

Z01-A: 2024

Maintenance Contract Quality Management Specification

1. Scope

- a. This Specification sets out the requirements for quality management on maintenance contracts.
- b. Section 6 of this Specification applies to quality planning and management of rehabilitation or renewal works.
- c. Section 7 of this Specification applies to quality planning and management of asset replacement and repair works.
- d. Section 8 of this Specification applies to routine maintenance activities.

1.1 Quality Management Planning Levels

	Contract Works Levels	Quality Management Planning
1	Main contract	QMP + RQP + ITPs + Check lists
2	Planned works (Renewals and Rehabs)	RQP + ITPs + Check lists
3	Asset replacements and repairs	WMS + ITPs + Check lists
4	Routine maintenance activities	WMS + Check lists

2. Referenced Documents

The following documents are referenced in this Specification:

Reference	Title
AS/NZS ISO 9001	Quality Management Systems – Requirements
NZTA Z08	Standard for Inspection, Sampling and Testing

3. Definitions

In addition to the definitions set out in the head contract and AS/NZS ISO 9000 (unless amended by this Specification), the definitions listed below apply to this Specification:

Term	Definition
Checklist	A form used to confirm that agreed inspections and tests have been completed and the work has met the specified requirements.
Contractor's Quality Manager	A Quality Manager appointed to act independently of day-to-day delivery activities and to ensure that the requirements of the quality management plan (QMP) are implemented and maintained.
Contractor Quality Supervisor	Quality Supervisors are nominated by the Contractor and authorised to sign off in-process and final inspections as being complete. They may fill other roles in the delivery of the works, but will be trained in the verification of works and will be accountable for the accuracy of the records they create. Nominations are subject to a review by the CA of their training in works verification.
Hold Point	A checkpoint in the construction process beyond which work cannot proceed until conformance with specified requirements has been verified and the hold point has been released by a person with the necessary authority. Usually applies to verification of critical aspects that cannot be inspected or easily corrected at a later stage in the process (e.g. because they will no longer be accessible).
Inspection and Test Plan(s) (ITP)	The Contractor's detailed plans for inspection and testing of the Physical Contract Works aimed at verifying and confirming with evidence to the

	Principal that the Contract has been delivered and are compliant with the contractually specified requirements.
Non-compliance	Deviating from doing what is necessary to meet a specified (typically regulatory) requirement, obligation, or policy.
Non-conformance reports (NCR)	A document (report) that identifies and records discrepancies between the actual condition of a product or service and specified requirements, or the deviation from a process or procedure. NCRs include the cause, impact and agreed remedial action. NCRs are raised not only when specified requirements are not met for completed works, but also during construction where a process failed to achieve the specified outcome.
Quality Advisor	<p>The Quality Advisor that may be appointed and approved by the Principal to assist the Independent Certifier and Contract Administrator. The Quality Advisor is dedicated to construction monitoring and quality assurance so as to ensure conformance to Standards and Specifications.</p> <p><i>Note: This person does not replace the Contractor's Quality Manager, Project Engineer or team and therefore does not relieve the Contractor from their accountability towards quality management, assurance and control of the works it has been contracted to carry out.</i></p>
Quality File	A repository of indexed quality records in a format that allows access to interested parties and retained after project completion for a defined period.
Random verification testing (RVT)	Random verification tests are carried out by an independent party in addition to what is required by the ITP. RVT is risk-based and carried out to confirm inspection and test results or where areas of concern are identified.
Work Method Statement (WMS)	A description of the way an activity or task will be carried out, allocation of appropriate resource, plant and materials, and a description of the process steps followed, combining those factors to produce the specified end result.

4. General

- The Contractor is accountable completing all work in the Contract to the specified standards.
- The Contractor must establish, implement and maintain a Quality Management System in accordance with the requirements of AS/NZS ISO 9001 and this Specification.
- The Contractor's Quality Management System may be integrated with other management systems.
- The Contractor shall work collaboratively with the Principal to deliver the required quality.
- The Principal is not required to make payment for work unless the work which is the subject of the payment claim has been executed in accordance with the requirements of this and other Specifications and evidenced by the required quality records.

5. Quality Management Plan (QMP)

5.1 General

- The Contractor shall prepare and implement a contract-specific Quality Management Plan (QMP).
- The Contractor shall submit the QMP to the Principal for acceptance prior to the commencement of works.

