

Specification (Measurement)

**Transport and Main Roads Specifications
MRS204 Vehicle Detectors**

July 2021

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1 Introduction

This Specification applies to the supply and installation of Vehicle Detectors.

This document applies to the following types of vehicle detectors.

- Loop Detectors
- Radar Vehicle Detectors, and
- Infrared Vehicle Detectors.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRS204 *Vehicle Detectors* and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

2 Measurement of works

2.1 Vehicle detectors

2.1.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

Standard Item No.	Description	Unit of Measurement
Vehicle loop detectors		
61504	Supply of loop detector cable, [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material]	m
61505	Supply of cable, [usage], [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material]	m
61506	Supply of cable joint, [fused unfused]	each
61507	Installation, jointing and termination of loop detector cable, [cores]	m
61508	Installation, jointing and termination of cable, [usage], [cores]	m
61509	Supply of [rectangular square] preformed loops [dimensions], [no. of turns inductance range] in [concrete asphalt] pavement	each
61510	Supply and installation of [rectangular square] preformed loops [dimensions], [no. of turns inductance range] in [concrete asphalt] pavement	each
61511	Installation of [rectangular square] preformed loops [dimensions], [no. of turns inductance range] in [concrete asphalt] pavement	each
61512	Supply of Vehicle Loop Detector Equipment incorporating [1 2 3 4 5 6 7 8] channel cards	each
61513	Supply and installation of Vehicle Loop Detector Equipment incorporating [1 2 3 4 5 6 7 8] channel cards	each
61514	Installation of Vehicle Loop Detector Equipment incorporating [1 2 3 4 5 6 7 8] channel cards	each

Standard Item No.	Description	Unit of Measurement
Radar vehicle detectors		
61531	Supply and installation of radar vehicle detectors, as per manufacturer's requirements	each
Infrared vehicle detectors		
61551	Supply and installation of infrared vehicle detectors as per manufacturer's requirements	each
Ancillary items		
61571	Provision of Vehicle Detection Spares [<i>as listed in the contract documents or on drawing reference</i>]	item
Removal of existing vehicle loop detectors		
61591	Removal of Vehicle Detection Equipment for re-use	each
61592	Removal of Vehicle Detection Equipment for disposal	each
61593	Removal of Vehicle Detector Loop	each
61594	Removal of Vehicle Detector Feeder cable	m

2.1.2 Method of measurement

Item 61504 Supply of loop detector cable, [*conductor size*], [*number of cores*] cores, [*core insulation*], [*sheath insulation*], [*conductor material*]

Item 61505 Supply of cable, [*usage*], [*conductor size*], [*number of cores*] cores, [*core insulation*], [*sheath insulation*], [*conductor material*]

Item 61506 Supply of cable joint, [*fused | unfused*]

Item 61507 Installation, jointing and termination of loop detector cable, [*cores*]

Item 61508 Installation, jointing and termination of cable, [*usage*], [*cores*]

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of cables
- c) connection and termination of cables, and
- d) testing of installation.

Item 61509 Supply of [*rectangular | square*] preformed loops [*dimensions*], [*no. of turns | inductance range*] in [*concrete | asphalt*] pavement

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general equipment requirements stated in MRTS257 *Feeder Cable and Loop Cable for Vehicle Detector*.

Item 61510 Supply and Installation of [rectangular | square] preformed loops [dimensions], [no. of turns | inductance range] in [concrete | asphalt] pavement

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general equipment requirements stated in MRTS257 *Feeder Cable and Loop Cable for Vehicle Detector*.

Item 61511 Installation of [rectangular | square] preformed loops [dimensions], [no. of turns | inductance range] in [concrete | asphalt] pavement

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general equipment requirements stated in MRTS257 *Feeder Cable and Loop Cable for Vehicle Detector*.

Item 61512 Supply of Vehicle Loop Detector Equipment incorporating [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] channel cards

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) general equipment requirements stated in MRTS201 *General Equipment Requirements*, MRTS204 *Vehicle Detectors* and MRTS257.

