. The contractor will also inform construction employees about the sensitivity of the site.	
Pedestrian/Cyclists	General disruption to access along Quay Parade and Pwll Cam due to areas being fenced off during construction	Medium	Temporary, minor adverse	Areas of work to be fenced off in discrete sections with adjacent areas to remain accessible for pedestrians along Quay Parade and Pwll Cam.	Minor adverse
Boat users	Navigation disturbance from construction vessels both offshore and within the harbour	Medium	Temporary, minor adverse	Notice to mariners to be issued. Signs to be erected at slipways. Contractor to liaise with Harbour Authority and Aberaeron Yacht Club	Minor adverse

Receptor	Summary of impac	Sensitivity of recepto	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				regarding programming of marine activities.	
Noise and Vibration					
Properties in close proximity to North Pier	Noise from piling operations for work to install lighting and navigation beacons on North Pier	High	Temporary, minor adverse	Vibration piling to be used where possible.	Minor adverse
Properties in close proximity to South Pier	Noise from South Pier works	High	Temporary, minor adverse	Auger and vibration piling methods to be used where possible. Material from the site compound to be transported via the beach as much as possible, to reduce the need for use of Wellington Street.	Minor adverse
Properties along Quay Parade and The Hive	Noise impacts from removal and rebuild of flood wall along Quay Parade	High	Temporary, moderate adverse	Flood wall to be removed in sections to help confine noisy activities in discrete locations and reduce the length of time that residents are affected by noise directly outside their property. Contractor to liaise with property owners where considered necessary in	Moderate adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				advance of noisy activities.	
Properties along Quay Parade, around Pwll Cam and The Hive	Noise from piling work for flood gate installation	High	Temporary, moderate adverse	Vibratory or rotary piling methods to be used where possible. Contractor to liaise with property owners where considered necessary in advance of noisy activities.	Moderate adverse
Properties along the River Aeron flood wall	Noise impacts from removal and rebuild of flood wall including piling work between Pwll Cam and the A487 road bridge	High	Temporary, moderate adverse	Vibration piling to be used where possible. Contractor to liaise with property owners where considered necessary in advance of noisy activities.	Moderate adverse
Properties close to the site compound e.g. Min-y-Môr	Noise from movement of construction vehicles to and from the site compound, movement within the site compound and the generator.	High	Temporary, minor adverse	Site compound to be enclosed within a solid plywood hoarding system. Site compound access gate to be located to the southwest away from sensitive receptors. Site compound generator to be enclosed within a noise attenuating unit and located as far from noise	Minor adverse

Receptor	Summary of impac	Sensitivity of receptor	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
				sensitive receptors as reasonably practicable. Contractor to liaise with property owners where considered necessary.	
Quay Parade	Vibration impacts from flood wall removal	High	Temporary, minor adverse	Concrete saw to be used to break up the wall into smaller segments as much as possible in order to minimise the use of a hydraulic breaker. Removal of wall to be carried out in discrete sections at a time.	Negligible
The Hive	Vibration impacts from piling for flood gate	High	Temporary, minor adverse	Method statement to be produced for the piling technique (vibratory or auger) and measures to reduce impacts where possible. Pre-construction building condition survey to be carried out of The Hive. Vibration monitoring to be carried out during the piling work to monitor vibration levels in the stone wall are kept below the structural damage criteria.	Minor adverse

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Min-y-Môr	Vibration impacts from site compound ground compaction works	High	Temporary, negligible	Dead weight rolling to be used where possible along the north-western site compound fence line rather than vibratory rolling during ground preparation.	Negligible
River Aeron flood wall structure	Vibration impacts where the piling ties in with the existing stone flood wall	High	Temporary, minor adverse	Condition survey to be carried out prior to construction as well as vibration monitoring during construction to ensure vibration levels in the stone wall are kept below the structural damage criteria.	Minor
Air Quality					
Human Health and Ecological	Impacts from Construction Dust	High	Significance should only be assigned to the effect after considering the construction activity with mitigation. Temporary. Not significant.	As described in Section 17.1	Negligible

Receptor	Summary of impac	Sensitivity of receptc	Significance of effect before mitigation e.g. temporary/permanent, adverse/beneficial	Mitigation measures	Significance of residual effect after mitigation
Human Health and Ecological	Increase in HGV movements during the construction programme	High	Negligible. Temporary. Not significant.	None	Negligible, not significant
Human Health and Ecological	Use of construction plant within the Scheme area	High	Negligible. Temporary. not significant.	None	Negligible, not significant
Climate Change					
Natural Resources	Use of natural resources	High	Permanent, minor adverse	Consider source of materials used in the construction (e.g. whether from a source specifically identified for this scheme, or from a re-use of surplus material).	Negligible
Greenhouse gas emissions	Generation of GHGs	High	Permanent, minor adverse	Consider the choice of materials for any required ancillary structures, and the embodied emissions within them. Consider transport distances and emissions from vehicles used	Negligible

The WFD Assessment 5182114-ATK-MAR-GEN-RP-EN-3013 November 2021 highlighted the Following Mitigation measures:

- Most works will be carried out at low tide and during daylight hours. This will avoid any noise transmission within the water column, and avoid the need for artificial lighting that could disturb migratory fish.
- The Scheme will utilise a circular waste system within the site.
- Site compounds, materials and equipment will be appropriately secured and fenced off, away from the site if necessary.
- The Scheme will make use of well-maintained equipment and plant to minimise potential for fuel/oil and chemical leaks. Plant and machinery will be switched off when not in use.
- All equipment and materials used will be in a clean condition prior to their arrival on site, and on removal from site.
- The proposed works will follow the Guidance on Pollution Prevention (GPPs)5 in particular GPP5 Work in or Near Water, and the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction site

The above Environmental risk assessments has been carried out which identifies the environmental risk associated with core construction activities in terms of risks to: air quality; archaeology and cultural heritage; contaminated land; ecology; landscape; material use and waste; noise and vibration; water; and public highways.
Additional construction related assessments are included ta Table/Schedule C. 1
These additional construction risks were assessed in terms of the potential likelihood and severity of consequence (extent / reversibility / sensitivity). Where medium and high risks were encountered, outline actions have been recommended and the residual post mitigation risk assessed, This risk assessment is included in **Schedule C1: Aspects and Impacts** and **Schedule C2: Environment Constraints Map**.

C2.2 Monitoring Arrangements

BAM project team will liaise with and take advice from the project ECoW with regard to environmental constraints and mitigations where appropriate.

Prior to works commencing and thereafter quarterly the agent and the appointed environmental advisor will review environmental risks and opportunities of the project documented in **Environmental Form EF12: Project Environment Risk review**. They agree level of support and frequency of inspection by the appointed environmental advisor

Site operations are regularly monitored during the site environmental engineers and agents weekly inspections to ensure overall environmental performance (legislative, client, and ISO 14001 and BAM Nuttall requirements) is maintained throughout the project duration. Compliance monitoring and frequency is detailed in **Schedule C3: Environmental Monitoring**

C2.3 Review Arrangements

This EMP will be reviewed when there is a substantial change to the scope or method of work, request of the ECoW, NRW or CCC, or every 3 months, whichever is soonest. Review will include the ECoW & CCC ecologist.

C2.4 Requirements and Consents

Consents, licences or permissions are required from a number of organisations including Natural Resource Wales, CADW, local water companies, Trinity House, Harbour Authority and Ceredigion County Council environmental health and planning departments.

These cover matters relating to work near water, disposal of waste, noise and vibration and ecology among others. Activities on this project assessed as requiring consent, licence or permission are listed in **Schedule C4: Consent licences and permissions.**

The BAM Nuttall Environmental Policy and key environmental information including poster campaigns will be displayed on notice boards at the project site offices.

Consents and licences shall be displayed at locations in accordance with the licence requirements

C3.0 Specific Environmental Impact Areas

C3.1 Water (Resource) Management – *NP27.1: Water management NP27.2: Oil storage and refuelling*

A comprehensive assessment of the potential risks of water pollution resulting from these works has been carried out pre-construction and is contained within documents:

- 5182114-ATK-MAR-GEN-RP-EN-3013 Water Framework Directive Assessment for the scheme.
- Environmental Statement – Ceredigion County Council, dated June / November 2021 by Atkins).

The required mitigation from the WFD assessment and the ES has been pasted at C3.100987 above for ease of reference.

Surface, ground and coastal waters are considered where appropriate. Activities likely to have an impact on controlled waters may be listed in **Table C3.1a**, together with appropriate control measures.

Table C3.1a: Water environmental controls

Location	Activity	Controls
		Mitigation arising from the comprehensive assessment of risk identified in the ES & WFD assessments are presented at C.2.1 above. A summary of appropriate control measures for identified activities are listed below.
Aberaeron South Pier Extending out from the North Pier	Reconstruction of the seaward pier head, including grouting repairs of the walls.	• habitat survey of the S. alveolata reef will have been undertaken on South Beach and in the footprint of the breakwater to confirm that there is no reef present within the working area of South Beach and the piers • Environmental CoW to advise on locations where S. alveolata and mussel are present and construction plant routes planned to avoid these areas and minimise disruption. • Next one
Extending out from the North Pier.	Construction of a rock breakwater	• Excavation will be carried out at low tide for the sections of breakwater that will be above MLWS. For sections of the breakwater below MLWS, excavation is to take place under water. • Geofabric mat to be positioned onto the seabed in the excavated footprint of the breakwater, to reduce washout of bed material beneath the rocks both during construction and in the future. • Construction vehicles to utilise upper beach as much as possible, to avoid beach materials being washed out into the sea.
Quay Parade and Pwll Cam	construction of harbour flood walls which includes raising	• Concrete delivery discharge points to be located away from water courses and drains on impermeable surfaces • Concrete placed by skip or concrete pump to avoid spillage

Location	Activity	Controls
Footbridge up to the rear of the Monachty Hotel.	parts of the set-back flood walls, with masonry and glass panels. Incorporating tilt barriers (flood gates) within these walls to maintain access	• Designated wash out point. Associated contaminated waters to be treated on site (siltbuster) or transported off site for treatment at a licensed facility. • Site Agent and Environmental Engineer informed of all incidents immediately so that appropriate action can be taken. • Refuelling to take place in site compound.
Beach Areas	Rock armour delivery, placement and beach nourishment works	• All vessel operators working on the Scheme will be given a briefing, alerting them to the possible presence of marine mammals in the area, and the guidelines for safe vessel operation in the presence of cetaceans. • Rock delivery area on the beach to be identified and provided to the vessel operators. Tipping of rock from the barge and rock stockpiling on the beach to take place as high up the intertidal zone as possible to reduce wash out of fines into the sea. • Vessel operators to use predefined and regular shipping routes, as these will become known to marine mammals using these waters. • Biosecurity Risk Assessment and Management Plan to be produced. •
Site compound	Set up and use of site compound for site offices and storage of materials and refuelling of plant	• Work within best practice guidelines . Identification of potential risks and mitigation measures via completion of PMP; Inductions and dissemination of task specific environmental issues - Refuelling procedure to be issued - Refuelling to carried out by a designated person in line with refuelling procedure - Fuel bowsers to bunded and locked when not in use. - Jerry cans/drums to be stored at all times in stores when not being utilised, ensuring containers are fit for purpose. - Plant nappies to be used - Spill kit to located at all high risk areas - Secondary containment/ drip trays to be checked for spillages • All personnel to be briefed on emergency response procedure. • Site Agent and Environmental Engineer informed of all incidents immediately so that appropriate action can be taken.

