

Master Specification Part PC-QA1B

Quality Management Requirements

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Contents

Contents	3
PC-QA1B Quality Management Requirements	4
1 General	4
2 Documentation	4
3 Quality Management System	7
4 Management responsibility and authority	8
5 Resource management	10
6 Planning for quality outcomes	10
7 Hold Points and Witness Points	14
8 Provision and production of the Works	18
9 Control of Non-Conformances	20
10 Control of System Non-Conformances	22
11 Performance evaluation and improvement	24
12 Hold Points and Witness Points	25

PC-QA1B Quality Management Requirements

1 General

- a) This Master Specification Part sets out the requirements for quality management of the Contractor's Activities for Major Projects, including:
 - i) the documentation requirements for the Project Quality Plan and As-Built Records, as set out in section 2;
 - ii) the Quality Management System requirements, as set out in section 3;
 - iii) the management responsibility and authority requirements including those in relation to the Construction Quality Representative, as set out in section 4;
 - iv) the resource management requirements, as set out in section 5;
 - v) the quality outcome requirements including requirements for Work Lots and Inspection and Test Plans, as set out in section 6;
 - vi) the Hold Point and Witness Points process, including those related to submission of documentation, Project Plans, design review and construction quality, as set out in section 7;
 - vii) quality management during the production of the Works and Temporary Works, as set out in section 8;
 - viii) the control of Non-Conformances, as set out in section 9;
 - ix) the control of System Non-Conformances, as set out in section 10;
 - x) the performance evaluation and improvement requirements, as set out in section 11; and
 - xi) the Hold Point and Witness Point requirements, as set out in section 12.
- b) The Contractor must comply with the Reference Documents including AS/NZS ISO 9001 Quality Management Systems - Requirements.
- c) Where the Principal has provided the design documentation for construction purposes, the following definitions will replace the definitions in PC-IN2 "Glossary of Terms" for the purposes of this Master Specification Part:
 - i) Design Documentation means the design documentation provided by the Principal for construction purposes; and
 - ii) Designer means the Principal's appointed designer.
- d) Where this Master Specification Part forms part of the Contract Documents, any reference to PC-QA1 "Quality Management Requirements" in the Contract Documents must be read as a reference to this Master Specification Part.

2 Documentation

2.1 Project Quality Plan

- a) The Contractor must establish, implement and maintain a Project Quality Plan to direct its personnel and Subcontractors about the specific quality practices, management responsibility, resources, controls and checks that have to be implemented to complete the Contractor's Activities, which must:
 - i) include evidence of the Quality Management System;
 - ii) include a detailed index describing the full content of the Project Quality Plan;

- iii) include the Contractor's processes for the delivery of all quality and compliance related documents;
- iv) include the Contractor's quality management policy;
- v) describe how Subcontractors' quality will be assured;
- vi) describe the relationship between the Construction Quality Representative, corporate management and the project manager;
- vii) include details of the qualification, experience, responsibilities and authority of the nominated Construction Quality Representative and where applicable the associated quality team, including contact details and an organisation chart;
- viii) detail the internal audit plan and schedule, including all audits required by the Contract Documents;
- ix) describe the minimum competency requirements of personnel undertaking the Contractor's Activities;
- x) describe how identification and traceability will be undertaken in accordance with AS/NZS ISO 9001 Quality Management Systems - Requirements;
- xi) describe how the quality management requirements of the Contract Documents have been incorporated in the purchasing of goods and services, and the subcontracting of Works and Temporary Works;
- xii) describe how the management of changes to Design Documentation will be undertaken, including the requirements of PC-EDM1 "Design Management" for changes to IFC Design Documentation and construction clarifications as required by the Construction Management Plan;
- xiii) describe procedures to coordinate and implement quality assurance functions across all Project Plans including:
 - A. verification that Inspection and Test Plans, Construction Methodologies and Construction Procedures include all Hold Points and Witness Points required by the Contract Documents, including the Design Documentation; and
 - B. performance evaluation and improvement in accordance with section 11;
- xiv) describe how verification will be undertaken in accordance with section 6.2;
- xv) include a formalised review and approval process for the development of Inspection and Test Plans;
- xvi) refer to an Inspection and Test Plan register, which includes the status of each Inspection and Test Plan;
- xvii) describe how Work Lots will be managed in accordance with this Master Specification Part, including how the requirements of sections 6.4 and 8.5 will be met;
- xviii) describe how Non-Conformances and System Non-Conformances will be managed in accordance with this Master Specification Part, including how the requirements of sections 9 and 10 will be met;
- xix) include Non-Conformance and System Non-Conformance registers, including the status of each Non-Conformance and System Non-Conformance;
- xx) include a site-specific induction and training plan (including for training in the Quality Management System) which specifies:
 - A. who is to be trained;
 - B. when and how the training will be undertaken; and
 - C. the training information;

- xxi) include a register of all Hold Points and Witness Points required by the Contract Documents, including:
 - A. the duration of the Hold Points and Witness Points;
 - B. the requirement for review by the Independent Design Certifier or Construction Verifier (as applicable) and other nominated review parties (where applicable); and
 - C. any delegation for the release of the Hold Points and Witness Points from the Principal;
 - xxii) detail the method of arranging notification and release of Hold Points by the Principal (or the delegated party in accordance with section 7.1d)), with individual processes for:
 - A. all documentation, including Project Plans and Design Documentation; and
 - B. construction quality inspections including how the Designer will be involved;
 - xxiii) describe the provision of sufficient notice to the Principal, Independent Design Certifier, Construction Verifier and other nominated review parties (where applicable) that a Hold Point or Witness Point has been reached;
 - xxiv) describe how the performance evaluation and improvement requirements of this Master Specification Part will be achieved, including how the requirements of section 11 will be met;
 - xxv) include procedures that define the scope, format and indexing of final As-Built Records, including Design Documentation and Quality Management Records;
 - xxvi) define the processes for the validation of As-Built Records and Work Lot Registers as described in sections 2.2 and 6.4, including the digital engineering requirements as detailed in PC-EDM5 “Digital Engineering” (where applicable);
 - xxvii) describe how the corrective and preventative action register required by section 11.1b) will be maintained;
 - xxviii) include the following:
 - A. individual plans for each Subcontractor (where requirements are not covered by other elements of this Project Quality Plan), which achieve the requirements as set out in section 6.7; and
 - B. all discipline specific plans that the Contract Documents require to form part of the Project Quality Plan; and
 - xxix) address all other requirements of the Project Quality Plan as set out in the Master Specification.
- b) The Project Quality Plan must be prepared, submitted and updated in accordance with PC-PM1 “Project Management and Reporting”.