Item 61513 Supply and installation of Vehicle Loop Detector Equipment incorporating [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] channel cards

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) general equipment requirements stated in MRTS201 *General Equipment Requirements*, MRTS204 *Vehicle Detectors* and MRTS257.

Item 61514 Installation of Vehicle Loop Detector Equipment incorporating [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] channel cards

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) general equipment requirements stated in MRTS201 *General Equipment Requirements*, MRTS204 *Vehicle Detectors* and MRTS257.

Item 61531 Supply and installation of radar vehicle detectors as per manufacturer's requirements

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general equipment requirements stated in MRTS201 *General Equipment Requirements*, MRTS204 *Vehicle Detectors* and MRTS257, and
- c) any applicable requirements of MRTS93 *Traffic Signals*, 204 *Vehicle Detectors* and 257.

Item 61551 Supply and installation of infrared vehicle detectors as per manufacturer's requirements

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) general equipment requirements stated in MRTS201 *General Equipment Requirements*, MRTS204 Vehicle Detectors and MRTS257, and
- c) any applicable requirements of MRTS93 *Traffic Signals, 204 Vehicle Detectors and 257*.

Item 61571 Provision of Vehicle Detection Spares [as listed in the contract documents or on drawing reference]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) provision of spares in accordance with the requirements of MRTS201 *General Equipment Requirements* and as listed in the Scheme Documentation, and
- c) transport of all components to the Principal's storage facility.

Item 61591 Removal of Vehicle Detection Equipment for re-use

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) disconnection of Electrical Supply including termination and 'making safe' of supply cable
- c) disconnection of Telecommunications connection
- d) removal of Internal Cabinet Equipment, supporting pole and associated cabinet enclosure, and
- e) transport of all components to Principal's storage facility or designated site storage area for re-use.

Item 61592 Removal of Vehicle Detection Equipment for disposal

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) disconnection of Electrical Supply including termination and 'making safe' of supply cable
- c) disconnection of Telecommunications connection
- d) removal of Internal Cabinet Equipment, supporting pole and associated cabinet enclosure, and
- e) transport of all components and disposal.

Item 61593 Removal of Vehicle Detector loop

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) disconnection of electrical supply, including termination and 'making safe' of supply cable

- c) disconnection of Telecommunications connection
- d) removal of Internal cabinet equipment, supporting pole and associated cabinet enclosure
- e) transport of all components to Principal's storage facility or designated site storage area for re-use.

Item 61594 Removal of Vehicle Detector Feeder cable

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) disconnection of electrical supply including termination and 'making safe' of supply cable
- c) disconnection of telecommunications connection
- d) removal of internal cabinet equipment, supporting pole and associated cabinet enclosure
- e) transport of all components and disposal.

2.2 *Method of measurement of vehicle detection equipment*

This Specification provides Standard Work Items for:

- a) supply only of individual components
- b) installation only of individual components
- c) supply and installation of individual components, and
- d) supply and installation of complete vehicle detection site on a lump sum basis.

Any combination of Standard Work Items relating to these methods of measurement may be used in the Schedule of Rates. However:

- a) where a Standard Work Item for supply and installation of a particular component or group of components is included in the Schedule of Rates, no supply only nor installation only Standard Work Item shall also apply to that component or group of components, as applicable, and
- b) where a Standard Work Item for supply and installation of a complete vehicle detection site on a lump sum basis is included in the Schedule of Rates, no supply only, installation only nor supply and installation Standard Work Item shall also apply to that work.

2.3 *Supply of materials*

Any materials to be supplied by the Principal will be as stated in the Principal Supplied Material List, Form C6827. All other material shall be supplied by the Contractor.

The responsibility for transport to the Site of materials, supplied by the Principal, shall be as stated in the Principal Supplied Material List, Form C6827. Transport to the Site of all other materials shall be the responsibility of the Contractor.

2.4 *Removal of existing equipment*

The Superintendent will inspect the salvaged materials at the storage site and will reject any materials which, in the opinion of the Superintendent, have been damaged during the salvage operation. The Contractor shall be required to reimburse the Principal for materials damaged during salvage.

