# Session 1.8 Terms of Reference

Conducting Road Safety Audits & Appraisals

Presented by: RTS & AGTT

January 2022

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## Content

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## REQUIREMENTS FOR SUCCESSFUL RSA

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## Requirements for Successful RSA

Client organization requirements

- *Commitment from management*
- *A recognised and agreed Road Safety Audit process*
- *The development of expertise*
- *Formal audit report response and implementation*
- Evaluation and monitoring

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## Requirements for Successful RSA

What does the audit team require

- Detailed terms of reference
- Adequate time
- (Extensive) Project information
- Appropriate experience
- Independence
- *Prompt lists ??*
- *RSAs are not a tick box exercise - audit by prompt list is not recommended.*

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# Guideline Documents

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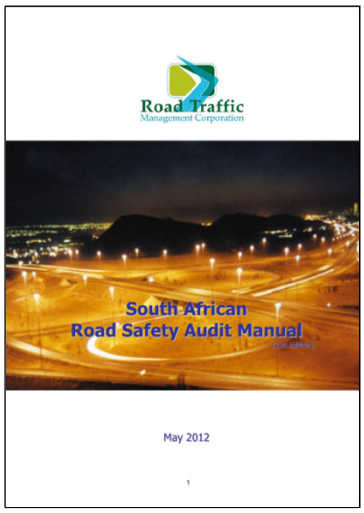
## Guideline Documents



ISBN 978-0-626-27351-4

SANS 3000-2-2-1:2012
Edition 1
RSR 2-2-1:2012
Edition 1

SOUTH AFRICAN NATIONAL STANDARD

Railway safety management

Part 2-2-1: Technical requirements for engineering and operational standards — Track, civil and electrical infrastructure — Level crossings

WARNING — Can only be read in conjunction with SANS 3000-2-1 and SANS 3000-2-2.

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## Guideline Documents – African Countries

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- Manuel d'Intégration de la Sécurité Routière aux Projects Routiers - Benin (2007)
- Road Safety Audit Manual (Draft) - Federal Democratic Republic of Ethiopia (2004)
- Manual of Road Safety Audit - Ghana (2002)
- Design Manual for Roads and Bridges Part 1b) Road Safety Audit - Kenya (2009)
- Guide d'Audit - Sécurité des Infrastructures Routières - Maroc (2003)
- Consultancy Services for Road Safety Audit of the Main Road Network Final Report/Servicios de Consultoria Para a Auditoria da Seguranca Rodoviaria na Rede de Estradas Principais em Mozam bique - Mozambique (2010)
- Guidelines for Mainstreaming Road Safety in Regional trade Corridors - SSATP (2013)
- A Guide to Road Safety Auditing v7 - United Republic of Tanzania (2009)
- South African Road Safety audit Manual (2nd Edition) - South Africa (2012)
- Road Safety Audit Manual - Uganda (2004)
- Zambian Road Safety Audit Manual (2016?)

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## Importance of the TOR

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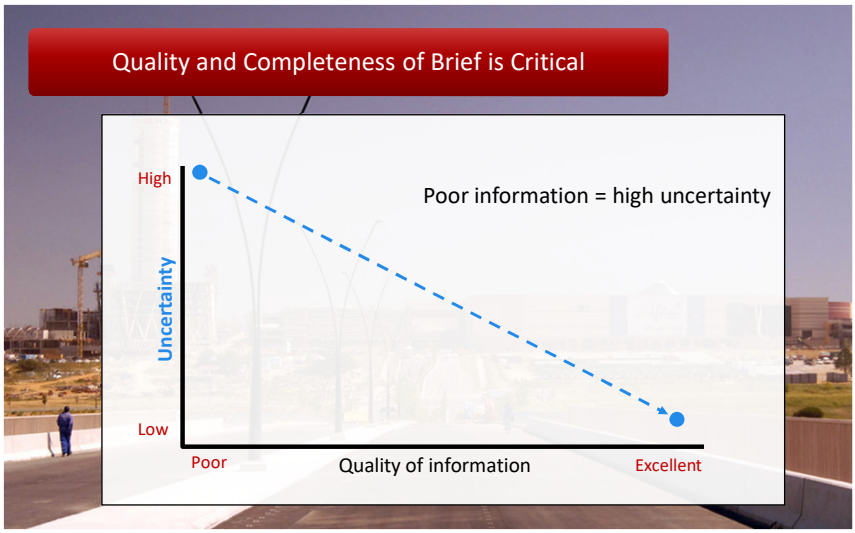


