

Superseded

Specification (Measurement)

MRS56 Construction Surveying

July 2020

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Contents

- 1 Introduction 1**
- 2 Measurement of work 1**
- 2.1 Standard Work Items 1
- 2.2 Work Operations 4

Superseded

1 Introduction

This specification applies to construction surveying for earthworks, road pavements, underground assets and bridges and structures during civil construction works.

The requirements for this Specification apply to all construction surveying operations under the Contract.

This Specification shall 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 work

2.1 Standard Work Items

In accordance with the provisions of Clause 2.1.3 of MRS01 *Introduction to Specifications*, the Standard Work Items incorporated in this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

Standard Item No.	Description	Unit of Measurement
Survey Control		
21401	Validation of existing Survey Control	lump sum
21402	Establish Survey Control	lump sum
Earthworks		
21451	Setting out of Stripped Area	lump sum
21452	Setting out for Excavated Area	lump sum
21453	Setting out for Embankments	lump sum
21454	As Constructed Survey of Stripped Area	lump sum
21455	Conformance and As Constructed Survey of Excavated Area	lump sum
21456	Conformance and As Constructed Surveys for End Structures	lump sum
21457	Conformance and As Constructed survey of top of Embankment prior to Construction of the Subgrade	lump sum
21458	Conformance and As Constructed Survey of Subgrade	m
21459	Conformance and As Constructed Survey of Excavations for Channels and Drains	lump sum
Pavement, Pavement Drains, Kerbs, Channels and Kerb and Channel		
21501	Setting out of Pavement Layers	m
21502	Setting out of Kerbs, Channel and Kerb and Channel	m
21503	Setting out of Footpaths	m
21504	Setting out of Pram Crossings	each
21505	Setting out of Pavement Drains	m
21506	Conformance and As Constructed survey of each Pavement Layer	m

Standard Item No.	Description	Unit of Measurement
21507	Conformance and As Constructed Survey of Kerb, Channel and Kerb and Channel	m
21508	Conformance and As Constructed Survey of Footpaths	m
21509	As Constructed Survey of Footpaths including Pram Crossings	each
21510	Conformance and As Constructed Survey of Pavement Drains	m
Road Furniture		
21551	Setting out of Road Safety Barriers	m
21552	Setting out or Road Signs / Project Signs	lump sum
21553	Setting out of Fences / Gates	lump sum
21554	As Constructed Survey of Road Safety Barriers	m
21555	As Constructed Survey of Guard Rails	m
21556	As Constructed Survey of Wire Rope Barrier	m
21557	As Constructed Survey of Road Signs / Project Signs / Variable Message Signs	lump sum
21558	As Constructed Survey of Fences	lump sum
21559	As Constructed Survey of Gates	each
21560	As Constructed Survey of Field Cabinets	each
21561	As Constructed Survey of Road Light Poles	each
21562	As Constructed Survey of Traffic Signal Poles	each
21563	As Constructed Survey of Electricity Poles	each
21564	As Constructed Survey of Overhead Wires	lump sum
Drainage		
21601	Setting out of Drainage Systems and Culverts	m
21602	Setting out Gullies	each
21603	Setting out of Access Chambers	each
21604	Setting out of Subsoil Drains	m
21605	Setting out of Vertical Drains	each
21606	Conformance and As Constructed Survey for Drainage Systems and Culverts	m
21607	Conformance and As Constructed Survey for Gullies	each
21608	Conformance and As Constructed Survey for Insitu Concrete Access Chambers	each
21609	Conformance and As Constructed Survey for Precast Concrete Access Chambers	each
21610	Conformance and As Constructed Survey for Subsoil Drains	m
21611	Conformance and As Constructed survey for Vertical Drains	each
Subsurface Footings		
21651	Setting out of Retaining Wall Pad / Strip Footings	each

