

Specification (Measurement)

**Transport and Main Roads Specifications
MRS207 Traffic Survey Foundation Equipment**

March 2023

Copyright

© The State of Queensland (Department of Transport and Main Roads) 2023.

Licence



This work is licensed by the State of Queensland (Department of Transport and Main Roads) under a Creative Commons Attribution (CC BY) 4.0 International licence.

CC BY licence summary statement

In essence, you are free to copy, communicate and adapt this work, as long as you attribute the work to the State of Queensland (Department of Transport and Main Roads). To view a copy of this licence, visit: <https://creativecommons.org/licenses/by/4.0/>

Translating and interpreting assistance



The Queensland Government is committed to providing accessible services to Queenslanders from all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 13 14 50 and ask them to telephone the Queensland Department of Transport and Main Roads on 13 74 68.

Disclaimer

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing.

Feedback

Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au

Contents

- 1 Introduction 1**
- 2 Measurement of Works 1**
 - 2.1 Standard Work Items 1
 - 2.2 Work Operations 2
 - 2.3 Method of measurement of traffic survey foundation equipment components 10
 - 2.4 Supply of materials 10

1 Introduction

This Specification applies to the manufacture, supply, installation, testing and commissioning of field equipment and roadside traffic survey cabinets as an integral part of Department of Transport and Main Roads wider requirement for road network traffic information.

This Specification should be read in conjunction with MRS01 *Introduction to Specifications* and other Specifications as appropriate.

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

2 Measurement of Works

2.1 Standard Work Items

In accordance with the provisions of Clause 2.1.3 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
Traffic Survey Cabinet Plinth Base		
61801	Supply of single field cabinet plinth base	each
61802	Installation of single field cabinet plinth base	each
61803	Supply and installation of single field cabinet plinth	each
Traffic Survey Cabinet Plinth Mounted		
61811	Supply of single plinth [<i>metered</i> <i>unmetered</i>] field cabinet	each
61812	Installation of single plinth [<i>metered</i> <i>unmetered</i>] field cabinet	each
61813	Supply and installation of single plinth [<i>metered</i> <i>unmetered</i>] field cabinet	each
Traffic Survey Cabinet Equipment and Ancillaries		
61831	Supply of field cabinet [<i>fan</i> <i>filter</i> <i>shelf</i>]	each
61832	Installation of field cabinet [<i>fan</i> <i>filter</i> <i>shelf</i>]	each
61833	Supply and Installation of field cabinet [<i>fan</i> <i>filter</i> <i>shelf</i>]	each
61834	Supply of ELV power supply hardware [<i>12V DC Rectifier</i> <i>48V DC converter</i> <i>DC power distribution board 4 or 8 outputs</i>] and ancillary components	each
61835	Installation of ELV power supply hardware [<i>12V DC Rectifier</i> <i>48V DC converter</i> <i>DC power distribution board 4 or 8 outputs</i>] and ancillary components	each
61836	Supply and Installation of ELV power supply hardware [<i>12V DC Rectifier</i> <i>48V DC converter</i> <i>DC power distribution board 4 or 8 outputs</i>] and ancillary components	each
61837	Supply of DC batteries and ancillary equipment	each
61838	Installation of DC batteries and ancillary equipment	each
61839	Supply and Installation of DC batteries and ancillary equipment	each

Standard Item No	Description	Unit of Measurement
61840	Supply of communications equipment [<i>wireless modem unmanaged network switch</i>] and ancillary components	each
61841	Installation of communications equipment [<i>wireless modem unmanaged network switch</i>] and ancillary components	each
61842	Supply and installation of communications equipment [<i>wireless modem unmanaged network switch</i>] and ancillary components	each
61843	Supply of Bluetooth data logger and ancillary components	each
61844	Installation of Bluetooth data logger and ancillary components	each
61845	Supply and installation of Bluetooth data logger and ancillary components	each
61846	Supply of Bluetooth antenna with IP66 rated enclosure	each
61847	Installation of Bluetooth antenna with IP66 rated enclosure	each
61848	Supply and installation of Bluetooth antenna with IP66 rated enclosure	each
61849	Supply of multi-purpose CCTV camera [<i>PTZ</i>] [<i>with without</i>] Video Recorder	Lump Sum
61850	Installation of multi-purpose CCTV camera [<i>PTZ</i>] [<i>with without</i>] Video Recorder	Lump Sum
61851	Supply and Installation of multi-purpose CCTV camera [<i>PTZ</i>] [<i>with without</i>] Video Recorder	Lump Sum
Removal of Existing Equipment		
61891	Removal of field cabinet, [<i>for salvage for disposal</i>]	each
61892	Removal of field cabinet plinth base	each
61893	Removal of existing traffic survey field equipment [<i>description</i>]	each