Control measures are summarised in **Schedule C1: Aspects and Impacts,** with environmental constraints detailed in **Schedule C2: Environment Constraints Map**.

Water usage is recorded and monitored by use of the BAM Site app web based sustainability On this project, ways in which water use is being reduced are listed in **Table 3.1b**

Table C3.1b: Water reduction measures

Activity	Measures to be adopted to reduce use
Dust suppression Grouting Welfare	Good housekeeping Water usage to be monitored and recorded on BAM Site app Push taps and aerators

C3.1.1 Herbicide and Pesticide Application

If required, herbicide and pesticide application will be covered by a task specific activity plan/ WPP. BAM Nuttall is not anticipating using any herbicides on site; however, if required, application will be by qualified experienced and registered sub-contractors only. Details of training records will be stored on-site or with the sub-contractor.

ECoW to be consulted on any herbicide/pesticide application that does become necessary. NRW will be notified of all use of herbicides or pesticides within 10m of a watercourse.

C3.2 Fuel Oils and Chemicals - *NP27.2: Oil storage and refuelling*

Consideration is given to the location and method of storing fuel, oils and chemicals within suitable site areas for refuelling plant. Details of storage and refuelling arrangements are provided in **Schedule A7 Hazardous substances.**

Personnel responsible for refuelling plant & equipment will receive a tool box talk (Refuelling plant and equipment PP8) including site specific refuelling procedure including the emergency oil spill procedure**, Schedule A6** which will be displayed around site.

C3.2.1 COSHH (Chemical and biological hazards including dust and fumes)

The COSHH coordinator, ensures that all reasonable steps are taken to ensure that exposure of employees and others to hazardous substances is assessed and prevented or at least controlled to within statutory limits.

On this project, arrangements for storage of hazardous substances are detailed in Section B Construction phase plan **Section A Project Execution Plan.**

C3.3 Waste (Resource) Management - *NP27.3: Waste management*

Compliance with BAM Nuttall waste procedures and guidance ensures:

- compliance with relevant waste management legislation
- application of industry best practice
- identification of opportunities in waste minimisation/resource efficiency

The site waste management plan (SWMP) declaration, of **Schedule C5** identifies the waste streams generated with forecast quantities. The SWMP defines the selected waste management measures of prevention, reuse, recycling and recovery and, at the end of the project. This allows a comparison to be made between forecast and actual waste quantities.

Generation of waste material will be minimised at every stage of the project (design, procurement and construction), and reduction strategies will be implemented and detailed in the SWMP.

Quantities of waste, categorisation (inert, non-hazardous, and hazardous waste), are monitored by use of the BAM Site app. This is a live system which is reviewed and updated on

a regular bases to ensure compliance and to track project waste performance. Copies of waste management contractors certificates, permits, licences or exemptions used or validated in consultation with the Environmental Advisor and retained on site in accordance with the site documentation control procedures.

C3.4 Contaminated Land

BAM Nuttall will investigate, assess remediation / disposal options of any potentially contaminated areas in accordance with contaminated land, environmental and health and safety legislation. Treatment / recovery / disposal options will be detailed in the relevant site waste management plan **Schedule C4** or Material management plan as required.

Specific arrangement for contaminated land are as detailed in **Table C3.4** below*:*

Table C3.4: Contaminated Land arrangement

Signs of Contamination	Test Results *Actual Levels*	Contamination Identified	Exposure Level Environment Maximum Level	Action Taken
ES states that there is “Potential disturbance and re-mobilisation of contaminated sediments during installation of the North Pier Breakwater and Pwll Cam floodgate.”	None provided	Should any suspected contamination be identified in these areas then works are to cease and employer notified. No suspected contaminated material to be allowed to enter the watercourse from Pwll Cam.		TO BE ADVISED

C3.5 Nuisance - NP27.4 Control of site nuisance

Construction activity has the potential to cause nuisance within the site, to site personnel, to local residents, site neighbour’s and the general public in the form of noise, dust, mud, vibration smoke light and odour.

Activities likely to cause nuisance are identified by the agent, who selects appropriate control measures to avoid the nuisance or mitigate the effects if avoidance is impracticable.

Activities likely to cause nuisance may be listed in **Table C3.5**, together with appropriate control measures.

Table C3.5: Nuisance

Activity	**Potential nuisance**	**Control measures**
Piling	Noise	Piling operations will be undertaken at low tide and outside of the water column to reduce the generation of percussive noise in the water and a soft start approach will be used. Vibration piling to be used where possible. The construction working hours are 7am to 7pm. liaise with property owners where considered necessary in advance of noisy activities.

Activity	Potential nuisance	Control measures
Delivery and stockpiling of materials to site compound	Noise, dust, mud on roads	Traffic management plan to be produced to manage deliveries to the site compound and to manage movements of construction vehicles throughout the working area. Deliveries to be arranged to avoid school drop off and pick up times and traffic marshal to control footway crossing point at site entrance during these times. Provide signs alerting the public to the presence of heavy machinery and plant in the area, adherence to a 5mph speed limit. Inform CCC, the police station and the primary school of their management plan for the car park.
Placing of rock armour	Noise	The construction working hours are 7am to 7pm. Rocks to be placed rather than dropped.
Work in town centre	Noise, vibration	Traffic management plan to be produced to manage movements of construction vehicles throughout the working area. Areas of work to be fenced off in discrete sections with adjacent areas to remain accessible for pedestrians along Quay Parade and Pwll Cam. Minimise use of breakers.
Delivery of materials by sea	Noise, disturbance to wildlife	The construction working hours are 7am to 7pm. All vessel operators working on the Scheme will be given a briefing, alerting them to the possible presence of marine mammals in the area, and the guidelines for safe vessel operation in the presence of cetaceans. With implementation of this measure, the chance of boat strike resulting in physical injury or mortality of marine mammals will be extremely unlikely. Similarly, by observing the guidelines, vessels will be operated in an appropriate manner so that marine mammals will not be subjected to undue disturbance or harassed.

Control measures are summarised in **Schedule C1: Aspects and Impacts with potential** receptors detailed in the **Schedule C2: Environment Constraints Map**.

C3.6 Ecology and biodiversity - *NP27.5: Management of ecology and biodiversity EG09: Protected species*

Where the project work disturbs, or has the potential to disturb, species of plants or wildlife, certain conditions may apply concerning timing of activities, exclusion areas and protective measures. The agent is responsible for ensuring that all required permits, licences, controls and mitigation are in place and will work with the ECoW to make certain that all control measures are identified and implemented as required.

Activities restricted for ecological reasons and enhancements adopted on the project may be listed in **Table C3.6** below:

Table C3.6: Constraints and enhancements

Ecological constraints	
Location/ activity	**Constraints and control**
Sea, River and Beach Areas excavation and delivery and placing rock armour.	**Species/features with European Protection Status.** • Reefs; • Bottlenose dolphin (Tursiops truncatus);

Ecological constraints	
Location/ activity	**Constraints and control**
Sheet piling. Including site clearance	• Sea lamprey (Petromyzon marinus); • River lamprey (Lampetra fluviatilis); • Grey seal (Halichoerus grypus); • Harbour Porpoise (Phocoena phocoena); • Otter (Lutra lutra; and • Red-throated diver (Gavia stellata).
All Areas	For all control measures co-ordinate, co-operate and work with ecologists and the ECoW before implementing controls.
Sea, River and Beach Areas excavation and delivery and placing rock armour. Sheet piling. Including site clearance	**Reefs** Mitigation measures to minimise and limit physical disturbance impacts to reef habitat features during construction are presented below: • To prevent nuisance/disturbance and direct damage, rock delivery by sea will avoid tipping rock on the reef features. Anchoring will only take place offshore away from the reef. A rock delivery location for where rock tipping will be permitted will be provided agreed between CCC and the contractor and provided to the vessel operators. This location can be agreed with NRW as part of the consent conditions. • In order to protect the Sabellaria reefs and mussel bed habitats along North Beach, it is proposed that vehicles and plants will track across the South Beach. • To reduce turbidity, excavation will be carried out at low tide for the sections of breakwater that will be above MLWS. For sections of the breakwater below MLWS, excavation will need to take place under water. A geofabric mat will also be positioned onto the seabed in the excavated footprint of the breakwater, which will help reduce the washout of bed material beneath the rocks both during construction and in the future. Construction vehicles will utilise the upper beach as much as possible, to avoid beach materials being washed out into the sea. The tipping of rock from the barge and rock stockpiling on the beach will take place as high up the intertidal zone as possible to reduce wash out of fines into the sea. • An Environmental site supervisor will be appointed to oversee construction work for the Scheme to ensure that work within the intertidal area and industry standard practices for pollution control are implemented. • A pre-construction walkover survey of the working corridor and construction area will be undertaken by a suitable trained ecologist to determine Sabellaria presence and working corridors / practices will be amended as necessary, in consultation with NRW.
	Marine Mammals (Bottlenose dolphin, Harbour porpoise and Grey seal) Mitigation measures to minimise and limit disturbance impacts to Grey seal, Harbour porpoise and Bottlenose dolphin during construction are presented below: • All vessel operators working on the Scheme will be given a briefing, alerting them to the possible presence of marine mammals in the area, and the guidelines (including the Ceredigion Marine Code of Conduct) for safe vessel operation in the presence of cetaceans. With implementation of this measure, the chance of boat strike resulting in physical injury or mortality of marine mammals will be extremely unlikely. Similarly, by observing the guidelines,