Standard Item No.	Description	Unit of Measurement
21652	Setting out of Ancillary Structure Pile Footings	each
21653	Setting out of Noise Fence Pile / Spread Footings	each
21654	Setting out Traffic Signal and Road Lighting Post Footing	each
21655	Setting out for holding down bolts	each
21656	Setting out Load Bearing Footings	each
21657	Setting out Concrete Masonry / Crib Wall Footings	each
21658	Setting out Pile Caps for Ancillary Structures	each
21659	Conformance and As Constructed Survey for Concrete Retaining Wall pad / Strip Footings	each
21660	Conformance and As Constructed Survey of Ancillary Pile Footings	each
21661	Conformance and As Constructed Survey of Noise Fence Pile Footings	each
21662	Conformance and As Constructed Survey of Noise Fence Spread Footings	each
21663	Conformance and As Constructed Survey for depth of Traffic Signal / Road Lighting Post Footing	each
21664	Conformance and As Constructed survey for Traffic Signal Post Footing	each
21665	Conformance and As Constructed Survey for Traffic Signal Mast Arm Footing	each
21666	Conformance and As Constructed Survey of Road Lighting Pole Footing	each
21667	Conformance and As Constructed Survey of Load Bearing Footings	each
21668	Conformance and As Constructed Survey of Concrete Masonry / Crib Wall Footings	each
Conduits and Pits		
21701	Conformance and As Constructed Survey for Conduits (trench distance)	m
21702	Conformance and As Constructed Survey for Pits	each
Retaining Walls (above ground)		
21751	Setting out of Concrete Masonry / Crib Retaining Walls	m
21752	Setting out of Soil Nails	lump sum
21753	Setting out of Active Rock Bolts and Passive Rock Dowels	lump sum
21754	As Constructed Survey of Concrete, Crib, Boulder Retaining Walls	m
21755	As Constructed Survey of Soil Nails	lump sum
21756	As Constructed Survey of Active Rock Bolts and Passive Rock Dowels	lump sum
Noise Fences		
21801	As Constructed Survey of Noise Fences	m

Standard Item No.	Description	Unit of Measurement
Horizontal Directional Drilling, Micro Tunnelling and Thrust Boring		
21851	As Constructed Survey of Horizontal Directional Drilling	m
21852	As Constructed Survey of Micro tunnelling and Pipe Jacking	m
21853	As Constructed Survey of Thrust Boring and Auger Boring	m
Bridges		
21901	Setting out for Piles	each
21902	Setting out for Pile Caps	each
21903	Setting out for Columns	each
21904	Setting out for Abutments	each
21905	Setting out for Headstocks	each
21906	Setting out for Coreholes	lump sum
21907	Setting out for Bearing Pedestals / Plinths	each
21908	Setting out for Girders / Deck Units	each
21909	Setting out for Deck	m
21910	Setting out for Kerb and Parapets	m
21911	Setting out for Relieving Slabs	each
21912	Conformance and As Constructed Survey for Piles	each
21913	Conformance and As Constructed Survey for Pile Caps	each
21914	Conformance and As Constructed Survey for Columns	each
21915	Conformance and As Constructed Survey for Abutments	each
21916	Conformance and As Constructed Survey for Headstocks	each
21917	Conformance and As Constructed Survey for Coreholes	lump sum
21918	Conformance and As Constructed Survey for Bearing Pedestal / Plinths	each
21919	Conformance and As Constructed Survey for Girders / Deck Units	m
21920	Conformance and As Constructed Survey for Deck	m
21921	As Constructed Survey for Kerb and Parapets	m
21922	As Constructed Survey for Relieving Slabs	each
Existing Underground Assets		
22001	Survey of Existing Underground Assets	lump sum

2.2 Work Operations

Item 21401 Validation of existing Survey Control

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) checking all survey control marks for height
- c) checking any disturbance of Survey Control Marks since installation, and

- d) checking if any additional survey control data is required to be obtained that is necessary for design and any other surveying purposes.

Item 21402 Establish Survey Control

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) establishing survey control in accordance with recommended survey and reduction practices in Standard for *the Australian Survey Control Network – SP1 Ver. 2.1* and its relevant guidelines
- c) ensuring survey heights and horizontal coordinate systems match project coordinate values listed in contract drawings, and
- d) installation of Temporary Bench Marks.

