



MAIN ROADS' STANDARD METHOD OF MEASUREMENT FOR CONSTRUCTION WORKS

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MAIN ROADS'
STANDARD METHOD OF MEASUREMENT
FOR CONSTRUCTION WORKS

REVISION REGISTER

Date	Clause Number	Description of Revision	Authorised By
18 Apr 13	510	Section 510 – Full Depth Asphalt Pavement added	PM
18 Apr 13	504	Title changed to Asphalt Wearing Course	PM
15 Aug 11	302.5.10	Sub Clause (g) amended	A/MCS
18 Mar 10	2.1	General Directions have been amended	A/SCO
12 Aug 09 24 Apr 09	503 1.15	Geotextile Reinforced Seals added Preambles Clause has been amended	PSM A/ SCO
	502	In the 500 Series – “Units and Method of Measurement the following have been included Stone Mastic Asphalt has been added	
	504	Reference to Polymer Modified Binder added	
30 Jan 08	Whole Document	General review after 1 year	MPCMP

Most recent revision appears at the top

PREFACE

Manager Project and Contract Management Practice, Infrastructure Delivery Directorate has approved the adoption of Main Roads' Standard Method of Measurement for Construction Works (SMM), as a replacement for the measurement and payment clauses previously included within the specifications.

SMM has been developed to assist in the consistency and standardisation of schedules of rates and bills of quantities that in turn will provide:

- A standardised layout and content of schedules of rates and bills of quantities,
- A systematic structure of schedules of rates and bills of quantities items so uniform itemisation and description is achieved,
- The subdivision of work into items providing a sensitive and balanced description of the work required,
- A standardised method of the measurement and pricing of items and
- A basis of data collection and a cost database that can be used for estimating purposes.

Infrastructure Delivery Directorate under whose guidance the SMM has been prepared will keep the document under review and consider any suggestions for amendment, which should be addressed to Manager Project and Contract Management Practice, Main Roads Western Australia, PO Box 6202, East Perth WA 6892. Revision of the document will be made when such action is warranted.

Main Roads' Standard Method of Measurement for Construction Works comprises the following Sections:

Document Description

PRINCIPLES FOR PREPARING SCHEDULES OF RATES AND BILLS OF QUANTITIES

PREAMBLES TO THE SCHEDULES OF RATES AND BILLS OF QUANTITIES

UNITS AND METHOD OF MEASUREMENT

Series 100 – General Requirements

Series 200 – Management Requirements

Series 300 – Earthworks

Series 400 – Drainage

Series 500 – Pavement and Surfacing

Series 600 – Traffic Facilities

Series 700 – Electrical and Lighting

Series 800 – Bridges and Major Structures

Series 900 – Miscellaneous

**PRINCIPLES FOR PREPARING SCHEDULES OF RATES
AND BILLS OF QUANTITIES**

SUPERSEDED

1 PRINCIPLES FOR PREPARING SCHEDULES OF RATES AND BILLS OF QUANTITIES

1.1 Definitions

For the purpose of Main Roads' Standard Method of Measurement for Construction Works and the Schedules of Rates or Bills of Quantities prepared in accordance with Main Roads' Standard Method of Measurement for Construction Works, the following definitions apply:

1. Bills of Quantities: The basis of a lump sum contract where the tendered sum takes precedence over the individual rates and prices.
2. Daywork: The method of valuing work on the basis of the time spent by labour, the materials used and the plant employed.
3. Schedules of Rates: The basis of a contract whereby rates are fixed to estimated quantities to produce a tender amount and during the contract the quantities of the actual work performed are remeasured to produce the final contract amount.

Words and expressions to which meanings are assigned in the Specifications and Drawings have the same meaning in Main Roads' Standard Method of Measurement for Construction Works.

1.2 Difference between Schedules of Rates and Bills of Quantities

Schedules of Rates and Bills of Quantities are prepared in the same manner and format, that is, they both result in a schedule of quantities of the work required. On completion of the schedule of quantities, if it is deemed the quantities of a significant number of items of work:

1. May vary, it should be termed a Schedule of Rates.
2. Will not vary, it should be termed a Bill of Quantities.

Generally, bridges and other major structures should each be grouped separately into Bills of Quantities. All other components of the Works should be grouped into Schedules of Rates. Thus, specific project requirements may require the combination of schedules of rates and bills of quantities. Typically, this is a combined road works and bridgeworks project, where the road works are grouped into schedules of rates and the bridgeworks and other major structures are grouped into bills of quantities.

(Note that Schedules of Rates give rise to different contract administration requirements for the Superintendent compared to the contract administration requirements arising from Bills of Quantities.)

1.3 Scope

Recommendations are made herein covering methods of preparing Schedules of Rates and Bills of Quantities and units of measurements for road works and bridgeworks projects. While specific recommendations have been made, it is necessary to consider each project on its merits. The great diversity of roadwork and bridgework projects makes it impracticable to produce a standard method of measurement for selecting or dividing items applicable in its entirety to each project.

1.4 Objectives of Schedules of Rates and Bills of Quantities

The objectives of Schedules of Rates and Bills of Quantities are as follows:

1. To provide such information of the quantities of work so as to enable estimates and tenders to be prepared efficiently, accurately and consistently.
2. Where a contract has been entered into, to provide for use of, the priced Schedules of Rates and/or Bills of Quantities in:
 - (i) the valuation of work executed; and
 - (ii) the valuation of variations in accordance with the contract provisions.
3. To form the basis for accurate project planning.
4. To provide uniform data for inclusion in cost databases.

1.5 Method of Measurement

The items contained in the Schedules of Rates or Bills of Quantities shall be measured in accordance with Main Roads' Standard Method of Measurement for Construction Works, unless expressly stated otherwise. All work that is expressly required should be included in the Schedules of Rates or Bills of Quantities.

Any methods of measurement that are adopted in the preparation of the Schedules of Rates or Bills of Quantities and that are not in accordance with Main Roads' Standard Method of Measurement for Construction Works shall be stated in Contract Specific Preambles.

1.6 Grouping

Separate schedules or bills should be prepared for works of different nature, location, date of commencement, time for completion or any other circumstance which may give rise to different considerations of cost.

The items in the schedules or bills shall be arranged in the general order of the Specification and subdivided in the following order:

1. Specification series,
2. Specification main part,
3. Location, element, component, nature of work, etc.,
4. Grade, class, category, size, length, width, thickness, diameter, etc.

Each series shall be totalled and carried forward to a summary. The summary should be structured so as to contain the totals of each series for the individual schedules or bills.

1.7 Classification of Items

In the Units and Method of Measurement section of Main Roads' Standard Method of Measurement for Construction Works under the subheading "Classification Of Items," recommendations are made with regards to the provision of separate items. Depending upon the particular project being measured, any of these may be required or alternatively, not required. Also, where the particular project so requires, further separate items may be required.

1.8 Mode of Item Descriptions

Item descriptions should identify the components only, and not the tasks, to be carried out by the contractor. Where the work identified by an item is specifically limited, the limitation shall be stated in the item description.

1.9 Reference to Specification and Drawings

The schedules and bills only identify or locate the various components of work and should not specify or direct the work to be undertaken. Lengthy descriptions and specifications need not be repeated in the schedules or bills. Item descriptions included in the schedules or bills may refer to the relevant sections of the Specifications and to the Drawings for detailed requirements.

1.10 Rates and Prices to be Inclusive

In the Units and Method of Measurement sections of Main Roads' Standard Method of Measurement for Construction Works under the subheading "Rates and Prices to be Inclusive," the items that are deemed as being included in the rates and prices are stated. Any of these, however, may be measured separately. Also, where the nature of the work so requires, further incorporated items shall be stated in the schedules or bills.

1.11 Coding and Numbering Of Items

For convenience of reference, Specification series descriptions and main part headings shall be prefixed with the corresponding Specification number.

Each item and any Particular Preamble included in the schedules or bills shall be numbered commencing with the Specification main part number followed by consecutive numbers to (a minimum of) two places of decimals, e.g. 402.01 being the first item in part 402.

1.12 Materials Supplied by the Principal

Where the Principal is to supply materials to the Contractor on Site or where the Contractor is to collect materials supplied by the Principal from a designated source, it shall be stated in the schedules or bills.

1.13 Provisional Sums

Provisional sums may be entered into schedules or bills to allow for contingencies and additional work. These items shall be described as provisional.

1.14 Provisional Quantities

Provisional Quantities shall not be used in Schedules of Rates but may be entered into Bills of Quantities to allow for contingencies and additional work that may be required. These items shall be described as provisional. Provisional Quantities as applied to these Bills of Quantities means that such quantities have not been estimated from dimensions on the Drawings and whilst it is probable that some part will be required and possible that the whole or part might be required, no guarantee can be given that any or all will in fact be required. The rates affixed to such items shall include the direct costs together with their associated on-costs. Limits of accuracy applying to quantities stated in the Annexure to the General Conditions of Contract Appendix 1 Part A shall not apply to Provisional Quantities. Furthermore, no consideration will be given to claims against the Principal, including claims for loss of profit, should the actual quantities prove to be more or less than those stated in these Bills of Quantities.