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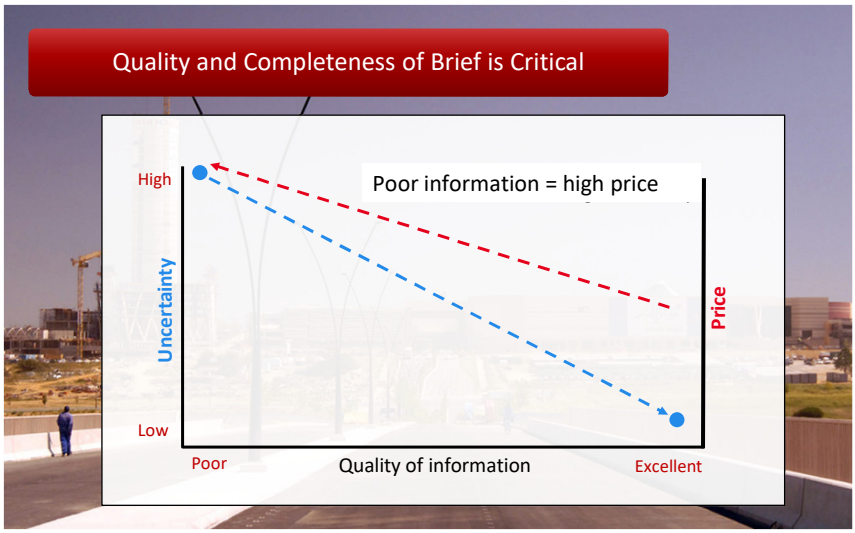


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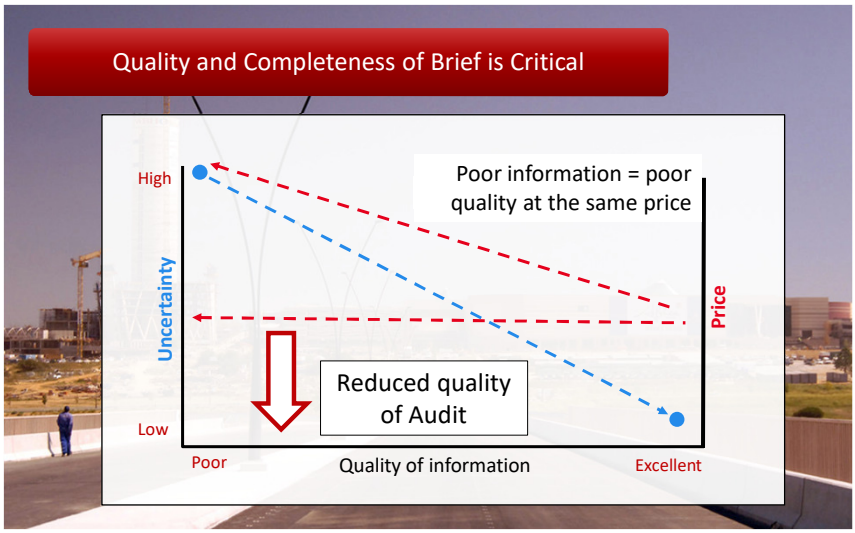
Poor information = poor quality at the same price

