



**mainroads**  
WESTERN AUSTRALIA

# Guidelines Specification Development

FOR CUSTODIANS

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# Document Control

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## 1 SCOPE

The purpose of these Guidelines is to provide the structure for the development of Main Roads Specifications for Major Works Contracts based on AS 2124-1992 General Conditions of Contract.

These Guidelines should be followed by Custodians to ensure that a specification is logical, concise, clear in intent and consistent with other associated specifications.

## 2 REFERENCES

Related documents and procedures to these Guidelines include the following:

- (i) Tender Document Preparation system (TDP) for Major Works
- (ii) AS 2124-1992 General Conditions of Contract (GCC)
- (iii) Special Conditions of Contract (SCC)
- (iv) Contract Administration System (ConTrackS)
- (v) Rural Network Contracts (RNC)
- (vi) Contract Management Process (CMP)

## 3 SPECIFICATION OWNERSHIP AND HIERARCHY

Role	Responsibility
<b>Director, PMO (DPMO)</b>	DPMO is the owner of a specification and is the officer who project manages its issue and use throughout Main Roads. DPMO also approves the amendment of existing specifications following an identified need through audit, technology change, user feedback, corporate policy, etc.
<b>Custodian</b>	Each specification has an appointed Custodian who has responsibility to ensure its ongoing technical correctness and to provide the technical support for the continued maintenance of the specification.
<b>Steward</b>	Each specification has a Steward and he is responsible for managing the specification as a surrogate of the Custodian (i.e. writes the specification).
<b>Specification and Contracts Officer (SCO)</b>	The SCO is the officer who manages the specifications which are located within the TDP. Management may include minor improvements to specifications but excludes any variation to the technical content. The SCO works in close liaison with the Custodians and the Stewards and also manages requests for specification updates/reviews and other changes. The SCO also ensures that all changes to existing and new specifications are reviewed from a construction and contractual perspective.
<b>Project Manager (Users)</b>	The Project Manager is responsible for the content of a specific tender document, such that it is entirely appropriate for the Contractor to undertake the Works and deliver the intent of the project. The Project Manager is the person charged with the responsibility of amending the specifications if necessary in the TDP for incorporation into a contract specific document.

## 4 INTRODUCTION

### 4.1 Tender Document Preparation System

The Specifications are available online through the Tender Document Preparation system (TDP) which can be accessed through the Main Roads website under *Building Roads > Tender Preparation*.

### 4.2 System Overview

Major Works' contract documentation comprises the following main components together with other related documents which are currently arranged in "Books" to form the complete tender document for a specific contract:<sup>1</sup>

#### Book 1 – Tender Submission Document

Book 1 is mandatory for all contracts, and comprises:

- (i) Invitation to Tender
- (ii) Conditions of Tendering and Tender Schedules
- (iii) Schedule of Rates (and/or Bill of Quantities)

#### Book 2 – Conditions of Contract & Management Requirements

Book 2 is mandatory for all contracts, and comprises:

- (i) General Conditions of Contract – currently AS 2124-1992, including a modified Annexure for Parts A and B
- (ii) Special Conditions of Contract
- (iii) 100 Series Specifications – General Requirements
- (iv) 200 Series Specifications – Management Requirements

#### Book 3 – Roadworks Specifications<sup>2</sup>

Book 3 contains relevant specifications selected from the following series:

- (i) 300 to 700 Series Specifications
- (ii) 800 Series Specifications (nominally for bridgeworks, but some 800-series specifications can be applicable to roadworks<sup>3</sup>)
- (iii) 900 Series Specifications

#### Book 4 – Bridges/Major Structures Specifications<sup>4</sup>

Book 4 contains relevant specifications selected from the following series:

- (i) 800 Series Specifications
- (ii) 900 Series Specifications

#### Book 5 – Roadworks Drawings

#### Book 6 – Structures Drawings

#### Book 7 – Standard Drawings

Although the Main Roads website contains most, if not all, standard drawings required for contract works, Book 7 may be used where particular standard drawings are not available elsewhere.

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<sup>1</sup> Refer Part 4.3 below concerning Grouping of Specifications, and to the TDP documentation for details of specification contents.

<sup>2</sup> Size limitations may require more than one book for either Book 3 or Book 4, although double-sided printing is the normal presentation for both books.

<sup>3</sup> If the roadworks contract contains structural elements (e.g. major culverts, floodway crossings, etc.) 800-series specifications are normally required and can be incorporated within Book 3.

<sup>4</sup> If the contract contains roadworks or bridgeworks only, Book 4 (or Book 3 as the case may be) will be designated "Not Used".

### Other Books

These are usually confined to relevant information prepared by the Principal about the site, termed “Information for Tenderers” (IFT), and may include some or all of the following:

- (i) Geotechnical site investigations
- (ii) Materials test data
- (iii) Climatic data
- (iv) Traffic data
- (v) Environmental and Heritage reports and management plans
- (vi) “As Constructed” Drawings from previous related works, or
- (vii) Any other information provided by the Principal

*(Note: Information of this type is prepared by the Project Manager, and although issued with the tender documents, “Information for Tenderers” is for information and guidance only and does not form part of the contract. Consequently, IFT has no designated Book Number. Further details for IFT content and format are contained in the TDP).*

## 4.3 Grouping of Specifications

The Main Roads specifications are divided into sets that feature a structured numbering system to group like parts together.

**Series 100 Specification** – mandatory for ALL contracts, as it contains the scope, background details and general management information relating to all types of contract works.

**Series 200 Specifications** – also mandatory for ALL contracts, and detail the minimum requirements that the contractor must meet for the management of:

- 1. Quality
- 2. Traffic
- 3. Occupational Safety and Health
- 4. Environment
- 5. Sustainability (*Under preparation*)

**Series 300 to 700 Specifications** – typically required for roadworks’ contracts, and are approximately arranged in the same order as would be expected for the construction of the works.

**Series 800 Specifications** – focus on major structural works and are required for bridge/major structure contracts, and in roadworks’ contracts that contain large culverts, floodways, gantries, and similar major structural installations.

**Series 900 Specifications** – refer to various miscellaneous works, including concrete for general use, retaining walls, graffiti control, fencing, etc.

## 5 SPECIFICATION STRUCTURE

### 5.1 General

A good specification:

- 1. is a set of concise accurate technical instructions arranged in a logical order that fully describe the Principal’s requirements;
- 2. is written in plain, unambiguous English, with a simple sentence structure (see also Annexure 3 WORD USE);

3. is normally arranged in the same natural order as would be required in order to achieve the purpose and/or objectives of the specification;
4. is usually the result of extensive engineering experience and/or best practice suited to the needs of roads and bridges in Western Australia;
5. is preferably limited to the “what” and “when” of the contractor’s tasks or obligations, and is the basis of the “End Product” approach which give the contractor the specific requirements of the finished works;
6. can be prescriptive in nature as in a “Method Spec” approach, however specifications providing the “how” of a contractor’s task are open to claim if the situation does not suit the specified construction practices and the contractor cannot meet the requirements;

(Note: Specifications can contain both End Product and Method Specification approaches if this is unavoidable, but care must be exercised that the requirements of one do not conflict with the requirements of the other.)

7. contains End Product and/or Method Specifications that are consistent with any Principal-supplied materials;
8. does **NOT** present obstacles to contractor efficiency and cost-effectiveness;
9. is **NOT** a design guide, and must not include design requirements within the specification. (Exceptions to this are discussed in Part 5.4 of these Guidelines);
10. is **NOT** a discussion paper. The “why”, or reasons for a particular procedure or requirement might make interesting reading, but such inclusions are immaterial to the contractor and should form no part of the specification. In fact, in some cases, such information could even form the basis of a claim for additional costs.

*(Note: Some electrical installation and other complex procedures may benefit from an explanation of intent or purpose to assist an understanding of the installation process. Such explanations are exceptions to the rule and should be minimal in extent.)*

## 5.2 Form

Main Roads specifications are arranged in tabular form with two columns. The wide column on the left-hand side of the page contains the detailed clauses forming the specification, and the narrow column on the right-hand side contains the **keywords** (in ***bold italics***) used to highlight the clauses and aid in the navigation of the specification.