1.15 Preambles

The Preambles to the Schedules of Rates and Bills of Quantities is included as part of the Standard Method of Measurement and must not be altered in its entirety. The Preambles will be deemed to have been issued and constitute part of the Tender Documents.

1.16 Contract Specific Preambles

Where used, Contract Specific Preambles shall be included after the Preambles and before the beginning of the Schedules of Rates and Bills of Quantities for each and every project.

**PREAMBLES TO THE SCHEDULES OF RATES
AND BILLS OF QUANTITIES**

SUPERSEDED

PREAMBLES

1 GENERAL PREAMBLES

- 1.1 These Schedules of Rates or Bills of Quantities, as the case may be, shall be read in conjunction with the Specifications, Drawings, General Conditions of Contract, Special Conditions of Contract, Conditions of Tendering and Special Conditions of Tendering.
- 1.2 The items contained in these Schedules of Rates or Bills of Quantities have been measured in accordance with the Main Roads' Standard Method of Measurement for Construction Works, unless expressly stated otherwise.
- 1.3 Where there is discrepancy in an item description and or unit and or rate and or amount tendered in a Schedule of Rates/Bill of Quantities, the discrepancy shall be adjusted in accordance with Clause 9.12 of the Conditions of Tendering for Major Works Contracts
- 1.4 Unless stated otherwise the cost of complying with the General Conditions of Contract, the Special Conditions of Contract, Conditions of Tendering and Special Conditions of Tendering shall be covered by the rates and amounts inserted against the items in these Schedules of Rates or Bills of Quantities.

2. GENERAL DIRECTIONS

- 2.1 In these Schedules of Rates or Bills of Quantities, the subheadings and item descriptions identify the work covered by the respective items, but the exact nature and extent of the work to be performed is ascertained by reference to the Specifications, Drawings, General Conditions of Contract and Special Conditions of Contract. The rates and prices entered in these Schedules of Rates or Bills of Quantities shall be deemed to be the full inclusive value of the work described in the Specification and/or shown on the Drawings and covered by the respective items, in conjunction with the relevant items listed under the heading "Rates and Prices To Be Inclusive" in the Units And Method Of Measurement sections of the Main Roads' Standard Method Of Measurement For Construction Works and including but not limited to the following, unless expressly stated otherwise:
 - a) Labour and costs associated therewith including all site allowances.
 - b) Plant and costs associated therewith including transport to and from site.
 - c) The supply, loading, transporting and delivery to site, unloading, handling and storage of materials and goods.
 - d) Taking delivery of materials and goods supplied by others, loading, transporting and delivery to site, unloading, handling, storage and returning any surplus.
 - e) Setting out, assembling, mixing, curing, lapping, cutting, fixing, erecting, lifting, hoisting, handling, laying, spreading, grading, measuring, watering, compacting, trimming, planting, installing and placing of materials and goods in position.
 - f) Use of hand held plant where required.
 - g) Waste, bulking, compaction and shrinkage of materials and materials placed outside the final design lines.
 - h) Removal and disposal off site of surplus or spoil materials and costs in connection therewith including tip fees.
 - i) Temporary works.
 - j) Provision of working space and upholding sides of excavations.

- k) Notifying, making arrangements and liaising with all relevant statutory bodies, authorities and councils to obtain all licences and permits necessary for the execution of the Works, and costs in connection therewith.
- l) Taking precautions and measures as far as is reasonable and practical to prevent interference with or damage to existing structures, services, utilities, roads, footpaths, paved areas, watercourses, drainage systems, public and private vehicular and pedestrian accesses, trees, graves, burial urns, including the provision of alternative access, if necessary.
- m) The effect of phasing of the works or of alteration or additions to existing services and supplies to the extent that such work is set forth or reasonably implied in the Contract.
- n) Keeping the Works where necessary, and as near as may be practical, free from water and protected from damage due to water and from weather conditions which may adversely affect the Works including dewatering of excavations, allowing for seasonal variation of ground water, disposal of ground water in an approved manner and taking measures to prevent flotation of new or existing structures.
- o) Submitting to the Superintendent all drawings, details of procedures and methods of construction to be used, calculations, technical literature, test certificates and any other documents or information required to be submitted in accordance with the Specifications.
- p) All costs for quality assurance systems including carrying out all tests, audits and the like and for providing certificates of conformity.
- q) Making good after sampling and testing.
- r) Attendance and transport for sampling and testing carried out by the Superintendent, and supplying results of tests carried out by the Contractor.
- s) Complying with the occupational safety and health requirements.
- t) Complying with environmental requirements.
- u) Establishment, mobilisation and demobilisation costs.
- v) Overhead costs and profit.
- w) General obligations, liabilities and risks involved in the execution of the works set forth or reasonably implied in the Contract.
- x) Rise and fall in costs, unless expressly stated otherwise.

3. MEASUREMENT

- 3.1 Measurements, for calculations, have been measured net from the dimensions shown on the Drawings and no allowance has been made for laps, cutting, waste, bulking, compaction or shrinkage, unless expressly stated otherwise.
- 3.2 The quantity given against items in these Schedules of Rates or Bills of Quantities has been rounded up to the nearest whole number except the following:
 - 3.2(a) The quantity of items measured in hectares has been rounded up to the nearest single place of decimals.
 - 3.2(b) The quantity of items measured in tonnes has been rounded up to the nearest two places of decimals.

3.3 The following abbreviations have been used for units of measurement:

Unit	Abbreviation	Unit	Abbreviation
Millimetre	mm	Item	Item
Metre	m	Millilitre	ml
Square Metre	m ²	Litre	L
Hectare	ha	Hour	Hr
Cubic Metre	m ³	Day	Day
Kilogram	kg	Man Day	M/day
Tonne	t	Week	Wk
Number of	No.	Provisional	P.S.
		Sum	

3.4 Schedules of Rates shall be remeasured. Re-measurement of quantities shall be remeasured from the dimensions shown on the Drawings, unless directed otherwise by the Superintendent. Items within Bills of Quantities with the exception of those for Provisional Quantities shall not be remeasured.

4. PROVISIONAL SUMS AND QUANTITIES

4.1 All work included as Provisional Sums in these Schedules of Rates or Bills of Quantities and Provisional Quantities included in Bills of Quantities shall be completed within the contract period, unless expressly stated otherwise.

5 DAYWORK

5.1 General

5.1.1 No work may be claimed as Daywork by the Contractor unless the Superintendent has issued prior written instruction.

5.2 Labour

5.2.1 The cost of the Contractor's labour shall be charged at the approved actual hours worked at the direction of the Superintendent at the basic award rates of pay for the particular labour classification carrying out the work together with all allowances as included in the appropriate awards. The Contractor shall provide wage sheets or other evidence of payments made to each person employed on Daywork.

5.2.2 On-costs for labour shall include for all establishment charges, overheads, profit, executive supervision, staff employed on supervision work only, workers compensation insurance, normal contract works third party insurance and employer liability insurances, payroll tax, public and annual leave with pay including leave loading, sick pay, superannuation, portable long service leave, all allowances in the industrial awards, accommodation, meals, transport (to, from and on the Works), all protective clothing, safety equipment, use and maintenance of small hand tools and appliances, non-mechanical plant and equipment not provided under "Plant" such as ladders, trestles, stages, bankers, scaffolding, temporary track wagons, skips and similar items unless they are used exclusively for Daywork and for all other costs incurred in the employment of labour on Daywork.

5.2.3 Labour hire agency personnel shall not be included in the "Labour" category, but shall be included in the "Subcontractors" category.

5.3 Materials

5.3.1 The cost of materials used by the Contractor shall be charged at the net price paid by the Contractor for the materials delivered to site as substantiated by suppliers' invoices. Payment shall only be made for the quantity required for the Daywork including any surplus material accepted by the Superintendent.

5.3.2 On-costs for materials shall include for the cost of purchasing materials, taking delivery, unloading, unpacking, protecting, storing as required and all establishment charges, overheads, profit, insurances, executive supervision, staff employed on supervision work only and for all other costs incurred in the use of materials on Daywork.

5.4 Plant

5.4.1 Payment for working plant shall be for approved actual hours only. Standing time for plant on site and used on Daywork shall not be allowed (except as stated below).

5.4.2 The rates and prices of plant shall be based on the net cost including operators, attendants, accommodation, meals, transport and the like, fuel, consumables, insurances, depreciation, maintenance, wear and tear, spare parts, tyres, all costs of repair, all lifting chains, chutes, hoppers, tackle, equipment, fittings, transport of plant to and from site (except as stated below) and the like required for the efficient operation of the plant. Agreed rates and prices of plant shall be charged at the approved actual hours worked at the direction of the Superintendent. The Contractor shall provide hire dockets or other evidence of payment of plant hire charges for work carried out on Daywork.