2.2 As-Built Records

- a) The Contractor must produce As-Built Records in accordance with the requirements of PC-CN2 “Asset Handover” and PC-EDM5 “Digital Engineering” (where applicable), that include:
 - i) where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works):
 - A. the Design Documentation updated to reflect the as-constructed state;
 - B. a complete set of as-constructed drawings endorsed by the Designer;
 - C. a certificate from the Designer confirming the design intent has been achieved and complies with the requirements of the Contract Documents (in the form set out in the Designer’s certificate (available from: https://dit.sa.gov.au/standards/standards_and_guidelines)); and

- D. a table of contents, containing a full index of all drawings, documents, metadata and referenced models and computer aided design and drafting (CAD) files;
 - ii) where the Principal has provided the Design Documentation, the Contractor must provide a 'red line' mark up of the Design Documentation that represents the constructed Works;
 - iii) the final Design Departures register and a copy of all Accepted Design Departures (where applicable);
 - iv) the final Non-Conformance register and a copy of all accepted Non-Conformances;
 - v) pre-opening and post-opening (post-completion) road safety audits in accordance with RD-GM-D2 "Road Safety Audits" (where applicable);
 - vi) Quality Management Records, including an index of the Quality Management Records;
 - vii) Testing and Commissioning Reports;
 - viii) as-built record requirements where required by Third Parties (as applicable to Third Party Assets); and
 - ix) all other relevant documents required by the Contract Documents.
- b) As part of the As-Built Records, the Contractor must produce Quality Management Records which as a minimum include:
- i) complete Inspection and Test Plans in accordance with sections 6.5, 8.2.2 and 8.4;
 - ii) test results;
 - iii) for each component incorporated into the permanent Works, a complying factory acceptance test (FAT) certificate (as applicable);
 - iv) all certificates of compliance in accordance with all Laws, including the *Electricity Act 1996* (SA), *Water Industry Act 2012* (SA) and *South Australia Public Health Act 2011* (SA);
 - v) commissioning records;
 - vi) traceability detail in accordance with section 6.3;
 - vii) all warranties;
 - viii) Non-Conformance Reports in accordance with section 9;
 - ix) Corrective Action Requests in accordance with sections 9.3 and 10.2;
 - x) System Non-Conformance Reports in accordance with section 10;
 - xi) closed out Work Lots in accordance with section 8.5;
 - xii) the sample register as required by section 8.4.1f); and
 - xiii) all other requirements of the Quality Management Records as set out in the Contract Documents.
- c) The Construction Quality Representative must provide written notification to the Principal that the As-Built Records are compliant with the requirements of the Contract Documents as a condition precedent to Handover.

3 Quality Management System

- a) The Contractor must establish, implement, maintain and audit a Quality Management System for the duration of the Contractor's Activities.
- b) The Quality Management System must:
 - i) be compliant with AS/NZS ISO 9001 Quality Management Systems - Requirements;

- ii) be in an electronic format for the purposes of the storage, retrieval and management of quality information;
 - iii) comply with PC-PM5 “Information Management” and PC-EDM5 “Digital Engineering” (where applicable); and
 - iv) be fully accessible by the Principal and where applicable its Associates, the Independent Design Certifier and the Construction Verifier.
- c) The Contractor must provide appropriate training for the Quality Management System to the Principal and where applicable its Associates, the Independent Design Certifier and the Construction Verifier, which at a minimum must be in accordance with the requirements of PC-PM5 “Information Management”.
- d) The Contractor must provide the Quality Management Records in PDF format and, where applicable, in accordance with the native format specified in PC-PM5 “Information Management” and PC-EDM5 “Digital Engineering” (where applicable).

4 Management responsibility and authority

4.1 General

- a) The Contractor must demonstrate leadership and commitment to the Quality Management System in accordance with clause 5.1 (Management Commitment) AS/NZS ISO 9001 Quality Management Systems - Requirements.
- b) The Contractor must ensure that its corporate and project management representatives establish a customer focus in accordance with clause 5.2 (Customer Focus) AS/NZS ISO 9001 Quality Management Systems - Requirements.

4.2 Engineering Authority

- a) Where the Principal has provided the Design Documentation, the Contractor must liaise with the Principal where the Contract Documents require liaising with the Engineering Authority.
- b) Where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works), for each asset the Contractor must submit to the Principal for approval the proposed Engineering Authority for each relevant asset, which will constitute a **Hold Point**. Until this Hold Point is released the Contractor must not communicate with the proposed Engineering Authority in relation to the relevant asset, except to confirm that it is the appropriate Engineering Authority.
- c) For each asset the Contractor must liaise with the agreed Engineering Authority (as required in section 4.2a) or as determined following release of the Hold Point in section 4.2b) (as applicable)) for:
 - i) where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works), approval of proposed Design Departures;
 - ii) approval of proposed Construction Documentation; and
 - iii) approval of proposed Non-Conformances.
- d) Once the requirements in accordance with section 4.2c) have been undertaken, the Contractor must:
 - i) for items that are in compliance with the Contract Documents, evidence and outcomes of section 4.2c) must be included with the relevant Design Documentation and Construction Documentation (as applicable);
 - ii) where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works) and for items that are considered Design Departures, the Design Departure process must be followed in accordance with PC-EDM1 “Design Management” and evidence and outcomes of section 4.2c) must be included with the proposed Design Departure; and

- iii) for items that are considered Non-Conformances, the Non-Conformance process must be followed in accordance with this Master Specification Part and evidence and outcomes of section 4.2c) must be included with the proposed Non-Conformance.

4.3 Contractor's responsibility

The Contractor will not be relieved from any of its obligations, responsibilities or liabilities under the Contract Documents or any applicable Laws by:

- a) the implementation and compliance with any part of the Quality Management System;
- b) the acceptance or approval (or non-acceptance or non-approval) of any part of the Project Quality Plan by any person authorised under the Contract Documents to approve or accept work;
- c) acceptance of the Contractor's disposition for Non-Conformances and System Non-Conformances;
- d) compliance with any Witness Point or Hold Point processes; or
- e) the failure by any person to detect any Defect or error in the Contractor's work or documentation at a Witness Point or Hold Point or during surveillance, inspections or audit.