## Audit Brief Contents

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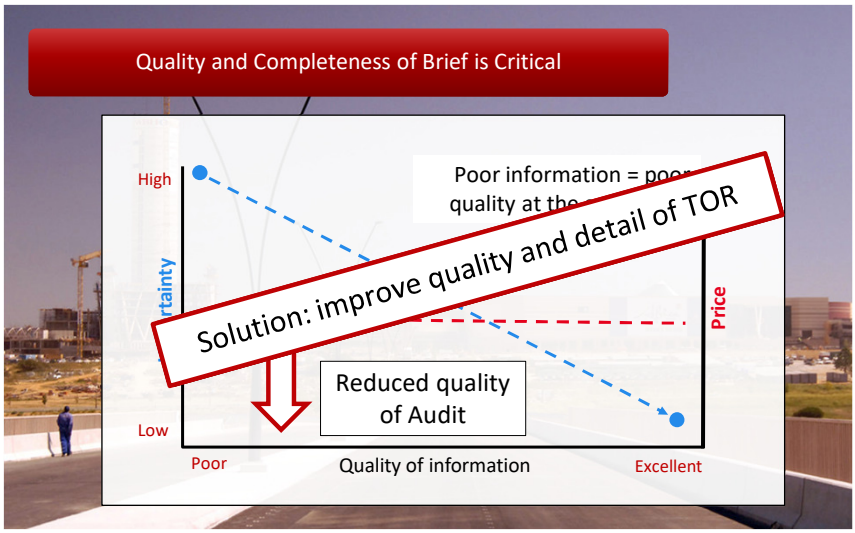


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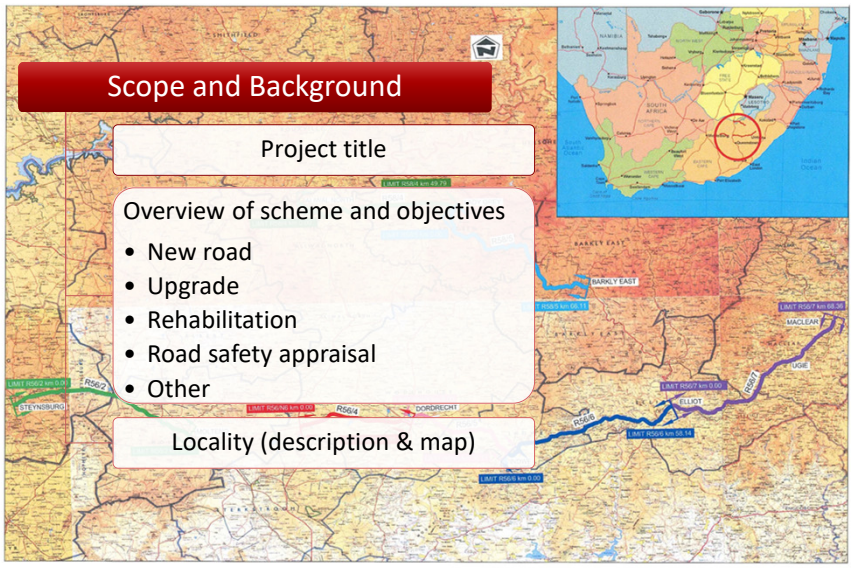


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## TOR: Project Scope and Background

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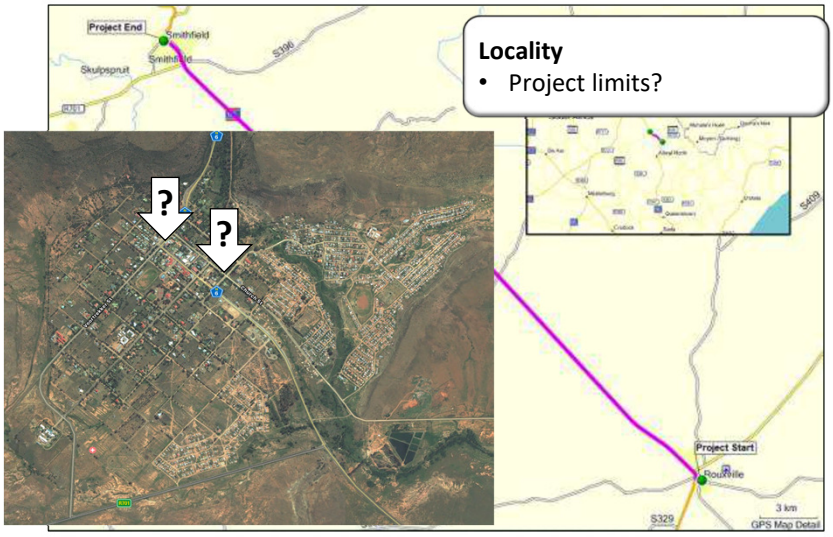