5.4.3 On-costs for plant shall include for all costs connected with the use of plant including all establishment charges, overheads, profit, insurances, executive supervision, staff employed on supervision work only and for all other costs incurred in the use of plant on Daywork.

5.4.4 In the event of plant brought to site on the written instructions of the Superintendent and used only for Daywork, the cost of transporting to and from site shall be paid to the Contractor as the actual cost exclusive of overheads and profit. In the event that this plant remains on site and is used on work other than Daywork by the Contractor, then only an agreed proportion of the transport costs shall be paid for Daywork. Payment for standing time will be allowed for plant brought to site on the written instructions of the Superintendent and used only for Daywork.

5.5 Subcontractors

5.5.1 The cost of Subcontractors and labour hire agency personnel shall be based on the approved actual costs of labour, materials or plant charged at the actual hours worked at the direction of the Superintendent together with accepted overheads and profit of the Subcontractor or labour hire agency. The Contractor shall provide wage sheets, invoices or other evidence to the satisfaction of the Superintendent of payment for work carried out on Daywork by Subcontractors and labour hire agency personnel.

5.5.2 On-costs for Subcontractors and labour hire agency personnel shall include for all establishment costs, mobilisation and demobilisation costs, overhead costs, profit, insurances, executive supervision, staff employed on supervision work only, accommodation, meals, transport and for all other costs incurred in the employment of Subcontractors and labour hire agency personnel on Daywork.

UNITS AND METHOD OF MEASUREMENT
SERIES 100 – GENERAL MANAGEMENT REQUIREMENTS

SUPERSEDED

SERIES 100 – GENERAL MANAGEMENT REQUIREMENTS

101 DESCRIPTION OF WORKS

101.1 Classification of Items

Separate items shall be provided for the following:

- Provision of access for others to undertake works.
- Contractor's programs.
- Project works sign.

101.2 Units of Measurement

The units of measurement shall be:

101.2.1 Provision of access for others to undertake works; contractor's programsItem

101.2.2 Project works sign No.

101.3 Method of Measurement

101.3.1 Site access shall not be measured separately.

102 SURVEY INFORMATION

102.1 Classification of Items

Separate items shall be provided for the following:

- Survey information, control and setting out of the works.

102.2 Units of Measurement

The units of measurement shall be:

102.2.1 Survey information, control and setting out of the worksItem

102.3 Rates and Prices to be Inclusive

102.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **survey information, control and setting out of the works** shall be inclusive of:

- a) Provision, maintenance and removal of offset pegging for the use by the Superintendent.

103 SITE FACILITIES

103.1 Classification of Items

Separate items shall be provided for the following:

- Provision of Contractor's site facilities.
- Maintenance of Contractor's site facilities.
- Removal of Contractor's site facilities.
- Provision of Superintendent's site facilities.
- Maintenance of Superintendent's site facilities.
- Removal of Superintendent's site facilities.
- Provision of Superintendent's living facilities.
- Maintenance of Superintendent's living facilities.
- Removal of Superintendent's living facilities.
- Superintendent's meals.

103.2 Units of Measurement

The units of measurement shall be:

- 103.2.1 Provision of Contractor's site facilities; maintenance of Contractor's site facilities; removal of Contractor's site facilities; provision of Superintendent's site facilities; maintenance of Superintendent's site facilities; removal of Superintendent's site facilities; provision of Superintendent's living facilities; maintenance of Superintendent's living facilities and removal of Superintendent's living facilities Item
- 103.2.2 Superintendent's meals M/day

103.3 Method of Measurement

- 103.3.1 Superintendent's meals shall be measured as three meals per day per person. Days on which only one meal is taken shall be measured at the rate of 50% per M/day. Days on which two meals are taken shall be measured at the rate of 75% per M/day.

103.4 Rates and Prices to be Inclusive

- 103.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **provision of Contractor's site facilities, maintenance of Contractor's site facilities and removal of Contractor's site facilities** shall be inclusive of:

- a) Provision of site access, offices, sheds, stores, crib huts, ablution facilities, laboratories, NDM storage sheds, mess facilities, accommodation and living facilities, recreation facilities, laundry facilities, services, waste disposal facilities, other site facilities and the like.
- b) Maintenance of site access, offices, sheds, stores, crib huts, ablution facilities, laboratories, NDM storage sheds, mess facilities, accommodation and living facilities, recreation facilities, laundry facilities, services, waste disposal facilities, other site facilities and the like.
- c) Removal of site access, offices, sheds, stores, crib huts, ablution facilities, laboratories, NDM storage sheds, mess facilities, accommodation and living facilities, recreation facilities, laundry facilities, services, waste disposal facilities, other site facilities and the like.
- d) Ripping, rehabilitation and reinstatement of the sites occupied by the site facilities.

- 103.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **provision of Superintendent's site facilities, maintenance of Superintendent's site facilities and removal of Superintendent's site facilities** shall be inclusive of:

- a) Provision of site facilities, offices, buildings and the like.
- b) Clearing and site preparation including excavation, filling and levelling.
- c) Foundations, bases and hardstandings.
- d) Water, sanitation, ablution facilities, heating, air conditioning, continuous 240V electric power 24 hours per day, lighting, telephone installation with extensions, switchboard and switching systems separately connected to the telephone system including provision and connection of an answer phone system, facsimile and communications services.
- e) Fences, notice boards and direction boards.
- f) Vehicle access, hardstandings, parking areas and footpaths.
- g) Equipment, photocopier, furnishings, fittings and supplies.
- h) Maintenance of offices, buildings, services, fences, notice boards, direction boards, vehicle access, hardstandings, parking areas, footpaths, equipment, photocopier, furnishings, fittings and the like.

- i) Replenishment of consumables.
- j) Cleaning and disposal of waste off-site.
- k) Receiving back the site facilities, offices, buildings, vehicle access, hardstandings, parking areas, footpaths, fences and the like from the Superintendent.
- l) Disconnecting, removing and sealing off disused services.
- m) Demolishing, dismantling and removing all site facilities, offices, buildings, vehicle access, hardstandings, parking areas, footpaths, fences, notice boards, direction boards, equipment, photocopier, furnishings, fittings and the like.
- n) Moving and re-establishing site facilities.
- o) Ripping, rehabilitation and reinstatement of the sites occupied by the site facilities, offices, buildings, vehicle access, hardstandings, parking areas, footpaths, fences and the like.

103.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **provision of Superintendent's living facilities, maintenance of Superintendent's living facilities** and **removal of Superintendent's living facilities** shall be inclusive of:

- a) Provision of accommodation and living facilities.
- b) Clearing and site preparation including excavation, filling and levelling.
- c) Foundations, bases and hardstandings.
- d) Water, sanitation, ablution facilities, heating, air conditioning, power, lighting and laundry services.
- e) Vehicle access, hardstandings, parking areas and footpaths.
- f) Equipment, furnishings, fittings, pillows, linen, blankets, towels and the like.
- g) Maintenance of accommodation and living facilities, vehicle access, hardstandings, parking areas, footpaths, equipment, furnishings, fittings and the like.
- h) Replenishment of consumables.
- i) Cleaning, vacuuming and disposal of waste off-site.
- j) Changing of linen, towels and the like.
- k) Receiving back the accommodation and living facilities, vehicle access, hardstandings, parking areas, footpaths and the like from the Superintendent.
- l) Disconnecting, removing and sealing off disused services.
- m) Demolishing, dismantling and removing all accommodation and living facilities, vehicle access, hardstandings, parking areas, footpaths, equipment, furnishings, fittings and the like.
- n) Ripping, rehabilitation and reinstatement of the sites occupied by the accommodation and living facilities, vehicle access, hardstandings, parking areas and footpaths and the like.

104 ENTRY TO LAND

104.1 Classification of Items

Separate items shall be provided for the following:

- Entry to land.

104.2 Units of Measurement

The units of measurement shall be:

104.2.1 Entry to landItem

104.3 Rates and Prices to be Inclusive

104.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **entry to land** shall be inclusive of:

- a) Construction of access tracks, fences, gates and the like.
- b) Maintenance of access tracks, fences, gates and the like.
- c) Removal of access tracks, fences, gates and the like including ripping, rehabilitation and reinstatement of the access tracks.

105 WATER SUPPLIES

105.1 Classification of Items

Separate items shall be provided for the following:

- Water supplies.

105.2 Units of Measurement

The units of measurement shall be:

105.2.1 Water suppliesItem

106 UTILITIES AND SERVICES

106.1 Classification of Items

Separate items shall be provided for the following:

- Liaison, programming, location and protection of utilities and services.
- Relocation of utilities and services.
- Relocation of existing street lighting.