- c. The Contractor shall maintain, periodically review and update the QMP during the Contract to keep it current and incorporate improvements and lessons learned.
- d. The Contractors QMP shall describe the steps that the Contractor will follow in the delivery of the maintenance and operations activities and works and demonstrate conformance with the Contract requirements. The Principal requires assurance that all activities delivered as works under the Contract meet the specified standards.
- e. The QMP shall as a minimum address the quality management activities and requirements set out below, and be subdivided into and cover the following elements:
 - Lead and Direct Quality
 - Enable the Delivery of Quality
 - Quality Delivery
 - Measure, Analyse and Improve Quality

5.2 Lead and Direct Quality

- a. Define the overarching quality policy and specific quality objectives for the Contract, and how these will be delivered to achieve Contract outcomes.
- b. Set-out the approach and framework for measuring and reporting on performance and compliance to specification requirements.
- c. Manage risk or uncertainty of not achieving specified requirements for the Contract Works.
- d. Conduct Quality Management Reviews at least annually on results from quality assurance and control activities, including internal reviews, contract reviews, management system audits, and performance against Quality objectives.
- e. Establish a systematic and measurable process of independent monitoring and reporting on quality assurance and control.

5.3 Enable the Delivery of Quality

5.3.1 Quality Management Systems

- a. Address quality risks when detailing the systems, processes, procedures, plans, methods, software and equipment to be used by the Contractor, their sub-contractors, and suppliers to deliver the Contract.
- b. Provide procedures describing practices for works undertaken to ensure conformance, including but not limited to operations, maintenance, physical works and network and asset management, and include the following:
 - site-specific Renewal/Rehabilitation Quality Plans (RQP), using the relevant Principal supplied template, for each season's pavement renewals and resurfacing activities with site specific level consideration detailed for the programme to be delivered.
 - conformance assurance of works carried out by themselves, subcontractors and service providers.
 - lessons learned from the above-mentioned processes are reflected back into the QMP.
 - administration processes and procedures for measuring, monitoring and tracking against performance metrics.
 - handover process for records and data post construction, including handover from the Contractor's subcontractors, and service providers.
- c. Establish and continuously maintain a suitable Quality File, with relevant records required under the quality management system (including but not restricted to register for non-conformance and

opportunities for improvement actions, management system quality records, internal audits, Random Verification Testing results, subcontractor, Quality Advisor reviews, Principal's audits and reviews).

- d. Utilise a system for assuring data is collected and maintained to demonstrate conformance with the specified requirements and to allow effective and efficient asset management decision making.
- e. Develop procedures for document control, including Principal review and approval.

5.3.2 Data Quality Management

The Contractor shall establish a procedure for using the Principal's AWM system (FWP and maintenance activities inclusive) to maintain asset registers accurately throughout the Contract period.

The Contractor's procedure shall as a minimum address the following:

- a. The key personnel responsible for managing road asset information, with evidence that the minimum training requirements have been met and will be maintained throughout the Contract Period.
- b. The process that will be used to update the asset registers.
- c. How the quality of data (accuracy and completeness) will be assured prior to entry into the Principal's Asset Registers.
- d. The equipment and technology that will be used to collect and manage asset data (such as GPS equipment and mobile computers) in accordance with the minimum data requirements and data accuracy requirements specified in State Highway Database Operations Manual (SM050).
- e. The scope and frequency of self-data-auditing and corrective measures that will be in place to ensure up-to-date and accurate asset registers.
- f. The performance-monitoring system, including a monthly report on errors, omissions and corrective actions.
- g. The process for reconciliation between the assets that are added, changed or removed within the Network, and the corresponding changes to the asset register.
- h. The improvement and implementation process to be applied to the overall management of asset data.

5.3.3 Roles & Responsibilities

- a. Clearly define roles, responsibilities and authorities for staff involved in specific quality management, internal and external, and authorities of personnel involved in the Contract.
- b. Implement and manage ongoing staff training in systems, procedures, plans, methods, standards, guidelines, and equipment that can impact delivery of the Contract.
- c. The appointed Quality Manager shall act independently of day-to-day activities and to ensure that the requirements of the QMP are implemented and maintained.
- d. Quality Supervisors shall be nominated by the Contractor to verify that the physical works have been completed to the specified standards and who are authorised to sign off in-process and final inspections as being complete. Their nomination is subject to a review of their training in works verification by the CA. Quality Supervisors may fill other roles in the delivery of the works, but will be trained in the verification of works and will be accountable for the accuracy of the records they create.
- e. Determine the skills, training, experience, and competency required for each role and resource and equip the project accordingly to achieve planned quality outcomes.