Ecological constraints	
Location/ activity	**Constraints and control**
	vessels will be operated in an appropriate manner so that marine mammals will not be subjected to undue disturbance or harassed. • Vessel operators will be required to use predefined and regular routes, as these will become known to marine mammals using these waters. This measure will further serve to minimise disturbance to marine mammals due to vessel movements. • Periodic re-assessment of mitigation measures for marine mammals and their effectiveness will be undertaken by the environmental site supervisor. • The use of competent observer(s) to spot marine mammals along the Aberaeron frontage during high noise and vibration activities, in particular rock placement and piling operations. If cetaceans are observed, works will be delayed until they have left the area. This measure will ensure the area in the vicinity of works is clear of marine mammals prior to the commencement of works and will serve to reduce any disturbance to marine mammals. The need for marine mammal observers should be agreed with CCC and NRW. • The generation of underwater sounds at night are to be avoided. The construction working hours are 7am to 7pm and therefore underwater night time sound will not be generated. • The majority of the marine works will take place at low tide, to avoid working in the water column. Piling operations will be undertaken at low tide to avoid generation of percussive noise in the water column and a soft start approach will be used. • Prior to construction start, an assessment of seal pup situation on the beaches should be assessed with continuing surveillance during August – November. Works are anticipated to start during winter which is in advance of the pupping season. As a result of the ongoing work in the following 12 months it is anticipated that the beaches will not be sufficiently quiet to create a suitable location for pupping. In the event of seal pups being present on the beaches at Aberaeron, there will be a need to wait for seal pups to mature and to have gone to sea.
	River lamprey and Sea lamprey Mitigation measures to minimise and limit disturbance impacts to River lamprey and Sea lamprey both within the marine environment, and within the River Aeron are as follows: • All works, with the exception of installing the Pwll Cam flood gate and excavation and rock dumping of the northern extent of the breakwater, will be carried out at low tide and during daylight hours. This will avoid any noise transmission within the water column and avoid the need for artificial lighting that may disturb migratory fish. • All works, with the exception of installing the barge and temporary scaffolding platform, will be undertaken outside of the river channel in the River Aeron. • The scaffolding platforms will be screened to prevent the debris from the works from falling into the water. • No in-channel works scheduled between 15 April to 15 October, as per the closed season for the River Aeron, to avoid impacts to migratory fish. • Rock delivery by sea will avoid tipping rock below MLWS. A rock delivery location for where rock tipping will be permitted will be provided agreed with CCC .

Ecological constraints	
Location/ activity	**Constraints and control**
	Otter An otter survey was carried out in June 2023 by *The Otter Consultancy* and the following mitigation measures will be carried to reduce / limit impacts to otter prior to completion of the scheme: • A suitably experienced ecologist will carry out a daily pre work survey when working in the River Aeron for otter resting places immediately prior to site works. • Measures to reduce the risk of harm to commuting and foraging otter will include covering open trenches at night or providing a means of escape (such as a plank of wood) at night to prevent mammals becoming trapped, and safe overnight storage of plant, materials and equipment. • Any lighting of the site during the hours of darkness will also seek to avoid suitable habitats for this species, such as the banks of the River Aeron and adjacent intertidal habitat. . The otter sprainting site on the bank to the rear of "Y Seler" will be re-established on the bank. Should it become apparent during pre-commencement surveys by the site Environmental Engineers / ECoW's that otter activity patterns have changed, these changes will be accounted for in an addendum to this plan as deemed to be required by the project ECoW.
	Red-throated diver Mitigation measures to reduce / limit disturbance impacts to Red throated diver include: • The pre-construction walkover undertaken by the environmental site supervisor will undertake a check for nesting birds within the construction footprint and advise on any necessary action to avoid disturbance. • All works, with the exception of installing the Pwll Cam flood gate, will be carried out at low tide and during daylight hours. For the single occurrence for gate installation expected for night-time working, the contractor will follow best practice procedures for working at night, including measures to minimise noise and directional lighting. • Periodic re-assessment of mitigation measures for birds and their effectiveness will be undertaken by the environmental site supervisor.
Ecological enhancements	
Location	**Enhancements**
North bank of River Aeron	**Otter Migration** The Scheme will enhance otter migration by improving connectivity between the River Aeron and the sea, the latter of which provides an important foraging area for otters. This will be done by extending the existing wall ledge on the northern bank of the river further downstream. Currently the ledge stops just upstream of the footbridge, and therefore the proposal is to extend this ledge further downstream of the footbridge to the entrance of Pwll Cam dock. Provision of a ledge will enable otters to better migrate back upstream during periods of high water and reduce them being forced onto dry land and towards busy roads.

Ecological constraints	
Location/ activity	**Constraints and control**
Penmorfa	**Kestrel Box** A replacement landing ledge/stick will be installed on the kestrel box located in the grounds of CCC's office at Penmorfa in Aberaeron. Kestrels are protected under the Wildlife and Countryside Act 1981 (as amended) and In order to assist with the decline in numbers of potential nesting sites, which may be a factor in limiting breeding success, nest boxes have been installed throughout Ceredigion. Fixing this nest box, will help to maintain use of the box for this important species.
	The ecological enhancements are listed in the ES in section 3.5. Note that the requirement to collect seeds has been superseded by Section 3.3 of the specification (reseeding).
Research and Monitoring	CCC is exploring opportunities for a research collaboration Scheme for marine biodiversity enhancement on the piers and breakwater. Whilst this would not necessarily be successful in enhancing biodiversity at Aberaeron (as species colonisation may or may not be successful), the research would contribute towards future understanding of biodiversity enhancement in the marine environment and possible future opportunities for successful biodiversity gain elsewhere.
Tree planting	Opportunities for improving CO2 capture will also be integrated into the Scheme through the planting of trees within Ceredigion, to help towards achieving Welsh targets to reduce greenhouse gas emissions. Discussions will be held with CCC ecologists to identify locations for planting and types of trees.

Control measures are summaries in **Schedule C1: Aspects and Impacts** with ecological sensitive areas identified in **Schedule C2: Environment constraints map**.

C3.7 Built Heritage and Archaeology - NP27.6 Management of built heritage and archaeology

Arrangements are made for the identification and protection of areas of archaeological interest or listed structures and buildings. Any such areas identified during the undertaking of the project works will be immediately brought to the attention of the client and instructions sought. List of archaeological and listed structures may be detailed in **Table C3.7** below:

Table C3.7: Archaeology and listed structures

Areas of site subject to archaeological interest or with listed structures	Nature of interest, method of protection or other arrangements
Listed buildings within work area: • Weigh House G2 • Northwest Quay to Harbour Basin G2 • Southwest Pier to Harbour Basin G2 • Northeast Pier G2 • NE Quay G2	No development shall take place until a qualified and competent archaeologist has submitted a written scheme of investigation (WSI) for approval in writing by the local planning authority. This WSI will describe the different stages of the work and demonstrate that it has been fully resourced and given adequate time. Refer to APPLICATION FOR LISTED BUILDING CONSENT Application No: A211020
New masonry to quay flood defence walls and piers.	Trial panels of masonry and grouting to be approved prior to commencement of masonry works.

Areas of site subject to archaeological interest or with listed structures	Nature of interest, method of protection or other arrangements
Fish traps on South beach	Segregate from work areas to prevent damage by plant

Activities restricted for as built environment are summarised in **Schedule C1: Aspects and Impacts** with ecological sensitive areas identified in **Schedule C2: Environment constraints map**.

C3.8 Energy Management

BAM Nuttall seeks to reduce the emissions of greenhouse gases from the construction process on its projects and consequently looks for ways in which to reduce energy use. Sources of greenhouse gases contributing to the BAM Nuttall 'carbon footprint' include:

- Electricity and gas supply for heating, lighting and services to site accommodation
- Gas oil typically used in site plant and site generators
- Petrol and diesel used for commuting and business travel including transport of plant and materials
- Water supply and waste water treatment

Every effort is made to obtain grid supplied electricity to reduce the use of generators. Where this is not possible, a generator is used with consideration given to a setup which achieves the most optimum efficiency.

On this project, ways in which energy use is being reduced or alternative energy sources utilised are listed in **Table C3.8** below:

Table C3.8: Energy reduction measures

Carbon emission sources	Measures to be adopted to reduce use
Electricity	• Motion sensor lights to be utilised within offices. • Sensor lights to be used outside of the offices. • Thermostats • Switch off toolbox talks • Efficient and well insulated accommodation.
Gas oil	• Welfare to be connected to the mains grid where possible. • Switch off and power down toolbox talks. • Suitably sized plant & equipment • Programme efficiency maximised plant usage and efficiency maximised. • Green travel plan produced.
Petrol and diesel for commuting and business travel	• Electric vehicles used for company cars where possible. • Promotion of the use of public transport. • Green travel plan produced. • Installation of an electric vehicle charging point in site car park. • Car sharing is encouraged. • Local workforce employed as priority. • Bam Nuttall drivers guide for sensible driving practices.
Plant usage	• Design optimisation to minimise workload. • Reduce travel distance through the site.

Carbon emission sources	Measures to be adopted to reduce use
	• Selection of appropriately sized plant to maximise efficiency. • Machines to be switched off when not in use. • Plant to be well maintained. • Plan and manage works to maximise efficiency in line with tides.
Water supply	• Water to be recycled in wheel wash, welfare, mist cannons where practicable. • Control of taps. Push taps installed in toilets. • Regular checks for leaks. • Mist cannons only operate in dry and dusty condition
Waste water treatment	tbc

Where non vendor accord supplier are used for the supply of fuel and energy, the agent ensures that consumption data is collated and entered on BAM Site for monitoring purposes.