2.2 Work Operations

Item 61801 Supply of single field cabinet plinth base

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply of field cabinet plinth in accordance with SD1679 *ITS – Telecommunications Field Cabinet Base Installation Details*, SD1901 *ITS – Traffic Survey Cabinet Base Installation Details* and MRTS226 *Telecommunications Field Cabinets*.

Item 61802 Installation of single field cabinet plinth base

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) localised excavation
- c) provision of formwork for concrete pad surrounding plinth base
- d) supply and installation of conduit from plinth base to electrical and communications pits, where necessary

- e) sealing of gap between enclosure and plinth, where necessary
- f) supply, placement and finishing of concrete pad surrounding plinth base, where necessary, and
- g) supply and installation of all fixing bolts, nuts and washers as appropriate.

Item 61803 Supply and Installation of single field cabinet plinth base

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of field cabinet plinth in accordance with SD1679 *ITS – Telecommunications Field Cabinet Base Installation Details*, SD1901 *ITS – Traffic Survey Cabinet Base Installation Details* and MRTS226 *Telecommunications Field Cabinets*
- c) localised excavation
- d) provision of formwork for concrete pad surrounding plinth base
- e) supply and installation of conduit from plinth base to electrical and communications pits, where necessary
- f) supply and installation of plinth base
- g) sealing of gap between enclosure and plinth, where necessary
- h) supply, placement and finishing of concrete pad surrounding plinth base, where necessary, and
- i) supply and installation of all fixing bolts, nuts and washers as appropriate.

Item 61811 Supply of single plinth [*metered* | *unmetered*] field cabinet

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply of [*metered* | *unmetered*] plinth-mounted field cabinet complete with all necessary components including cabinet switchboard and internal wiring as per SD1905 *ITS – Traffic Survey Cabinet Typical Details*, MRTS207 *Traffic Survey Foundation Equipment* and MRTS226 *Telecommunications Field Cabinets*.

Item 61812 Installation of single plinth [*metered* | *unmetered*] field cabinet

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) mounting of field cabinet on plinth or pole / post, as appropriate
- c) installation of [*metered* | *unmetered*] field cabinet, as appropriate, complete with all necessary components including cabinet switchboard and internal wiring
- d) earthing of installation including supply of earthing materials, and
- e) electrical testing of field cabinet.

Item 61813 Supply and Installation of single plinth [metered | unmetered] field cabinet

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of [metered | unmetered] field cabinet, as appropriate, complete with all necessary components including cabinet switchboard and internal wiring as per SD1905 *ITS – Traffic Survey Cabinet Typical Details*, MRS207 *Traffic Survey Foundation Equipment* and MRS226 *Telecommunications Field Cabinets*
- c) mounting of field cabinet on plinth or pole / post, as appropriate
- d) earthing of installation including supply of earthing materials, and
- e) electrical testing of field cabinet.

Item 61831 Supply of field cabinet [fan | filter | shelf]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply of field cabinet [fan | filter | shelf] complete with all necessary components.

Item 61832 Installation of field cabinet [fan | filter | shelf]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of field cabinet [fan | filter | shelf] complete with all necessary components, and
- c) testing of the operation of installed fans.

Item 61833 Supply and Installation of field cabinet [fan | filter | shelf]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of field cabinet [fan | filter | shelf] complete with all necessary components, and
- c) testing of the operation of installed fans.