4.4 Construction Quality Representative

- a) The Contractor must appoint a Construction Quality Representative.
- b) At all times, the duties of the Construction Quality Representative, with regard to ensuring compliance with this Master Specification Part, will take precedence over any other activity undertaken by the Construction Quality Representative.
- c) The Construction Quality Representative must be available to attend meetings on Site within 24 hours' notice by the Principal, and where applicable the Independent Design Certifier or Construction Verifier.

4.5 Principal, Independent Design Certifier and Construction Verifier activities and audits

4.5.1 General

- a) The Contractor must allow the Principal, and where applicable the Independent Design Certifier, the Construction Verifier and any person authorised by the Principal, to undertake inspection, testing, audit, surveillance, assessment and photographic recording of the Contractor's Activities.
- b) The Contractor must provide all reasonable assistance and access required for the purpose of undertaking the activities set out in section 4.5.1a), and providing access to Quality Management Records and other relevant documentation.

4.5.2 Quality Management System audits

The Principal, and where applicable the Independent Design Certifier and the Construction Verifier:

- a) may undertake Quality Management System audits to review any aspect of the Quality Management System, its implementation and performance;
- b) must provide 5 Business Days' notice of an audit of the Quality Management System; and
- c) may audit technical procedures and the Contractor's Activities without notice.

4.5.3 Product audits

- a) Where the Contract Documents require the Contractor to provide samples, the samples must be delivered to a facility as nominated by the Principal in the Adelaide metropolitan area, where the samples will be stored by the Principal.

- b) All samples provided to the Principal must be clearly marked and be traceable to the relevant Work Lot in accordance with section 6.3.
- c) For all samples provided to the Principal, the Contractor must provide documentation to confirm that the samples have been received by the Principal, and include this documentation in the relevant Work Lot.

5 Resource management

5.1 General

The Contractor must manage resources in accordance with clause 7 (Support) AS/NZS ISO 9001 Quality Management Systems - Requirements.

5.2 Organisational knowledge

The Contractor must ensure that the personnel and Subcontractors carrying out the Contractor's Activities have the appropriate organisational knowledge and experience, including compliance with AS/NZS ISO 9001 Quality Management Systems - Requirements.

5.3 Human resources

The Contractor must ensure the personnel and Subcontractors undertaking the Contractor's Activities are appropriately trained and will comply with the Project Quality Plan and their obligations to contribute to the effectiveness of the Project Quality Plan, and understand the implications of non-compliance with the Project Quality Plan.

5.4 Competencies

The Contractor must ensure that all personnel and Subcontractors are:

- a) competent, with the appropriate qualifications, training and experience to undertake their duties in carrying out the Contractor's Activities; and
- b) compliant with the Contract Documents, including PC-PM3 "Contractor's Personnel and Training".

5.5 Documented information

- a) The Contractor must manage all quality management information in accordance with clause 7.5.3 (Control of Documented Information) AS/NZS ISO 9001 Quality Management Systems - Requirements.
- b) The Contractor must manage documents and electronic information in accordance with PC-PM5 "Information Management" and PC-EDM5 "Digital Engineering" (where applicable).

6 Planning for quality outcomes

6.1 General

- a) The Contractor must plan the procedures, processes, systems, tests, inspections, acceptance criteria and resources needed to ensure the Contractor's Activities comply with the Contract Documents.
- b) The Contractor must ensure that all Works and Temporary Works are inspected to ensure that the Works and Temporary Works comply with the Construction Documentation, including the Design Documentation.

6.2 Responsibility for testing

The Contractor must verify that all products comply with the manufacturer's and supplier's product manuals, instructions and specifications, including completing all necessary testing, inspection, commissioning, sampling and analysis (as applicable) to provide evidence of compliance with the Contract Documents.

6.3 Traceability

The Contractor must ensure that all materials, work processes and activities are appropriately traceable to demonstrate compliance throughout the product lifecycle including as part of the As-Built Records (including Design Documentation), Construction Documentation, and during the supply, manufacture, installation and at the time and location when the product is incorporated into the Works.

6.4 Identification of Work Lots

6.4.1 Work Lot requirements

- a) All Works must be sub-divided into Work Lots of discrete work.
- b) The Contractor must determine and document the bounds of each Work Lot, which must:
 - i) consist of a continuous portion of homogenous or representative material, Works activity or process, produced under essentially consistent conditions; and
 - ii) where discrete portions of a Work Lot are visually non-homogenous or non-representative they must be excluded from the Work Lot and must be treated as a separate Work Lot.
- c) The Contractor must develop and implement a Work Lot management system, which:
 - i) enables each Work Lot to be identified;
 - ii) provides a unique Work Lot number compatible with any activity numbering in the Contract Program and item numbers in the payment schedule;
 - iii) identifies the type of service, material, manufacturing or construction technique;
 - iv) records measurements and quantities (as applicable) associated with the Work Lot;
 - v) records the part numbers and individual serial numbers (as applicable) of manufactured items incorporated into the Works;
 - vi) identifies all Quality Management Records associated with the Work Lot;
 - vii) includes a Work Lot Register which must record:
 - A. the location of the Work Lot by start and finish chainages, easting and northings or with lateral location;
 - B. the 3 dimensional location; and
 - C. all Quality Management Records associated with the Work Lot;
 - viii) records the status of the Work Lot, including the status of any Non-Conformances and Corrective Action Requests; and
 - ix) enables recording of the Principal's endorsement that a Work Lot is closed in accordance with section 8.5.
- d) The Contractor must include all test reports in the relevant Work Lot and must make available at all times all test reports to the Principal and the Construction Verifier no later than 10 Business Days after completion of each test.

- e) The Work Lot Register must be updated to reflect the Work Lot status of the Contractor's Activities, made available at all times to the Principal and the Construction Verifier and submitted monthly, which will constitute a **Witness Point**.
- f) The Contractor must ensure that all Work Lots are progressively closed in a timely manner in accordance with Best Industry Practices and section 8.5.