106.2 Units of Measurement

The units of measurement shall be:

106.2.1 Liaison, programming, location and protection of existing utilities and services; relocation of utilities and services; relocation of existing street lightingItem

106.3 Rates and Prices to be Inclusive

106.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of existing street lighting** shall be inclusive of:

- a) Provision, maintenance and removal of temporary street lighting.

**UNITS AND METHOD OF MEASUREMENT
SERIES 200 – MANAGEMENT REQUIREMENTS**

SUPERSEDED

SERIES 200 – MANAGEMENT REQUIREMENTS

201 The requirements for Quality are not individually or separately measured and are deemed included within the rates for other items in accordance with Preambles 2.1 (p).

202 TRAFFIC

202.1 Classification of Items

Separate items shall be provided for the following:

- Traffic management.
 - Traffic control devices.
 - Traffic controllers.
 - Construction, maintenance and removal of sidetracks, temporary driving surfaces or temporary pedestrian access.
 - Maintenance of existing roads.

202.2 Units of Measurement

The units of measurement shall be:

202.2.1 Traffic management; traffic control devices; traffic controllers; construction, maintenance and removal of sidetracks, temporary driving surfaces or temporary pedestrian access and maintenance of existing roads.....Item

202.3 Rates and Prices to be Inclusive

202.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **traffic management** shall be inclusive of:

- a) Management of traffic.
- b) Preparation, implementation, audit of all traffic management measures including certificates of compliance.

202.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **traffic control devices** shall be inclusive of:

- a) Signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.
- b) Removal or pruning of vegetation including disposal off-site.
- c) Relocating signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.
- d) Cleaning signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.
- e) Inspecting signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.
- f) Ensuring night visibility of signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.
- g) Rectification of damaged, overturned or missing signs, devices, variable message boards, signals, lighting, pavement markings, fences, railings, barriers, cones, bollards and the like.

202.3.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **traffic controllers** shall be inclusive of:

- a) Traffic control personnel.
- b) Provision and maintenance of communication systems between traffic control personnel.
- c) Hand held traffic control devices.

202.3.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **sidetracks, temporary driving surfaces or temporary pedestrian access** shall be inclusive of:

- a) Construction of sidetracks, temporary driving surfaces or temporary pedestrian access including clearing, topsoil removal, windrow and/or stockpiling of topsoil, embankment construction, drainage, pavements, sealing, kerbs, signs, pavement markings, fences, railings, barriers, pedestrian facilities, lighting, traffic signals and the like.
- b) Certificates of compliance.
- c) Maintenance of sidetracks, temporary driving surfaces and temporary pedestrian access.
- d) Removal of sidetracks, temporary driving surfaces and temporary pedestrian access including embankments, drainage, pavements, kerbs, signs, pavement markings, fences, railings, barriers, pedestrian facilities, lighting, traffic signals and the like.
- e) Ripping, rehabilitating and reinstatement of the site occupied by the sidetracks, temporary driving surfaces, temporary pedestrian access, windrows and stockpiles.
- f) Respreading topsoil.

203 OCCUPATIONAL SAFETY AND HEALTH

203.1 Classification of Items

Separate items shall be provided for the following:

- Occupational safety and health including safety and health plans and safety and health audits.

203.2 Units of Measurement

The units of measurement shall be:

Occupational safety and health including safety and health plans and safety and health audits.....Item

204 ENVIRONMENT

204.1 Classification of Items

Separate items shall be provided for the following:

- Protection, preservation and monitoring of Aboriginal sites.
- Protection of flora and fauna.
- Fire prevention.
- Waste disposal.
- Dieback control.
- Protection of public and property.
- Pre-construction property inspection.
- Dust control.

204.2 Units of Measurement

The units of measurement shall be:

- 204.2.1 Protection, preservation and monitoring of Aboriginal sites; protection of flora and fauna; fire prevention; waste disposal; dieback control; protection of public and property and dust control.....Item
- 204.2.2 Pre-construction property inspection.....No.

204.3 Rates and Prices to be Inclusive

204.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **protection of public and property** shall be inclusive of:

- a) Pre-construction information letters.
- b) Keeping the public informed and handling complaints.
- c) Noise control including after hours noise management plan.
- d) Vibration control.

204.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **pre-construction property inspection** shall be inclusive of:

- a) Property inspection by person qualified to perform such inspection.
- b) Production of an individual report in respect of each property inspected including photographs, digital images, supporting evidence of condition and the like.

205 - 210 NOT USED

UNITS AND METHOD OF MEASUREMENT
SERIES 300 – EARTHWORKS

SUPERSEDED

SERIES 300 – EARTHWORKS

301 CLEARING

301.1 Classification of Items

Separate items shall be provided for the following:

- Clearing.

301.2 Units of Measurement

The units of measurement shall be:

301.2.1 Clearing ha, m²

301.3 Method of Measurement

301.3.1 Clearing shall be measured as the plan area. The area of; non-designated areas, existing roadways, sidetracks, borrow pits, access tracks, surface drains, levees and guidebanks shall be excluded. Where the quantity of any item is equal to or greater than 1,000 m², the unit of measurement for that item shall be hectares (ha). Where the quantity of any item is less than 1,000 m², the unit of measurement for that item shall be square metres (m²).

301.4 Rates and Prices to be Inclusive

301.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **clearing** shall be inclusive of:

- a) Demolition and breaking up.
- b) Tree felling, uprooting of bushes, trees, hedges and other vegetation, grubbing out remnant stumps and roots and filling and compacting holes left after grubbing out.
- c) Chipping, splitting, cutting, mowing, slashing, grinding, mulching or pulverising vegetation.
- d) Treatment and processing disease-free and weed-free vegetation for incorporation into topsoil.
- e) Cutting and stacking of chip-logs and saw logs.
- f) Branch lopping and treatment of cut surfaces.
- g) Disposal of debris, rubbish and the like off-site.
- h) Preservation of individual trees, groups of trees and other vegetation to be retained as designated on the Drawings or by the Superintendent.
- i) Disposal of salvaged materials into stockpiles at nominated storage areas.
- j) Making good severed ends of existing fences, walls, services, and other items including fixing posts at ends of strained fences and restraining fences.
- k) Disconnecting, removing and sealing services and recording the position of sealed services.
- l) Making good damage to buildings, other structures and surfaces caused by demolition and removal.

302 EARTHWORKS

302.1 Classification of Items

Separate items shall be provided for the following:

- Topsoil removal.
- Topsoil respreading.
- Removal of redundant pavement.
- Removal of redundant seal.
- Ripping and rehabilitating redundant pavement.
- Preparation of retained pavement to receive overlay.
- Removal of redundant kerb.
- Marking out and cutting edge of existing pavement.
- Removal of unsuitable material.
- Removal of contaminated material.
- Backfilling unsuitable material excavations.
- Backfilling contaminated material excavations.
- Excavation in rock.
- Embankment foundation compaction.
- Embankment construction.
- Subgrade improvement.
- Subgrade.
- Batter protection.

302.2 Units of Measurement

The units of measurement shall be:

302.2.1 Topsoil removal; topsoil respreading	ha, m ²
302.2.2 Removal of redundant pavements; removal of redundant seal; ripping and rehabilitating redundant pavements; preparation of retained pavement to receive overlay; embankment foundation compaction; subgrade improvement; subgrade; batter protection	m ²
302.2.3 Removal of redundant kerbs; marking out and cutting edge of existing pavement	m
302.2.4 Removal of unsuitable material and/or contaminated material; backfilling unsuitable material and/or contaminated material excavations; excavation in rock; embankment construction	m ³

302.3 Method of Measurement

- 302.3.1 Topsoil removal and topsoil respreading shall be measured as the plan area. The area of non-designated areas, existing roadways, sidetracks, borrow pits, access tracks, surface drains, levees and guidebanks shall be excluded. Where the quantity of any item is equal to or greater than 1,000 m², the unit of measurement for that item shall be hectares (ha). Where the quantity of any item is less than 1,000 m², the unit of measurement for that item shall be square metres (m²).
- 302.3.2 Removal of redundant pavements, removal of redundant seal, the preparation of retained pavement to receive overlay, embankment foundation compaction, subgrade improvement and subgrade shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.
- 302.3.3 Removal, storage and relaying of existing segmental pavements shall be measured in **Series 500 – Pavement and Surfacing, Part 505**.

- 302.3.4 Removal of unsuitable material, contaminated material and excavation in rock shall be measured as the bank volume before excavation in accordance with Main Roads Western Australia Standard No. 67/08/90 Earthwork Volume Calculations. No allowance shall be made for excavation beyond the design shapes of the voids or for overbreak.
- 302.3.5 Backfilling unsuitable and contaminated material excavations and embankment construction shall be measured compacted in place. Volumes shall be calculated by prismatic formulae method in accordance with Main Roads Western Australia Standard No. 67/08/90 Earthwork Volume Calculations. No allowance shall be included for material placed outside final design shapes of embankments.
- 302.3.6 Excavation of suitable fill material where placed directly into embankments or excavation from stockpile for placement into embankments shall not be measured separately.