Document styles for font type and size, headings, etc. are pre-set to aid the clear layout of the specification and consistent presentation. A consistent approach for Tables, Graphs, Figures and Diagrams is also required.

Specific details for these requirements and other related features are described in Part 6 of these Guidelines.

## 5.3 Components

The main hierarchy of components for the text of a typical specification is:

1. Sections
2. Clauses
3. Sub-clauses



### 5.3.1 Sections

A section is a major division of the specification comprising a group of clauses with a common purpose or theme. Blocks of numbers are reserved within each section for clauses including spare numbers for future expansion.

There are normally seven “working” or operational sections within a specification (shown with bold headings in the table at Part 5.4), plus other areas for cover page, specification control (Revision Register), contents pages, and specification guidance notes. Other sections could be added to suit a particular need, but this should not be necessary and is not encouraged. A typical example of section layout for a Main Roads specification is shown at Part 5.4.

Each section in a new specification should allow for future expansion by reserving a few clauses at the end of each section with the heading “NOT USED” as agreed by the SCO. For example, if the Section for MATERIALS occupies Clauses 11 to 17, then Clauses 18 to 25 should be reserved and titled “NOT USED”.

### 5.3.2 Clauses

A clause is a distinct step or process addressing a single requirement, or part of a set of requirements with a common purpose. Each clause is uniquely numbered in sequence and has its own title or heading, and is usually broken up into numbered paragraphs, each paragraph representing a discrete requirement or step related to the clause title. A clause may contain one or more sentences, each related to the same point or idea. Several such clauses arranged in a logical sequence constitute a section.

Clause titles should be meaningful and brief, and if possible, contain a maximum of four words only.

Clause numbers have a two-part format, containing the specification number and the relevant number from the table at Part 5.4 depending on the section to which it belongs. Thus, Clause 501.11 is the 11th clause in Specification 501 PAVEMENTS, and is located in the Materials section. The full clause heading is Clause 501.11 plus its clause title, in this case:

**501.11 CEMENT FOR STABILISED PAVEMENTS**

Distinct steps within a clause are numbered sequentially, with each “step” contained within its own “row” in the specification, to give the full clause as follows:

<b>501.11 CEMENT FOR STABILISED PAVEMENTS</b>	
1. Cement for stabilisation of any pavement layer shall comply with the requirements of AS 3972, Type LH. Any sampling and testing of cement shall be in accordance with AS 2350. The cement shall be sufficiently dry to flow freely during application.	<b><i>Cement</i></b>
2. The Contractor shall arrange cement delivery and have on site bulk storage facilities. The Contractor shall be responsible for all arrangements in regard to the transfer of cement between delivery vehicles, on site bulk storage facilities and cement spreaders.	<b><i>Delivery</i></b>

Once established, clause numbers and their corresponding clause titles are permanently linked in a standard specification. If a clause is not needed in some future revision, or is deleted for a particular contract, the clause number remains, and its title becomes “NOT USED”.

**Bullet points shall NOT be used.** Each and every clause (and sub-clause) must be uniquely identifiable, to provide the Superintendent and Contractor with the ability to refer to any part of a specification in a precise fashion.

### 5.3.3 Sub-clause

Sub-clauses are further numbered sub-divisions within a clause to break it down into smaller steps to the assist clarity of understanding. Each sub-clause has its own title.

Rules for sub-clause structure and for referencing other sub-clauses are the same as for clauses.

Do not proceed to a third level, or sub-sub-clause. Review the specification and wherever possible, try to keep the structure flat.

### 5.3.4 Lists

Lists within clauses and sub-clauses must also be readily identifiable. Lists shall be generated alphabetically and/or numerically (and again, NOT by the use of dot points) as in the following example from Specification 201 QUALITY concerning the definition of a Lot:

<ol style="list-style-type: none"> <li>1. The principles used to define the limits of any Lot for the Contract shall be:             <ol style="list-style-type: none"> <li>a) The maximum size of a Lot is limited to the quantity of work that is the subject of a single conformance decision;</li> <li>b) The whole of the works included in the Lot shall be continuous;</li> <li>c) The Lot has been produced by the same works process;</li> <li>d) The Lot has been brought to completion at the same time; and</li> <li>e) The Lot shall appear to be of a consistent quality without obvious changes in attribute values, whether or not these attributes form part of the acceptance criteria.</li> </ol> </li> </ol>	<p><b><i>Definition of a Lot</i></b></p>
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### 5.3.5 Keywords

Keywords are located in the right-hand column of the specification, and are used to highlight or draw attention to the most important parts of a clause or sub-clause.

For effectiveness, keywords should embrace the following characteristics:

1. **Nature** – keyword(s) should focus on the single most important issue in a paragraph. If there is more than one issue, consider creating other paragraph(s);
2. **Brevity** – ideally, one or two words only, and not merely a repeat of the clause title;
3. **Occurrence** – it is not necessary to insert a keyword(s) for every paragraph in a clause or sub-clause, but they should be confined to important issues and of sufficient frequency to enable a reader to quickly locate important key steps in a process.

Keywords should be used to identify significant or key requirements, such as:

1. Hold Point – Approval for Design, Certification, Records, etc.
2. Compaction
3. Backfill
4. Surface Shape and Level

and so on.

Examples of good keyword selection:

Example 1:

<p>1. All stabilised limestone shall be stockpiled for at least three days before delivery to site. The mixture shall have a moisture content of 95% to 110% of the Optimum Moisture Content as determined by Test Method WA 133.1. The Moisture Content shall be determined in accordance with Test Methods WA 110.1 or WA 110.2 from samples taken from trucks prior to delivery.</p>	<p><b><i>Moisture Content</i></b></p>
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Example 2:

<p>2. Coarse aggregate (retained 4.75mm sieve) shall consist of clean, hard, durable, angular fragments of rock produced by crushing sound unweathered rock and shall not include materials which break up when alternately wetted and dried.</p>	<p><b><i>Coarse Aggregate</i></b></p>
<p>3. Fine aggregate (passing 4.75mm sieve) shall consist of crushed rock fragments or a mixture of crushed rock fragments with natural sand or clayey sand. Crushed rock fine aggregate from each source shall, except as to size, comply with all the provisions specified for coarse aggregate.</p>	<p><b><i>Fine Aggregate</i></b></p>

Examples of **poor** keyword selection:

Example 1:

<p><b>TRAFFIC PLANNING</b></p>	
<p>1. The traffic planning process will be a structured approach to comprehensively analyse traffic flows in and around the work site.</p>	<p><b><i>Traffic Planning</i></b></p>

(Keywords are merely a repeat of the clause title, and are unnecessary)

Example 2:

<p><b>302.65 SURFACE SHAPE</b></p>	
<p>1. The shape of the subgrade surface shall be deemed to be conforming when the maximum deviation from a 3 metre straight edge placed in any position on the surface does not exceed 15mm.</p>	<p><b><i>Generally</i></b></p>

(Keyword is poorly chosen – “Tolerance” or “Deviation” would be better)

### 5.3.6 Hold Points

The most significant keywords are **HOLD POINT**. All Hold Points shall be denoted by the words “**HOLD POINT**” in the keyword column. It usually represents a step in a process beyond which the contractor cannot proceed until the Hold Point is released by the Superintendent. Some form of testing by the contractor is often associated with the release of a Hold Point, and normally requires the contractor to submit a signed certificate that a particular requirement meets the specification. Hold Points represent an automatic halt to the running of a process until released, therefore they must be legitimate and used only where considered essential.

Unless otherwise stated, a minimum of 24 hours’ notice is usually required for the release of a Hold Point by the Superintendent. The full definition and use of Hold Points are covered in Specification 201 QUALITY.

The general format of a typical Hold Point is as follows:

1. **Prior to** *(the task that requires the Superintendent’s release of the Hold Point before the task can commence/continue)*, **the Contractor shall** **HOLD POINT**  
**certify to the Superintendent that** *(the specification requirements for the completed task)* **conform(s) to the requirements of the Specification.**

(Note: All text of the Hold Point is in **bold**)

Example of a Hold Point:

1. **Prior to embankment construction, the Contractor shall certify to the Superintendent that the embankment foundation conforms to the requirements of the Specification.** **HOLD POINT**

Example of poor selection of a Hold Point:

1. **Completed basecourse construction shall be maintained to the specified standards of surface shape, level, compaction and finish up to the time of application of the bituminous surfacing.** **HOLD POINT**

(This is a simple instruction to the Contractor therefore a Hold Point is unnecessary and inappropriate)

### 5.4 Specification Structure

This part of the Guidelines defines the purpose, extent and use of each section in a specification. Their format is covered in Part 6, and a sample specification is given at Annexure 2.