5.3.4 Meet and Collaborate

- a. Meet and collaborate regularly on quality matters. The agenda and schedule shall be agreed with the Principal, as well as reporting requirements for the parties involved to serve as input into these meetings. Quality meetings are to be held at least monthly and minutes to be kept.
- b. Involve representative personnel in meetings to promote better collaboration between all involved parties.
- c. Discuss current contract performance with regards to quality objectives.
- d. Identify risks to achieving quality outcomes and measures implemented or needed to control these risks.
- e. Focussed meetings are to be held to discuss significant quality incidents.
- f. Include quality topics during daily prestart meetings.

5.4 Quality Delivery

5.4.1 Quality Planning and Delivery

- a. Implement and manage quality assurance of physical work activities, including both maintenance and asset renewal works, from site investigation and through planning and programming to construction and post construction monitoring:
 - Review and comment on design constructability.
 - Describe how the quality requirements are made available at the location of the actual works and in a format accessible for the people undertaking the works.
 - Implement the RQP's for pavement rehabilitation and renewals for resurfacing activities with site specific level consideration detailed for the programme to be delivered. Details of these plans are described in Section 6.
 - Monitor and manage the Network defect programme and progress of works.
 - Carry out site investigations and failure mode analyses, where required, to inform the design process.
 - Monitor the conformance of proposed materials and confirm conformance to requirements in advance of delivery to site.
 - Provide assurance of works carried out by the contractor, subcontractors and service providers, including audits against a schedule agreed with the Principal.
 - Raise, manage and close out Non-Conformance Reports (NCR) as described in paragraph 5.7.1 of this document.
 - Undertake continual improvement of the systems and processes from lessons learned, NCR's, audits, reviews and other quality information.
 - Undertake handover of records and data post construction, including handover from subcontractors and service providers.
- b. Deliver the Contract Works on time, in accordance with the agreed programme and specified requirements, including but not limited to progressive hand over of completed deliverables as specified.
- c. Undertake the compilation, review and approval of construction stage planning including but not limited to, issuing of approved for construction documentation, construction methodology, work instructions, best practice guidelines, ITP's, check sheets and verification methods and how they comply with the requirements of the contract documents.

5.4.2 Inspection and Testing

Inspection and testing of the physical works by the Contractor shall be in accordance with specifications, carried out by competent personnel (approved by the Contract Administrator), and shall include, as appropriate, IANZ Accredited test results and the conformance assessment thereof:

- Where specified the Contract Administrator is to release Hold Points as part of ITP's.
- All material and construction test records, including test reports from IANZ accredited testing laboratories, shall be made available to the Contract Administrator or their representative immediately as they become available, for review prior or during construction.

5.4.3 Material Traceability and Preservation

The Contractor shall:

- a. Provide procedures and methods, for supply, handling, delivery, storage and use of materials needed to demonstrate conformance with specified requirements.
- b. Provide consent approvals and records for both sourcing and disposal of material, where appropriate.
- c. All warranties shall be in favour of the Principal, where and when applicable.
- d. All material used during construction shall be traceable to evidence of conformance held on the Quality File.

5.4.4 Change Management

Describe the process for managing changes such as:

- *Changes to organisational structures or contractual requirements.*
- *Client induced changes to designs.*
- *Changes to construction methodology not meeting specified outcomes.*
- *Changes to the quality management system or quality management plan as action to audit findings.*

5.4.5 Reporting

- a. Quality reporting shall be included into monthly contract management reports and should as a minimum cover:
 - A summary of inspection and test results for the reporting period and should include both pass and fail test results.
 - Quality results from independent Random Verification Tests (RVT).
 - A summary of the cause and impact of NCR's raised during the reporting period, as well as a status report on the NCR register in terms of open, outstanding and closed reports (time to close-out NCR's).
 - A summary of the reason and impact of RFI's raised during the reporting period, as well as a status report on the RFI register in terms of open, outstanding and closed reports.
 - A summary of Notices to Contractor / Contract Administrator raised during the reporting period.
 - Report on improvement initiatives.
 - Report on ongoing contract performance against the specified contract requirements.
 - Report on the status of quality risks.
 - General condition of work sites.

- b. Verification of construction assumptions, calculations, estimates, drawings, reports and as-built documentation, including AWM;
- c. Report on external audit and review results.
- d. Conduct and report on internal audit and review results with the purpose of confirming adequacy of quality management system and processes, with specific focus on:
 - Construction work component planning
 - Inspection and testing
 - Material conformance
 - The completeness of quality records and verification of conformance
 - Adherence to the quality system and construction processes.
 - Document control.
 - Change management.
- e. Implement and manage processes and procedures specifically for managing Post-Construction reporting outcomes

5.5 Measure, Analyse and Improve Quality

The Contractor shall:

- a. Collect, analyse and review quality information generated during the Contract, and report on these for discussion at Quality meetings.
- b. Pursue improvement opportunities to Contract Works and the QMP.

