

Project No: CRMM020

Project Name: East Rhyl Coastal Defence Scheme

BALFOUR BEATTY UK

APPENDIX B QUALITY PLAN

(PRM-TF-0001c)

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1. INTRODUCTION

The aim of this project quality plan (PQP) is to define our specific approach to quality management and Defect-free delivery on this project. It details the quality controls to be implemented throughout the Project in order to provide assurance that our work meets the agreed Company, Statutory, Regulatory and Contractual requirements and is delivered defect free.

The PQP is a core appendix to the Project Management Plan (PMP). It is updated and controlled as part of the PMP and requires completion and control across the Balfour Beatty Gated Business Lifecycle as follows: -

Gate 3	PQP drafted
Gate 5	PQP produced and approved in sufficient detail to commence the works
Gates 5 & 6	ITPs progressively produced and approved to an agreed programme covering all aspect of each activity (or series of activities) prior to commencement of the works.
Gates 6 & 7	ITPS fulfilled with each one signed off with a Completion of Works Inspection Certificate to confirm all records completed, all requirements met and the activities/trades and the final project have been delivered defect free.

2. SCOPE OF THIS PROJECT QUALITY PLAN

This scope of this PQP is as follows:

The scope of this PQP is to develop a robust quality plan that will support right first time and defect free delivery, which will ultimately enable us to deliver a high quality finished product for the Client. We will ensure that finished work is protected, the right materials and tools are used, the Clients requirements are understood, and the right information is used and understood throughout the project.

The key deliverables are as follows: (Refer to the PMP for overarching Project Objectives)

Defect free delivery

Client satisfaction

Completion and sign off of all quality documentation on completion of the works

This project measures the delivery of quality across all projects using three core metrics:-

- | | |
|------------------------------|--|
| 1. Quality Planning | Measured as a % of ITPs approved to plan |
| 2. Quality Deliverables | Measured as a % deliverables completed |
| 3. Quality Defects and snags | Measured as a % of defects/snags closed/managed. |

This data is collated to provide a project Quality Index (QI) which is used by both the project and the business to improve the level of quality delivered to our customers with an ultimate aim of Defect-free delivery in everything we do. Refer to document [QUA-RM-0100b](#) for further details on the quality metrics.

Specific Infrastructure and Work Environment controls required in order to meet specified requirements:

JBA Consulting – East Rhyl Coastal Defence Scheme – Works Information

JBA Consulting – East Rhyl Coastal Defence Scheme – Specification for Works

Manual of Contract Documents for Highway Works – Specification for Highway Works

3. QUALITY ROLES, RESPONSIBILITIES AND ACCOUNTABILITIES

Quality management i.e. meeting requirements and delivering defects free is the responsibility of the Project Lead, although all the whole Project team are accountable for ensuring this Plan is effective.

3.1 Project Lead – Quality Responsibilities

Project Lead:	Deter Goliath
Deputy:	Chris Hull

Refer to the PMP for overarching Project Lead responsibilities and accountabilities

Project specific requirements:
<ul style="list-style-type: none"> No work activities will commence until ITPs and associated checksheets are created and approved by DSR and Denbighshire County Council (DCC). Material Acceptance Form to be issued to DSR and DCC and approved for acceptance prior to commencement of works Ensure works are completed to JBA and Standards for Highways Specification Works to be signed off with ITP's and NEC PM and Supervisor. IPads will be required for the use of Field 360 to monitor and report quality issues.

3.2 Project Team

Refer to the PMP for overarching Project Lead responsibilities and accountabilities

Project specific requirements:
<p>BIM field 360 champions will be appointed for this project – they will ensure that all quality requirements are met for the scheme.</p> <p>Quality audits by Claire Day (BB Quality Manager) will be arranged once the scheme is progressing to review progress of quality systems.</p>

3.3 Regional Quality Support

The Project will be supported by Regional Quality support who will be available to advise the Project Team on achieving Defect-free delivery (DFD) and other quality related matters. They will monitor projects to ensure compliance with the specific PQP and BMS requirements and have responsibility for supporting improvement needs and reporting any anomalies to Divisional Management and Project Leads.

Key Accountabilities:

- Support the projects to ensure they understand DFD, their quality related accountabilities, the project quality metrics and BMS processes.
- Monitor compliance with delivery of key quality requirements against the gated lifecycle
- Be the Business Unit based quality expert practitioner to provide specialist support

- Provide functional leadership to Business Unit quality resources to develop and help deliver the local quality strategy.
- Support the development and continual improvement of appropriate Quality controls within the Business Management System and across the gated lifecycle
- Ensure that DFD and Quality controls within the Business Management System and across the gated lifecycle are understood and implemented across the Business Unit
- Establish an internal network of quality expertise
- Produce Business Unit level quality reports
- Coach and develop quality skills across the Business Unit and its Projects
- Support establishment of continuous improvement culture
- Undertake specific investigations and/or report on quality related issues as required.
- Lead, develop and coach individuals to build high performing teams and creates a pipeline of talent.