Title of Specification Section	Typical Block of Clause Numbers	Brief Description of Purpose or Function
<b>COVER PAGE</b>	-	Contains Specification No and Title, and copyright identifier.
<b>REVISION REGISTER</b>	-	Specification Control – list of dated amendments to standard document. Project Managers must also add any changes to the revision register for their specific tender documents.
<b>CONTENTS PAGE(S)</b>	-	Generated automatically with two levels of headings from specification text.
<b>GENERAL</b>	01 – 05	Includes Scope, References, Definitions, special process descriptions etc.

Title of Specification Section	Typical Block of Clause Numbers	Brief Description of Purpose or Function
<b>PRODUCTS AND MATERIALS</b>	06 – 25	A detailed summary of materials or products required to undertake the CONSTRUCTION section. Common materials and products are normally included in the standard text, augmented as required by the Project Manager from a comprehensive list in the SPECIFICATION GUIDANCE NOTES, and further expanded by the Project Manager to cover any unlisted materials or products. If required, a separate section can be reserved within this section for <b>FABRICATION</b> . Similarly, <b>DELIVERY</b> can be separated where packaging of sensitive or delicate materials is involved. Specialised materials (e.g. electrical components) can if necessary be listed in a separate Annexure for ease of reference.
<b>CONSTRUCTION</b>	26 – 80	This section is the main “driving force” of the specification which addresses the prime objective(s). Ideally this is one section only, but several section headings may be required for more complex specifications. (An alternative section title could be <b>INSTALLATION</b> for signs, guideposts, etc.)
<b>INSPECTION AND TESTING</b>	Located in Spec. 201 QUALITY	Where applicable this section details the Test Methods and minimum testing frequencies for the Works. The specification Custodian (and Project Manager) should set the appropriate inspection and testing requirements and methods.
<b>AS BUILT AND HANDOVER REQUIREMENTS</b>	81 – 90	This section includes “As-Built” information, including documentation, records, reports and operational manuals that the contractor needs to supply in the required format to the Superintendent which will be forwarded on via the Project Manager to the Asset Manager for that contract to manage the completed Asset. The Custodian and Project Manager must clearly detail the information that is required to be placed into Main Roads data bases, drawing archives etc. It will normally require the contractor to (at least) undertake site inspections, provide summary records, and other forms of data collection. It must be noted that the As-Built information is not only As-Built Drawings. The information supplied will be used by the Project Manager to ensure that this is done prior to handing over to the Asset Manager.

Title of Specification Section	Typical Block of Clause Numbers	Brief Description of Purpose or Function
<b>CONTRACT SPECIFIC REQUIREMENTS</b>	91 – 99	The <b><u>standard specification</u></b> must be designed so that it covers most if not all situations in all contracts. The Custodian should develop fully in the SPECIFICATION GUIDANCE NOTES, all clause(s) required with explanatory notes to Project Managers detailing how they are to be used, such that they can be pasted into a works specification as a whole.
<b>ANNEXURES</b>	Prefixed with Spec number (e.g. 302A, 302B, etc.)	Contract-specific parameters, often in tabular form – including relevant details extracted from the SPECIFICATION GUIDANCE NOTES.
<b>SPECIFICATION GUIDANCE NOTES</b> <i>(not for publication with Tender Document)</i>	-	A comprehensive guidance for Project Managers as to the background and application of the specification, alternative materials, options, Specification Amendment Checklist, etc. for the purpose of assisting Project Managers to develop contract specific tender documents (includes Specification options and complete clauses for the Project Manager’s selection).

The Table at Part 5.4 is now explained in more detail:

#### 5.4.1 Cover Page

The Cover Page is generated and maintained by the SCO as a normal part of inclusion in the TDP. It contains:

1. Main Roads Logo
2. Specification Number
3. Specification Title
4. Copyright Identifier

#### 5.4.2 Revision Register

The Revision Register sits immediately behind the specification Cover Page and provides a summarised trace of recent amendments to a specification, with the latest amendment always at the top of the page. **It is in effect the “Pink Page” for specifications, and remains with the specification at all times.**

The document’s **header and footer** begin on this page and are carried through the rest of the document. They contain identifying features, and comprise (left to right):

**Header:**

Specification Number  
Specification Title  
Document and File Number  
Issue Date

An example header can be shown as follows:

Specification 100 – General Requirements – 04/10091 Issued 12/01/2015

**Footer:**

Document Number  
 Page Number  
 Contract Number  
 Contract Name

An example footer can be shows as follows:

Document No: DXX#XXXX  
 Contract No: XXX/XX [Contract Name]

Page 2 of 10

Headers and footers are covered in more detail in Part 6. The format of the Cover Page is shown in Annexure 2.

**5.4.3 Contents Page(s)**

Microsoft WORD can generate the Contents page(s). A two-level layer of headings is normally sufficient. The format is based on the specification format.

**5.4.4 General**

The General section of any specification outlines the specification intent, objectives and the definitions that are used. The more common clauses found in all specifications are detailed below, but others are possible depending on the purpose of the specification and approval from the SCO.

**1. Scope**

The Scope briefly describes (ideally in one sentence) the main purpose or objective of the specification. Essentially, it is a concise generic summary of what follows, and should cover the situations and processes normally encountered or required.

The scope has particular contractual implications, and its extent must be broad enough to accommodate any variations that may become necessary.

If necessary, the Project Manager can add further sub-clauses to refer to special instances or situations or processes not covered by the standard, in the section **Contract Specific Requirements** which is reserved for such a purpose.

An example of a typical Scope (from Specification 301 CLEARING) is as follows:

<b>301.01 SCOPE</b>
1. The work under this Specification consists of clearing, demolition and the management of site vegetation required to undertake the work under the Contract.

**2. References**

Technical references provide the Project Manager background to a specification. They must obviously be relevant and accurate, and must be quoted in full if they appear in the specification, and may be abbreviated in the specification text provided there is no ambiguity in doing so.

Typical references are as follows:

Reference Type	Example in Specification	Further Specification References
Main Roads Test Methods	WA 216.1 Flakiness Index	WA 216.1

Reference Type	Example in Specification	Further Specification References
Australian Standards <sup>5</sup>	AS 1152 Specification for Test Sieves	AS 1152
Other Standards (British, American, etc.)	AASHTO M 247 TYPE 3 (Section 718.19 US Federal Highway Administration Standard Specification FP-92)	AASHTO M 247 TYPE 3
Acts of Parliament	WA Govt. Dangerous Goods Regulations 1992	WA Govt. Dangerous Goods Regulations 1992
Main Roads Technical Manuals	WA Engineering Road Note No 7 – Bitumen Scrap Rubber Seals	WA Road Note No 7
Other Main Roads Specifications	Specification 201 QUALITY	Specification 201 QUALITY

### 3. Definitions

*AS 1348-2002 Glossary of terms - Road and traffic engineering* - is an Australian Standard quoted in the references for Specification 100 GENERAL REQUIREMENTS as it contains most definitions likely to be required in roadworks contracts.

As Specification 100 states that all definitions are as given in AS 1348-2002 unless defined otherwise, only terms that either have multiple meanings in industry or are specialist terms unique to Main Roads need be defined in a specification to clarify the usage intended under the contract. Typical specialist terms for Main Roads roadworks are “Pavement Layer” and “Retained Pavement”.

A glossary of terms for Main Roads purposes is contained on the Main Roads website at *Building Roads > Standards and Technical > Road and Traffic Engineering > Glossary of Technical Terms*. A glossary of abbreviations relating to these Guidelines is also provided at Annexure 4.