5.5.1 Managing Non-Conformances

- a. The QMP shall describe procedures for managing and implementing corrective actions, continuous improvement and lessons learned. This includes drawings issued for construction (IFC) that do not conform to specified requirements.
- b. The QMP shall set out the process for how the Contractor will identify, monitor and report this to the Principal.
- c. All non-conformances shall be recorded, reported to the CA, investigated, remedial action agreed and implemented.
- d. Acceptance of remedial work or acceptance by concession shall be a Hold Point for release by the Principal; See NZTA Z08 – Standard for inspection, sampling and testing, for more detail on requirements to non-conformance to a specification or other compliance requirement.

5.6 Quality Records

- a. Maintain records from all contract specific quality assurance and control activities in a Quality File, to thereby provide explicit, unambiguous evidence demonstrating to the Principal that the quality objectives for the Contract are being met;
- b. Quality records shall accompany payment claims and must accurately demonstrate conformance of the claimed works.
- c. Quality records shall be traceable to material and products used during construction and linked to relevant ITP;
- d. Ensure that quality records are structured, appropriately indexed and accessible to the Principal by way of agreed "Cloud" or "Intranet" based recording system and distribution.

- e. All contracts with IANZ accredited laboratories shall be in favour of the Principal, where and when applicable. In other words, where the Contractor enters into an agreement with the IANZ accredited laboratory, the Principal shall be deemed the 'customer' in terms of ISO/IEC 17025.

5.6.1 Progressive Close-Out and Completion

- a. As soon as the works are completed, the Contractor shall certify the construction records as complete and compliant for each section of work completed.
- b. The Construction Records shall include construction completion certificates and/or producer statements for the specified works.
- c. After completion of the programme of works, the Contractor shall compile and supply to the Principal the following Construction Completion Reports:

Reference	Title
Surfacing Construction Completion Report	Within 2 months of completing the annual resurfacing programme.
Pavement Rehabilitation Construction Completion Report	Within 2 months of the construction of the 1st coat seal.
Chip Seal Post Verification Testing	Within a period of 10 to 15 months after completion of the resurfacing programme, the sealed surfaces shall be assessed in accordance with Transport Agency P/17.
Post-Verification Testing	Within a period of 10 and 15 months after construction, the Principal's pavement deflection and other high-speed data surveys will have been undertaken. A post-construction assessment will be undertaken for use in continuous improvement of the actual design process and verification of value assurance.

- d. The Contractor shall submit, in acceptable digital format all relevant quality and other records together with Construction Completion Reports, as specified in the Contract documents, including but not limited to:
 - quality data,
 - asset information,
 - physical works records (as-builts documents, etc.),
 - forward works programmes,
 - defect liabilities,
 - unresolved issues,
 - special monitoring needs,
 - databases.

6. Renewal/Rehabilitation Quality Plan (RQP)

The Contractor shall prepare an RQP for all renewal or rehabilitation works and other works directed by the Principal. The RQP shall as a minimum address the following activities and requirements:

6.1 RQP Review and Approval

- a. The Contractor's Quality Manager shall develop a project specific RQP, using the templates provided by the Principal.

- b. The Contractor shall submit the RQP for review by the Contract Administrator or their Quality Advisor.
- c. The RQP shall be approved by the person authorised by the Principal prior to works commencement, and available at the place of work to those involved in the works.
- d. Updates to the RQP shall be reviewed and approved as above.

6.2 Project Scope and Overview

The scope of the works covered by the RQP shall clearly define the boundaries of the works, magnitude, construction components or elements, as well as what is out of scope where applicable.

The RQP shall include an overview of the project to provide context of what the works entail. This can include:

- a. Nature, location and terrain situation
- b. Project start and end date
- c. Critical dates, e.g. long lead items
- d. Design outcomes sought:
 - The design report and drawings
 - Design assumptions
 - Material parameters/specifications
 - Construction methodology considerations
- e. Construction components
- f. Other works in the project vicinity to be considered.

6.3 Project Risk Assessment

The Contractor shall conduct a risk assessment applicable to the specific works considering the following risk groups:

- a. Management risk
- b. Construction risk
- c. Quality and other compliance risk
- d. Traffic Management risks
- e. Customer and Stakeholder risk

6.4 Methodology statement

The methodology statement shall be clear on:

- a. Site pre-construction conformance requirements such as material sourcing, plant selection, enabling works, stakeholder communication, site set up, mark-outs, traffic management, and environmental controls.
- b. Any processes required to be qualified pre-construction, such as:
 - layer construction (i.e. plateau tests)
 - stabilisation
 - sealing – spray and chip

- c. The steps in sequence to be followed for executing the works within scope.
- d. Task descriptions to allow the person or crew responsible to accurately carry out the works as planned. Use sketches or diagrams to explain the works where necessary.
- e. Responsibilities for each step or task.
- f. Referring to the design specifications and documentation.
- g. Actions following completion of the works, e.g., site decommissioning, tidying up and records management.