302.4 References

- 302.4.1 The units of measurement, the method of measurement and the rates and prices for batter protection shall be in accordance with **Series 300 – Earthworks, Part 304**.

302.5 Rates and Prices to be Inclusive

- 302.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **topsoil removal** shall be inclusive of:
- Excavation in all material.
 - Stockpiling or windrowing on site for re-use.
 - Disposal of surplus material, debris, rubbish and the like off-site.
- 302.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **topsoil respreading** shall be inclusive of:
- Excavation of materials on site, from borrow pits or stockpiles.
 - Hauling, depositing, spreading, grading, levelling, trimming and shaping.
 - Relocating surplus windrowed and stockpiled material around the site.
 - Disposal of surplus material, debris, rubbish and the like off-site.
- 302.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant pavement, removal of redundant kerb and marking out and cutting edge of existing pavement** shall be inclusive of:
- Excavation in all material.
 - Trimming, grading, levelling and compacting base of excavations.
 - Backfilling with embankment quality material and compaction.
 - Disposal of surplus material, debris, rubbish and the like off-site.
 - Finishing up to abutting surfaces.
 - Protection and maintenance of surfaces.
 - Protection of adjacent structures, drains, services, kerbs and the like.
- 302.5.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant seal** shall be inclusive of:
- Removal of all materials.
 - Shaping, grading, levelling and trimming.
 - Disposal of surplus material, debris, rubbish and the like off-site.
 - Finishing up to abutting surfaces.
 - Protection and maintenance of surfaces.
 - Protection of adjacent structures, drains, services, kerbs and the like.

- 302.5.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **ripping and rehabilitating redundant pavement** shall be inclusive of:
- a) Ripping in all materials.
 - b) Shaping, grading, levelling and trimming.
 - c) Topsoil respreading.
 - d) Disposal of surplus material, debris, rubbish and the like off-site.
 - e) Finishing up to abutting surfaces.
 - f) Protection and maintenance of surfaces.
 - g) Protection of adjacent structures, drains, services, kerbs and the like.
- 302.5.6 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices or **preparation of retained pavement to receive overlay** shall be inclusive of:
- a) Removal and disposal of loose material off-site.
 - b) Scarifying, grading, watering, levelling, compacting, trimming and final preparation to line and level.
 - c) Shaping to cambers, falls and crowns.
 - d) Finishing up to abutting surfaces.
 - e) Protection and maintenance of surfaces.
 - f) Protection of adjacent structures, drains, services, kerbs and the like.
- 302.5.7 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of unsuitable and/or contaminated material** shall be inclusive of:
- a) Excavation in all materials.
 - b) Shaping, grading, levelling and trimming bottoms of excavations.
 - c) Disposal of all materials off-site.
 - d) Finishing up to abutting surfaces.
 - e) Protection and maintenance of surfaces.
 - f) Protection of adjacent structures, drains, services, kerbs and the like.
- 302.5.8 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **excavation in rock** shall be inclusive of:
- a) Preliminary site trials of plant.
 - b) Where blasting is permitted, preliminary site trials of blasting, measurement and recording of vibrations, checking and adjusting accuracy of seismographs, preparatory work for blasting, notifying the Superintendent when explosives are to be brought onto site, screens and other protective covers, drilling shot holes, charging, stemming, blasting and pre-splitting.
 - c) Excavation including loosening and breaking up of rock.
 - d) Trimming of surfaces and removal of loose rock.
 - e) Removal and disposal of rock off-site.
 - f) Making good overbreak and backfilling with embankment quality material and compaction.
 - g) Finishing up to abutting surfaces.
 - h) Protection and maintenance of surfaces.
 - i) Protection of adjacent structures, drains, services, kerbs and the like.

302.5.9 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **embankment foundation compaction** and **subgrade** shall be inclusive of:

- a) Grading, watering, levelling, compacting, trimming, regulating, proof rolling, rolling of the surface and final preparation to level.
- b) Finishing up to abutting surfaces.
- c) Protection and maintenance of surfaces.
- d) Protection of adjacent structures, drains, services, kerbs and the like.

302.5.10 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **backfilling excavated unsuitable and/or contaminated material, subgrade improvement** and **embankment construction** shall be inclusive of:

- a) Excavation of materials on-site, or from borrow pits or stockpiles or importation of materials.
- b) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- c) Crushing materials and removal of oversize materials.
- d) Trimming and shaping of filled surfaces, excavated surfaces, benches, berms and table drains.
- e) Additional material to replace material lost by settlement of, or penetration into, the underlying material.
- f) Excavation of surplus materials on-site and removal off-site.
- g) Backfilling behind kerbs.(where not included in kerb rate under clause 407.4.1)
- h) Complying with requirements and constraints on the sequence, timing, rate of deposition and filling and equalisation of earth pressure.
- i) Protection of adjacent structures, drains, services, kerbs and the like.
- j) Completion of earthworks final surfaces.

303 PITS AND QUARRIES

303.1 Classification of Items

Separate items shall be provided for the following:

- Pit establishment.
- Pit reinstatement.

303.2 Units of Measurement

The units of measurement shall be:

303.2.1 Pit establishment; pit reinstatementItem

303.3 Rates and Prices to be Inclusive

303.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **pit establishment** shall be inclusive of:

- a) Clearing.
- b) Weed control.
- c) Topsoil removal.
- d) Overburden removal.
- e) Construction and maintenance of access tracks, fences and gates.
- f) Protection of existing fences and gates.

303.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **pit reinstatement** shall be inclusive of:

- a) Clearing.
- b) Ripping, shaping, levelling and trimming.
- c) Overburden respreading.
- d) Topsoil respreading.
- e) Ripping, removal, rehabilitation and reinstatement of access tracks, fences and gates.
- f) Reinstatement of existing fences and gates.
- g) Planting and seeding.

304 REVEGETATION AND LANDSCAPING

304.1 Classification of Items

Separate items shall be provided for the following:

- Seed collection.
- Transplanting.
- Herbicide treatment.
- Ground preparation.
- Erosion control.
- Imported topsoil.
- Seeding.
- Hydro-seeding.
- Grassing by turf.
- Grassing by stolons.
- Grassing by seed.
- Plants.
- Mulching.
- Hydro-mulching.
- Hard landscaping works.
- Irrigation.
- Establishment of vegetation.

304.2 Units of Measurement

The units of measurement shall be:

- 304.2.1 Seed collection Hr
- 304.2.2 Imported topsoil; herbicide treatment; ground preparation; grassing; seeding; hydro-seeding; mulching; hydro-mulching; erosion control ha or m²
- 304.2.3 Plants and: transplanting No.
- 304.2.4 Establishment of vegetation wk
- 304.2.5 Irrigation Item

304.3 Method of Measurement

304.3.1 Imported topsoil; herbicide treatment; ground preparation; grassing; seeding; hydro-seeding; mulching; hydro-mulching; erosion control shall be measured as the plan area. Where the quantity of any item is equal to or greater than 1,000 m², the unit of measurement for that item shall be hectares (ha). Where the quantity of any item is less than 1,000 m², the unit of measurement for that item shall be square metres (m²).

304.4 Rates and Prices to be Inclusive

304.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **ground preparation** shall be inclusive of:

- a) Removal of all rubbish, weeds, stones and other debris and disposal off-site.
- b) Scarifying, ripping, cultivation and levelling.
- c) Excavation of contaminated soil and disposal off-site and replacement with selected fill material.
- d) Temporary soil protection measures to prepared ground against; compaction, erosion, weed infestation and siltation.

304.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **imported topsoil** shall be inclusive of:

- a) Spreading, grading, levelling, trimming and shaping.

304.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **grassing** by turf, stolons, seeding and hydro-seeding shall be inclusive of:

- a) Surface preparation including removal of stone, fine tilth cultivation and final grading.
- b) Fertilising, soil conditioning and top dressing.
- c) Watering, weeding, cutting and mowing.

304.4.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **plants** and **transplanting** shall be inclusive of:

- a) Excavation, backfill and disposal of surplus excavated material.
- b) Fertilising, soil conditioning and mulching.
- c) Watering, weeding and pruning.
- d) Stakes, ties, guys, sleeves and adjusters.
- e) Reinstatement of surrounding areas.
- f) Protection of the plant root system.
- g) Temporary location of plant prior to final planting.

304.4.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **erosion control** shall be inclusive of:

- a) Surface preparation including removal of stones, spreading, grading, levelling, trimming and shaping.
- b) Installation and/or application of specified erosion control system.

