

Unit ID 1138

Domain

**ROAD CONSTRUCTION AND
MAINTENANCE - INSPECTION**

Title:

**Conduct inspections of roads and
road construction and maintenance
works**

Level: 4

Credits: 20

Purpose

This unit standard is intended for people engaged in roles involving the inspection of road construction and/or maintenance works related to the monitoring of contract provisions. People credited with this unit standard are able to: plan for inspections; conduct visual inspections; conduct measurements and/or tests as part of inspections; report inspection findings; and complete post-inspection actions.

Special Notes

1. Entry information

Prerequisite

- Unit 712 - *Comply with health, safety and environmental rules and regulations in road construction and maintenance work operations* or demonstrated equivalent skills and knowledge.

2. This unit standard must be assessed on the basis of evidence from demonstrated performance on a worksite or worksites. Assessment parameters will depend on company and site specific equipment, procedures, and practices. Practices must reflect industry best practice and comply with legislative requirements.

3. Definitions

a) For the purpose of this unit standard, *inspections* relate to road construction and maintenance work such as:

- Layerworks – work with crusher run, dump rock, natural sands and gravels, and clay.
- Stabilisation of materials – with lime, cement, bitumen and modified bitumen.
- Drainage works – installations of pre-cast concrete pipes, chute channels, manholes, inspection chambers, and culverts, installations of sub-soil drains, installations of catch pits, installations of in situ cast v-drains, installations of pre-cast and in situ kerbing.

- Road surfacing – use of gravel, pre-cast blocks, sand and gravel slurries, crushed stone/bituminous seals, pothole repair.
- Installed concrete structures.
- Blading – gravel, sand and salt road maintenance.
- Finishing – installations and repairs to guardrails, embankment protection, line marking and stud placement, erection of sign boards (both directional and regulatory).
- Road reserves – vegetation control, drainage maintenance, fences, gates, grid gates
- Emergency situations – for example, wash-aways, accidents.

For credit, inspections should be undertaken for a minimum of three of the groups shown above.

- b) *Inspections* can be of work undertaken by the main contractor and/or subcontractors (including Small and Medium Enterprise contractors). *Inspections* may also refer to the consideration of applications from other parties wishing to carry out work on or near a road surface (such as the installation or repair of services).

- c) *Inspections* must involve both visual and electronically-supported assessments of the adherence of works to contract specifications.

Measurements require the use of both manual tools (such as tapes) and electronic equipment (such as survey equipment, global positioning (GPS) devices, and inspection vehicles).

- d) *Measurements and tests* associated inspections refers to actions associated with load tests, layer depths and levels.
- e) *Organisational procedures* means all documented policies, procedures, and methodologies of the candidate's employer at the time of assessment and include but are not limited to those relating to health, safety, environment, quality, administration, and operations. All stipulated requirements, including legal requirements, must be adhered to at all times.
- f) *Technical instructions* refers to the documented procedures for the method of carrying out construction or maintenance work. For this unit standard, the documented procedures could be any or all of: manufacturers' instructions; company procedural documents; local authority requirements; contract specifications; training and resource materials linked to registered unit standards in this Subfield.
- g) *Visual inspections* refers to actions such as the assessment of dimensions, texture, shape, falls, colour, edges.

4. Regulations and legislation relevant to this unit standard include but are not limited to the following:
- Labour Act, No. 11 of 2007 as amended

- Regulations relating to the Health and Safety of employees at work, 1997
- Road Traffic and Transport Regulations No. 52, 1999 and Government Notice No. 53 on Road Traffic and Transport Regulations
- Road Ordinance 30 of 1960 and 17 of 1972 and other similar legislation
- The SADC Road Traffic Signs Manual and all subsequent amendments.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na

Elements and Performance Criteria

Element 1: Plan for inspections

Performance Criteria

- 1.1 Tools, equipment and protective clothing required for any measurement and testing actions are identified and obtained in accordance with organisational procedures.
- 1.2 Measurement and/or testing schedules are obtained and verified from contract specifications and work schedules.
- 1.3 Measurements and/or test criteria relevant to the work to be inspected are identified and verified as specified in contract documents and drawings.
- 1.4 Relevant persons in any contracting party are identified from contract documents.
- 1.5 An inspection schedule is determined for the contracted works in accordance with organisational procedures and contract specifications.
- 1.6 Tools and equipment are checked for availability and/or usability in accordance with organisational procedures.