Item 21451 Setting out of Stripped Area

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out extents of stripped areas.

Item 21452 Setting out Excavated Area

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of excavated areas.

Item 21453 Setting out for Embankments

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of embankments.

Item 21454 As Constructed Survey of Stripped Area

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of stripped areas.

Item 21455 Conformance and As Constructed Survey of Excavated Area

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of excavated areas
- c) As Constructed Survey of excavated unsuitable material areas
- d) deriving conformance results from As Constructed Survey and associated drawing of excavated areas, and
- e) deriving conformance results from As Constructed Survey of unsuitable material areas.

Item 21456 Conformance and As Constructed Surveys for End Structures

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of end areas, and
- c) deriving conformance results from As Constructed Survey and associated drawings of end areas.

Item 21457 Conformance and As Constructed Survey of top of Embankment prior to Construction of the Subgrade

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of embankments, and
- c) deriving conformance results from As Constructed Survey and associated drawings of embankments.

Item 21458 Conformance and As Constructed Survey of Subgrade

Work Operations incorporated in the above item include:

- a) a Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of subgrade, and
- c) deriving conformance results from As Constructed Survey and associated drawings of subgrade.

Item 21459 Conformance and As Constructed Survey of Excavations for Channels and Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of excavated areas for channels and drains, and
- c) deriving conformance results from As Constructed Survey and associated drawings of channels and drains.

Item 21501 Setting out of Pavement Layers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of pavement layers.

Item 21502 Setting out of Kerbs, Channel and Kerb and Channel

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of kerbs, channel and kerb and channel.

Item 21503 Setting out of Footpaths

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of footpaths.

Item 21504 Setting out of Pram Crossings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of pram crossings.

Item 21505 Setting out of Pavement Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of pavement drains.

Item 21506 Conformance and As Constructed Survey of each Pavement Layer

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of each pavement layer, and
- c) deriving conformance results from As Constructed Survey and associated drawings of each pavement layer.

Item 21507 Conformance and As Constructed Survey of Kerb, Channel and Kerb and Channel

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of kerb, channel and kerb and channel, and
- c) deriving conformance results from As Constructed Survey and associated drawings of kerb, channel and kerb and channel.

Item 21508 Conformance and As Constructed Survey of Footpaths

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of footpaths, and
- c) deriving conformance results from As Constructed Survey and associated drawings of footpaths.

Item 21509 As Constructed Survey of Footpaths including Pram Crossings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of footpaths including pram crossings.

Item 21510 Conformance and As Constructed Survey of Pavement Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of pavement drains, and
- c) deriving conformance results from As Constructed Survey and associated drawings of pavement drains.

Item 21551 Setting out of Road Safety Barriers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of road safety barriers.

Item 21552 Setting out of Road Signs / Project Signs

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of road signs / project signs.

Item 21553 Setting out of fences / gates

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of fences / gates.

Item 21554 As Constructed Survey of Road Safety Barriers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of road safety barriers.

Item 21555 As Constructed Survey of Guard Rails

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of guard rails.

Item 21556 As Constructed Survey of Wire Rope Barrier

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of wire rope barriers.

Item 21557 As Constructed Survey of Road Signs / Project Signs / Variable Message Signs

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of road signs / project signs / variable message signs.

Item 21558 As Constructed Survey of Fences

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of fences.

Item 21559 As Constructed Survey of Gates

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of gates.

Item 21560 As Constructed Survey of Field Cabinets

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of field cabinets.

Item 21561 As Constructed Survey of Road Light Poles

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed survey of road light poles.

Item 21562 As Constructed Survey of Traffic Signal Poles

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of traffic signal poles.

Item 21563 As Constructed Survey of Electricity Poles

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of electricity poles.

Item 21564 As Constructed Survey of Overhead Wires

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of overhead wires.

Item 21601 Setting out of Drainage Systems and Culverts

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of drainage systems and culverts.