UNITS AND METHOD OF MEASUREMENT
SERIES 400 – DRAINAGE

SUPERSEDED

SERIES 400 – DRAINAGE

401 NOT USED

402 SURFACE DRAINS AND LEVEES

402.1 Classification of Items

Separate items shall be provided for the following:

- Surface drains.
- Spoon drains.
- Levees.
- Table drain blocks.
- Check structures.
- Basins.
- Excavation in rock.

402.2 Units of Measurement

The units of measurement shall be:

- 402.2.1 Surface drains; spoon drains; leveesm
402.2.2 Table drain blocks; check structures; basins..... No.

402.3 Method of Measurement

- 402.3.1 Levees associated with Type A, B and G drains shall not be measured separately.
- 402.3.2 Levees associated with basins shall not be measured separately.
- 402.3.3 Excavation in rock shall be measured as “Extra Over.”
- 402.3.4 Table drains shall not be measured separately.

402.4 References

- 402.4.1 The units of measurement, the method of measurement and the rates and prices for excavation in rock shall be in accordance with **Series 300 – Earthworks, Part 302**.

402.5 Rates and Prices to be Inclusive

- 402.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **surface drains, levees, table drain blocks** and **basins** shall be inclusive of:
- a) Clearing.
 - b) Topsoil removal and respreading of topsoil.
 - c) Excavation in all materials except rock.
 - d) Excavation above and below water level.
 - e) Excavation of materials on-site or from borrow pits or stockpiles or importation of materials.
 - f) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
 - g) Trimming and shaping of filled surfaces, excavated surfaces, benches, berms, batters and inverts.
 - h) Additional material to replace material lost by settlement of, or penetration into, the underlying material.

- i) Disposal of surplus excavated material.
- j) Complying with requirements and constraints on the sequence, timing, rate of deposition and filling and equalisation of earth pressure.
- k) Protection of adjacent structures, drains, services and the like.
- l) Completion of earthworks final surfaces.
- m) Connection to existing surfaces drains and levees.
- n) Reinstatement of surrounding surfaces.
- o) Levees associated with Type A, B and G drains.
- p) Levees associated with basins.

402.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **spoon drains** and **check structures** shall be inclusive of:

- a) Clearing.
- b) Topsoil removal and respreading of topsoil.
- c) Excavation in all materials except rock.
- d) Excavation above and below water level.
- e) Backfilling with embankment quality material and compaction.
- f) Disposal of surplus excavated material.
- g) Trimming, grading, levelling and compacting base and sides of excavations.
- h) Bedding and surround material.
- i) Concrete, formwork and reinforcement.
- j) Connection to existing surface drains and levees.
- k) Reinstatement of surrounding surfaces.
- l) Checking for level.

403 SUBSOIL DRAINS

403.1 Classification of Items

Separate items shall be provided for the following:

- Subsoil drains.
- Cleanout/flushout points.

403.2 Units of Measurement

The units of measurement shall be:

- 403.2.1 Subsoil drainsm
- 403.2.2 Cleanout/flushout points No.

403.3 Method of Measurement

403.3.1 Subsoil drains shall be measured as the plan length along the centreline of the pipe between the following terminations:

- a) Reference points of structures.
- b) The intersection of the centreline of the pipes at junctions.
- c) The position of terminations shown on the drawings.
- d) The point at which the depth range changes.

403.3.2 The depth of subsoil drain trenches shall be the vertical measurement from the invert of the pipe:

- a) To the commencing ground surface or to the final earthworks surface, whichever is the lower.

- b) Where the invert of the pipe is at or above the commencing ground surface, to the specified minimum level of cover or to the final earthworks surface, whichever is the lower.

403.3.3 Trench depths of subsoil drains shall commence at a depth not exceeding 1.5 metres and shall increase thereafter in 1.0 metre increments.

403.4 Rates and Prices to be Inclusive

403.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **subsoil drains** and **cleanout/flushout points** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Backfilling with embankment quality material and compaction.
- d) Backfill layers.
- e) Disposal of surplus excavated material.
- f) Bedding, haunching and surround material.
- g) Pipes and fittings including cutting, laying, jointing and bedding.
- h) Couplers, joiners, caps, covers, outlets, stop ends, bends, junctions, concrete surrounds and the like.
- i) Building into drainage structures and end treatments.
- j) Filter fabric and filter material.
- k) Reinstatement of surrounding surfaces.
- l) Flushing and cleaning.
- m) Checking for line and level.

404 CULVERTS

404.1 Classification of Items

Separate items shall be provided for the following:

- Culverts.
- Stormwater drains.
- Ducts.
- Selected bedding.
- Cement stabilised backfill.
- Reinforced concrete base slabs.
- Reinforced concrete insitu culvert end treatments.
- Excavation in rock.
- Precast concrete culvert end treatments.
- Removal of redundant culverts.
- Removal of redundant stormwater drains.

404.2 Units of Measurement

The units of measurement shall be:

- 404.2.1 Culverts; stormwater drains; ducts; removal of existing culverts; removal of existing stormwater drainsm
- 404.2.2 Selected bedding; cement stabilised backfill; reinforced concrete base slabs; reinforced concrete in-situ culvert end treatments m³
- 404.2.3 Precast concrete culvert end treatments No.

404.3 Method of Measurement

- 404.3.1 Culverts shall be measured as the plan length along the centreline of the culvert conduit between end walls.
- 404.3.2 Stormwater drains and ducts shall be measured as the plan length along the centreline of the pipe between the following terminations:
- Reference points of structures.
 - The intersection of the centreline of the pipes at junctions.
 - The position of terminations shown on the drawings.
 - The point at which the depth range changes.
- 404.3.3 The depth of stormwater drain and duct trenches shall be the vertical measurement from the invert of the pipe:
- To the commencing ground surface or to the final earthworks surface, whichever is the lower.
 - Where the invert of the pipe is at or above the commencing ground surface, to the specified minimum level of cover or to the final earthworks surface, whichever is the lower.
- 404.3.4 Trench depths of stormwater drains and ducts shall commence at a depth not exceeding 1.5 metres and shall increase thereafter in 1.0 metre increments.
- 404.3.5 Selected bedding shall be measured compacted in place. No allowance shall be made for overbreak.
- 404.3.6 Cement stabilised backfill shall be measured as "Extra Over" compacted in place. No allowance shall be made for overbreak. The volume of the cement stabilised backfill displaced by the culverts, stormwater drains or ducts shall be excluded.
- 404.3.7 No deduction to reinforced concrete base slabs and reinforced concrete insitu culvert end treatments shall be made for:
- Built-in items, pipes, holes, ducts, pockets, sockets, mortices and the like each not exceeding 0.10 cubic metres in volume.
 - Reinforcement.
 - Individual fillets, chamfers, splays, drip grooves, rebates, recesses, grooves and the like not exceeding 100 millimetres in girth.
- 404.3.8 Excavation in rock shall be measured as "Extra Over."

404.4 References

- 404.4.1 The units of measurement, the method of measurement and the rates and prices for excavation in rock shall be in accordance with **Series 300 – Earthworks, Part 302.**

404.5 Rates and Prices to be Inclusive

- 404.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **culverts, stormwater drains** and **ducts** shall be inclusive of:
- Excavation in all materials except rock.
 - Excavation above and below water level.
 - Backfilling with embankment quality material and compaction.
 - Disposal of surplus excavated material.
 - Bedding, haunching and surround material.
 - Pipes, boxes, link slabs and fittings including cutting, laying, jointing, sealants and bedding.
 - Building into drainage structures and end treatments.
 - Stop ends, bends and junctions.
 - Reinstatement of surrounding surfaces.

- j) Flushing and cleaning.
- k) Checking for line and level.

404.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **selected bedding** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Disposal of surplus excavated material.
- d) Trimming, grading, levelling and compacting base of excavations.
- e) Excavation of materials on site, from borrow pits or stockpiles or importation of materials.
- f) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- g) Crushing materials and removal of oversize materials.
- h) Additional material to replace material lost by settlement of, or penetration into, the underlying material.
- i) Finishing up to abutting surfaces.
- j) Making good overbreak with embankment quality material and compaction.

404.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cement stabilised backfill** shall be inclusive of:

- a) Excavation of materials, from borrow pits or stockpiles or importation of materials.
- b) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- c) Crushing materials and removal of oversize materials.
- d) Shaping to cambers, falls and crowns.
- e) Edge supports including any necessary formwork.
- f) Making joints.
- g) Finishing up to abutting surfaces.
- h) Making good overbreak with embankment quality material and compaction.

404.5.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **reinforced concrete base slabs** and **reinforced concrete in-situ culvert end treatments** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Disposal of surplus excavated material.
- d) Concrete, formwork, reinforcement, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- e) Building in pipes and boxes.
- f) Surface finishes.
- g) Making good overbreak with embankment quality material and compaction.
- h) Protection and maintenance of surfaces.
- i) Reinstatement of surrounding surfaces.
- j) Checking for line and level.