Project specific requirements:

Advise will be sought from (Claire Day) to inform the project team members on the use of field 360, to monitor the quality of the project during the construction phase. This will coach and develop the skills of the team to build a higher performing team and aid in the reporting and investigation of any quality related issues.

3.4 Other Project specific Quality Roles and Resources

Project specific requirements:

IPads will be required for the use of Field 360 to monitor and report quality issues.

Where applicable review and include materials, components, infrastructure and work environment needs

4. DOCUMENTATION / CONTROL OF RECORDS

Please refer to procedure [QUA-PR-0400](#) to establish the standard BB information control and project control of records. Should the system need to invoke bespoke requirements due to Contractual Conditions, please identify the controls here:

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Project documentation will be controlled as described below:
Project quality documentation will be controlled through BIM360 FIELD, all other documentation will be controlled in line with BB procedure QUA-PR-0400-UKCS. All other project documentation for example, TQs, will be saved on the relevant Sharepoint site.
The Project Filing Structure is detailed below:
Project filing structure will be in line with BB procedure QUA-PR-0400-UKCS and template form QUA-TF-0400a-UKCS
Project Record Retention requirements and arrangements are detailed below:
Project record retention will be in line with BB procedure QUA-PR-0400-UKCS

5. QUALITY CULTURE

We recognise that successful delivery of our quality requirements will only be achieved by embedding DFD and a quality culture, which allows our people to take pride in their work and to fulfil their potential.

“If everyone takes responsibility for quality, defects disappear” Leo Quinn – Balfour Beatty CEO

Quality is never an accident. It is always the result of high intention, sincere effort, intelligent direction and skilful execution by all employees.

To support this culture the work environment shall be maintained to a good standard and fit for the purpose of achieving defect free delivery.

We also recognise the important role of our supply chain. Through embedding a positive quality culture and working collaboratively towards a mutually rewarding common goal, we will ultimately improve our understanding and definition of customer requirements and in doing so increase our confidence of successful project delivery. The principles of our collaborative approach include:

- Early engagement to help us to deliver value to our projects
- Involvement during project planning to ensure knowledge/experience included
- Clear communication of our expectations so they are understood and accepted
- Identification of opportunities to share best practice and prevent re-work
- On-going commitment to continual improvement through collaborative working

We ask each person to consider the Quality Commitments as part of induction, whether on site or in the office:

- I have the right information
- I have the right materials and tools
- I have seen the benchmark or understand the desired output
- I know how to complete and protect the finished work

Quality is both individual and collective excellence

- it's our people who have the greatest impact.

Quality is doing a good job, right first time

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- we only get one chance to make a great first impression.

Quality is never compromising our high standards

- We take pride in what we do.
- Quality is our legacy, it's what we leave behind
- We always aim to Deliver Defect Free

The project will deliver at least one Defect-free delivery and Quality tool box each month

For Projects that consist of buildings of any type the DFD tool box talk on Permanent Works Fire Safety and Passive Fire Protection ([QUA-TB-0100c](#)) will be briefed to all those involved in Permanent Works Fire Safety strategy design or operational activities.

[QUA-TB-0100](#) series

The projects will establish its own DFD actions taking into account the current Corporate and SBU DFD action plans – refer to the Quality pages of the BMS for details

Project Specific DFD Plan:

The culture for the project will be to achieve a Right First Time (RFT) approach; this will include error proofing, error reduction and error elimination through embedding the correct provisions for project quality planning and control. The RFT principles will be focused on this project to ensure the correct tools and processes are applied to eliminate waste and errors which occur. The Project lead will also work to empower employees with the authority to stop construction activities to signal quality issues by emphasizing the importance of quality. Inductions on site and toolbox talks will include specific items regarding quality, to ensure that each person is aware of their commitments to the quality of the project. In addition to this to foster a quality culture on this project, public notice boards will be used to promote and recognise Quality Champions, by showing and raising their profiles.

6. DESIGN FOR QUALITY

We will manage the design on this project in accordance with the following controls located in our BMS [Group Minimum Engineering Expectations](#)

Project Specific Design processes are as follows:

Refer to design management plan

The Project Lead will ensure that a Sample, Benchmark and Material Acceptance Schedule is progressively produced and completed to allow planning of these activities to remain ahead of both the Procurement and Delivery Programme

Project Specific controls for managing Sample, Benchmark and Material Acceptance:

Use of BIM field 360 to identify NCRs as they arrive and manage close out. Sampling will be done in accordance with the highway works specification appendix 1/5 along with the frequency required for testing. Testing, benchmarking, and product acceptance will be delivered in line with project requirements and to engage the work force to ensure consistency throughout the project. Any product defects or non-conformance which is identified as the works progress will be managed in accordance with QUA-PR-0200.