6.5 Resource requirements

The RQP shall outline the resources required to carry out the works, including:

- a. work crew members with the required competency and experience,
- b. subcontractors and material suppliers,
- c. Quality Manager or Engineer independent of day-to-day construction activity,
- d. Competent site supervision,
- e. plant and machinery and the maintenance thereof,
- f. construction material and its delivery to site, including storage and preservation requirements.

Note: Resource allocation shall align with those determined during process qualifications.

6.6 Team briefing

- a. The RQP shall state the format, timing and frequency of team briefings to ensure that those involved in carrying out the works are clear on their roles and responsibilities and objectives to be achieved.
- b. What resources are allocated to the works.
- c. Briefings shall highlight task relevant hazards and risks.
- d. Records of team briefings shall be kept, including names of the attendees.

6.7 Construction review

- a. The RQP shall define construction reviews and refer to all inspection, sampling and testing as defined within the ITP, approved for the project works. The ITP's shall meet the requirements of NZTA Z08: Standard for Inspection, Sampling and Testing.
- b. The ITP's shall cover all the works described in the project scope of works and methodology statement.
- c. The Contractor shall have a plan to review conformance to the project quality plans and quality systems. The RQP shall include all subcontracted works.
- d. The Contractor shall collect, analyse and review quality information generated during the project to ensure conformance and for improvement opportunities.
- e. The Contractor shall develop and implement a system to manage non-conformance to project specifications. This should include both corrective and preventive actions to avoid repeated defective work and agree remediation of defective works.

6.8 Works Close-out and Handover

The RQP shall define the following:

- a. completion requirements to be met before closing-out the project works,
- b. process to be followed to handover completed project works, including check lists,
- c. reports, records and certificates to be handed over to the Principal. The format of these must be agreed with the Principal at the start of the project.
- d. the recipient of the completed project works. Take note that there might be additional works required before being handed over to the Principal or end user.

6.9 Support Documents

Documents in support of the RQP needed for carrying the project works shall be available, and controlled to ensure project works are carried out to the relevant versions of these documents. These typically include but are not limited to:

- Resource consents
- Programme
- Resources plan
- Inspection and Test Plan (Using Principal supplied templates. See Z08 – Standard for inspection, sampling and testing for detail requirements on ITP's.)
- Communication Plan / Works start notice
- Traffic Management Plan
- Erosion and sediment control plan
- Temporary Works
- Permits
- Construction Drawings
- Crew briefing plans

7. Quality Management of Repair and Replacement Work Types

7.1 General

The contractor is responsible for the completion of asset repair and replacement works to the specified requirements.

The contractor shall resource and equip the replacement or repair works as defined in work method statements (WMS) with competent staff, including supervision qualified to carry out inspection and testing.

7.2 Inspection and Test Planning

The Contractor shall develop WMS and ITPs for all replacement and repair work types under the Maintenance Contract. ITPs shall be:

- a. developed for each separate asset repair or replacement work type.
- b. developed in accordance with NZTA Z08 – Standards for inspection, sampling and testing.
- c. Inclusive of processes and standards for the specific work activity.
- d. reviewed and approved by the CA prior to commencement of works.

7.3 Inspection and Testing

The contractor shall ensure inspection and testing is carried out by appropriately qualified staff approved for the role by the CA.

- a. The Contractor shall provide evidence of inspections and tests carried out.
- b. Inspection and test results and signed off check sheets as evidence of compliance with ITP criteria shall be attached to payment claims in the Principal's allocated data management system.

8. Quality Management of Routine Maintenance Activities

8.1 General

The contractor is responsible to oversee that routine maintenance activities are carried out in accordance with the specified requirements.

- a. The Contractor shall develop WMS for the various routine activities for review and approval by the CA.
- b. The work will be initiated by despatch in the Contractor's Maintenance Management System.
- c. The Contractor shall deliver the work in accordance with their WMS and agreed specifications.
- d. The Supervisor shall check that the works have been completed in accordance with the WMS and shall close out the despatch for the works.
- e. Evidence of routine maintenance activity shall be provided to satisfy the minimum requirements as set out in the technical specifications. These shall be attached to the dispatch and made progressively available, and reviewed monthly with payment claims by the CA.