C3.9 Resource Sustainability

BAM Nuttall is aware of the global impact of the use of limited natural resources and of the need to reduce waste. Consequently, every attempt is made to reduce the use of primary aggregates and unsustainable products and materials wherever possible. Where practicable, commercially acceptable and in accordance with specification and regulatory requirements, use is made of waste or recycled material, or products containing recycled material.

Consideration is also given to the environmental impact caused during the lifecycle of the product within the scope of which BAM Nuttall can control or influence.

In accordance with the BAM Nuttall sustainability and environmental policies, every effort is made to use timber obtained from certified legal and sustainable sources.

Opportunities for the use of sustainable products and material have been identified as listed in **Table C3.9** below and will be pursued during the undertaking of the project works.

Table C3.9: Sustainable products and material

Opportunities for the use of sustainable products and material	
Product	**Sustainable specification**
tbc	
Products certified under BES 6001.	
Alternative chemicals and products	
Product	**Substitute**

C3.9.1 Life cycle considerations

Within the scope of the design and construction of the project the following life cycle considerations have been taken into account as summarised in **Table C.3.9.1** below:

Table C3.9.1: Life cycle considerations

	Life cycle stage	Considerations	Outcome
Desig	Design		
	Raw materials		
C			

	Life cycle stage	Considerations	Outcome
	Production		
	Delivery of materials		
Use	Life of the structure		

C3.10 Landscape/ Restoration

On completion of the works the agent ensures that the works areas are restored as required by the planning authority and client.

The individual character, quality and value of the working area will be restored taking into consideration the wider landscape, biodiversity and historical context of the area as listed in **Table C3.10** below, or if required by planning consent or in the restoration plan provided by the customer.

Table C3.10: Restoration requirements

Planning/ client requirements	Arrangements for restoration
Reinstatement of site compound areas.	**Specification section 3.3.11** Reinstatement should be carried out by pulling stored soil back over the site using excavators. Subsoiling and/or power harrowing would to be required prior to seeding. Re-seeding will increase the diversity value to make the reinstated site species-rich. Re-seed with meadow seed harvested from elsewhere in west Wales in 2022, should be carried out. CCC have identified that Matt Sutton of Wyndrush Wild, 07870 515942 or 07905 505357 should be approached to harvest seed in advance of the site reinstatement.

Schedule C1 **Environmental aspects and impacts assessment for construction works**

Activity	Aspect (Receptor)	Environment & Social (Risks and opportunities)		Normal or Abnormal Operations?		What is the significance of each impact pre mitigation?			Environmental & Social Actions (Press Alt and Enter for a new line in cell)	What is the significance of residual impacts post mitigation?			BAM Nuttall procedure	Other procedure
			Positive or negative impact	Impact Under Normal Operation	Impact Due to Accident and / or Emergency and/ or abnormal conditions	What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		
Construction works in Pwll Cam and River Aeron	Use of natural resources, Interested parties, Water environment	Residents and boat owners use of local amenity and access to areas taken over by the works and footpath diversions.	Negative	✓		High	Medium	High	ensure all boat owners and users are aware of the location of the works and timings. Notify Harbourmaster so that Notice to Mariners can be issued to cover the work. Signs to be erected informing of closure of South Beach and the piers so that residents, visitors and fisherman are aware.	Low	Low	Low		
Construction works in Pwll Cam and River Aeron	Ecology & biodiversity	Risk of harm to fish in Pwll Cam	Negative	✓		High	High	High	Fish rescue to take place by a suitably qualified ecologist before water is pumped out of Pwll Cam.	Low	Low	Low		
Construction works on South Beach and pier areas	Ecology & biodiversity	Disturbance or damage to the S.alveolata reef and mussel beds.	Negative	✓		High	Medium	High	Prior to construction habitat survey of the S. alveolata reef will have been undertaken on South Beach and in the footprint of the breakwater to confirm that there is no reef present within the working area of South Beach and the piers (CCC action) Environmenta CoW to advise on locations where S. alveolata and mussel are present and construction plant routes to avoid these areas. Follow any NRA guidance where applicable.	Medium	Low	Medium		
Delivery and off load of rock by sea	Ecology & biodiversity	Risk of turbidity (suspended sediment) to fish and marine mammals. Risk of harm to marine mammals from collision with vessels. Risk of introduction and spread of Invasive Non-Native Species (INNS) in the marine environment.	Negative	✓		Medium	High	High	All vessel operators working on the Scheme will be given a briefing, alerting them to the possible presence of marine mammals in the area, and the guidelines for safe vessel operation in the presence of cetaceans. Rock delivery area on the beach to be identified and provided to the vessel operators. Tipping of rock from the barge and rock stockpiling on the beach to take place as high up the intertidal zone as possible to reduce wash out of fines into the sea. Vessel operators to use predefined and regular shipping routes, as these will become known to marine mammals using these waters. Best practice guidelines for marine mammal observations during construction if notified as required by NRW. Biosecurity Risk Assessment and Management Plan to be produced	Medium	Low	Medium		
Construction works on the beach	Ecology & biodiversity	Risk of disturbance to seals and seal pups.	Negative	✓		Medium	Medium	Medium	Prior to construction start, an assessment for use of the beach by seal pups to be assessed with continuing surveillance from the end of July to November. (CCC action). In the event of seal pups being present on the beaches at Aberaeron, there will be a need to wait for seal pups to mature and have gone out to sea.	Low	Low	Low		
Site compound set up.	Ecology & biodiversity	Impact on coastal meadow habitat, species and diversity	Negative	✓		Medium	Low	Medium	Existing topsoil and grass to be stripped and stored ror reinstatement.	Low	Low	Low		
Site compound set up.	Ecology & biodiversity	disturbance to reptiles.	Negative	✓		High	Medium	High	Pre-works survey of the site compound area to be carried out by an appropriately experienced ecologist, to ensure that reptiles which may have colonised the site since the previous survey do not come to harm. (CCC action). Compound topsoil strip not to commence until survey has been carried out and any actions required carried out.During vegetation clearance, works will take place under a Precautionary Method of Working (PMW).	Low	Low	Low		

Activity	Aspect (Receptor)	Environment & Social (Risks and opportunities)		Normal or Abnormal Operations?		What is the significance of each impact pre mitigation?			Environmental & Social Actions (Press Alt and Enter for a new line in cell)	What is the significance of residual impacts post mitigation?			BAM Nuttall procedure	Other procedure
			Positive or negative impact	Impact Under Normal Operation	Impact Due to Accident and / or Emergency and/ or abnormal conditions	What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		
Construction works in areas used by otters.	Ecology & biodiversity, Noise and vibration	disturbance to otters from light and construction disturbance. disturbance to otters from noise, vibration and water quality deterioration.	Negative	✓		High	Medium	High	Lighting plan to be produced (and approved) to reduce light disturbance to otters. This should seek to avoid night time lighting of suitable habitats for this species, such as the banks of the River Aeron and adjacent intertidal habitat. Measures to reduce the risk of harm to commuting and foraging otter will include covering open trenches at night or providing a means of escape (such as a plank of wood) at night to prevent mammals becoming trapped, and safe overnight storage of plant, materials and equipment. A suitably experienced ecologist to carry out a daily pre work survey when working in the River Aeron for otter resting places.	Low	Low	Low		
Construction works	Ecology & biodiversity	disturbance to birds from noise, visualdisturbance, light disturbance, and loss of habitat for feeding and nesting.	Negative	✓		High	Medium	High	A pre-construction walkover by an ecologist to check for nesting birds within the construction footprint and advise on any necessary action to avoid disturbance. (CCC action)	Low	Low	Low		
Construction works on the beach	Ecology & biodiversity	loss of species/habitat of conservation importance on the beach.	Negative	✓		High	Medium	High	Ecological walkover survey of the beach to be carried out before construction and any species/habitats of conservation importance to be marked out on the beach and protected. (CCC action)	Low	Low	Low		
Deliveries of materials to site by road and commuting operatives	Nuisance, Noise and vibration, Traffic and transport	traffic issues on the A487 from bulk deliveries to site compound and workforce commuting to site. Risk of impacts of pedestrian and school children safety from increased traffic movements in CCC carpark and on entrance road to site compound. traffic impacts along Wellington Gardens at school drop off/pick up times.	Negative	✓		High	Low	Medium	Traffic management plan to be produced to manage deliveries to the site compound and around the working area. This is to include sensitivity of the CCC car park. This will include signs alerting the public to the presence of heavy machinery and plant in the area, adherence to a 5mph speed limit as well as a temporary pedestrian crossing across the access route to the site compound. During school pick up and drop off, a traffic marshal will be provided at the crossing to ensure the safety of school children at this peak time. Inform CCC, the police station and the primary school of the TMP. Construction vehicles to avoid using Wellington Gardens during school drop off and pick up times	Medium	Low	Medium		
Piling works	Noise and vibration, Nuisance, Ecology & biodiversity	vibration impacts to The Hive from flood gate work and the existing sections of the River Aeron flood wall where the piling ties in with the existing stone flood wall . risk of noise and vibration to marine mammals and fish.	Negative	✓		High	High	High	Method statement to be produced for the piling technique (vibratory or auger) and measures to reduce impacts where possible. Pre-construction building condition survey to be carried out of The Hive and other affected properties. Condition survey to be carried out on flood walls prior to construction. Piling operations will be undertaken at low tide and outside of the water column to reduce the generation of percussive noise in the water and a soft start approach will be used. The construction working hours are 7am to 7pm and therefore underwater night time sound will not be generated. Percussive noise will not be constant throughout the construction period and will be short term for the groynes and South Pier work only.	Medium	Low	Medium		