Element 2: Conduct visual inspections

Performance Criteria

- 2.1 The importance of final appearance of works is explained in terms of future works and/or maintenance activities and aesthetics for road users.
- 2.2 Visual inspections are carried out in accordance with the inspection schedule.
- 2.3 Defects and/or non-compliance of work results and/or operations are identified in terms of variance from contract specifications.
- 2.4 Possible causes of defects and/or non-compliances are identified and corrective actions advised and/or recorded in accordance with organisational procedures.
- 2.5 Illegal or non-compliant road signage is identified and corrective actions advised and/or recorded in accordance with organisational procedures.
- 2.6 Any irreparable defects are identified and recorded in accordance with organisational policies and procedures.
- 2.7 Photographic evidence of visual inspections is taken in accordance with reporting and organisational procedures.
- 2.8 Visual inspection records are complete and accurate and are prepared in accordance with organisational procedures.
- 2.9 Personal protective equipment is worn and used in accordance with manufacturer's instructions and organisational procedures.
- 2.10 Any maintenance or realignments to signage or the removal of obstacles or safety threats to road users observed during visual inspections requiring immediate attention are dealt with in accordance with technical instructions.
- 2.11 Any required corrective instructions given on site are given and recorded in writing in accordance with organisational procedures and contract specifications.

Element 3: Conduct measurements and/or tests as part of inspections

Performance Criteria

- 3.1 Work elements required to be tested are selected in accordance with contract specifications.
- 3.2 Measurement and/or testing actions selected are relevant to the work being inspected and the results required.
- 3.3 Any samples are taken and, where necessary, transported and stored safely and in accordance with relevant test procedures and instructions.

- 3.4 Measurement and/or testing equipment are set up and calibrated in accordance with manufacturer's instructions and inspection requirements.
- 3.5 Measurements and/or tests are carried out in accordance with relevant technical instructions.
- 3.6 Results of measurements and/or tests are recorded and stored accurately and completely, and in accordance with organisational procedures.
- 3.7 Measurements and/or tests are carried out in accordance with workplace safety requirements.
- 3.8 Tools and equipment are used in accordance with their designed purpose and manufacturer's instructions.
- 3.9 Personal protective equipment is worn and used in accordance with manufacturer's instructions and organisational procedures.
- 3.10 Any required corrective instructions given on site are given and recorded in writing in accordance with organisational procedures and contract specifications.
- 3.11 Analysis of work proposed by third parties verifies that the integrity of existing road infrastructure will likely be maintained.

Element 4: Report inspection findings

Performance Criteria

- 4.1 Data processing and analysis is conducted in accordance with appropriate computing applications (e.g. Microsoft Excel) and reporting requirements.
- 4.2 Measurements and/or test results are compared against relevant contract specifications and degree of compliance and/or variance recorded in accordance with organisational procedures.
- 4.3 Degree of compliance and/or variance is reported in accordance with organisational procedures.
- 4.4 Reported visual inspection components are supported by photographic evidence that is clear and accurate in its representation of sighted elements.
- 4.5 Suggestions for consequential actions, including any remedial actions by the contracting party, are reported (including in writing) in accordance with organisational procedures.
- 4.6 Confidentiality and security of all information is maintained at all times.
- 4.7 Reports are distributed in accordance with contract specifications and organisational procedures.

Element 5: Complete post-inspection actions

Performance Criteria

- 5.1 Inspection results, records, and reports are checked as being secured in accordance with organisational procedures.
- 5.2 Measurement and/or testing tools and equipment are cleaned, dried and stored in accordance with manufacturer's instructions and organisational procedures.
- 5.3 Inspection schedules are updated and/or revised in accordance with past actions and organisational procedures.

Registration Data

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