6.4.2 Design alignment with Work Lots

- a) Where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works):
 - i) the Contractor must develop Design Packages in accordance with PC-EDM1 "Design Management"; and
 - ii) Work Lots must be compatible with, and aligned to, the Design Packages to enable traceability of the Works.
- b) Where the Principal has provided the Design Documentation, Work Lots must be compatible with, and aligned to, the Design Documentation to enable traceability of the Works.

6.5 Inspection and Test Plans and ITP Forms

- a) The Contractor must develop, implement, maintain and comply with a standard set of Inspection and Test Plans that are consistent across the Works for the same types of construction activities.
- b) The details for the acceptance criteria and frequency of inspection and testing detailed on the ITP must replicate the nominated requirements of the Contract Documents, including the Reference Documents, all relevant Master Specification Parts, the Design Documentation and the Construction Documentation.
- c) The Inspection and Test Plans must include:
 - i) a description of the activity and identification of applicable activities (inspection, testing, commissioning, sampling, analysis activity);
 - ii) all necessary extracts and requirements from the Reference Documents and the Contract Documents to ensure the person signing the ITP is clear of the requirement being signed, including:
 - A. the applicable sections of the Contract Documents; and
 - B. applicable test procedures, methods or Reference Documents used for the testing (as applicable);
 - iii) details on how the inspection, testing, commissioning, sampling, analysis activity (as applicable) is to be carried out and recorded;
 - iv) details of any test procedures, sampling and equipment;
 - v) the test frequency, acceptance criteria and records produced to demonstrate compliance;
 - vi) details of when statistical analyses of test results is required;
 - vii) the responsibility for inspection, testing, commissioning, sampling, analysis activity (as applicable) and responsibility for acceptance of the relevant activity;
 - viii) where the Contract Documents include a design component excluding standalone spray seal design or Temporary Works, endorsement of the Inspection and Test Plan by the Designer;
 - ix) any applicable Witness Points or Hold Points;
 - x) any time constraints for inspection and testing and release of Hold Points and Witness Points; and

- xi) the ITP Form.
- d) The ITP Forms must as a minimum include the following details in relation to the inspection, testing, commissioning, sampling or analysis activity (as applicable):
 - i) the location of the activity;
 - ii) the name of the person undertaking the activity;
 - iii) the date and time of the activity;
 - iv) relevant details of the test sample (e.g. type and sample number);
 - v) the outcome of the activity;
 - vi) any other comments required to clarify the requirements;
 - vii) details of any environmental conditions or external factors that may affect the results;
 - viii) a location to record approval of Hold Points and endorsement of Witness Points; and
 - ix) the extent of the involvement of any Subcontractors in the process.

6.6 Frequency of testing or inspections

- a) The Contractor must determine the frequency of inspections, testing, commissioning, sampling, analysis activity (as applicable) that is appropriate to verify compliance based on its organisational knowledge, and which is no less than that stated in the Contract Documents, including the Reference Documents.
- b) Where the Contract Documents defines no minimum frequency of inspection, testing, commissioning, sampling or analysis activity (as applicable), the Contractor must nominate appropriate frequencies in the ITP.
- c) Where the Contractor can demonstrate consistent process capability, the Contractor may submit a proposal to the Principal to reduce the specified minimum frequency of inspection, testing, commissioning, sampling or analysis (as applicable) as long as the proposed reduction is no greater than 50% of the specified minimum frequency (unless otherwise allowed by the Contract Documents). The submission of the proposal constitutes a **Hold Point**. The reduction of the specified minimum frequency must not occur until the Hold Point is released.
- d) Where a Non-Conformance is detected in a material, work process or activity that has reduced requirements in accordance with section 6.6c), the prior acceptance of reduced requirements in accordance with section 6.6c) will be deemed to be invalid, and the minimum frequency of inspections, testing, commissioning, sampling, analysis activity with respect to that material, work process or activity (as applicable) in accordance with the Contract Documents must be met.

6.7 Subcontractors

- a) The requirements detailed within this Master Specification Part (including the Quality Management System) apply to all subcontracted or supplied materials, products, goods and services.
- b) Where the Contract Documents requires a Subcontractor to have a pre-qualification or registration, the Subcontractor must use their quality management system, as required of that specific pre-qualification or registration.
- c) The Contractor must manage and audit the Subcontractor's provision and production of all Works and Temporary Works.
- d) The Contractor must include for each key Subcontractor and pre-qualified and registered Subcontractor, quality plans in the Project Quality Plan which as a minimum must include the following requirements (as applicable):
 - i) all relevant requirements in accordance with section 2.1;

- ii) details of the Subcontractor's quality management system;
- iii) an Inspection and Test Plan register;
- iv) the Subcontractor traceability systems and Work Lot management, in accordance with this Master Specification Part;
- v) details of all Hold Points and Witness Points, including of the Subcontractor;
- vi) information and details of how Quality Management Records for the calibration of the Subcontractor's measuring and testing equipment will be undertaken, including the incorporation of all relevant Third Party accreditation (e.g. NATA);
- vii) information on the Subcontractor's storage, location and retention of Quality Management Records; and
- viii) information and details of how warranties will be transferred to the Principal.

6.8 Design and development services planning

Where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works), the Contractor (including the Designer, where appropriate) must develop a Design Management Plan to manage the quality of the design and development of products and services in accordance with clause 8.3 (Design and Development) of AS/NZS ISO 9001 Quality Management Systems - Requirements and PC-EDM1 "Design Management".

7 Hold Points and Witness Points

7.1 General requirements

- a) A Hold Point or Witness Point (as applicable) is reached when:
 - i) all information demonstrating compliance with the relevant Hold Point or Witness Point requirement (as applicable) has been provided in an appropriate format to the Principal and any other nominated party; and
 - ii) for construction quality inspection Hold Points or Witness Points (as applicable) the Works are complete as required to enable the required inspection to take place and the Designer has been involved in accordance with the Project Quality Plan and PC-EDM1 "Design Management" (as applicable).
- b) The Contractor must not proceed beyond a Hold Point without the Principal (or delegated authority) releasing the Hold Point in accordance with this Master Specification Part.
- c) The Contractor must not proceed beyond a Witness Point where the Principal has provided comment in accordance with section 7.2.4 or has advised the Contractor why the Witness Point cannot be released in accordance with 7.3.3 and until:
 - i) the Witness Point has been reached in accordance with section 7.1a); and
 - ii) either:
 - A. the specified period for the relevant Witness Point has elapsed and the Principal has neither released the Witness Point nor provided comment; or
 - B. the Principal has released the Witness Point in accordance with section 7.2.4 or 7.3.3 (as applicable).
- d) The Principal may delegate authority for the release of Hold Points and Witness Points.
- e) Where the Contractor's Activities associated with a Hold Point or Witness Point (as applicable) are not in accordance with the requirements of the Contract Documents, the Principal may issue a Corrective Action Request to the Contractor for rectification, re-work and re-submission (as applicable) of the stated activity associated with the Hold Point or Witness Point (as applicable).