Activity	Aspect (Receptor)	Environment & Social (Risks and opportunities)		Normal or Abnormal Operations?		What is the significance of each impact pre mitigation?			Environmental & Social Actions (Press Alt and Enter for a new line in cell)	What is the significance of residual impacts post mitigation?			BAM Nuttall procedure	Other procedure
			Positive or negative impact	Impact Under Normal Operation	Impact Due to Accident and / or Emergency and/ or abnormal conditions	What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		
Breakwater construction	Water environment, Ecology & biodiversity	direct damage to the biogenic reef and intertidal/subtidal areas from turbidity (release of suspended sediment) during work in the sea, harbour and river– including areas of S.alveolata and mussel beds.	Negative	✓		High	Medium	High	Excavation will be carried out at low tide for the sections of breakwater that will be above MLWS. For sections of the breakwater below MLWS, excavation is to take place under water. Geofabric mat to be positioned onto the seabed in the excavated footprint of the breakwater, to reduce washout of bed material beneath the rocks both during construction and in the future. Construction vehicles to utilise upper beach as much as possible, to avoid beach materials being washed out into the sea. Tipping of rock from the barge and rock stockpiling on the beach to take place as high up the intertidal zone as possible to reduce wash out of fines into the sea, with a nominated area identified for the rock delivery point on the beach which will be provided to the vessel operators Silt buster to be used before water from Pwll Cam is pumped into the harbour during cofferdam installation.	Medium	Low	Medium		
River Aeron channel and harbour works	Ecology & biodiversity	Disturbance to migratory fish during construction both in the sea, harbour and River Aeron.	Negative	✓		High	High	High	No in-channel/wet working during the migratory fish season between 1st April and 31st October. This restriction extends from the work on the River Aeron walls out to the North and South Piers.	Low	Low	Low		
beach works	Built heritage and archaeology	Impact on fish traps during groyne works.	Negative		✓	Medium	Low	Medium	Fish traps to be protected from damage during construction.	Low	Low	Low		
Removal of South pier	Built heritage and archaeology	Record to be taken of the section of South Pier (grade II listed) that will be permanently removed and replaced. To ensure archaeology and heritage interest uncovered during the work is recorded and preserved		✓		High	Low	Medium	Archaeological watching brief to be appointed and present on site during work to North Pier, South Pier, Inner Harbour/Pwll Cam, South Beach. Historic building recording and onitoring to be undertaken during these activities.	Low	Low	Low		
temporary closure of sections of the Wales Coast Path at North Pier, River Aeron footbridge and South Beach	Traffic and transport	Closure of footpaths				High	Medium	High	Diversion routes to be provided and clearly signposted. Due to the proximity of the site compound to the Wales Coast Path, signs will be erected alerting the public to the presence of the site compound and heavy machinery in the vicinity	Low	Low	Low		
Works on quay parade and Pwll Cam	Traffic and transport	disruption pedestrians/cyclists to access along Quay Parade and Pwll Cam due to areas being fenced off during construction				High	Medium	High	Areas of work to be fenced off in discrete sections with adjacent areas to remain accessible for pedestrians along Quay Parade and Pwll Cam.	Low	Low	Low		
Use of construction plant and equipment	Contaminated land	Release of substances to ground, or controlled waters (e.g. hydraulic oil leak, diesel from plant)	Negative	✓		Medium	Medium	Medium	Establish designated spill stations across project• All plant to be regularly serviced to minimise risk of hose failure etc. All static plant to be located over plant nappies. Spill kits to be kept with all operational plant. Any contaminated material to be dug out and bagged and dealt in accordance with waste regulations.	Low	Low	Low		
Use of construction plant	Noise and vibration, Nuisance, Air quality	Temporary increase in emissions from vehicles due to volume of traffic				High	Medium	High	Implement good management procedures to minimise dust emissions through dust management plan Dust suppression to be used as and when required; e.g. road sweeper, water / mist dust suppression, material storage areas covered. Ensure vehicles, plant and equipment is well maintained and serviced. Site speed restrictions in place. Where possible use low emission plant Turn off all engines when not in use for extended period	Medium	Low	Medium		
Construction works / excavation	Nuisance	Damaging existing services or utilities				Medium	High	High	Detailed utility / services survey will be carried out before any construction works Utility suppliers to be contacted for service plans BAM Nuttall permit to dig procedure will be followed to ensure no services are damaged.	Low	Medium	Medium		

Activity	Aspect (Receptor)	Environment & Social (Risks and opportunities)	Positive or negative impact	Normal or Abnormal Operations?		What is the significance of each impact pre mitigation?			Environmental & Social Actions (Press Alt and Enter for a new line in cell)	What is the significance of residual impacts post mitigation?			BAM Nuttall procedure	Other procedure
				Impact Under Normal Operation	Impact Due to Accident and / or Emergency and/ or abnormal conditions	What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		
Waste management	Waste, Nuisance	Increase in litter, vermin and odour	Negative	✓		Medium	Medium	Medium	Promote prevent, reduce, reuse, recycle Utilise WRAP QP to take recycled aggregates out of waste All waste to be kept in secure waste receptacles Waste bins/skips to be covered at all times to prevent contents becoming airborne and reduce risk of rodent/ bird activity Regular litter inspections to be carried out Comply with waste duty of care, obtain and check with environment regulator treatment facilities have appropriate licences prior to waste removal off site. Ensure suppliers take away packaging associated with deliveries, where possible	Low	Low	Low	NP27.3	
Concrete Operations	Water environment	Release of hazardous substances to watercourses / groundwater	Negative	✓		Medium	Medium	Medium	Delivery discharge points to be located away from water courses and drains on impermeable surfaces Concrete placed by skip or concrete pump to avoid spillage Designated wash out point. Associated contaminated waters to be treated on site (siltbuster) or transported off site for treatment at a licensed facility. Site Agent and Environmental Engineer informed of all incidents immediately so that appropriate action can be taken.	Low	Low	Low	NP27.4	
Refuelling/ Fuel storage	Water environment	Release of hazardous substances to ground water or surface waters	Negative	✓		Medium	High	High	• Work within BAM procedures and best practice guidelines, can be obtained from https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/ Identification of potential risks and mitigation measures via completion of PEP; Inductions and dissemination of task specific environmental issues - Refuelling procedure to be issued - Refuelling to carried out by a designated person in line with refuelling procedure - Fuel bowsers to bunded and locked when not in use. - Jerry cans/drums to be stored at all times in stores when not being utilised, ensuring containers are fit for purpose. - Plant nappies to be used - Spill kit to located at all high risk areas - Secondary containment/ drip trays to be checked for spillages • All personnel to be briefed on emergency response procedure. • Site Agent and Environmental Engineer informed of all incidents immediately so that appropriate action can be taken. • Any contaminated material to be dug out and bagged and dealt with in accordance with waste regulations.	Low	Low	Low	NP27.1	

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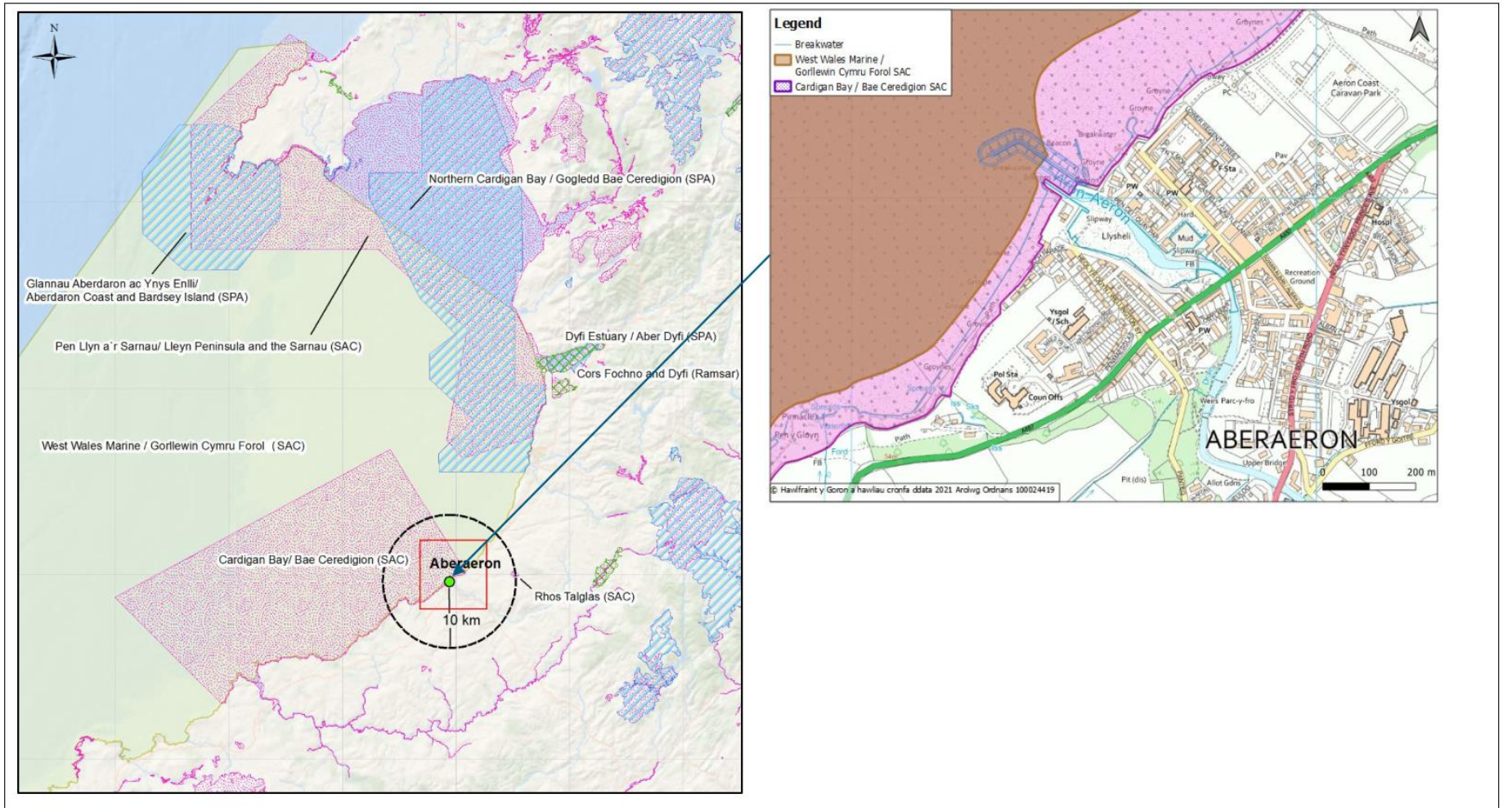
Likelihood		
Low	**Medium**	**High**
Unlikely to occur	Occasional	Likely or almost certain to occur