#### 5.4.5 Products and Materials

A number of sections (or clauses) can be considered, each of which can be developed in a specification as required:

##### Product Requirements Material Requirements

Specifications may require the use of materials and/or proprietary products. Pavement materials for instance may be naturally occurring (e.g. lateritic gravel), or subject to some form of processing (e.g. crushed rockbase) before being suitable for incorporation into the works. Proprietary products may include commercially manufactured items such as bitumen additives, flexible guideposts, etc. In such cases, a list of alternatives acceptable to Main Roads is usually provided in the specification. Normally, a particular product should not be named to the exclusion of other products, unless only one product meets certain statutory requirements, such as OSH.

Specifications should include typically-used products and materials as part of the standard text. Materials and products that are rarely used are to be placed in the SPECIFICATION GUIDANCE NOTES with guidance as to their use, and only transferred across into the Contract Specific Requirements section as required by the Project Manager.

This section of the specification may therefore be regarded from two viewpoints:

<sup>5</sup> Note: References to Australian Standards should not normally include the year of the Standard in the reference unless there is a specific requirement to use that Standard even though it may have been superseded or withdrawn, e.g. AS 2124-1992. Specification 100 provides that Australian Standards are the latest at the time of tender unless noted otherwise.



1. The specification's Custodian must ensure that the choice of typical materials and products includes those that are likely to be needed in the majority of works.
2. The Project Manager on the other hand must also include those special materials or products appropriate to the particular works from the list of choices in the SPECIFICATION GUIDANCE NOTES. This selection is obviously influenced by the design process.

Two other areas of the specification are associated with this process:

1. **Annexures** – contain parameters relevant to the selected materials and products, such as ranges for density, temperature, etc.
2. **Contract Specific Requirements** – define any special construction processes relevant to the selected materials and products.

These two areas are examined in more detail later in the Guidelines.

### **Fabrication**

This section may not be necessary, but if included in a specification is usually a natural follow-on from the list of materials required.

Some bridge materials for instance require fabrication before incorporation into the works, such as steel sections for columns or beams, traffic barriers, etc.

### **Design**

This section will not be required in most specifications as the Principal provides the design of the Works in Category 2 contracts. Any further inclusions for design issues must only be included with the DPMO's approval.

Design requirements can be placed into the SPECIFICATION GUIDANCE NOTES to ensure the correct contract requirements are specified. If included in a contract however, design requirements of the contractor are a legitimate cost item for **permanent** works, and may be associated with the production of drawings, calculations, or other evidence of the required design, usually at an appropriate stage of the contract. Design of permanent works must be able to be priced by the contractor, either as a separate item or included in the delivery costs. In any case, the pricing aspect must be made clear in the Schedule of Rates/Bill of Quantities by way of a Particular Preamble in accordance with Main Roads Standard Method of Measurement for Construction Works (SMM). On the other hand, **temporary** works are not usually a separately priced item, and the contractor must allow for these in the price for other items.

Examples where the contractor may be required to provide a design for some aspect of the works include:

1. Bituminous Surfacing – the current specification contains an option where the contractor can be required to provide a final design for the surfacing. This may include a full surfacing design especially for binder application rate (BAR) from basic parameters provided by the Principal.
2. Bridge Piling – design by an independent specialist may be required of the contractor where such design is not provided by the Principal.
3. Mechanically stabilised earth reinforced concrete walls.
4. Formwork – the onus for formwork design usually rests with the contractor.
5. Temporary Works – sheet piling in bridgeworks, for instance, is usually a contractor responsibility.

## **Supply and Delivery**

There may be a need to make special mention of supply and delivery requirements (including separate payment items), but normally such considerations are either an extension of normal materials requirements, or simply included as part of fabrication requirements (as in traffic signs manufacture). If separate pay items are considered necessary, and the SMM clauses do not cover the particular requirements, Main Roads Quantity Surveyor should be consulted.

Exceptions include those Major Works contracts which are solely concerned with supply and delivery, particularly for major quarrying contracts for crushed aggregate, fabrication contracts for the supply of pre-cast pre-stressed concrete bridge members, etc. In such cases, supply and delivery of the product is the essence of the contract and therefore generate appropriate cost items.

### **5.4.6 Construction**

This section describes the main part of the specification. If in relation to a construction contract, CONSTRUCTION is usually the appropriate title, as is the case for Specification 301 CLEARING where there is only one main component. If the specification is complex, several sections may be required to clearly separate all the major requirements, as is the case for Specification 302 EARTHWORKS.

An alternative section title such as OPERATIONS or, depending on the nature of the work, a generic substitute such as INSTALLATION may be applicable to those specifications dealing with non-construction type works, such as for Specification 602 GUIDEPOSTS.

Logical order is essential, and all the foregoing regarding clear, concise, non-ambiguous text is doubly true for this section.

To assist in the writing of new or any major revision of specifications, it may help to list in a logical sequence all the steps needed to achieve the desired end result and the steps can then be expanded into separate clauses and sub-clauses.

### **5.4.7 Inspection and Testing**

Inspection and testing requirements are currently located within Annexure 201A of Specification 201 QUALITY where details of the relevant test methods and their associated minimum testing requirements for the contract works are described.

Specification 201 includes details of sampling, testing and acceptance of most work to be carried out under the contract.

If necessary, advice should be sought from Materials Engineering as to the appropriate test methods and their limits applicable to the works.

An example of the Inspection and Testing requirements is as follows for Specification 908 ANTI - GRAFFITI:

#### **Extract from – Specification 201 QUALITY'S Annexure 201A – 2.0 Minimum Testing Frequency**

<b>Material / Process</b>	<b>Quality Verification Requirement</b>	<b>Minimum Testing Frequency</b>
<b>Anti-Graffiti Coating Systems / Paintwork</b>	<ul style="list-style-type: none"> <li>• Dry Film Thickness (ASTM D6132)</li> <li>• Dry Film Thickness (AS/NZS 1580)</li> <li>• Adhesion</li> </ul>	1 per every m <sup>2</sup> for each surface panel painted 1 per surface less than 1m <sup>2</sup> 1 per every 25m <sup>2</sup>

## 5.4.8 As-Built and Handover Requirements

This section has two functions:

1. Notification of Handover Requirements
2. Provision of “As-Built” Information

### **Handover**

The Custodian must detail the handover arrangements that may be required to maintain and/or operate the asset after Practical Completion or issuance of the Final Certificate.

Landscaping is a good example. Seedlings and plants that are difficult to establish often die between Final Certificate of the Category 2 Contract and the Maintenance take over by the Rural Network Contracts and thus arguments occur about cost and replanting before the Rural Network Contractor takes over the Site.

A further example is installed traffic signal equipment, which obviously must be functioning correctly at handover.

In some instances, the Rural Network Contractor will NOT accept the finished project, as the Project does not meet the minimum intervention requirements that the Term Contractor must abide by.

### **“As-Built” Information**

The Custodian should also include a description of the required “As-Built” information, and must provide sufficient detail to ensure that such information is supplied by the contractor in the required format to the Superintendent, to be given to the Project Manager.

Such information can be provided in the specification as a check list, and should include “As-Built” Drawings, schedules of relevant road data, and records that must be supplied to the Superintendent. This may also include specialist logs to be left in traffic signal controller housing. Also, other relevant information that the contractor must supply for inclusion into **IRIS** should be included.

## 5.4.9 Contract Specific Requirements

The Custodian would not normally need to enter details in this section. This section is reserved for the Project Manager to insert any needs or processes not covered by the standard specification, or for those clauses provided by the Custodian intended for transfer from the SPECIFICATION GUIDANCE NOTES on an as required basis.

This section is intended to encourage Project Managers to confine most changes to the specification to this section of the specification. This will improve navigation of the specification by the Superintendent and contractors, and to identify specific changes to the specification. The Project Manager must also list any additional and non-standard requirements used in this section in the SPECIFICATION AMENDMENT CHECKLIST.

If there are no special requirements for the contract other than the provisions already contained in the main body of the specification, this section is denoted as “NOT USED”.

## 5.4.10 Measurement and Payment

### **5.4.10.1 General**

An integral part of the contract concerns payment for the work carried out by the Contractor.

Previous versions of standard specifications contained a section titled “Measurement & Payment”, which included a summary of all pay items, the extent of work coverage for each item and its unit of measurement.

In order to present a complete and accurate description of the works, there has to be an exact correspondence between:

1. Drawings (diagrammatic depiction of the works),
2. Specification (textual description of the works), and
3. Payment items (quantum of the works)

Related matters include whether or not the completed work items are required to be re-measured on site.