- f) Where the Principal elects not to review or inspect an activity associated with a Witness Point, and the Contractor continues beyond the Witness Point in accordance with section 7.1c):
 - i) all work beyond the Witness Point is entirely at the Contractor's risk;
 - ii) it does not constitute an endorsement by the Principal of the Contractor's Activities the subject of the Witness Point;
 - iii) the Contractor must record evidence of compliance of the relevant activity and where related to the Works include the evidence in the relevant Work Lot; and
 - iv) the Principal reserves the right to deem the relevant Contractor's Activities as a Non-Conformance where the Contractor's Activities are not compliant with the Contract Documents.
- g) The designation of each Hold Point and Witness Point as either documentation or construction quality is set out in the relevant table of each Master Specification Part.
- h) The Principal's approval of a Hold Point or endorsement of a Witness Point does not relieve the Contractor of responsibility for satisfactory execution or performance of the Contractor's Activities in accordance with the Contract Documents.

7.2 Hold Point and Witness Points relating to documentation

7.2.1 General

This section 7.2 only applies for Hold Points and Witness Points that are not related to construction quality inspections, and includes all Hold Points and Witness Points related to:

- a) Project Plans;
- b) Design Documentation;
- c) Construction Documentation;
- d) reports;
- e) other documentation submissions including those designated as "documentation" in the relevant Hold Point and Witness Point tables in each Master Specification Part;
- f) Design Departures;
- g) System Non-Conformance Reports; and
- h) Non-Conformance Reports.

7.2.2 Submission

- a) The Contractor must submit all documents identified as a Hold Point or Witness Point that are not related to construction quality inspections for review to the Principal, the Independent Design Certifier and Construction Verifier (where relevant and as applicable) and any other nominated parties.
- b) For each submitted document identified in section 7.2.2a), the Contractor must provide:
 - i) details of the document, including its nature and the relevant Hold Point or Witness Point (as applicable) to which the submission relates; and
 - ii) any other information that is required by the Contract Documents or that is otherwise necessary for the review of the document.

7.2.3 Further information

The Contractor must, as soon as possible upon request by any reviewing party:

- a) submit any further information, data or documents;
- b) make available appropriately qualified personnel to explain the documentation; and

- c) provide access to the Contractor's records,
that the reviewing party reasonably requires in order to review and respond to the relevant document.

7.2.4 Review of documentation

- a) The Contractor must submit any nominated review party comments or provide confirmation that no comments have been received, to the Principal, Independent Design Certifier (as applicable) and the Construction Verifier (as applicable) within the time periods set out in section 7.2.5.
- b) For a Hold Point that does not relate to construction quality inspections, the Principal must review the submitted document within the review period in accordance with section 7.2.5 and either:
 - i) release the Hold Point;
 - ii) provide comments on the submitted document; or
 - iii) for Design Documentation, release the Hold Point with conditions in accordance with PC-EDM1 "Design Management".
- c) For a Witness Point not related to construction quality inspections, the Principal may review the submitted document within the review period in accordance with section 7.2.5 and either:
 - i) release the Witness Point;
 - ii) provide comments on the submitted document; or
 - iii) neither release the Witness Point nor provide comment.
- d) Where comments (excluding where conditions have been provided in accordance with section 7.2.4b)iii)) have been provided on the submitted document in accordance with sections 7.2.4b) or 7.2.4c), the Contractor must resubmit the document in accordance with section 7.2.2 and the requirements of sections 7.2.2, 7.2.3, 7.2.4 and 7.2.5 will reapply for the submitted document.
- e) The Contractor may proceed beyond the Witness Point not related to construction quality inspections where the Principal has neither released the Witness Point nor provided comment within the applicable review period required by section 7.2.5.

7.2.5 Review period

The review period after the date that all the relevant details and information from the Contractor in accordance with section 7.1a) and 7.2.3 has been received, that applies for the Principal for the relevant Hold Point or Witness Point related to documentation is:

- a) where the period is nominated in the Hold Point or Witness Point table (as applicable), as set out in the relevant Master Specification Part:
 - i) that period (or where a relevant Third Party Agreement exists such longer period as contemplated by the relevant Third Party Agreement plus an additional 3 Business Days); and
 - ii) where no period is specified for the Principal, as a minimum the Principal will have an additional 3 Business Days following any other parties' review period;
- b) where a period of 'as required' is expressly specified, no time limit will apply; or
- c) where no period is expressly specified in the Hold Point or Witness Point table (as applicable) in the relevant Master Specification Part, then 10 Business Days (or where a relevant Third Party Agreement exists such longer period as contemplated by a relevant Third Party Agreement plus an additional 3 Business Days).

7.3 Hold Points and Witness Points relating to construction quality inspections

7.3.1 General

- a) This section 7.3 only applies for construction quality inspection related Hold Points and Witness Points and excludes all Hold Points and Witness Points related to documentation covered in section 7.2.
- b) An updated schedule or program of all construction quality inspection Hold Points and Witness Points to be implemented in the following fortnight must be submitted to the Principal and the Construction Verifier (where relevant) each week.