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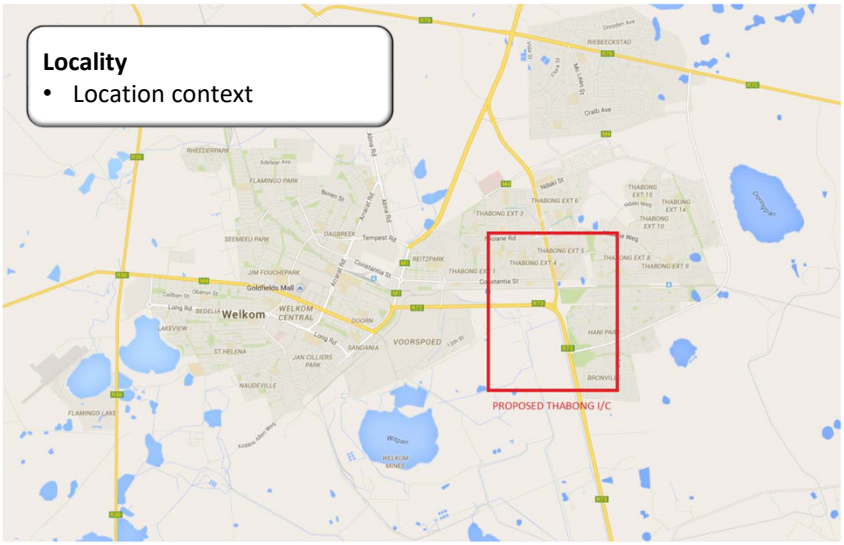


Source: SANRAL CONTRACT NRA R730-010-2011/1F RSA,

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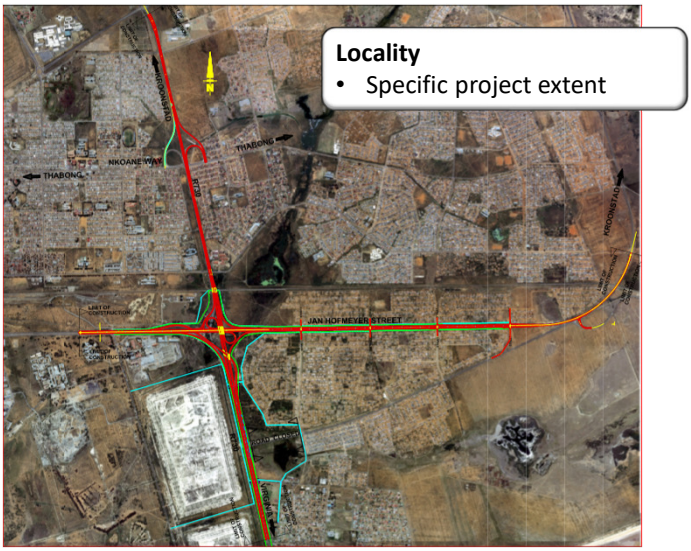


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## TOR: Description of the project

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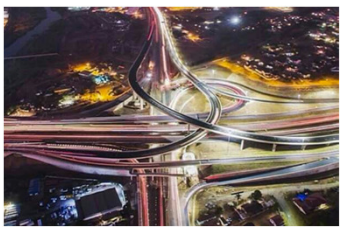
## TOR: Description of the project

### Detailed description of project

- Detailed scope of work
- Project phasing
- Project implementation time frames
- Project alternative (layouts, routes, concepts)
- Project constraints
- For appraisals - background to the facts that lead to the requirement for a safety study.



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# TOR: Available Drawings and project information

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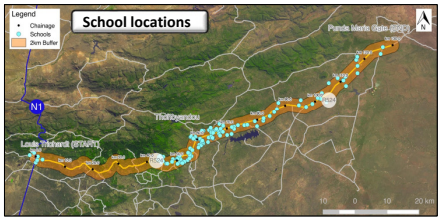
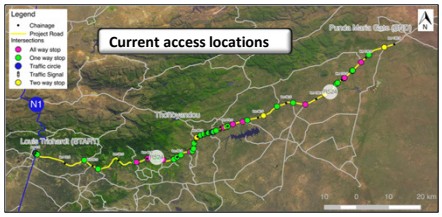
## TOR: Available Drawings and project information

### Project information

- Available and extent of information impact on perception of audit scope.
- Direct impact on perception of risk and price quoted.
- TOR should include project info if it will influence the auditors perception of risk and project scope.
- List availability of non critical info.