Severity of Consequence			
Low	**Medium**		**High**

Activity	Aspect (Receptor)	Environment & Social (Risks and opportunities)		Normal or Abnormal Operations?		What is the significance of each impact pre mitigation?			Environmental & Social Actions (Press Alt and Enter for a new line in cell)	What is the significance of residual impacts post mitigation?			BAM Nuttall procedure	Other procedure
			Positive or negative impact	Impact Under Normal Operation	Impact Due to Accident and / or Emergency and/ or abnormal conditions	What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		What is the likelihood of the impact occurring (A)	What is the severity of consequence if the impact occurs (B)	Significance Rating (AxB)		
Extent	No damage or enhancement to the environment	Insignificant/moderate or slight impact to business or environment		Great impact to business or environment										
Reversibility	No damage or enhancement	Short term (reversible within 1 week)		Short term (reversible within one year)										
Sensitivity	No public concern	Limited public concern in general, no local concern		Limited public concern in general and locally										

Schedule C2 **Environmental Constraints Maps**

Location of European Designated Sites within 10km of the Scheme



Sabellaria Alveolata General Reef Extent

Schedule C3 **Environmental monitoring**

Environmental aspect	**Method of monitoring**	**Frequency**	**Responsibility (name/job title) or subcontractor**	**Records**
Discharge to watercourse/Sewer	Visual inspection, sampling and analysis or otherwise as defined in consent.	As required	Site engineer or laboratory	Test results/ EF01/ EF03 Complaints log
Noise	Noise assessments Noise monitoring (as defined in contract)	As required	Consultant (external specialist) or site engineer	Noise assessments/ (EF02) Monitoring data/ Complaints log
Dust	Visual inspection, sampling and analysis as defined in contract conditions	As required	Consultant (external specialist) or site engineer	EC01/ Site diary/ monitoring records/ Complaints log
Vibration	Vibration monitoring (as defined in contract conditions)	As required	Consultant (external specialist) or site engineer	EC01/ Site diary/monitoring records/ Complaints log
Ecology	Watching brief (as defined in contract conditions)	As required/ Daily/ weekly/ monthly/	Environmental CoW	Survey/inspection reports/EF04 Eco-permit
Condition of plant and equipment	Plant maintenance and inspection Visual inspections of plant	Daily	General Foreman	Plant inspection sheet/ Foreman's diary
Fuel/chemical storage area	Visual inspection/checklist	weekly	General Foreman, Site Environmental Engineer	Completed checklists EC01/ Site diary
Waste disposal	Visual inspections on site Inspection/maintenance of records	As required/ Daily/ weekly/ monthly/ per load	General Foreman/Agent/ Site Environmental Engineer	Checklist/ Waste transfer records
Emergency spill kits	Visual inspection	weekly	Foremen/site environmental engineer	Recorded inspections (EC01)
Emergency arrangements – e.g. practice drills	Practice drill	As required monthly	Foremen/site environmental engineer	Record of drill/site training. (SF513)
Other				

Schedule C4 **Consents licences and permissions**

The following consents, licences and permissions are required. (Ref consents and relevant dates)

	Site process	Documentation consent/permits /licences	Controlling regulations	Issuing authority	Date Submitted to Issuing authority	Approval Period	Date Consent Approved	Consent / permit / licence ref no.	Surrender Date
General	Undertaking construction works	Planning permission	Town and Country Planning Act	Local authority	**09/11/21**	**-**	**13/03/23**	**A211019**	**13/03/28**
	Undertaking building works	Building control approval	The Building Act	Local authority	N/A				
Water	Discharging water to a river, stream, ditch Installation/operation of septic tanks.	Discharge consent to controlled water	Water Resources Act Groundwater Regulations Environmental Permitting (England & Wales Regulations)	Environment Agency Natural Resources Wales	N/A				
	Surface water drainage of temporary compound	SuDS Approval	Flood and Water Management Act 2010	Local Authority		**-**	**20/04/23**	**S230013**	**20/04/28**
	Site set-up sewage discharge	Permission to discharge trade effluent to sewer.	Water Industry Act	Local water company					
	Temporary/permanent works over and in a main river. Works within 7-10m of a main river, note the distance may vary between EA regions. Raising ground levels in the floodplain beside a main river. Construction of a culvert or flow control structure (such as a weir) on any ordinary watercourse.	Flood defence consent (formerly known as land drainage consent/ works affecting watercourses consent)	Water Resources Act Land Drainage Act Local Byelaws	Natural Resources Wales	**16/02/23** **13/03/23** **18/10/23**	**-**	**14/04/23** **17/04/23** **tbc**	**Permanent works - Drainage DFR/S/2023/0006 - Flood walls DFR/S/2023/0007** **Temporary Works DFR/S/2023/0162**	
	Works on flood plains	Prior permission	Water Resources Act Land Drainage Act	Natural Resources Wales					
	Works on flood defence structures	Prior permission	Local Byelaws	Natural Resources Wales	**n/a**	**n/a**	**03/01/2023**	**CML2133**	**30/06/23**
	Abstracting or taking water from rivers, streams, lakes, ponds, tidal waters or groundwater. Constructing or altering any impounding works in rivers, streams, ponds or tidal waters. Dewatering activities may require a licence. Note: licence is not required for abstraction for any purpose of less than 20 cubic metres a day.	Abstraction licence: • Full licence – applicable to most abstractions over 20m3 a day. • Transfer licence – moving water from one location to another with no intervening use. • Temporary licence – over 20m3 a day over a period of less than 28 consecutive days.	Water Resources Act	Natural Resources Wales	**n/a**				
	Use herbicides near water	Prior permission	Food and Environmental Protection Act (Control of Pesticides Regulations)	Natural Resources Wales	**n/a**				
	Construction works (temp & perm) on the sea bed/within tidal waters/harbour area.	Marine licence – online pre-application and application process	Marine and Coastal Access Act	Natural Resources Wales	**n/a**	**n/a**	**03/01/2023**	**CML2133**	**30/06/23**
Waste	Transfer/disposal of controlled waste	Controlled waste transfer notes	Environmental Protection Act Waste (England and Wales) Regulations	Producer Haulier					
	Transfer/disposal of hazardous waste (England & Wales)	Registration as a hazardous waste producer (Wales only)	Hazardous Waste Regulations	Producer Haulier					
		Hazardous waste consignment notes							
	Carrying waste other than your own (controlled or hazardous)	Waste carriers registration certificate	Waste (England and Wales) Regulations	Natural Resources Wales					
	Keep, treat and dispose of waste	Environmental permit May need planning permission	Environmental Permitting (England & Wales) Regulations Town and Country Planning Act	Natural Resources Wales Local authority					

	Site process	Documentation consent/permits /licences	Controlling regulations	Issuing authority	Date Submitted to Issuing authority	Approval Period	Date Consent Approved	Consent / permit / licence ref no.	Surrender Date
	Reuse waste materials off site	Environmental permit or exemption from Environmental Permitting regulations	Environmental Permitting (England & Wales) Regulations	Natural Resources Wales					
Waste Continues	Treatment of contaminated land and water	Mobile Treatment Licence	Environmental Permitting (England & Wales) Regulations Contaminated Land (England) (Amendment) Regulations Contaminated Land (Wales) Regulations	Natural Resources Wales	N/A				
	Handling asbestos	Licence for work with asbestos from HSE Asbestos licensing unit	Control of Asbestos Regulations	HSE Asbestos Licences Unit	N/A				
	Manufacturing of aggregates and soils from demolition, construction, tunnelling and excavation wastes or waste ash, slag, clinker or rock, e.g. screening of soils.	Exemption from waste management licensing	Environmental Permitting (England & Wales) Regulations	Natural Resources Wales	N/A				
Nuisance	Crushing and screening operations Blacktop batching plants	Environmental permit or exemption (T5/T7) Authorisation to operate a part B prescribed process.	Environmental Permitting (England & Wales) Regulations Pollution Prevention and Control (England & Wales) Regulations	Local authority environmental health Natural Resources Wales	N/A				
	Managing noise and vibration levels	Prior consent under Section 61 (optional)	Control of Pollution Act	Local authority environmental health	**tbc**	**tbc**			
Wildlife	Cutting, topping or uprooting protected trees	Prior consent	The Town and Country Planning (Tree Preservation) (England) Regulations Town and Country Planning (Trees Amendment) (Wales)	Local authority planning dept	N/A				
	Works affecting hedgerows	Prior consent	Hedgerow Regulations	Local authority planning dept	N/A				
	Works affecting designated areas i.e. SSSIs, AONB	Prior consent	Wildlife and Countryside Act Habitat Regulations Countryside and Rights of Way Act	Natural Resources Wales					
	Works near badger setts	Prior consent	Protection of Badgers Act	Natural Resources Wales	N/A				
	Move/handle protected species (esp. bats, badgers and newts)	Licence	Wildlife and Countryside Act Habitat Regulations as amended	Welsh Assembly /Natural Resources Wales	N/A				
	Removal and/or introduction of fish with inland waters	Prior consent	Salmon and Freshwater Fisheries Act	Natural Resources Wales					
	Treatment of Japanese knotweed – burning on site	Prior consent	Wildlife and Countryside Act Clean Air Act Environmental Permitting (England & Wales) Regulations	Natural Resources Wales Local authority environmental health	N/A				
	Treatment of Japanese knotweed – burial	Formal notification	Wildlife and Countryside Act Environmental Permitting (England & Wales) Regulations	Natural Resources Wales	N/A				
Archaeology	Demolition or alteration of a listed building and historic structures within its grounds.	Planning Permission & Scheduled monument consent	Planning (Listed Buildings and Conservation Areas) Act	Local planning authority			**31/03/23**	**A211020**	**31/03/28**
	Works on/near scheduled ancient monuments (SAM's)	Planning Permission & Listed building consent	Town and Country Planning Act Ancient Monuments and Archaeological Areas Act	Local planning authority Welsh historic monuments	N/A				
	Demolition of an unlisted building in a conservation area.	Planning Permission & Conservation area consent	Planning (Listed Buildings and Conservation Areas) Act	Local planning authority					

Schedule C5 **Site Waste Management Plan**

This declaration is to be used in conjunction with BAM Smart – the web-based sustainability monitoring and reporting tool / BAM Site app. (delete as appropriate)

Project reference	BAU.4670
Project title	Aberaeron Coastal defence scheme
Client	Ceredigion County Council
Principal contractor	BAM Nuttall
Site waste coordinator / Environment engineer	
Contract value	£29.8m
Address/location	BAM Nuttall Site Office, Penmorfa, Aberaeron SA46 0PA.
Project description	Sea Defence works
Document prepared by	E Thomas

Declaration:

We the client and principal contractor confirm that all reasonable steps will be taken to ensure that:

a) all waste from the site is dealt with in accordance with the duty of care in section 34 of the Environmental Protection Act

b) materials will be handled efficiently and waste managed appropriately

Client:	Signed:
Principal contractor:	Signed:
Key subcontractor(s):	Signed:

This plan is reviewed at least every three months by the site waste coordinator and updated as necessary to ensure that waste management practices are in accordance with this plan.