7.3.2 Notification

- a) The Contractor must notify the Principal, the Construction Verifier (where relevant) and any other nominated parties that a construction quality related Hold Point or Witness Point is reached in accordance with section 7.1a), including ensuring that the Contractor has inspected the Works and determined that the Works are in accordance with the Contract Documents prior to the notification.
- b) The notification period after the date that all the relevant details and information from the Contractor in accordance with section 7.1a) has been received, for the relevant party that applies for the relevant Hold Point or Witness Point related to construction quality is the reasonable time for travel in addition to:
 - i) where the period is nominated in the Hold Point or Witness Point table (as applicable), as set out in the relevant Master Specification Part, that period; and
 - ii) where no period is expressly specified in the Hold Point or Witness Point table (as applicable), as set out in the relevant Master Specification Part, then 1 Business Day.
- c) Where the requirements of section 7.1a) are not met at the time of the relevant Hold Point or Witness Point (as applicable) notification in accordance with section 7.3.2b), the notification requirements in accordance with this section 7.3.2 will reapply to the relevant Hold Point or Witness Point (as applicable).

7.3.3 Inspection and release of Hold Points and Witness Points relating to construction quality inspections

- a) Where a Construction Verifier is engaged and required to attend a Hold Point or Witness Point (as applicable) in accordance with PC-EDM4 "Construction Verification":
 - i) for a Hold Point, the Principal must, within one Business Day of receipt of the Construction Verifier's recommendation in accordance PC-EDM4 "Construction Verification", either:
 - A. release the Hold Point; or
 - B. advise the Contractor why the Hold Point cannot be released, and what may be required to enable the Hold Point to be released; and
 - ii) for a Witness Point, the Principal may within one Business Day of receipt of the Construction Verifier's recommendation in accordance with PC-EDM4 "Construction Verification", either:
 - A. release the Witness Point;
 - B. advise the Contractor why the Witness Point cannot be released, and what may be required to enable the Witness Point to be released; or
 - C. neither release the Witness Point nor provide comment.
- b) Where a Construction Verifier is not engaged:

- i) for a Hold Point, the Principal must, attend to the release at the notified inspection time in accordance with section 7.3.2, and either:
 - A. release the Hold Point; or
 - B. advise the Contractor why the Hold Point cannot be released, and what may be required to enable the Hold Point to be released; and
- ii) for a Witness Point, the Principal may attend to the release at the notified inspection time in accordance with section 7.3.2, and either:
 - A. release the Witness Point;
 - B. advise the Contractor why the Witness Point cannot be released, and what may be required to enable the Witness Point to be released; or
 - C. neither release the Witness Point nor provide comment.
- c) Where the Contractor has been advised that the Hold Point or Witness Point (as applicable) has not been released in accordance with this Master Specification Part the Contractor must re-notify the review parties in accordance with section 7.3.2 and this section 7.3 will reapply.
- d) The Contractor may proceed beyond the Witness Point related to construction quality where the Principal has not released a Witness Point and not provided comment within the applicable review period required by this section 7.3.

8 Provision and production of the Works

8.1 General

The Contractor must implement the procedures, processes, systems, tests, inspections, analysis, sampling, acceptance criteria and resources to provide, produce and complete the Works in accordance with the Contract Documents.

8.2 Design and development services

8.2.1 General

Where the Contract Documents include a design component (excluding standalone spray seal design or Temporary Works):

- a) the Contractor must apply its engineering and design management processes and controls to ensure the design deliverables achieve the requirements of the Contract Documents;
- b) the Contractor must ensure that the Designer reviews and verifies the Design Documentation developed in accordance with PC-EDM1 "Design Management" to ensure compliance with the Contract Documents, independent of the Independent Design Certification; and
- c) the Contractor must undertake verification to check and ensure the Design Documentation complies with the Contract Documents, including provision of independent verification and certification in accordance with PC-EDM3 "Independent Design Certification".

8.2.2 Endorsement of validation activities within Inspection and Test Plans

- a) The Contractor must ensure that the Designer reviews and endorses the proposed validation activities detailed in the Inspection and Test Plans to ensure the resulting product and completed Works comply with the Contract Documents and achieve the design intent.
- b) Endorsement by the Designer of the Inspection and Test Plans in accordance with section 6.5c)viii) must be included with the relevant Construction Documentation submission in accordance with PC-CN3 "Construction Management".

8.2.3 Changes to the IFC Design Documentation

Any proposed change to Issued for Construction Design Documentation must be accepted and endorsed by the Designer and the Independent Design Certifier (as applicable) in accordance with PC-EDM1 "Design Management".

8.3 Control of monitoring, testing and measuring devices

8.3.1 General

- a) Sampling and verification testing of Works and products must be conducted by laboratories appropriately accredited by NATA.
- b) The NATA accredited laboratories utilised for sampling and verification testing of Works and products must utilise Department Test Procedures and Reference Documents referred to in the Contract Documents.
- c) The Contractor must use the test methods and procedures for verification testing set out in the Contract Documents, including the Reference Documents.

8.3.2 Inspection, measuring and test equipment

- a) The Contractor must maintain a schedule of calibrated inspection, measuring and test equipment to be used for the Works, which must include the date of last calibration and next due calibration.
- b) Where an item is calibrated or recalibrated during the carrying out of the Works, the Contractor must submit:
 - i) advice of the results;
 - ii) details of any adjustments made to the equipment; and
 - iii) the effects any adjustments have had on work completed since the previous calibration, which will constitute a **Witness Point**.
- c) Inspection, measuring and test equipment must be capable of producing the degree of accuracy specified in the Contract Documents, including the Reference Documents and all applicable industry standards.
- d) All inspection, measuring and test equipment must have a self-adhesive calibration identification label which clearly identifies the serial number of the equipment, the date when calibrated and the expiry date of the calibration.

8.4 Inspections and testing

8.4.1 General

- a) The Contractor must utilise the Inspection and Test Plans to validate all Works, and to demonstrate the completed Works comply with the Contract Documents.
- b) The Contractor must manage the implementation of Subcontractors' Inspection and Test Plans to validate the Works. For the avoidance of doubt all Subcontractor Inspection and Test Plans must comply with the requirements in this Master Specification Part, including section 6.5.
- c) The inspection, test and verification Quality Management Records, including completed Inspection and Test Plans and ITP Forms for each Work Lot must:
 - i) clearly complete the information on the Work Lot and testing as detailed in the ITP;
 - ii) clearly identify the actual results obtained from any inspection and test;
 - iii) demonstrate conformity with the specified requirements; and
 - iv) demonstrate the control of any Non-Conformance is addressed.