404.5.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant culverts** and **stormwater drains** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Demolition and removal of pipes, boxes, ducts, slabs, walls, footings, bedding, haunch, surrounds and the like.
- d) Disposal to spoil off-site.
- e) Trimming bottoms and sides of excavations.
- f) Sealing ends of pipes, boxes and ducts.
- g) Keeping free from water.
- h) Protection and maintenance of surfaces.
- i) Reinstatement of surrounding surfaces.

405 DRAINAGE STRUCTURES

405.1 Classification of Items

Separate items shall be provided for the following:

- Manholes.
- Gullies.
- Catchpits.
- Soakwells.
- Headwalls.
- Selected bedding.
- Excavation in rock.
- Connection of pipe to existing drainage structures.
- Adjustment of level of cover of existing drainage structures.
- Removal of redundant drainage structures.

405.2 Units of Measurement

The units of measurement shall be:

405.2.1 Manholes; gullies; catchpits; soakwells; headwalls; other drainage structures; connection of pipe to existing drainage structures; adjustment of level of cover of existing drainage structures; removal of redundant drainage structures No.

405.3 Method of Measurement

405.3.1 Manholes, gullies, catchpits, soakwells, headwalls and other drainage structures shall be measured as the complete installation.

405.3.2 Excavation in rock shall be measured as "Extra Over."

405.4 References

405.4.1 The units of measurement, the method of measurement and the rates and prices for selected bedding shall be in accordance with **Series 400 – Drainage, Part 404.**

405.4.2 The units of measurement, the method of measurement and the rates and prices for excavation in rock shall be in accordance with **Series 300 – Earthworks, Part 302.**

405.5 Rates and Prices to be Inclusive

405.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **manholes, gullies, catchpits, soakwells, headwalls and other drainage structures** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Backfilling with embankment quality material and compaction.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling, compacting base and sides of excavations.
- f) Bedding and surround material.
- g) Concrete, formwork, reinforcement, precast concrete, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- h) Brickwork.
- i) Forming channels and benchings.
- j) Building in pipes and boxes.
- k) Footholes, step irons, access ladders and safety chains.
- l) Covers, surrounds, frames, gratings, overflow weirs and lifting keys.
- m) Protection and maintenance of surfaces.
- n) Reinstatement of surrounding surfaces.
- o) Flushing and cleaning.
- p) Checking for level.

405.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **adjustment of level of cover of existing drainage structures** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Taking up, storing and re-installing covers, surrounds and frames.
- e) Concrete, formwork, reinforcement, precast concrete, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- f) Brickwork.
- g) Building in pipes.
- h) Footholes, step irons, access ladders and safety chains.
- i) Maintaining existing flows.
- j) Protection and maintenance of surfaces.
- k) Reinstatement of surrounding surfaces.
- l) Flushing and cleaning.
- m) Checking for level.

- 405.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant drainage structures** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Disposal to spoil off-site.
 - d) Demolition.
 - e) Trimming bottom and sides of excavations.
 - f) Sealing ends of pipes, boxes and ducts.
 - g) Keeping free from water.
 - h) Protection and maintenance of surfaces.
 - i) Reinstatement of surrounding surfaces.

406 ROCK PROTECTION

406.1 Classification of Items

Separate items shall be provided for the following:

- Rock protection.
- Grouted rock protection.
- Spalls.
- Rock mattresses.
- Gabions.
- Geotextile linings.

406.2 Units of Measurement

The units of measurement shall be:

- 406.2.1 Rock protection; grouted rock protection; spalls; rock mattresses m²
 406.2.2 Gabions No.

406.3 Method of Measurement

406.3.1 Rock protection, grouted rock protection, spalls and rock mattresses shall be measured as the area of the top surface. No deduction shall be made for openings each not exceeding one square metre.

406.4 References

406.4.1 The units of measurement, the method of measurement and the rates and prices for geotextile linings shall be in accordance with **Series 500 – Pavement and Surfacing, Part 501**.

406.5 Rates and Prices to be Inclusive

- 406.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **rock protection, grouted rock protection and spalls** shall be inclusive of:
- a) Sample panels.
 - b) Excavation in all materials including rock.
 - c) Backfilling with embankment quality material and compaction.
 - d) Disposal of surplus excavated material.
 - e) Trimming, grading, levelling and compacting base and sides of excavations.
 - f) Bedding and surround material.
 - g) Mortar bed.
 - h) Filling joints with mortar.

406.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **gabions** and **rock mattresses** shall be inclusive of:

- a) Sample panels.
- b) Excavation in all materials including rock.
- c) Backfilling with embankment quality material and compaction.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling and compacting base and sides of excavations.
- f) Bedding and surround material.
- g) Filling of gabions and rock mattresses.
- h) Assembling, tying, fixing, staking and tensioning.
- i) Mesh including cutting and folding to form special units and shapes.
- j) Bracing and wiring lids.

407 KERBING

407.1 Classification of Items

Separate items shall be provided for the following:

- Kerbs.
- Driveway kerbs.
- Pedestrian ramps.
- Kerb openings.

407.2 Units of Measurement

The units of measurement shall be:

407.2.1 Kerbs; driveway kerbsm

407.2.2 Pedestrian ramps; kerb openings No.

407.3 Method of Measurement

407.3.1 Kerbs shall include transition sections.

407.3.2 Pedestrian ramps, kerb openings and driveway kerbs shall be measured as "Extra Over."

407.4 Rates and Prices to be Inclusive

407.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **kerbs, driveway kerbs and pedestrian ramps** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Backfilling behind kerbs.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling and compacting base and sides of excavations.
- f) Bedding and surround material.
- g) Subgrade preparation.
- h) Formwork, reinforcement, grouting, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints, joint fillers and bond breakers.
- i) Finishing up to abutting surfaces.
- j) Protection and maintenance of surfaces.
- k) Reinstatement of surrounding surfaces.

- 407.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **kerb openings** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Disposal of surplus excavated material.
 - d) Trimming, grading, levelling and compacting base and sides of excavations.
 - e) Bedding and surround material.
 - f) Subgrade preparation.
 - g) Pavements.
 - h) Formwork, reinforcement, grouting, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
 - i) Finishing up to abutting surfaces.
 - j) Protection and maintenance of surfaces.
 - k) Reinstatement of surrounding surfaces.

408 REVETMENT MATTRESS

408.1 Classification of Items

Separate items shall be provided for the following:

- Revetment mattress.

408.2 Units of Measurement

The units of measurement shall be:

408.2.1 Revetment mattress m²

408.3 Method of Measurement

408.3.1 Revetment mattress shall be measured as the area of the top surface. No deduction shall be made for openings each not exceeding one square metre.

408.4 Rates and Prices to be Inclusive

408.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **revetment mattress** shall be inclusive of:

- a) Sample panels.
- b) Excavation in all materials including rock.
- c) Backfilling with embankment quality material and compaction.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling and compacting base of excavations.
- f) Bedding and surround material.
- g) Assembling, tying, fixing, staking, cutting and folding to form units and shapes.
- h) Filling of revetment mattresses.
- i) Grouting.

409 NOT USED

410 LOW STRENGTH INFILL

410.1 Classification of Items

Separate items shall be provided for the following:

- Pipes, boxes or ducts.
- Drainage structures.

410.2 Units of Measurement

The units of measurement shall be:

410.2.1 Low strength infill to pipes, boxes or ductsm

410.2.2 Low strength infill to drainage structures No.

410.3 Rates and Prices to be Inclusive

410.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **low strength infill** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Demolition.
- e) Cleaning out and keeping free from water.
- f) Removing and replacing covers and frames.
- g) End supports including any necessary formwork.
- h) Sealing ends of pipes, boxes and ducts.
- i) Protection and maintenance of surfaces.
- j) Reinstatement of surrounding surfaces.

411 FLOODWAYS

411.1 Classification of Items

Separate items shall be provided for the following:

- Floodway edge wall.
- Floodway slab.
- Excavation in rock.

411.2 Units of Measurement

The units of measurement shall be:

411.2.1 Floodway edge wallm

411.2.2 Floodway slab m³

411.3 Method of Measurement

411.3.1 No deduction to floodway slabs shall be made for:

- a) Built-in items, pipes, holes, ducts, pockets, sockets, mortices and the like each not exceeding 0.10 cubic metres in volume.
- b) Reinforcement.
- c) Individual fillets, chamfers, splays, drip grooves, rebates, recesses, grooves and the like not exceeding 100 millimetres in girth.

411.3.2 Excavation in rock shall be measured as "Extra Over."

411.4 References

411.4.1 The units of measurement, the method of measurement and the rates and prices for excavation in rock shall be in accordance with **Series 300 – Earthworks, Part 302**.