Reviewed by	Date	Rev no.	Revision details (where applicable)

Introduction

This site waste management plan identifies and monitors:

- reuse of materials on the project e.g. cut and fill, site won materials
- waste minimisation implemented on the project
- waste management options for waste generated during the works including waste generated by subcontractors
- any cost savings achieved through waste minimisation

Materials identified within this SWMP are not necessarily statutory waste as they do not fall within the legal definition of waste i.e. ‘any substance or object which the holder discards intends to discard or is required to discard.’ There is no intention to discard materials such as:

- site won excavated materials
- aggregates crushed in accordance with the WRAP Quality Protocol (on or off site)
- pre-planned use of materials

All materials whether they are imported, reused ‘as is’ on site, recycled (on or off site) or sent off site for disposal are identified within the plan.

(See Appendix 1 for roles and responsibilities.)

Materials resource efficiency

The following waste reduction and reuse measures have been included in the design and/or specification for this project:

Precast option for South Pier construction	

Forecast of the types and quantities of waste

It is estimated that this site will produce the following types and quantities of waste:

Source and type of waste	EWC Code	Estimated quantity of waste (tonnes)	Proposed waste management action (reuse, recycle, etc)
Excavation waste			
Hazardous excavated material	17 05 03*		
Non-hazardous soil and stones	17 05 04	5544	
Inert soil and stones	17 05 04		
Construction (skip) waste			
Concrete	17 01 01	134	
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed construction waste	17 09 04	711	
Hazardous construction waste	Various		
Mixed municipal waste	20 03 01		
Demolition waste			
Concrete	17 01 01	**2050**	
Bricks	17 01 02		
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed demolition waste	17 09 04		
Blacktop arisings		360	
	Totals	8799	0
		Difference	-8799

Management of waste

The production of waste material on this site during the construction phase is avoided wherever possible by following the '*reduce, reuse, recycle, recover*' measures outlined below. Only where these options have been exhausted is waste sent for disposal.

Reduction and reuse measures

The following measures will be employed to reduce and reuse waste on this site:

General	
Reduction measures	**Reuse measures**
• Designed elements to use standard module sizes of available materials	• *(any other measures)*
• Accurate measurement, and minimal wastage will be allowed when ordering materials	•
• Materials are to be delivered just in time for the work package	•
• Materials are to be stored and transported correctly so as to avoid damage	•
• Materials are to be kept off the ground by the use of pallets or timber bites	•
• The following components are to be prefabricated: *PCC option for South pier construction*	•
• All operatives are to receive training on the agreed reduction measures	•
• *(any other measures)*	•
Concrete and hardcore	
Reduction measures	**Reuse measures**
• Geotextile to be used under temporary roads to reduce wastage through settlement	•
• Concrete orders to be as accurate as possible to reduce possibility of waste	• Excess concrete from pours is to be used to create temporary paths around the site
• *(any other measures)*	• *(any other measures)*

Excavated material (soil & stones)	
Reduction measures	**Reuse measures**
• Trenches to be sheeted rather than battered to reduce excavated material	• Excavated material for rock armour to be reused as beach nourishment
•	•
•	•
•	•
•	•
•	•
•	•
•	•
• *(any other measures)*	•
Timber	
Reduction measures	**Reuse measures**
• Reusable plastic pallets to be used	• Reusable shuttering systems to be employed wherever practicable
• System shuttering to be used wherever practicable	• Off-cuts of plywood to be saved and used to cover holes, and as protection to fragile materials
• Reusable plastic/metal hoardings to be used	• Designated area for waste timber to be set up for free reuse by others
• *(any other measures)*	• *(any other measures)*
Metals	
Reduction measures	**Reuse measures**
• *(any other measures)*	• Off-cuts from long pipe work runs are to be stored for reuse in small runs
	• *(any other measures)*

Recycle and recovery measures

The following waste streams are to be segregated for recycling/ recovery off site:

Waste stream	EWC code	Storage option	Management option
• Paper and cardboard	20 01 01	Labelled bins	recycling
• Excavation waste	17 05 04	Stockpile (if required)	recycling
• Packaging	15 01 06	Labelled Waste skips	recycling
• Plastic	20 01 39	Labelled Waste skips	recycling
• Timber	17 02 01	Labelled Waste skips	recycling
• Mixed Metals	17 04 07	Labelled Waste skips	recycling
• Mixed waste	17 09 04	Labelled Waste skips	recycling
•			

Project close-out review

This section of the plan is completed prior to the project close-out review, and discussed as part of the review meeting. The estimated quantities are drawn from the table in section 2, and reconciled against the actual quantities removed from site as detailed in BAM SMaRT / BAM Site app (delete as appropriate).

Comparison of estimated and actual quantities

Insert actual waste quantities from BAM Site app

Source and type of waste	EWC Code	Estimated quantity of waste (tonnes)	Actual quantity of waste (tonnes)
Excavation waste			
Hazardous excavated material	17 05 03*		
Non-hazardous soil and stones	17 05 04		
Inert soil and stones	17 05 04		
Construction (skip) waste			
Concrete	17 01 01		
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed construction waste	17 09 04		
Hazardous construction waste	Various		
Mixed municipal waste	20 03 01		
Demolition waste			
Concrete	17 01 01		
Bricks	17 01 02		
Mixed hardcore	17 01 07		
Timber	17 02 01		
Glass	17 02 02		
Plastic	17 02 03		
Mixed metals	17 04 07		
Other mixed demolition waste	17 09 04		
	Totals	0	0
		Difference	0

Delete / add waste streams as appropriate by double clicking on this table.

Explanation of any deviation from the original plan

Appendix 1 Roles and responsibilities

The Clients Representative will:

- Appoint a Principal Contractor
- Provide the Principal Contractor with details of all decisions taken before the site waste management plan was drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site
- Ensure a construction phase SWMP is produced

The agent for the Principal Contractor will:

- Ensure the SWMP for the construction phase is produced, and distributed to all staff and subcontractors
- Ensure that within three months of project completion:
  - that the plan has been monitored on a regular basis
  - section 5.1 is completed comparing estimated quantities with actual
  - section 5.2 is completed to explain any deviation from the plan
  - section 5.3 is completed to estimate the cost saving that have been achieved
- Keep a copy of the SWMP for a minimum of two years after project completion

The site waste co-ordinator / environmental engineer for the Principal Contractor will:

- Produce the construction phase SWMP prior to works starting on site
- Obtain from the client details of all decisions taken before the site waste management plan was drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site, for inclusion in the construction phase SWMP
- Keep a copy of the SWMP on site and display in suitable locations for information
- Review the plan monthly and update where necessary to accurately reflect progress
- Ensure the following waste data is recorded within BAM SMaRT / BAM Site app (delete as appropriate) when any waste is removed from site:
  - a description of the waste, including the 6 figure EWC code
  - the name of the company collecting the waste (waste carrier)
  - the site where the waste is being taken to (waste destination)
  - the quantity of the waste and whether it was;
  - reused on site
  - taken for reuse at an exempt or standard permit site
  - taken to a transfer station for segregation and onward recycling
  - taken to a dedicated recycling facility
  - sent to landfill (only if all other options have been discounted)
- Ensure details of recycling figures for the transfer stations used within the region are obtained and entered onto BAM Site app on a quarterly basis
- Ensure details of all waste carrier registration numbers, environmental permit numbers and exemption references for the carriers and disposal sites used within the region are verified in consultation with the Environmental Advisor and retained on site in accordance with the site documentation control procedure.

Schedule C6 **Refuelling procedure**

- No refuelling to be undertaken in close proximity of surface waters, drains, open excavations, grips
- Only trained nominated personnel to carry out refuelling operations

Prior to refuelling, ensure;

- You are in a safe position (i.e. no moving plant with free access to refuelling point)
- A suitable spill kit is available
- Check condition of hoses, nozzle for defects
- Deploy plant nappy at refuelling point

During refuelling, ensure;

- Correct refuelling cap is removed (i.e. not a water tank)
- Funnels to be used at all times when refuelling containers
- Refuelling operations are supervised at all times
- Due care and attention is paid to prevent drips and spills
- Return fuel hose to its hook and that lids/caps are replaced on fuel containers/plant
- Fuel tanks are secured after use and drums are stored upright in an area where they will not be knocked over or damaged

Nominated refuellers		
Name	**Position**	**Toolbox talk PP8 Briefed**
tbc		Tick if carried out
name		Tick if carried out
name		Tick if carried out
name		Tick if carried out
name		Tick if carried out
name		Tick if carried out

Report all spills, leaking fuel lines, hoses or tanks to your supervisor

Section D Quality

D1.0 Introduction

This quality plan is applicable to the process of undertaking the project works at Aberaeron CDS for the provision of services in accordance with the contract and specification as described in **Section A, Table 1.1** of this document.

It defines the managerial arrangements required to meet and exceed the requirements of the project and Ceredigion County Council It is prepared as a result of the project start up review, by **the agent** taking account of particular project requirements.

This quality plan together with Section A documents the necessary information required to effectively manage project quality from project planning to project delivery. It makes use of subsidiary documents such as BAM Nuttall procedures, project specific procedures, activity plans, task instructions, risk assessments and records that are used to control the works.

This plan, together with section A of this project execution plan, activity plans and associated inspection and test plans meet the requirements of ISO 10005 *Quality management guidelines for quality plans.* A compliance schedule detailing relevant sections of this project execution plan in relation to ISO10005 is contained in Appendix 2.