Item 61834 Supply of ELV power supply hardware [12V DC Rectifier | 48V DC converter | DC power distribution board 4 or 8 outputs] and ancillary components

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 MRS201 *General Equipment Requirements*, and
- c) supply only of ELV power supply hardware with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61835 Installation of ELV power supply hardware [12V DC Rectifier | 48V DC converter | DC power distribution board 4 or 8 outputs] and ancillary components

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*, and
- c) installation, testing, commissioning of ELV power supply hardware with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61836 Supply and Installation of ELV power supply hardware [12V DC Rectifier | 48V DC converter | DC power distribution board 4 or 8 outputs] and ancillary components

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*, and
- c) supply, installation, testing, commissioning and full documentation of ELV power supply hardware with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61837 Supply of DC batteries and ancillary equipment

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of [qty] batteries and ancillary components in accordance with SD1905 *ITS – Traffic Survey Cabinet Typical Details*
- c) supply of DC power cabling and connection to 12V DC Rectifier, and
- d) handover of battery documentation in accordance with the requirements of MRTS207 *Traffic Survey Foundation Equipment*.

Item 61838 Installation of DC batteries and ancillary equipment

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) Installation and alignment of all batteries, cabling and connection to 12V rectifier
- c) Completion of commissioning tests, and
- d) handover of all documents of the test reports to the Principal in accordance with the requirements of MRTS207 *Traffic Survey Foundation Equipment*.

Item 61839 Supply and Installation of DC batteries and ancillary equipment

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

- b) supply of [qty] batteries and ancillary components in accordance with SD1905 *ITS – Traffic Survey Cabinet Typical Details*
- c) supply of DC power cabling and connection to 12V Rectifier
- d) handover of battery documentation
- e) Installation and alignment of all batteries, cabling and connection to 12V Rectifier
- f) Completion of commissioning tests, and
- g) handover of all documents of the test reports to the Principal in accordance with the requirements of MRS207 *Traffic Survey Foundation Equipment*.

Item 61840 Supply of communications equipment [wireless modem | unmanaged network switch] and ancillary components

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 MRS201 *General Equipment Requirements, and*
- c) supply only of communications equipment with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61841 Installation of communications equipment [wireless modem | unmanaged network switch] and ancillary components

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 MRS201 *General Equipment Requirements, and*
- c) installation and testing of communications equipment with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61842 Supply and Installation of communications equipment [wireless modem | unmanaged network switch] and ancillary components

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 MRS201 *General Equipment Requirements, and*
- c) supply, installation, testing, commissioning and full documentation of communications equipment with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61843 Supply of Bluetooth data logger and ancillary components

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*, and
- c) supply only of Bluetooth data logger with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61844 Installation of Bluetooth data logger and ancillary components

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*, and
- c) installation, testing and commissioning of Bluetooth data logger with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61845 Supply and Installation of Bluetooth data logger and ancillary components

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*, and
- c) supply, installation, testing, commissioning and full documentation of Bluetooth data logger with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61846 Supply of Bluetooth antenna with IP66 rated enclosure

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*
- c) supply of all fixing bolts, nuts and washers as appropriate, and
- d) Supply only of Bluetooth antenna with all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRTS207 *Traffic Survey Foundation Equipment*.

Item 61847 Installation of Bluetooth antenna with IP66 rated enclosure

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*
- c) all works associated with externally mounting a Bluetooth antenna within an IP66 rated enclosure on the cabinet as required
- d) installation of all fixing bolts, nuts and washers as appropriate
- e) installation of all cabling to and from Bluetooth antenna

- f) sealing of gap between enclosure and cabinet, where necessary, and
- g) installation, testing and commissioning of Bluetooth antenna and all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61848 Supply and Installation of Bluetooth antenna with IP66 rated enclosure

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 MRS201 *General Equipment Requirements*
- c) all works associated with externally mounting an IP66 rated enclosure and Antenna on the cabinet as required
- d) supply and installation of all fixing bolts, nuts and washers as appropriate
- e) supply and installation of all cabling to and from Bluetooth antenna
- f) sealing of gap between enclosure and cabinet, where necessary, and
- g) supply, installation, testing, commissioning and full documentation of Bluetooth antenna and all necessary components in accordance with the requirements of SD1905 *ITS – Traffic Survey Cabinet Typical Details* and MRS207 *Traffic Survey Foundation Equipment*.