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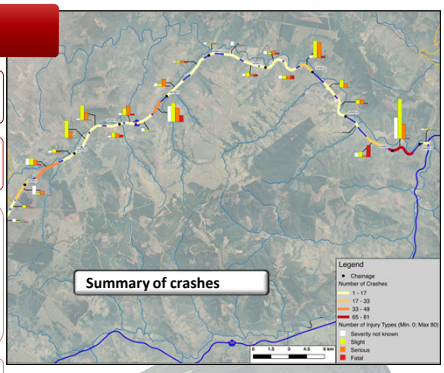
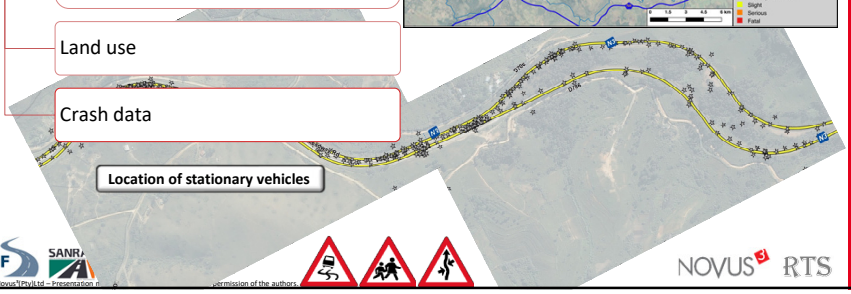
## TOR: Available Drawings and project information

### Project information

- Traffic composition (counts, all modes)
- Traffic operations
- Relevant environmental context
  - Weather
  - Protected vegetation
  - Heritage areas
- Land use
- Crash data

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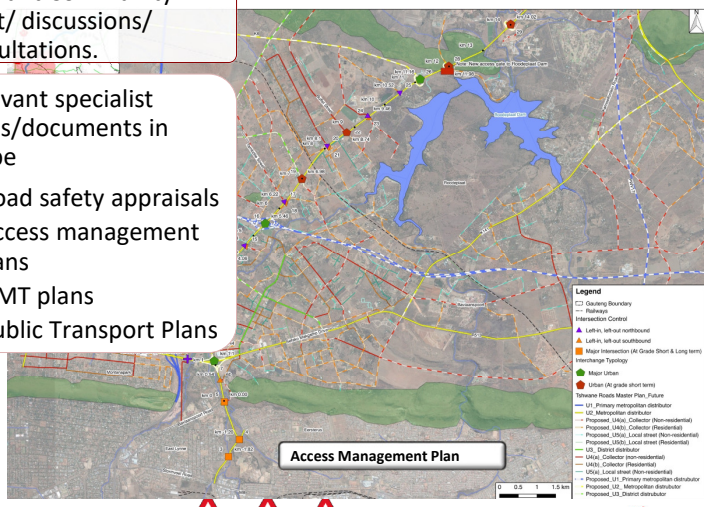
## TOR: Available Drawings and project information

### Project information

- Relevant Community input/ discussions/ consultations.
- Relevant specialist plans/documents in scope
  - Road safety appraisals
  - Access management pans
  - NMT plans
  - Public Transport Plans

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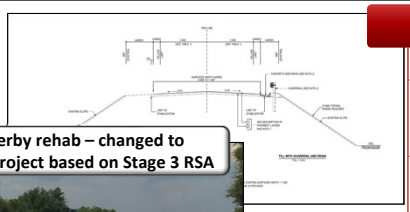

R30 Derby rehab – changed to upgrade project based on Stage 3 RSA

Magoebaskloof – bush clearance to improve sight

### Project information

- Design approach
- Events/facts that lead to notable features of current road.
- List design standards and speed
- Deviations from design standards (with reasons)
- Upgrades/elements of the scheme not shown on design drawings
- Known unresolved road safety risks

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## TOR: PREVIOUS ROAD SAFETY STUDIES/ AUDITS

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## TOR: Previous road safety studies/ audits