7. PROCURE FOR QUALITY

We will manage the procurement processes on this project in accordance with the following procedures located in our BMS

[PRC-PR-0001 to 0006](#)

Supply Chain and Procurement procedures

[CML-PR-0011 to 0014](#)

Commercial Supply Chain and Consultants procedures

Project Specific Procurement and Supply chain processes and high risk items are as follows:

The project will issue two major Sub-Contracts: Shoreside works (Jones Bros Civil Engineering (Ruthin)) and promenade works (Contractor TBC).

Both sub-contracts will provide materials for use within the main works apart from precast concrete steps and walls which will be procured and delivered to site by Balfour Beatty.

Jones Bros will procure and supply rock for the rock armour flood defence, a percentage of the rock will be delivered from Glensander Quarry (Aggregate Industries) and stored onsite prior to use. The lead in time and storage of the rock has been considered at Tender stage and for the Pre-Construction Programme so that no delays are encountered onsite. The process and key dates will be monitored by Balfour Beatty for any slippage against planned durations. Any potential delays will be managed via weekly collaborative planning and progress meetings, early warnings and CEs to the Sub-Contractor.

Balfour Beatty will supply the precast steps and walls for both Jones Bros and SJB, as above the date that the materials are required will be monitored and managed throughout the procurement process to ensure products are delivered when required. Balfour Beatty will use the CI31 and CI32 programme to monitor the above.

Temporary works designs will be required for several aspects of the project however, construction of the pre-cast concrete staircases to the beach will be significant. A temporary works register will be created for the scheme which will detail latest date for designs to be submitted for approval, this information is also contained within the CI32 programme.

SCAPE OBJECTIVES:

Performance Indicators	Measured by	Framework Targets
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			(Column will be used to set minimum targets in the subcontract agreement where no further targets have been entered)
1.	Fair Payment Terms		
1.1	Tier 3 suppliers to be paid within 23 days of main contract certification	Monthly report submitted to Project Lead and QS detailing all payments due, dates made, reference numbers and contact details for supplier should an audit be undertaken.	100%
2.	Supply Chain Labour		
2.1	Labour from within 10 miles	Monthly labour returns issued by the subcontractor to Project Lead and QS and Balfour Beatty signing in process	20%
2.2	Labour from within 20 miles		40%
2.3	Labour from within 40 miles		75%
3.	Supply Chain Spend		
3.1	Tier 3 supplier spend within 10 miles	Monthly report of predicted final supplier spend submitted to Project QS	20%
	Tier 3 supplier spend within 20 miles		40%
	Tier 3 supplier spend within 40 miles		75%
4.	Tier 3 suppliers*		
4.1	Tier 3 Supply Chain who are classified as a SME	Monthly report of predicted final supplier spend submitted to Project QS	85%
4.2	Tier 3 supply chain spend with SME's		85%

8. INSPECTION AND TEST PLANNING

8.1 Inspection and Test Planning Process

Inspection & Test Plans will be planned, produced, reviewed, accepted, implemented, monitored and completed for all permanent relevant work activities on this project, in accordance with our Quality Planning Procedure [QUA-PR-0100](#)

Work activities requiring Inspection & Test Plans will be identified on an Inspection and Test Plan schedule and programmed for review and approval at least 2 weeks prior to the works starting.

Responsibility for ITP production will be allocated internally within the Project Team or to the relevant Subcontractor as part of their subcontract order. All activities on the project shall be included within the Inspection & Test Planning process with all ITPs prepared and approved prior to the works commencing (whether on or off site).

The following must be considered when preparing an ITP:

- Competence requirements for each activity
- Design sign offs and approvals
- Supply chain approvals
- Any other stakeholder approval requirements e.g. end user approvals
- Off Site Fabrication Inspection & Test requirements
- Identification and traceability of material and information including unique coding
- Factory Acceptance tests and release requirements
- Shipping, transportation, movement and lifting requirements
- Storage, packaging, protection and preservation requirements
- Material receipt requirements
- Sampling requirements e.g. by attributes through ISO 2859
- Any acceptance criteria that uses statistical techniques e.g. CUSUM in concrete
- Life cycle and CDM requirements

No works will commence without an approved ITP (status A or B) in place. ITPs will be appraised using the Inspection & Test Plan Appraisal Form ([QUA-TF-0100c](#)) as a minimum.