#### **5.4.10.2 Procedures**

Measurement and payment requirements are covered in Main Roads’ SMM and incorporate the Preambles to the Schedule of Rates or Bill of Quantities. SMM describes how the work is measured including the units of measurement. The accompanying Schedule of Rates or Bill of Quantities provide a list of items, their units of measurement and estimated quantities. Tenderers are required to insert their unit rates and extend to give the tendered dollar amounts.

Specification Custodians and all Project Managers of contract documentation are strongly recommended to familiarise themselves with the SMM clauses together with Preambles to the Schedule of Rates or Bill of Quantities to gain an appreciation of measurement and payment practices adopted by Main Roads.

A critical consideration for specification Custodians and Project Managers is whether there is sufficient information provided in the specifications and drawings to enable the work item(s) in question to be priced by the contractor. If it is not possible to quantify an item due to some aspect of design being incomplete at the time of tendering, or because of other indeterminate factors, it is likely that a Provisional Sum needs to be pre-estimated by the Principal to allow the work to be included in the total tender price. Information on the use of Provisional Sums and similar devices can be obtained from PMO Manager Contracts if required.

SMM caters for where a particular cost item is not currently covered by the SMM clauses. The Custodian should seek the QS’s review of any necessary changes to be made to the SMM section (see Specification Amendment Checklist).

#### **5.4.11 Annexures**

Annexures are prepared by Custodians for completion by the Project Manager with project specific details. They are often in tabular form, support the specified clauses and are a mechanism for detailing the parameters and limits of the works. They reflect the actual design requirements of the works and together with the SCOPE and CONTRACT SPECIFIC REQUIREMENTS are probably the most referenced area of a specification. As such they must be appropriate and accurate.

The Specification Guidance Notes provide guidance on the selection of relevant options to suit particular works, and only those options that are pertinent to the works should appear in an Annexure. Where appropriate, references to drawings can be included to avoid or minimise duplication of information.

A simple example of an Annexure and its associated Specification Guidance Notes extracted from Specification 301 CLEARING is detailed following.

1. Extract from Annexure (see next page):

**ANNEXURE 301A**

**CLEARING REQUIREMENTS FOR VEGETATION**

TABLE 301A.1 LOCATIONS AND TREATMENT OF VEGETATION TO BE CLEARED

Vegetative clearing shall be carried out to the following widths:

Chainage or SLK		Maximum Clearing Width (metres)	Treatment Details
From	To		

2. Extract from Specification’s Guidance Notes:

**3 VEGETATION CLEARING**

Table 301A .1 should be completed to provide a specific schedule of clearing widths and the treatment of cleared vegetation, if these details are not clearly shown in the Drawings.

A detailed schedule is critical in environmentally sensitive areas and dieback-affected areas, where it is important to minimise the impacts and extent of clearing.

Clearing and Topsoil Management Drawing(s) should be prepared as part of the design documentation for all work projects.

**5.4.12 Specification Guidance Notes**

This non-publishable section, SPECIFICATION GUIDANCE NOTES, has several functions:

1. To supply background information – history of significant milestones in specification development, guidance on general use, etc.
2. To identify materials and product options – a list of materials and/or products not included in the standard specification text for the Project Manager to select as required.
3. To detail contract specific requirements – a list of optional clauses for the Project Manager to select, and their associated parameters for inclusion in the Annexures. Optional clauses, tables and related details must be complete and suitable for copying over more or less “as is” into the body of the specification.

The Custodian may amend the generic checklist shown at Annexure 1 to address items that are relevant to the specification. A copy of the completed form should be retained by the Custodian for reference.

(NOTE: It may be helpful to use a coloured font (say, blue) for the actual Guidance Notes, but retain the black text for any provided optional clauses to be inserted into the section CONTRACT SPECIFIC REQUIREMENTS. However, any advantage is lost if normal photocopying is used.)

**Specification Guidance Notes must be deleted prior to tender document publication.**

## 6 FORMAT

### 6.1 General

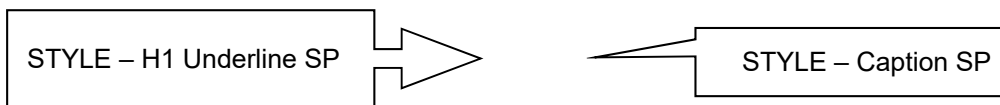
A consistent format is essential to support the development of specification source documents and any subsequent amendments. This procedure applies to all specifications prepared for inclusion in the online Tender Document Preparation system (TDP).

Font style is 'Helvetica' throughout and generally set to font size 11, with section headings set to font size 11 (for heading styles H1 SP and H2 SP) or 14 (for heading style TITLE3 SP).

### 6.2 Procedure

#### 6.2.1 Editing and Formatting Specifications

Annexure 2 shows an example of a Specification that illustrates the correct formatting to be used. Notes have been placed within a “call out” symbol like either of these:



and the text to which the symbol refers highlighted.

#### 6.2.2 General

**Headers** – Specifications should have the following format within a one cell table in font size 9 with a 1.5pt bottom border. A typical example might be:

Specification 100 – General Requirements – 04/10091 Issued 12/01/2015

---

**Footers** – Specifications should have the following format in font size 9 under a separator line. A typical example might be:

Document No: DXX#XXXX  
 Contract No: XXX/XX [Contract Name]

Page 2 of 10

**Breaks** – Section breaks should be set at New Page (See under File, Page Setup, Layout) for the whole document.

**Margins** – The margins for all Specifications (see Page Setup) are:

Top: 2 cm    Bottom: 2 cm    Right: 2 cm    Left: 2 cm    Header: 1.25cm    Footer: 1.25cm

Do not mirror margins

Do not allow row to break across page

Keep lines together (Paragraph format)

Keep sub-clauses together (Paragraph format, to be done manually)

**Printing** – multiple copies of final specifications are normally printed double-sided to reduce the document’s bulk.

### **6.2.3 New Specifications**

A Specification template is available from TDP for all new specifications. It has the first few pages set up and all that needs to be done is to insert the relevant text in accordance with the template instructions and these Guidelines.

### **6.2.4 Changes to Templates**

If any changes are made to the styles or formatting of all the specifications, for example if all Headings type H1 SP were to become italic, the template will need to be changed.

The changes will then be incorporated into all the other documents automatically.

## 7 ANNEXURES

Annexure	Title
<b>Annexure 1</b>	AMEND SPECIFICATION CHECKLIST AND PROCESS
<b>Annexure 2</b>	NEW SPECIFICATION CHECKLIST AND PROCESS
<b>Annexure 3</b>	TYPICAL SPECIFICATION
<b>Annexure 4</b>	WORD USE
<b>Annexure 5</b>	GLOSSARY OF ABBREVIATIONS