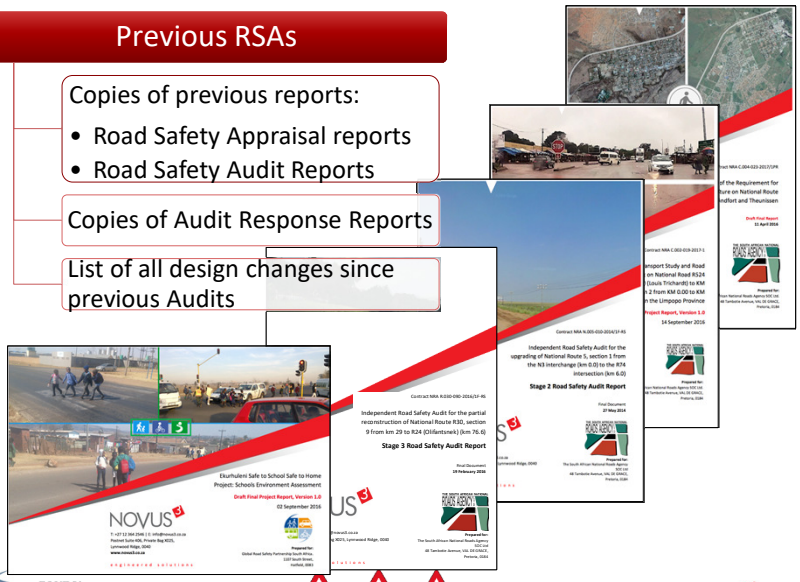
### Previous RSAs

Copies of previous reports:

- Road Safety Appraisal reports
- Road Safety Audit Reports

Copies of Audit Response Reports

List of all design changes since previous Audits

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## TOR: APPLICABLE RSA PHASES

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## TOR: Applicable RSA phases

| RSA Phases | RSA Stages |
|---|---|
| Pre-Construction RSA | Preliminary Design<br>Draft Design<br>Detailed Design |
| Construction RSA | Work Zone Stage<br>Pre-opening |
| Post-Construction RSA | Existing roads |
| Development project RSA | Land-use development |

**Applicable RSA Stages**

- RSA stage included in scope
- Extent of stage 1 or 2 audit included in stages 2 or 3 if not RSAs were done previously.
- Time frame for each stage.

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## TOR: SPECIFIC AUDIT REQUIREMENTS

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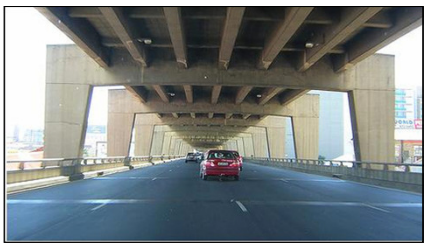
## TOR: Specific audit requirements

### Specific audit requirements

- Elements of project not included in audit.
- Note design elements or safety risks for which specific audit opinion is required.
- Indicate specific factors which need to be considered, which could be perceived to be excluded from the scope.
- Special requirements in terms of time of day/week of site visits.
- Number and location of meetings
- Contact details of stakeholders which should be consulted.
- Any specific site access arrangements.



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## TOR: AUDIT TEAM REQUIREMENTS

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## TOR: Specific team requirements

**Specific team requirements**

- Specific minimum experience requirements for team.
- Appropriate skills
- Team Size
- Important to specify specialists where required.
- Specific local or user group input may be important.
- Team as tendered must conduct the audit.

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## TOR: SANRAL RSA team requirements

**The Service Provider's Road Safety Audit Team Leader shall be permanently employed staff member of the Service Provider**; other key persons may be subcontracted.

**The minimum requirements of the Road Safety Audit Team Leader:**

- must be a Registered Professional Engineer or Professional Engineering Technologist with the Engineering Council of South Africa (ECSA), or international body recognized by the Client,
- Must have at least 10 years of experience post-graduation in Road Safety and/or Traffic and Transportation Engineering and/or Geometric Design,
- Has successfully completed a recognized Road Safety Audit course to the equivalent of at least 5 CPD points,
- Has successfully completed recognized Road Safety courses to the equivalent total of 2 CPD points within the last five (5) years, and
- Has undertaken at least 2 formal Road Safety Audits within a period of three (3) years as the Audit Team Leader or Audit Team member.