Item 21602 Setting out of Gullies

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of gullies.

Item 21603 Setting out of Access Chambers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of access chambers.

Item 21604 Setting out of Subsoil Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of subsoil drains.

Item 21605 Setting out of Vertical Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of vertical drains.

Item 21606 Conformance and As Constructed Survey for Drainage Systems and Culverts

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of drainage systems and culverts, and
- c) deriving conformance results from As Constructed Survey and associated drawings of drainage systems and culverts.

Item 21607 Conformance and As Constructed Survey for Gullies

Work Operations incorporated in the above item include:

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

- b) As Constructed Survey of gullies, and
- c) deriving conformance results from As Constructed Survey and associated drawings of gullies.

Item 21608 Conformance and As Constructed Survey for Insitu Concrete Access Chambers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of insitu concrete access chambers, and
- c) deriving conformance results from As Constructed Survey and associated design drawings of insitu concrete chambers.

Item 21609 Conformance and As Constructed Survey for Precast Concrete Access Chambers

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of precast concrete access chambers, and
- c) deriving conformance results from As Constructed Survey and associated drawings of precast concrete access chambers.

Item 21610 Conformance and As Constructed Survey for Subsoil Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of subsoil drains, and
- c) deriving conformance results from As Constructed Survey and associated drawings of subsoil drains.

Item 21611 Conformance and As Constructed Survey for Vertical Drains

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of vertical drains, and
- c) deriving conformance results from As Constructed Survey and associated drawings of vertical drains.

Item 21651 Setting out of Retaining Wall Pad / Strip Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out retaining wall pad / strip footings.

Item 21652 Setting out of Ancillary Structure Pile Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of ancillary structure pile footings.

Item 21653 Setting out of Noise Fence Pile / Spread Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of noise fence pile / spread footings.

Item 21654 Setting out Traffic Signal and Road Lighting Post Footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of traffic signal and road lighting footings.

Item 21655 Setting out for Holding Down Bolts

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out holding down bolts.

Item 21656 Setting out Load Bearing Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out load bearing footings.

Item 21657 Setting out Concrete Masonry / Crib Wall Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out concrete masonry / crib wall footings.

Item 21658 Setting out Pile Caps for Ancillary Structures

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out pile caps for ancillary structures.

Item 21659 Conformance and As Constructed Survey for Concrete Retaining Wall Pad / Strip Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for concrete retaining wall pad / strip footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of concrete retaining wall pad / strip footings.

Item 21660 Conformance and As Constructed Survey of Ancillary Pile Footings

Work Operations incorporated in the above item include:

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

- b) As Constructed Survey for ancillary pile footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of ancillary pile footings.

Item 21661 Conformance and As Constructed Survey of Noise Fence Pile Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for noise fence pile footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of noise fence pile footings.

Item 21662 Conformance and As Constructed Survey of Noise Fence Spread Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for noise fence spread footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of noise fence spread footings.

Item 21663 Conformance and As Constructed Survey for Depth of Traffic Signal / Road Lighting Post Footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for depth of traffic signal / road lighting post footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of depth of traffic signal / road lighting post footings.

Item 21664 Conformance and As Constructed Survey for Traffic Signal Post Footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for traffic signal post footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of traffic signal post footings.

Item 21665 Conformance and As Constructed Survey for Traffic Signal Mast Arm Footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for traffic signal mast arm footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of traffic signal mast arm footings.

Item 21666 Conformance and As Constructed Survey of Road Lighting Pole Footing

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for road lighting pole footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of road lighting pole footings.

Item 21667 Conformance and As Constructed Survey of Load Bearing Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for load bearing footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of load bearing footings.

Item 21668 Conformance and As Constructed Survey of Concrete Masonry / Crib Wall Footings

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for concrete masonry / crib wall footings, and
- c) deriving conformance results from As Constructed Survey and associated drawings of concrete masonry / crib wall footings.

Item 21701 Conformance and As Constructed Survey for Conduits (trench distance)

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for conduits, and
- c) deriving conformance results for conduits from As Constructed Survey, associated drawings and documents containing alignment corridors, depth of cover and subgrade information.