**ANNEXURE 1 AMEND SPECIFICATION CHECKLIST AND PROCESS**

Specification: **XXX – TITLE** Revision No: \_\_\_\_\_

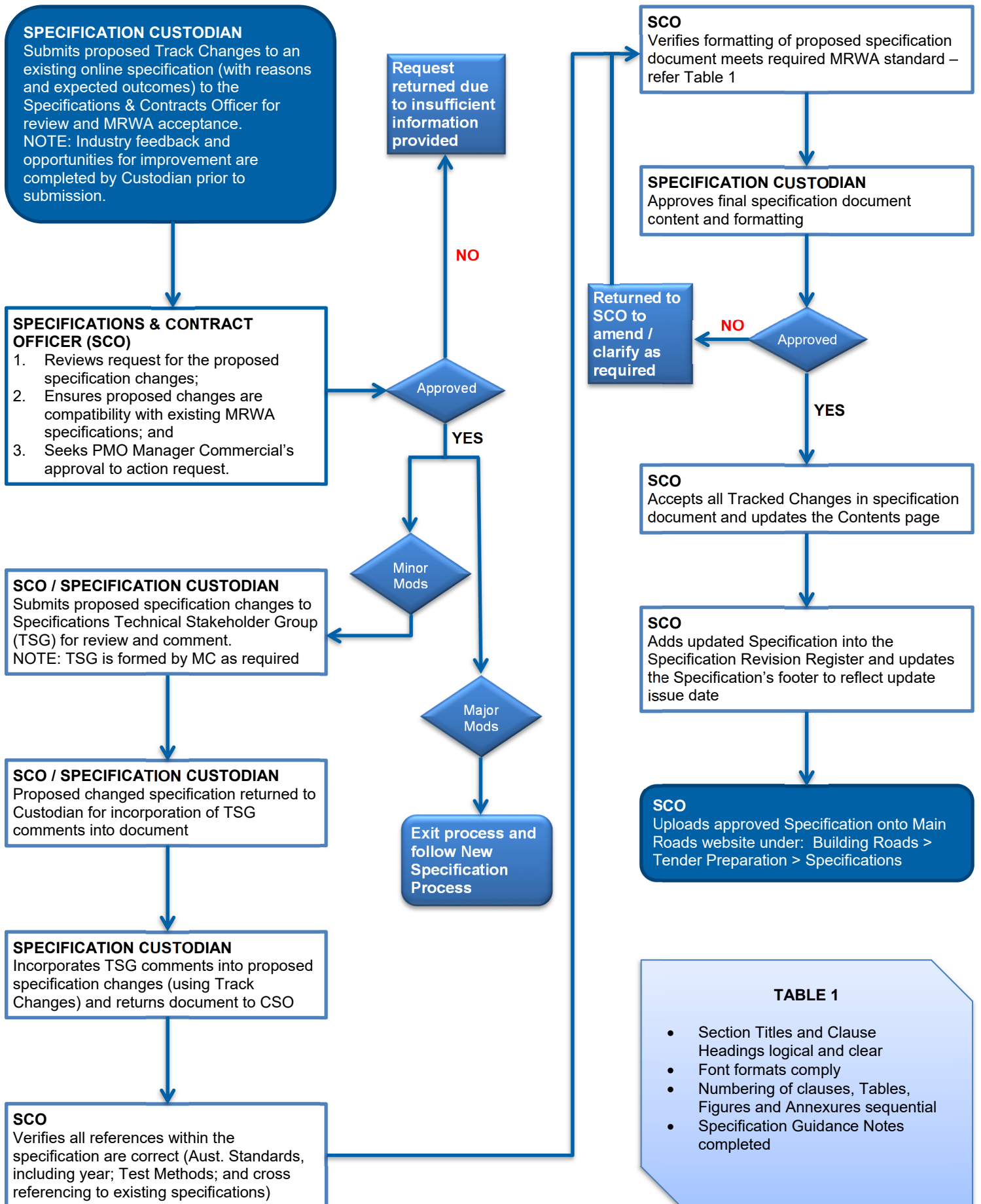
Project Manager: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Checked by: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Contract No: \_\_\_\_\_ Contract Description: \_\_\_\_\_

ITEM	DESCRIPTION	SIGN OFF
<i>Note: All changes/amendments must be shown in Tracked Changes mode until approved.</i>		
1.	Project Manager has reviewed Specification and identified Additions and Amendments.	
2.	<b>CONTRACT SPECIFIC REQUIREMENTS</b> addressed? Contract specific materials, products, clauses added? (refer Specification Guidance Notes).	
3.	Any unlisted materials/products proposed and approved by the Project Manager? If “Yes” provide details at 16.	
4.	Standard clauses amended? <b>MUST SEEK</b> approval from Manager Contracts	
5.	Clause deletions shown as “ <b>NOT USED</b> ”.	
6.	Appropriate <b>INSPECTION AND TESTING</b> parameters included in Spec 201 (Text Methods, Minimum Testing Frequencies verified).	
7.	<b>ANNEXURES</b> completed (refer Specification Guidance Notes).	
8.	<b>HANDOVER</b> and <b>AS BUILT</b> requirements addressed.	
9.	Main Roads QS has approved changes to <b>SMM</b> .	
10.	Project Manager certifies completed Specification reflects intent of the design.	
11.	Completed Specification – independent verification arranged by Project Manager.	
12.	Project Manager’s review completed.	
13.	<b>SPECIFICATION GUIDANCE NOTES</b> deleted.	
14.	<b>TABLE OF CONTENTS</b> updated.	
15.	<b>FOOTER</b> updated with Document No., Contract No. and Contract Name.	
16.	Supporting information prepared and submitted to Project Manager.	
Further action necessary:		

Signed: \_\_\_\_\_ (*Project Manager*) Date: \_\_\_\_\_



**TABLE 1**

- Section Titles and Clause Headings logical and clear
- Font formats comply
- Numbering of clauses, Tables, Figures and Annexures sequential
- Specification Guidance Notes completed