D2.0 Quality Plan

D2.1 Project quality requirements - *NP25: Technical and engineering delivery*

Delivery of the quality, technical and engineering requirements of the project is managed primarily by ensuring an understanding of these requirements, use of a team of suitable and competent personnel and the undertaking of adequate planning.

D2.2 Quality programme - *NP24: Activity plans*

The overall manner in which quality hazards are controlled is set out in the project quality programme of **Schedule D1**. This high level plan defines the programmed task and identifies the documents to manage and demonstrate quality in relation to the specific activity. Sub-contract work is included within the quality programme.

This constitutes the development of activity plans from a quality perspective. Activity Plans are prepared. A list of activity plans for programmed activities for this project are referenced in schedule **D1 Quality programme.**

D2.3 Verification of requirements - *NP25: Technical and engineering delivery MG20: Guidance on writing ITP's and ITC's*

To verify that this planning is successful in controlling quality, the work is monitored closely and verified as it progresses. Verification is normally carried out by sampling, inspection and testing. Work which cannot be verified by final inspection or test (special processes) is controlled by monitoring that the work activity is undertaken in accordance with the agreed procedure.

These verification arrangements are set out in the inspection and test plans or checklists prepared for the programmed activity. If BAM Nuttall is contractually responsible for certification of the works under a rigorous self-certifying system based on checklists for each item of work, this is indicated in the quality programme.

Inspection and test plans or checklists define the means of demonstrating that specified requirements are met. They list inspection/test procedures, frequency of testing, witness/approvals, responsibility for test and record requirements.

The extent to which checklists are prepared and completed for items of work is dependent on the risk of nonconformity. This risk is a function of the complexity of the work activity, the competence of the resources undertaking it and the consequences of failure. A list of inspection and test plans or checklists is contained in **schedule D2** to this plan.

D3.0 Preservation of product

D3.1 Weather dependent work

Some work which is sensitive to temperature or moisture can only be carried out at certain times of the year unless additional controls such as protection from the elements are introduced. Activities which are weather dependent are listed in **Table D3.1** with details of the controls to be used if any.

Table D3.1: Weather dependent work

Activity	Control measure
Concrete work	Ensure batching plant has heated water facility Use frost blankets. Comply with specification temperature limits
Brickwork / masonry work	Comply with specification temperature limits
Blacktop	Comply with specification temperature limits

D3.2 Preservation of work

Some items of work are susceptible to damage from following activities unless protective measures are introduced. Work elements for which such measures will be taken are listed in **Table 3.2** together with outline details of the protection to be provided.

Table D3.2: Preservation of work

Work element	Protective measures
TBC	

Schedule D1.1 Quality Plan Activity Table

Programme Activity	Works Information or Specification	Control documents	Responsibility				Verification document	Other documented information
			BN	SC	C	O		
tbc								

CODES:				
APP Approval Required AR Submit Documents for Review	DI Submit Documents for Information DR Document required	R Review Documents SD Submit Verifying Documents	BN: BAM Nuttall SC: Sub-contractor	C: Customer O: Other (provide detail)
Document Notes: Individual inspection and test plans / checklists define in detail witness, approval and hold points, along with all documented information required for approval.				

Schedule D1.2 Register of project procedures

Reference	Title	Author	Rev	Review Date

That this schedule will be maintained as part of the project document management system and updated from time to time as procedures are identified as being necessary.

Schedule D1.3 Register of activity plans and inspection and test plans / checklists

Activity Plan Reference	Title	Author	Date Required	Date Issued	Review Date	ITP /ITC Reference	Work Status
BAU.4670-0001	Site compound establishment	GT			Click here to enter a date.		Live
	Access Road						Live
	Installation of office buildings and services	supplier					
	Access Route to Beach						
	Rock armour deliveries and stockpiling						
	Beach excavation and placing of rock armour						
	Grouting	s/c					
	Traffic management						
	Trial holes to locate services						
	Install temporary flood wall						
	Remove street furniture, existing flood wall and excavation						
	Formwork, reinforcement and concrete to flood walls	s/c					
	Drainage – Quay Parade						
	Service ducting – Quay parade						
	Install lighting columns and street furniture						
	Masonry cladding						
	Masonry repairs to existing						
	Establish site access Pwll Cam area						
	Install ramp and working platform in harbour						
	Install temporary cofferdam – Pwll Cam						

	Pwll Cam fish removal and dewatering						
	Demolish existing quay walls and excavate to formation for gate structure including install of temporary works.						
	Pwll Cam gate structure reinforcement, formwork and concrete.						
	Gate Install						
	M&E works to gate						
	South pier cofferdam installation						
	South pier dismantling						
	South pier excavation and base RC						
	PCC pier end installation and infill						
	North pier rock breakwater construction						
	Concrete footway installation and concrete – North breakwater						
	Timber groynes – removal of existing						
	Piling for new timber groynes						
	Planking of new timber groynes						
	Beach nourishment						

This list is not exhaustive and additional Activity Plans will be added as required.

Appendix 1: Construction Design & Management Regulations 2015 (CDM) compliance schedule

CDM Appendix 3 Reference		Relevant Section of the PEP		
		Schedule	Section	Title
5(a)	Description of the project		A2.1	The project works
	Programme and key dates		A4.4	Project programme
	Key members of the team (Management structure and responsibility)	A1	A2.5.1, A2.5.3	Organisation and responsibilities Client and other stakeholder communication The project works
	Extent and location of existing records and plans that are relevant to health and safety on site (Pre-construction information)		A3.2	Inputs into the plan Project design Risk and opportunities
5(b)	The management of the work			
	Health and safety aims for the project.		A2.4	Project objectives
	Site rules (cover but not be limited to) PPE Parking Use of radios, mobile phones Smoking, restricted areas Hot works Emergency arrangements (Brought to the attention of everybody on site) *Also translation of site rules if required.*	A5 A6	A5.6	Induction Workforce engagement Co-ordination of contractors Drugs and alcohol Incident and Emergency arrangements PPE Workplace transport
	Arrangement to ensure co-operation between project team members and co-ordination of their work (Site meetings)		A5.1 A5.2 A5.3 A5.4	Client communication Workforce engagement Management of sub-contractors Co-ordination of contractors Project review (meetings) Project verification
	Arrangements for involving workers		A5.5	Workforce consultation Project verification
	Site induction	A5	A5.6	Site induction
	Welfare facilities and first aid	B1	B2.4	Welfare facilities First aid
	Fire and emergency procedures	A6	B2.1	Fire safety Incident and emergency arrangements
5(c)	Control of any specific site risks listed in schedule 3 where they are relevant to the work involved.			
	Burial under earth-falls		B4.5 B4.6 B4.7	Excavations Other significant risks
	Engulfment in swampland		B4.6	Excavations Other significant risks
	Falling from height		B4.3	Work at height
	Chemical or biological substances, legal requirement for health monitoring		B3.6	Asbestos Contaminated land Hazardous substances

CDM Appendix 3 Reference		Relevant Section of the PEP		
		Schedule	Section	Title
				Other significant risks Health surveillance UV radiation
	Work with ionising radiation (Designation of controlled or supervised areas under regulation 16 of the Ionising Radiation Regulations		B4.15	Ionising radiation
	Work near high voltage lines		B4.1	Overhead services
5(c)	Control of any specific site risks listed in schedule 3 where they are relevant to the work involved.			
	Work exposing workers to the risk of drowning		B4.10	Work over or near water
	Work on wells, underground earthworks and tunnels		B4.9 B4.9.1	Confined spaces Other significant risks
	Work carried out by divers having a system of air supply		B4.11	Other significant risks
	Work carried out in caissons with a compressed air atmosphere		B4.9	Other significant risks
	Work involving the use of explosives		B4.16	Explosives
	Work involving the assembly or dismantling of heavy prefabricated components		B4.14	Other significant risks

Appendix 2: BS ISO 10005 compliance schedule

BS ISO 10005:2018 reference		Relevant section of project execution plan	
6.2	Scope of the quality plan	A1 A2.1	Introduction The project works
6.3	Quality plan inputs	A1.1.3	Inputs to the plan
6.4	Quality objectives	A2.4	Project objectives and targets
6.5	Quality plan responsibilities	A1.1 A2.5 A5 A6.2 Schd A1	Project execution plan administration Management arrangements Communication Audits Organisation chart
6.6	Control of documented information	A5.7	Project documented information
6.7	Resources	A4.3	Project planning
6.7.1	Provision of resources	A4.3	Project planning
6.7.2	Materials, products and services	A2.6.1	Procurement of goods and services for the project
6.7.3	People	A2.5.1 A2.5.2	Project organisation Personnel selection
6.7.4	Infrastructure and environment for the operation of processes	A3.3 D3.0	Health, safety, quality and environmental risk - construction phase Preservation of work
6.7.5	Monitoring and measuring resources	A2.5.1 A2.5.2 D2.3	Project organisation Personnel selection Verification of requirements
6.8	Customers and other interested parties communication	A2.1 A5	The project works Communication
6.9	Design and development	A4	Project design, planning and programming
6.9.1	Design and development process	A4.1	Project design
6.9.2	Control of design and development changes	A4.1	Project design
6.10	Externally provided processes, products and services	A2.6	Supply chain management
6.11	Production and service provision	D2.1	Project quality requirements
6.12	Identification and traceability	A2.7	Product traceability
6.13	Property belonging to customers or external providers	A2.6.1 A2.7 A6.1.1 D2.3	Procurement of goods and services for the project Product traceability Quality non-conformity Verification of requirements
6.14	Preservation of outputs	D3	Preservation of work
6.15	Control of nonconforming outputs	A6.1.1	Quality non-conformity
6.16	Monitoring and measurement	D2.3	Verification of requirements
6.17	Audits	A6.2	Audit and inspection
7.1	Review and acceptance of the quality plan	A1.1 A2.5	Project execution plan administration Management arrangements
7.2	Implementation and monitoring of the quality plan	A1.1 A2.5.2 A6.2 A6.3 D2.2	Project execution plan administration Personnel selection (competence, knowledge, awareness) Audit and inspection Review Quality programme
7.3	Revision of the quality plan	A1.1	Project execution plan administration
7.4	Feedback and improvement	A6.3 A6.4	Review Improvement

Appendix 7: BIM execution plan