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## TOR: SANRAL RSA team requirements

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**The minimum requirements of the Road Safety Audit Team Member:**

- Diploma in technology or a Degree in Engineering or equivalent recognised qualification;
- At least 3 years of experience in Traffic and Transportation Engineering and/or Geometric Design and/or Road Safety Audits/Construction.
- Has successfully completed a recognised Road Safety Audit Course to the equivalent of at least 5 CPD points.

**It is compulsory for the Service Provider to engage one additional Road Safety Audit team member from QSE/EME companies/firms for capacity building in order to achieve the transformation objectives of the Client.**

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## TOR: PRICING SCHEDULE

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## TOR: Pricing Schedule

**Pricing Schedule**

- Avoid generic pricing schedules.
- Allow for different tasks per stage.
- Disbursements (travel)
- Data collection (if data is not available)
  - Counts
  - Crash data

| 1. PROFESSIONAL SERVICES WORK BREAKDOWN | HOURS PER PERSON | | |
|---|---|---|---|
| | Engineer | Technologist | Other |
| a) Brief by Project Engineers regarding entire future road scheme and implementation schedule | | | |
| b) Road Safety Inspection | | | |
| c) Stage 3 Road Safety Audit of the draft tender drawings and design report, production of Draft Road Safety Audit Report | | | |
| d) Incorporation of findings and production of the Final Road Safety Audit Report | | | |
| **TOTAL HOURS PER CATEGORY** | | | |
| **RATE PER CATEGORY (R per hour)** | | | |
| **TOTALS PER CATEGORY** | | | |
| **SUB-TOTAL PROFESSIONAL SERVICES LUMP SUM** | | | |

| 2. DISBURSEMENTS | Unit | Qty | Rate | Amount |
|---|---|---|---|---|
| a) Travel | Km | | | |
| b) Accommodation | Day | | | |
| c) Other (meetings, venues, photographs, printing of reports, etc.) | Lump Sum | | | |
| d) Allowance for additional requirements by the Employer | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| **SUB-TOTAL DISBURSEMENTS LUMP SUM** | | | | |

PROFESSIONAL SERVICES AND DISBURSEMENTS LUMP SUM R.....

VAT @ 14% R.....

TOTAL QUOTATION SUM CARRIED TO FORM OF QUOTATION R.....

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## TOR: REQUIREMENTS FOR METHOD STATEMENT

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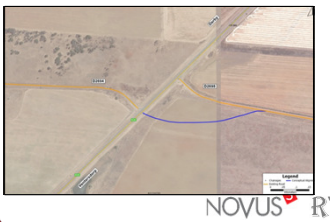
## TOR: Requirements for Method Statement

**Requirements for Method Statement**

- Specify extent of method statement required.
- Equipment to be used for audit.
- Site visit, extent, team.
- Examples of previous audit outputs.
- Team specific approach for the audit

| Aurecon Design Report Reference | Overview of Aurecon Report Findings | Audit Team Comments | Audit Team Finding |
|---|---|---|---|
| | Figure 3-7: Guardrail with no connection to balustrade Figure 3-8: Guardrail with bolted connection to balustrade. | Existing guardrails at bridges were not tied properly to the balustrades. The following guardrail/balustrade interactions were observed:<br>• No connection to balustrade<br>• Bolted connection to balustrade<br>The two interactions listed are shown in Figure 3-7 and Figure 3-8 for no connection and a bolted connection respectively.<br>The detail design drawings for the proposed new guardrails do not offer the detail required to determine the adequacy of the connection. | The guardrails should be tied to the front of the balustrades. |

| | General Risks Applicable to Both Options | Likelihood | Severity | Risk Rating |
|---|---|---|---|---|
| 1. | Road Signage, markings and guardrails | Probable | Serious | Intolerable |
| 2. | Intersection Configuration upgrades | Occasional | Serious | High |
| 3. | Intersection Configuration upgrades | Occasional | Catastrophic | Intolerable |
| 4. | Road Alignment | Probable | Serious | Intolerable |
| 5. | Bridge Parapets | Occasional | Catastrophic | Intolerable |



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