Item 21702 Conformance and As Constructed Survey for Pits

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for pits, and
- c) deriving conformance results from As Constructed Survey and associated drawings of pits.

Item 21751 Setting out of Concrete Masonry / Crib Retaining Walls

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out concrete masonry / crib retaining walls.

Item 21752 Setting out of Soil Nails

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out of soil nails.

Item 21753 Setting out of Active Rock Bolts and Passive Rock Dowels

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out active rock bolts and passive rock dowels.

Item 21754 As Constructed Survey of Concrete, Crib, Boulder Retaining Walls

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of concrete, crib and bolder retaining walls.

Item 21755 As Constructed Survey of Soil Nails

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of soil nails.

Item 21756 As Constructed Survey of Active Rock Bolts and Passive Rock Dowels

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of active rock bolts and passive rock dowels.

Item 21801 As Constructed Survey of Noise Fences

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of noise fences.

Item 21851 As Constructed Survey of Horizontal Directional Drilling

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of horizontal directional drilling.

Item 21852 As Constructed Survey of Micro Tunnelling and Pipe Jacking

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of micro tunnelling and pipe jacking.

Item 21853 As Constructed Survey of Thrust Boring and Auger Boring

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of thrust boring and auger boring.

Item 21901 Setting out for Piles

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out piles.

Item 21902 Setting out for Pile Caps

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out pile caps.

Item 21903 Setting out for Columns

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out columns.

Item 21904 Setting out for Abutments

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out abutments.

Item 21905 Setting out for Headstocks

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out headstocks.

Item 21906 Setting out for Coreholes

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out coreholes.

Item 21907 Setting out for Bearing Pedestals / Plinths

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out bearing pedestals / plinths.

Item 21908 Setting out for Girders / Deck Units

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out girders / deck units.

Item 21909 Setting out for Deck

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) deck setting out.

Item 21910 Setting out for Kerb and Parapets

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out kerbs and parapets.

Item 21911 Setting out for Relieving Slabs

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) setting out relieving slabs.

Item 21912 Conformance and As Constructed Survey for Piles

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of piles, and
- c) deriving conformance results from As Constructed Survey and associated drawings of piles.

Item 21913 Conformance and As Constructed Survey for Pile Caps

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of pile caps, and
- c) deriving conformance results from As Constructed Survey and associated drawings of pile caps.

Item 21914 Conformance and As Constructed Survey for Columns

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of columns, and
- c) deriving conformance results from As Constructed Survey and associated drawings of columns.

Item 21915 Conformance and As Constructed Survey for Abutments

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of abutments, and
- c) deriving conformance results from As Constructed Survey and associated drawings of abutments.

Item 21916 Conformance and As Constructed Survey for Headstocks

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of headstocks, and
- c) deriving conformance results from As Constructed Survey and associated drawings of headstocks.

Item 21917 Conformance and As Constructed Survey for Coreholes

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey for coreholes, and
- c) deriving conformance results from As Constructed Survey and associated drawings of coreholes.

Item 21918 Conformance and As Constructed Survey for Bearing Pedestal / Plinths

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of bearing pedestals / plinths, and
- c) deriving conformance results from As Constructed Survey and associated drawings of pedestals / plinths.

Item 21919 Conformance and As Constructed Survey for Girders / Deck Units

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of girders / deck units, and
- c) deriving conformance results from As Constructed Survey and associated drawings of girders / deck units.

Item 21920 Conformance and As Constructed Survey for Deck

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) As Constructed Survey of the deck, and

- c) deriving conformance results from As Constructed Survey and associated drawings of the deck.

Item 21921 As Constructed Survey for Kerb and Parapets

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of kerbs and parapets.

Item 21922 As Constructed Survey for Relieving Slabs

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) As Constructed Survey of relieving slabs.

Item 22001 Survey of Existing Underground Assets

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) survey of existing underground assets.

Superseded

Superseded