- d) Quality Management Records, including ITPs must be progressively maintained and updated as results of the inspection and testing are achieved.
- e) Quality Management Records, including ITPs must be available at all times, including on site for review and evaluation by the Principal and where applicable the Construction Verifier.
- f) All samples taken must be registered in a sample register.
- g) Where a sample has been taken but not tested, the reason why must be recorded in the sample register.

8.4.2 Location and storage of inspection and test records

An electronic copy of Quality Management Records for all Works must be accessible to the Principal and where applicable the Construction Verifier at all times and in accordance with PC-EDM5 "Digital Engineering" (where applicable).

8.5 Close out of Work Lots

- a) Where the Works fail to pass any inspection, testing, commissioning, sampling or analysis activity, the Work Lot must not be closed out until the Non-Conformance has been rectified and closed out in accordance with the Contract Documents.
- b) Subject to section 8.5c), Works must not be covered up before the associated Work Lot is closed out in accordance with section 8.5d).
- c) Where the Contractor is required to undertake compliance testing that is likely to take over 48 hours to complete and the Contractor proposes to cover up Works before the associated Work Lot is closed out in accordance with section 8.5d), the Contractor must submit the following information which will constitute a **Witness Point**:
 - i) the anticipated timing to obtain compliance testing results;
 - ii) a documented method detailing how the Works that are proposed to be covered up will be identified, traced, recorded and promptly verified;
 - iii) a description of remedial action or re-work that will be undertaken if compliance with the Contract Documents is not achieved;
 - iv) demonstrated evidence (on the basis of past work) that the risk (including probability and consequence) of the failure of the Works is low; and
 - v) details of the closure method to close out the Work Lot after verifying the Works are compliant.
- d) Work Lots must not be closed out and the product not released or used until:
 - i) the Contractor makes available to the Principal and the Construction Verifier completed records for the Work Lot and demonstrates evidence that the Work Lot is compliant;
 - ii) the Construction Quality Representative has reviewed the relevant Work Lot and associated Quality Management Records and has included written confirmation in the relevant Work Lot that the Work Lot complies with the requirements of the Contract Documents; and
 - iii) it is demonstrated that all relevant applicable Hold Points and Witness Points for the Work Lot have been released in accordance with the Contract Documents.

9 Control of Non-Conformances

9.1 General

- a) The Contractor must identify and control all instances of the Works and Applicable Temporary Works not fulfilling a Contract Document requirement, including all Works that fail to achieve

- the requirements of AS/NZS ISO 9001 Quality Management Systems - Requirements, acceptance criteria in any inspection, test or audit (**Non-Conformance**).
- b) Where a Non-Conformance is identified by the Contractor, the Contractor must submit a Non-Conformance Notice to the Principal and where applicable the Construction Verifier within one Business Day of the Non-Conformance being identified.
 - c) Where a Non-Conformance is identified by the Principal or the Construction Verifier, a Corrective Action Request will be issued to the Contractor in accordance with section 9.3, and the Contractor must subsequently issue a Non-Conformance Notice to the Principal and Construction Verifier within one Business Day following receipt of the Corrective Action Request.
 - d) The Non-Conformance Notice issued in accordance with sections 9.1b) or 9.1c) must comply with the Quality Management System and include:
 - i) a description and details of the Non-Conformance;
 - ii) information of the non-conforming Work Lot; and
 - iii) any potential impact on and the ability of the Contractor to:
 - A. comply with its obligation to warrant the Works; and
 - B. comply with Approvals.
 - e) The Non-Conformance Report must:
 - i) be submitted to the Principal and where applicable the Construction Verifier for each Non-Conformance;
 - ii) comply with the Quality Management System;
 - iii) be submitted as soon as reasonably practical; and
 - iv) include:
 - A. the impact on and the ability of the Contractor to:
 - I. comply with its obligation to warrant that the Works will be fit for their intended purposes; and
 - II. comply with Approvals;
 - B. information of the non-conforming Work Lot;
 - C. a description and details of the Non-Conformance;
 - D. relevant Quality Management Records, including inspection, test records and calculations (as applicable);
 - E. the proposed remediation actions, methods and concessions (as applicable);
 - F. where requested by the Principal, a review and analysis of the cause of the Non-Conformance in accordance with section 9.1f);
 - G. details of any impact to maintenance and operational outcomes;
 - H. where requested by the Principal, an assessment detailing the impact on whole of life costs;
 - I. where the disposition of a Non-Conformance Report proposes a dispensation to a design standard, the Design Departure process in accordance with PC-EDM1 "Design Management" must be followed and the accepted Design Departure Application must be included;
 - J. the Designer endorsement in accordance with section 9.2 (where applicable);
 - K. the relevant Third Party approval of the Works; and

- L. evidence that the agreed Engineering Authority has accepted the proposed action, method or concession in accordance with section 4.2.
- f) The Contractor must review and analyse the cause of all Non-Conformances and develop a plan of corrective actions to minimise the likelihood of recurrence, which must be provided to the Principal upon request with the Non-Conformance Report submitted in accordance with section 9.1e).
- g) The Non-Conformance Report to be submitted in accordance with section 9.1e) will constitute a **Hold Point**.
- h) Where a Non-Conformance has been identified in accordance with sections 9.1b) or 9.1c), the Contractor must not proceed with any rectification work, covering up of non-conforming Works or any subsequent Works until the proposed Non-Conformance Report Hold Point in accordance with section 9.1g) has been released.

9.2 Designer endorsement of Non-Conformance Reports

Unless:

- a) otherwise agreed with the Principal; or
- b) not required as set out in the Design Management Plan,

the Contractor must ensure that the Designer reviews, accepts and endorses all proposed Non-Conformance Reports prior to submission in accordance with section 9.1e).

9.3 Corrective Action Requests

- a) In the event of a Non-Conformance being observed by the Principal or, where applicable the Construction Verifier, and the Contractor fails to provide a Non-Conformance Notice the Principal may and the Construction Verifier must issue a Corrective Action Request to the Contractor.
- b) The Contractor must address each Corrective Action Request in accordance with AS/NZS ISO 9001 - Quality Management Systems - Requirements and the Quality Management System.

9.4 Acceptance of Non-Conformances

- a) Following the release of the Hold Point in accordance with section 9.1g) all required rectification Works related to the Non-Conformance Report will remain subject to the requirements of the Contract Documents, including where applicable any delegated authority to the Construction Verifier.
- b) Following rectification of the Non-Conformance, a **Hold Point** will apply. The Contractor must not proceed with any Works that may cover up the rectification until this Hold Point has been released.