**ANNEXURE 2 NEW SPECIFICATION CHECKLIST AND PROCESS**

Specification No: \_\_\_\_\_ Revision No: \_\_\_\_\_

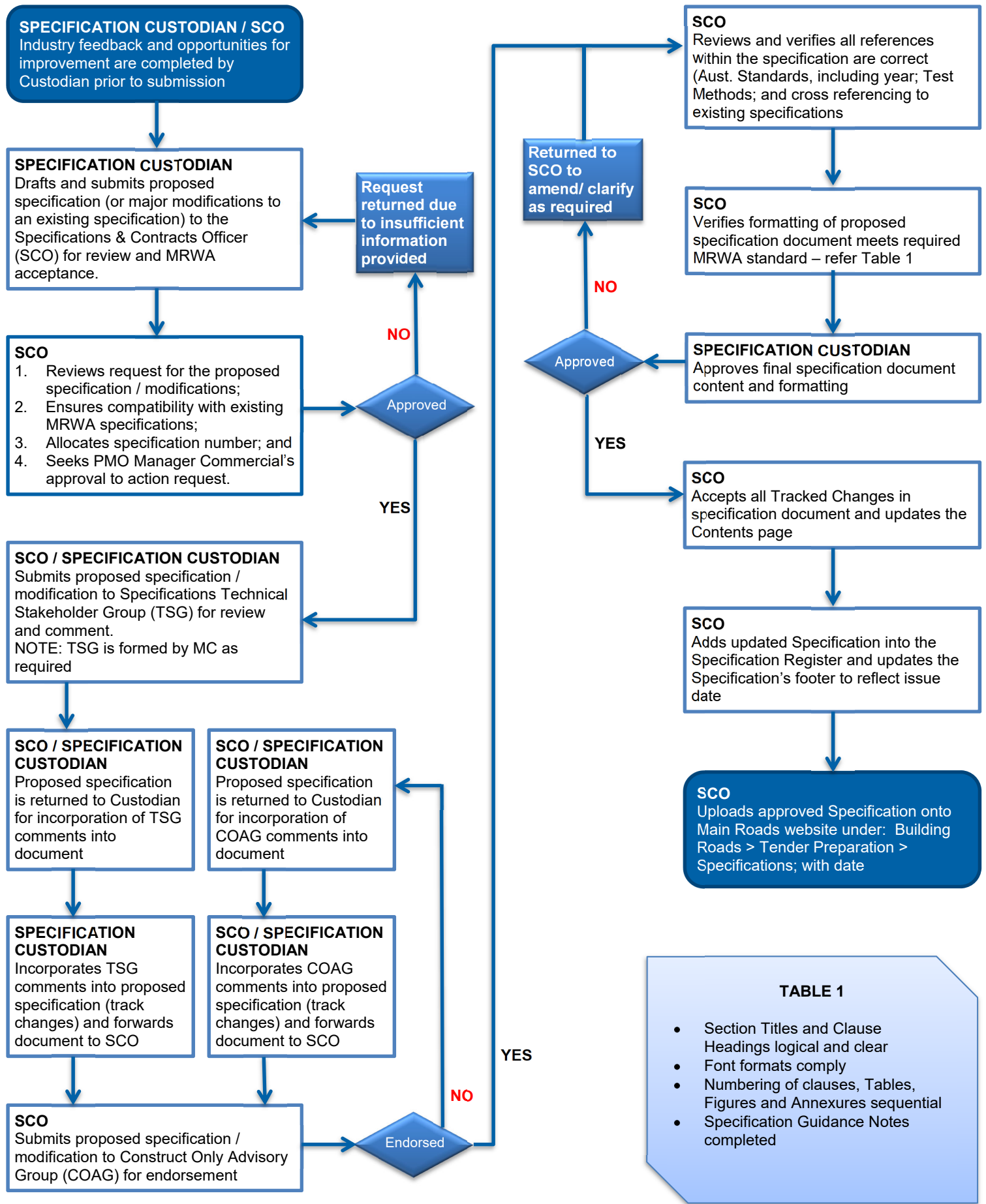
Specification Title: \_\_\_\_\_

ITEM	DESCRIPTION	OFFICER	SIGN OFF
1.	Request submitted for proposed specification or changes to existing specification – reasons, expected outcome, etc.	Custodian / SCO	
2.	Industry support, feedback, OFI No. etc. obtained	Custodian / SCO	
3.	Existing on-line specification copied and edited with tracked changes	Custodian / SCO	
4.	Specification submitted to SCO	Custodian	
5.	Proposed clauses reviewed	SCO	
6.	OFI/feedback checked from other sources	SCO	
7.	Specification submitted to Specification Technical Stakeholder Group	SCO	
8.	Review and address all Technical Stakeholder Group feedback	Custodian	
9.	All references checked as correct: (i) Australian Standards, including year of standard (ii) Test methods (iii) Cross references to other Specifications	Custodian	
10.	Format of whole document verified: (i) Section Titles and Clause Headings logical and clear (ii) Font formats comply and verified (iii) Numbering logical and sequential for Clauses, Tables, Figures and Annexures (iv) Specification Guidance Notes completed (v) Specification Amendment Checklist reviewed and amended as required	Custodian	
11.	Specification submitted to SCO	Custodian	
12.	Final tracked draft reviewed and confirmed	SCO	
13.	Final tracked draft approved by PMO Manager Contracts (see below)	Manager Contracts	
14.	Tracked changes accepted, Contents pages updated	SCO	
15.	Revision Register and footer issue date updated	SCO	
16.	Document uploaded into the TDP	SCO	

**A copy of the Specification Development Checklist must be included for every amendment or new specification.**

Approved for distribution: \_\_\_\_\_ *PMO Manager Contracts* Date: \_\_\_\_\_

# New or Major Modification Specification Process



**TABLE 1**

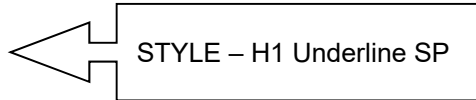
- Section Titles and Clause Headings logical and clear
- Font formats comply
- Numbering of clauses, Tables, Figures and Annexures sequential
- Specification Guidance Notes completed

**ANNEXURE 3      TYPICAL SPECIFICATION**

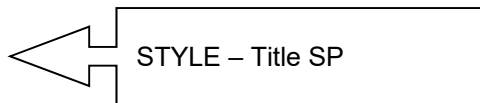


**SPECIFICATION XXX**

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**TITLE**



Copyright MAIN ROADS Western Australia



<b>REVISION REGISTER</b>			
<b>Clause Number</b>	<b>Description of Revision</b>	<b>Authorised By</b>	<b>Issue Date</b>

# CONTENTS

The Table of Contents is based on the Formal format and uses only two levels of Headings (H1 SP and H2 SP)

Clause	Page No
<b>GENERAL</b> .....	<b>4</b>
XXX.01 SCOPE.....	4
XXX.02 REFERENCES.....	5
XXX.03 – XXX.10 NOT USED .....	6
<b>ANNEXURE XXXA</b> .....	<b>7</b>
TESTING.....	7
1.0 General .....	7
1.1 Test Methods .....	8

From this point, Specification 301 CLEARING has been used as an example

# SPECIFICATION 301

## CLEARING

The style for **Title** is  
TITLE3 SP (Font 14)

The style for **second  
level heading** style is  
H2 SP (Font 11)

### GENERAL

The style for all  
**section headings** is  
H1 SP (Font 11)

#### 301.01 SCOPE

1. The work under this specification consists of clearing, demolition and the management of site vegetation required to undertake the work under the Contract.

**Clause text** will  
be in the style  
MAIN TABLE SP

#### 301.02 REFERENCES

1. Australian Standards, MAIN ROADS Western Australia Standards and MAIN ROADS Western Australia Test Methods are referred to in abbreviated form (e.g. AS 1234, MRS 67-08-43 or WA 123). For convenience, the full titles are given below:

##### Acts and Regulations

Environmental Protection (Clearing of Native Vegetation) Regs 2004

Environmental Protection Act 1986

Health Pesticide Regulations 2011

The **reference section sub  
headings** have the style  
REF TITLE SP, with one  
tabbed indent

##### Code of Practice

Australian Radiation Protection and Nuclear Safety Agency  
(ARPANSA) – Code of Practice and Safety Guide – Portable  
Density/Moisture Gauges Containing Radioactive Sources

##### Australian Standards

AS 4373 Pruning of Amenity Trees

The **reference section text**  
has the style REF TEXT SP,  
with one tabbed indent

##### MAIN ROADS Specifications

Specification 100 GENERAL REQUIREMENTS

Specification 201 QUALITY SYSTEMS

Specification 202 TRAFFIC

Specification 204 ENVIRONMENT

Specification 302 EARTHWORKS

Specification 303 PITS AND QUARRIES

Specification 304 REVEGETATION AND LANDSCAPING

Specification 803 DISMANTLING & DEMOLITION

The **titles** after the  
Specification Numbers are in  
ALL CAPS

#### 301.03 – 301.05 NOT USED

[BREAK IN EXAMPLE]



## OPERATIONS

### 301.26 LIMITS OF CLEARING

#### 301.26.01 GENERAL

The style for the **third level heading** is H3 SP

The style for right hand column is **KEYWORD SP**

1. The limits of clearing, as nominated in the drawings or Table 301A.1 shall be in accordance with the definition of designated and other areas required to undertake works under the Contract and shall be pegged on site for the Superintendent's inspection prior to the submission for a clearing Hold Point release.
2. Clearing of vegetation shall not exceed the limits of clearing and mature trees especially, shall be conserved as far as practicable, and shall not be disturbed for such temporary works as sidetracks, access tracks, temporary storage areas, campsites, spoil areas or site offices.

**Limits of Clearing**

**Minimum Clearing**

[BREAK IN EXAMPLE]

### 301.27 CLEARING

1. Clearing shall include but not be limited to:
  - (a) The felling, cutting and removal of all trees standing or fallen;
  - (b) The removal of all brush, shrubs, grasses and other vegetation;
  - (c) The removal of rubbish and debris;
  - (d) The removal of surface boulders and boulders dislodged during vegetation removal; and
  - (e) the grubbing out of all stumps and roots larger than 80mm diameter or with any dimension greater than 300mm to a depth of 300mm below either the existing surface or the finished subgrade surface, whichever is the lower.

Use of lists – refer Section 5.3.4

[BREAK IN EXAMPLE]

9. **Prior to the commencement of any clearing operations the Contractor shall certify for the Superintendent's verification and approval that:**
  - (a) **The limits of clearing are correctly pegged on site, in accordance with the environmental approvals.**
  - (b) **The locations of existing features to be demolished are correctly tagged on site.**
  - (c) **Trees and other vegetation identified for transplanting are clearly tagged on site.**

**HOLD POINTS** are always in *Italic ALL CAPS* in the right hand column, and the text in both columns is always **bold font**

**HOLD POINT**

[BREAK IN EXAMPLE]



# GUIDANCE NOTES

## FOR REFERENCE ONLY – DELETE GUIDANCE NOTES FROM FINAL DOCUMENT

1. All edits to downloaded Specifications shall be made using *Track Changes*, to clearly show added/deleted text.
2. If **all** information relating to a clause is deleted, the clause number should be retained and the words “**NOT USED**” should be inserted.
3. The documents showing proposed amendments shall be submitted to the Project Manager for review, prior to printing.
4. Before printing accept all changes in the document, turn *Track Changes* off and refresh the Table of Contents.
5. The Custodian of this specification is Principal Design Engineer Regional Support.

---

## 1. GENERAL


When setting out the extent of clearing and demolition works it is important to carefully consider the management of the existing site vegetation. Clearing must be conducted in accordance with the Clearing Permit and the area approved in the Preliminary Environmental Impact Assessment (PEIA).