Item 61849 Supply of multi-purpose CCTV camera [PTZ] [with | without] Video Recorder

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of Pan-Tilt-Zoom (PTZ) Closed Circuit Television (CCTV) camera
- c) supply of Video Recorder, if applicable
- d) supply of associated housing, mounting brackets and plates and other related accessories
- e) supply of associated power supply unit, if applicable
- f) supply of 4.1 m traffic signal post, ragbolt assembly, finial cap, brackets, all fixing bolts, nuts and washers as appropriate
- g) supply of operations and maintenance manuals (including software), and
- h) supply of Warranty.

Item 61850 Installation of multi-purpose CCTV camera [PTZ] [with | without] Video Recorder

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of PTZ CCTV camera
- c) installation of Video Recorder within the traffic survey cabinet, if applicable
- d) installation of associated housing, mounting brackets and plates and other related accessories
- e) installation of associated power supply unit, if applicable
- f) excavation for footing, disposal of excavated material

- g) installation of 4.1 m traffic signal post, ragbolt assembly, finial cap, brackets, all fixing bolts, nut and washers, and
- h) testing and commissioning of installation.

Item 61851 Supply and Installation of multi-purpose CCTV camera [PTZ] [with | without] Video Recorder

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of PTZ multi-purpose CCTV camera
- c) supply of Video Recorder, if applicable
- d) supply of associated housing, mounting brackets and plates and other related accessories
- e) supply of associated power supply unit, if applicable
- f) supply of 4.1 m traffic signal post, ragbolt assembly, finial cap, brackets, all fixing bolts, nut and washers as appropriate
- g) supply of operations and maintenance manuals, software
- h) supply of Warranty
- i) installation of PTZ multi-purpose CCTV camera
- j) installation of Video Recorder within the traffic survey cabinet, if applicable
- k) installation of associated housing, mounting brackets and plates and other related accessories
- l) installation of associated power supply unit, if applicable
- m) excavation for footing, disposal of excavated material
- n) installation of 4.1 m traffic signal post, ragbolt assembly, finial cap, brackets, all fixing bolts, nuts and washers, and
- o) testing and commissioning of installation.

Item 61891 Removal of field cabinet, [for salvage | 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) de-energisation and disconnection of cabling to field cabinet
- c) removal of cabinet and all internal cabling and associated components, as appropriate
- d) for pole / post mounted field cabinets:
 - i. removal of [pole | post]
 - ii. dismantling of [pole | post] and components, where appropriate, and
 - iii. transporting of [pole | post] and associated components to designated storage facility or another station for re-use.

- e) for field cabinets to be salvaged:
 - i. dismantling of equipment, where appropriate, and
 - ii. transporting of field cabinets to designated storage facility or another station for re-use.
- f) for field cabinets to be disposed:
 - i. disposal of field cabinets, and
 - ii. disposal of components.

Item 61892 Removal of field cabinet plinth base

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removal of plinth base and associated surrounding concrete pad, as required
- c) removal of conduits from plinth to associated electrical and communications pits
- d) disposal of materials, and
- e) backfilling of hole.

Item 61893 Removal of existing traffic survey field equipment [description]

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) removal of equipment and ancillary components as required, and
- c) disposal of materials.

2.3 Method of measurement of traffic survey foundation equipment components

This Specification provides Standard Work Items for:

- a) supply only
- b) installation only, and
- c) supply and installation.

of traffic survey cabinet field components.

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

2.4 Supply of materials

Any materials to be supplied by the Principal will be as stated in Form C7827 *Principal Supplied Material List*. 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 Form C7827 *Principal Supplied Material List*. Transport to the Site of all other materials shall be the responsibility of the Contractor.