10 Control of System Non-Conformances

10.1 General

- a) This section 10 does not apply to any activities that can be classified as Design Departures, Defects or Non-Conformances.
- b) The Contractor must identify and control all Contractor's Activities that fail to achieve the requirements of the Contract Documents, including those that fail to achieve the requirements of AS / NZS ISO 9001 Quality Management Systems - Requirements (**System Non-Conformance**).
- c) Where a System Non-Conformance is identified by the Contractor, the Contractor must submit a System Non-Conformance Notice to the Principal and where applicable the Construction Verifier within 2 Business Days of the System Non-Conformance being identified.

- d) Where a System Non-Conformance is identified by the Principal or where applicable the Construction Verifier, a Corrective Action Request will be issued to the Contractor in accordance with section 10.2, and the Contractor must subsequently issue a System Non-Conformance Notice to the Principal and Construction Verifier within 2 Business Days following receipt of the Corrective Action Request.
- e) The System Non-Conformance Notice issued in accordance with sections 10.1c) or 10.1d) must comply with the Quality Management System and include:
 - i) a description and details of the System Non-Conformance; and
 - ii) the impact on and the ability of the Contractor to:
 - A. comply with its obligation to warrant that the Works will be fit for their intended purposes of the Works described in, or reasonably inferred from the Contract Documents; and
 - B. comply with Approvals.
- f) Each System Non-Conformance Report must:
 - i) be submitted to the Principal and where applicable the Construction Verifier for each System Non-Conformance;
 - ii) comply with the Quality Management System;
 - iii) be submitted in a timely manner in accordance with Best Industry Practice; and
 - iv) include:
 - A. the impact on and the ability of the Contractor to:
 - I. comply with its obligation to warrant that the Works will be fit for their intended purposes; and
 - II. comply with Approvals;
 - B. a description and details of the System Non-Conformance;
 - C. details of how the System Non-Conformance is being addressed together with, if relevant to the System Non-Conformance, an assessment of the risks associated with the relevant requirement not being complied with;
 - D. the proposed remediation actions, methods and concessions (as applicable); and
 - E. a review and analysis of the cause of the System Non-Conformance in accordance with section 10.1g).
- g) The Contractor must review and analyse the cause of all System Non-Conformances and develop a plan of corrective actions to minimise the likelihood of recurrence, which must be included with the System Non-Conformance Report submitted in accordance with section 10.1f).

10.2 Corrective Action Request

- a) In the event of a System Non-Conformance being identified by the Principal or the Construction Verifier, the Principal may and the Construction Verifier must issue a Corrective Action Request to the Contractor.
- b) The Contractor must address each Corrective Action Request in accordance with AS/NZS ISO 9001 - Quality Management Systems - Requirements and the Quality Management System.

10.3 Acceptance of System Non-Conformance

The System Non-Conformance Report submission in accordance with section 10.1g) will constitute a **Hold Point**.

11 Performance evaluation and improvement

11.1 General

- a) The Contractor must undertake a performance evaluation which checks compliance of the Contractor's Activities in accordance with the Quality Management System and the requirements of AS/NZS ISO 9001 Quality Management Systems - Requirements.
- b) The Contractor must establish and maintain a corrective and preventative action register that records a summary of actions undertaken to eliminate, minimise and manage the development of conditions adverse to quality outcomes in the Contractor's Activities.

11.2 Improvement

- a) The Contractor must provide to the Principal any lessons learnt to be applied to future projects and the Contractor's Activities in accordance with PC-PM1 "Project Management and Reporting".
- b) The Contractor must provide the corrective and preventative action register to the Principal, which will constitute a **Witness Point**.

11.3 Audits

- a) The Contractor must undertake internal audits of the Contractor's Activities at planned intervals to provide information on the effective implementation and maintenance of the Quality Management System.
- b) The intervals of internal audits must be in accordance with the Quality Management System.
- c) The Contractor must provide outcomes of all Contractor's internal audits to the Principal and where applicable the Construction Verifier, within the following time periods post completion of the audit, which will constitute a **Witness Point**:
 - i) an initial audit report within 2 Business Days;
 - ii) notification of all Non-Conformances associated with the audit in accordance with sections 9 and 10; and
 - iii) the final audit report within 5 Business Days.

11.4 Management review

The Contractor's corporate management must review the implementation of the Project Quality Plan in accordance with the Quality Management System and AS/NZS ISO 9001 Quality Management Systems - Requirements.

11.5 Construction Quality Representative review

- a) The Construction Quality Representative must undertake ongoing evaluations and review the performance of the project team and Subcontractors.
- b) The Construction Quality Representative must review Quality Management Records for compliance with the Contract Documents and endorse each record within 3 Business Days of that record being completed.

12 Hold Points and Witness Points

- a) Table PC-QA1B 12-1 details the review period or notification period, and type (documentation or construction quality) for each Hold Point referenced in this Master Specification Part.
- b) Table PC-QA1B 12-2 details the review period or notification period, and type (documentation or construction quality) for each Witness Point referenced in this Master Specification Part.

Table PC-QA1B 12-1 Hold Points

Section reference	Hold Point	Documentation or construction quality	Review period or notification period
4.2b)	Proposed Engineering Authority for each relevant asset	Documentation	10 Business Days review
6.6c)	Reduced minimum frequency of testing or inspections	Documentation	5 Business Days review
9.1g)	Non-Conformance Report	Documentation	10 Business Days review
9.4b)	Rectification of Non-Conformance	Construction quality	10 days notification
10.3	System Non-Conformance Report	Documentation	10 Business Days review

Table PC-QA1B 12-2 Witness Points

Section reference	Witness Point	Documentation or construction quality	Review period or notification period
6.4.1e)	Work Lot Register	Documentation	10 Business Days review
8.3.2b)	Calibrated or recalibrated inspection, measuring and test equipment records	Documentation	10 Business Days review
8.5c)	Documentation proposing covering up Works before the associated Work Lot is closed out	Documentation	10 Business Days review
11.2b)	Corrective and preventative action register	Documentation	10 Business Days review
11.3c)	Outcomes of the Contractor's internal audits	Documentation	10 Business Days review