Project Specific Process for ITPs (including how ITPs are scheduled and managed):

Project ITP's will be produced in line with BB procedure QUA-PR-0100, they will be reviewed and approved by DSR and DCC before use and controlled through BIM360 FIELD.

Inspection, Testing and Commissioning of the works will be undertaken as required by each ITP. Results will be recorded on the appropriate Quality Checklists and Test Certificates (suite of generic options available on the Quality pages of the Balfour Beatty intranet). The completion of these output/verification documents will be monitored against the ITP Schedule requirements on a monthly basis and records will be collated in accordance with the completion or handover package requirements specific to the contract. A Balfour Beatty Work Acceptance Record ([QUA-TF-0100e](#)) or similar is to be completed to confirm the completion of records for each ITP. This demonstrates that the scope of the ITP has met the specified and agreed requirements and provides assurance of Defect-free delivery at all stages of the project.

If no specific schedule exists (eg through 360 Field, Business Collaborator or other local control) complete and monitor the creation and approval of ITPs using the schedule on the next page

8.2 Inspection and Test Plan Schedule

Only required to be completed if no other project ITP schedule exists

Package of works	S/C name or BB direct	ITP title	Document number	BB Owner	Date Required	Date Approved	Completion of ALL ITP records	
							Target Date	Actual Date
Mobilisation Temporary Works	TBC	Mobilisation Activities	CRMM020/ITP/001	CH				
Site Clearance	JB & TBC	Site Clearance	CRMM020/ITP/002	CH				
Concrete Buttress	JB	Concrete Buttress	CRMM020/ITP/003	CH				
Rock Revetment	JB	Rock Revetment Construction	CRMM020/ITP/004	CH				
Beach Access Steps	JB	Beach Access Steps	CRMM020/ITP/005	CH				
Sea Wall & Promenade Works	TBC	Sea Wall & Promenade Works	CRMM020/ITP/006	CH				
Golf Course Works	TBC	Golf Course Works	CRMM020/ITP/007	CH				

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9. INSPECTION AND MEASURING EQUIPMENT CALIBRATION

Refer to procedure [QUA-PR-0300](#) for process to be implemented.

Project-Specific process if required:

Any inspection or measuring requirements will be detailed in the Works Information or Planning Conditions – such as vibration monitoring for piling works.

All equipment used will be calibrated and certification recorded with a copy remaining in the site office, for example: GPS survey equipment, Total station, RD8000 and genny, drone etc.

10. MATERIAL DEFECT AND SERVICE NON CONFORMANCE

Refer to procedure [QUA-PR-0200](#) for process to be implemented.

Project-Specific NCR, Defect Management and Continual Improvement system requirements

All Defects/NCRs will be raised and issued on BIM field 360.

Any NCR raised which is greater than a level three on the risk matrix will be reported to Claire Day (Quality Manager) straight away.

All Defects/NCRs will need to be closed out in a timely manner.

11. CUSTOMER COMMUNICATION & CONSULTATION

As a minimum the following reviews will be established:-

1. Customer start up meeting as part of Gate 4 or 5
2. Customer monthly reports and reviews at Gates 6
3. Customer handover readiness review at Gate 6.1 or three months prior to completion
4. Customer handover and close down meeting at Gate 7
5. Customer end of project review at Gate 8
6. Independent MAP reviews of customer feedback on Project Performance Gates 5 to 7

Project specific Customer communication requirements

DCC, along with the DSR, will be invited to witness certain elements of work to ensure sign off is completed.

12. DEFECT FREE DELIVERY STRATEGY

Our aim is to complete this project, in time, to budget and defect-free at all stages included final customer handover.

Project specific Defect-free delivery requirements

Soft Landings Procedure [QUA-PR-0150](#) will be implemented on this project

13. AUDIT

Balfour Beatty is subject to audit by a UKAS accredited body to maintain certification to ISO 9001, ISO 14001 and OHSAS 18001.

Balfour Beatty will conduct operational audits as detailed in its annual audit programme.

The project audit frequency and scope will be developed taking into account any project specific requirements, risks and previous audit results and with due consideration to audits planned by Balfour Beatty, external certification bodies and other stakeholders..

Operational, Quality, Safety and Environment audits will be coordinated as far as practical in order to optimise the efforts and the efficiency of the whole process.

All Auditors will be competent and independent of the activity being assessed.

Audits and actions raised as a result of findings raised during the audit process will be dealt with as detailed within the procedure [AUD-PR-0001](#)

The customer shall be provided with copies of audit programme and any subsequent audit reports on request.

Project specific Audit requirements

Internal BB audits can be carried out on this scheme.