## 2. CLEARING PERMIT

The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* and associated amendments to the *Environmental Protection Act 1986* includes limits and conditions on obtaining permits for the clearing of native vegetation. For more details on the requirements and on the clearing exemptions refer to the Main Roads Environmental Guideline *Native Vegetation Clearing Regulations and Permits*, (Document No. 6707/034).

The Project Manager **MUST** ensure that an authorised clearing permit is secured for the clearing works and a copy of the permit is provided to the Contractor in the Information for Tenderers or at Contract Award. The clearing permit shall be for all works under the Contract including the clearing of sidetracks and temporary work areas and be referenced in Specification 202 TRAFFIC.

The Contractor shall be required to include a copy of the clearing permit with the Hold Point submission. The contractual implications of not having a permit prior to the start of the clearing works include time delays and costs.



Project Manager to use information in the Specification Guidance Notes as a guide to document compilation – refer Section 5.4.12.

**NOTE:** Specification Guidance Notes **MUST** be **deleted** at final draft.

## **CONTRACT SPECIFIC REQUIREMENTS [ADD OR DELETE]**

The following clauses are to be placed under the CONTRACT SPECIFIC REQUIREMENTS, as required. After inserting the clause, change the clause number and heading to style “H2 SP” so it appears in the Table of Contents.

### **XXX.XX SIDETRACKS AND DETOURS**

1. [insert text]

## ANNEXURE 4      WORD USE

### 1.      GENERAL

Basic requirements include:

- a) Specifications should be written in plain unambiguous English, with a simple sentence structure. Ambiguous sentences with doubtful meaning invariably lead to claims from a mystified contractor.
- b) Avoid confusing terminology, poor sentence structure, and wordiness.
- c) Ensure spelling, grammar and punctuation are correct – make use of Microsoft WORD to check these basics.

### 2.      EXAMPLES OF RECOMMENDED PRACTICE

Simple recommended practice includes the following:

- a) Use of the Active Voice rather than Passive Voice is a positive approach, i.e. use the form: “subject – verb – object” in preference to “object – verb – subject”.

e.g. *“The Contractor shall seal the pavement.”* is more direct (positive) than:

*“The pavement shall be sealed by the Contractor.”*

- (i) This provides emphasis. However, the Passive Voice may provide just as clear a meaning and may make easier reading.
  - (ii) Avoid starting every single sentence with “The Contractor” – the context should be sufficient to indicate the subject of the action.
- b) Brevity
    - (i) Brevity aids the understanding of complex ideas.
    - (ii) Use short sentences rather than long (maximum 25 – 30 words). Break long sentences down into more manageable lengths.
    - (iii) The use of shorter words may avoid the use of over-complicated terminology as well as making the document more readable. Obviously, this is not always possible where many technical engineering terms and processes are concerned, but it is worth bearing in mind.
  - c) Descriptive text vs. Measured Outcome
    - (i) Descriptive text is sometimes necessary and often difficult to avoid, but avoid writing unnecessarily detailed descriptions of method.
    - (ii) Where possible, provide the desired end result, normally a measurable outcome, particularly if the method is less important (or even immaterial) to the final result. This will give the contractor more freedom to achieve the desired result.

- (iii) The “what” (outcome) is the desired result of the Principal, whereas the “how” (method) is more the province of the contractor. And always avoid the “why”!
- (iv) A desired outcome expressed in terms of measured performance is (or should be) objective and non-disputable, but a brief descriptive method for a simple non-critical task can avoid the need for testing, or at least simplify the need.
- (v) The merits of the situation in question should dictate the approach to take – if the integrity of the road or structure is at stake, then measured performance with appropriate testing is the preferred approach.

(Note: Refer also Section 5.1 re **Method Specs.** vs. **End Product Specs.**)

d) “Shall” and “Will”

For the sake of clarity of intentions, obligations required of the contractor are normally given as a positive instruction, e.g.

*“The Contractor shall ...” \**

instead of:

*“The Contractor should ...” (or worse, “The Contractor may ...”)*

(\* Note: Main Roads preference is for the use of “shall”. “The Contractor must ...” is a possible alternative for added emphasis, for an action that absolutely has to be adhered to in all circumstances. However, avoid excessive use of this form – over-use detracts from its effectiveness.)

The contractor has to be in no doubt as to its obligations under the contract. Words like “should” and “may” confer a degree of choice on the contractor, and unintentional choices or options in a contract are dangerous and tend to attract claims.

The use of “will” is descriptive or informative rather than instructional, and is usually reserved for actions on the part of the Superintendent or Principal. “The Superintendent will ...” is an accepted way to describe an action or undertaking by the Superintendent.

e) Common Phrases

Some phrases in common use (often unnecessary) include:

- (i) *“Where necessary, ...”*

Avoid beginning instructions with *“Where necessary, the Contractor shall ...”*

This is indeterminate as it may be unclear as to whom or what decides when an action is necessary. If there is a specific instance or circumstance that has to trigger an action or response from the contractor, then state that instance. Otherwise, don’t use it.

- (ii) *“As shown on the Drawings ...”*

Although this opening phrase can avoid lengthy text, make sure that the subject matter really is shown on the drawings!

- (iii) *“... as approved by the Superintendent”*

This is really a disguised **Hold Point**. Its presence in a process requires the Superintendent's intervention and approval, so this well-worn phrase should be used with care. If it is intended as a true Hold Point and is indicated in the keyword column as such, then fine, but if not the offending situation should be reworded to avoid unnecessary and unintended superintendence.

(iv) *"As directed by the Superintendent, ..."*

This expression is usually unnecessary. Use only where detailed direction is not possible or evident in the specification and really has to come from the Superintendent – as may be the case with work paid from a Provisional Sum.

(v) *"Unless otherwise directed by the Superintendent, ..."*

Any specified work following this phrase has the potential to be "as directed otherwise" by the Superintendent, hence this proviso would seem superfluous. Only use where there is seen to be an advantage in alerting the contractor in advance of the possibility of a particular instruction being changed.

f) Use of Capitals

Selected words with special significance (particularly contractual) usually begin with a capital letter as a means of highlighting that word. AS 2124-1992 contains the majority of significant words likely to be referenced in a typical specification.

A list of words to be used with a capital letter in specification text includes:

- Proper nouns and names
- First, last and important words in a title
- Contract
- Contractor
- Superintendent
- Principal
- Works<sup>6</sup>
- Drawings
- Clause (for reference purposes, e.g. Clause 301.02)
- Specialist words with a definition specific to the specification different to that given in AS 2124-1992, or other than the common or dictionary meaning. In such cases, the definition should be included under the Definitions heading in the GENERAL section of the specification.

g) **Bolding** and Underlining

To avoid unintentional contractual implications, the following convention shall be adopted for all specifications:

(i) **Bolding** should be reserved for the following situations:

- **Titles**
- **Section and Clause Headings**
- **Hold Point text**
- **Keyword text**

<sup>6</sup> "Works" is a generic term for the whole of the final product which is the subject of the Contract.

(ii) Underlining should not be used.

h) Finally

A final test is to put yourself in the contractor's place and read the draft from the opposite viewpoint. In other words, does it make sense? Are the instructions clear and unambiguous? Are they feasible and constructible? And so on.



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## ANNEXURE 5 GLOSSARY OF ABBREVIATIONS

This glossary applies only to various abbreviated terms used in this Guideline. Other glossaries may need to be consulted where the context implies a different interpretation in other Main Roads standards or documents.

<b>Abbreviated Term</b>	<b>Full Name</b>
AASHTO	American Association of State Highway and Transportation Officials
AS	Australian Standard
ASTM	American Society for Testing and Materials
BQ	Bill of Quantities
CTS	(or ConTrackS) Contract Administration System
CMP	Contract Management Process
GCC	General Conditions of Contract
HP	Hold Point
IFT	Information for Tenderers
IRIS	Integrated Road Information System
MPS	Manager Project Services
OFI	Opportunity for Improvement
OSH	Occupational Safety and Health
PM	Project Manager
QS	Quantity Surveyor
SCC	Special Conditions of Contract
SMM	Main Roads Standard Method of Measurement for Construction Works
SCO	Specifications and Contracts Officer
SOR	Schedule of Rates
TDP	Tender Document Preparation system
RNC	Rural Network Contract