411.5 Rates and Prices to be Inclusive

411.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **floodway edge wall** and **floodway slab** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Backfilling with embankment quality material and compaction.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling and compacting base and sides of excavations.
- f) Bedding and surround material.
- g) Subgrade preparation.
- h) Formwork, reinforcement, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- i) Finishing up to abutting surfaces.
- j) Protection and maintenance of surfaces.
- k) Reinstatement of surrounding surfaces.

SUPERS EDED

**UNITS AND METHOD OF MEASUREMENT
SERIES 500 – PAVEMENT AND SURFACING**

SUPERSEDED

SERIES 500 – PAVEMENT AND SURFACING

501 PAVEMENTS

501.1 Classification of Items

Separate items shall be provided for the following:

- Drainage layers.
- Geotextile linings.
- Subbase.
- Basecourse.
- Overlay.
- Final trimming of overlay.
- Insitu stabilisation of pavement layers.

501.2 Units of Measurement

The units of measurement shall be:

501.2.1 Drainage layers; geotextile linings; subbase; basecourse; final trimming of overlay; insitu stabilisation of pavement layers	m ²
501.3.1 Overlay	m ³

501.3 Method of Measurement

501.3.1 Drainage layers, subbase, basecourse and final trimming of overlay shall be measured as the plan area of the top surface. No deduction shall be made for openings each not exceeding one square metre.

501.3.2 No allowance for geotextile lining laps shall be made. No deduction shall be made for openings each not exceeding one square metre.

501.3.3 Insitu stabilisation of pavement layers shall be measured as “Extra over” as the plan area of the top surface. No deduction shall be made for openings each not exceeding one square metre.

501.3.4 Overlay shall be measured compacted in place.

501.3.5 Blend areas shall not be measured separately but the areas shall be included in the general pavement areas.

501.4 Rates and Prices to be Inclusive

501.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **drainage layers** shall be inclusive of:

- a) Excavation of materials on site or from borrow pits or stockpiles or importation of materials.
- b) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- c) Crushing materials and removal of oversize materials.
- d) Shaping to cambers, falls and crowns.
- e) Edge support.
- f) Making joints.
- g) Finishing up to abutting surfaces.
- h) Protection and maintenance of surfaces.
- i) Protection of adjacent structures.

501.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices shall be inclusive of:

- a) Preparation of surface to receive the geotextile linings.

- b) Protection and maintenance of surfaces.
- c) Protection of adjacent structures.

501.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **subbase, basecourse** and **overlay** shall be inclusive of:

- a) Excavation of materials from borrow pits or stockpiles or importation of materials.
- b) Hauling, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- c) Crushing materials and removal of oversize materials.
- d) Shaping to cambers, falls and crowns.
- e) Edge support.
- f) Making joints.
- g) Scarifying and blending to existing pavement layers.
- h) Finishing up to abutting surfaces.
- i) Protection and maintenance of surfaces including underlying surfaces.
- j) Protection of adjacent structures and kerbs.
- k) Curing.
- l) Hydrated cement stabilisation and bitumen stabilisation (where required).

501.4.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **final trimming of overlay** shall be inclusive of:

- a) Grading, watering, levelling, compacting, trimming and final preparation to line and level.
- b) Shaping to cambers, falls and crowns.
- c) Finishing up to abutting surfaces.
- d) Protection and maintenance of surfaces.
- e) Protection of adjacent structures and kerbs

501.4.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **insitu stabilisation of pavement layers** shall be inclusive of:

- a) Scarifying, pulverising, depositing, spreading, grading, measuring, mixing, watering, levelling, compacting, trimming and final preparation to line and level.
- b) Shaping to cambers, falls and crowns.
- c) Edge support.
- d) Making joints.
- e) Scarifying and blending to existing pavement layers.
- f) Finishing up to abutting surfaces.
- g) Protection and maintenance of surfaces.
- h) Protection of adjacent structures and kerbs.
- i) Curing.

502 STONE MASTIC ASPHALT

502.1 Classification of Items

Separate items shall be provided for the following:

- Tack coats.
- Stone Mastic Asphalt of uniform thickness and grade.
- Stone Mastic Asphalt of uniform thickness and grade with Polymer Modified Binder (PMB).
- Stone Mastic Asphalt of varying thickness.
- Stone Mastic Asphalt of varying thickness with PMB.

502.2 Units of Measurement

The units of measurement shall be:

- 502.2.1 Tack coat; stone mastic asphalt of uniform thickness and grade with or without PMB m²
- 502.2.2 Stone Mastic Asphalt of varying thickness with or without PMBt

502.3 Method of Measurement

- 502.3.1 Tack coat and stone mastic asphalt of uniform thickness and grade with or without PMB shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.
- 502.3.2 Stone Mastic Asphalt of varying thickness with or without PMB shall be calculated from certified weighbridge dockets and shall exclude waste, excess material and rejected material.

502.4 Rates and Prices to be Inclusive

- 502.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **tack coat** shall be inclusive of:
- a) Surface preparation including cleaning, sweeping and removal of loose material.
 - b) Finishing up to abutting surfaces.
 - c) Protection and maintenance of surfaces.
 - d) Protection of adjacent structures and kerbs.
 - e) Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
 - f) Removal, storage and reinstatement of existing guide posts and signs.
 - g) Reinstatement of surrounding surfaces.
- 502.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **stone mastic asphalt** shall be inclusive of:
- a) Surface preparation including cleaning, sweeping and removal of loose material.
 - b) Finishing up to abutting surfaces.
 - c) Protection and maintenance of surfaces.
 - d) Protection of adjacent structures and kerbs.
 - e) Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
 - f) Temporary raised pavement markers.
 - g) Removal, storage and reinstatement of existing guide posts and signs.
 - h) Reinstatement of surrounding surfaces.
 - i) Polymer Modified Binder where stated.

503 BITUMINOUS SURFACING

503.1 Classification of Items

Separate items shall be provided for the following:

- Prime coats.
- Primerseal coats.
- Seal coats.
- Reseal coats.
- Geotextile Reinforced Seals
- Marking for future centre and edge lines.

503.2 Units of Measurement

The units of measurement shall be:

503.2.1 Prime coats; primerseal coats; seal coats; reseal coats and Geotextile reinforced seals	m ²
503.2.2 Marking for future centre and edge lines	m

503.3 Method of Measurement

503.3.1 Prime coats, primerseal coats, seal coats, reseal coats and Geotextile reinforced seals shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

503.4 Rates and Prices to be Inclusive

503.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **prime coats, primerseal coats, seal coats, reseal coats** and Geotextile reinforced seals shall be inclusive of:

- a) Surface preparation including sweeping, removal of loose material, watering and rolling.
- b) Preparation, removal and rehabilitation of temporary storage areas.
- c) Precoating aggregate.
- d) Adhesion agents.
- e) Finishing up to abutting surfaces.
- f) Protection and maintenance of surfaces.
- g) Protection of adjacent structures and kerbs.
- h) Removal and disposal of existing road pavement markings and raised pavement markers to spoil off-site.
- i) Removal, storage and reinstatement of existing guide posts and signs.
- j) Reinstatement of surrounding surfaces.

503.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **marking for future centre and edge lines** shall be inclusive of:

- a) Surface preparation including cleaning, sweeping and removal of loose material.

504 ASPHALT WEARING COURSE

504.1 Classification of Items

Separate items shall be provided for the following:

- Tack coats.
- Asphalt of uniform thickness and grade.
- Asphalt of uniform thickness and grade with Polymer Modified Binder (PMB).

- Asphalt of varying thickness.
- Asphalt of varying thickness with PMB.

504.2 Units of Measurement

The units of measurement shall be:

504.2.1 Tack coat; asphalt of uniform thickness and grade m²

504.2.2 Asphalt of varying thicknesst

504.3 Method of Measurement

504.3.1 Tack coat and asphalt of uniform thickness and grade with or without PMB shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

504.3.2 Asphalt of varying thickness with or without PMB shall be calculated from certified weighbridge docketts and shall exclude waste, excess material and rejected material.

504.4 Rates and Prices to be Inclusive

504.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **tack coat** shall be inclusive of:

- Surface preparation including cleaning, sweeping and removal of loose material.
- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
- Removal, storage and reinstatement of existing guide posts and signs.
- Reinstatement of surrounding surfaces.

504.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **asphalt** shall be inclusive of:

- Surface preparation including cleaning, sweeping and removal of loose material.
- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
- Temporary raised pavement markers.
- Removal, storage and reinstatement of existing guide posts and signs.
- Reinstatement of surrounding surfaces.
- Polymer Modified Binder where stated.

505 SEGMENTAL PAVING

505.1 Classification of Items

Separate items shall be provided for the following:

- Brick paving.
- Slab paving.
- Tactile ground surface indicators.

- Removal, storage and relaying of existing brick paving.
- Removal, storage and relaying of existing slab paving.

505.2 Units of Measurement

The units of measurement shall be:

505.2.1 Segmental paving m²

505.3 Method of Measurement

505.3.1 Segmental paving shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

505.4 Rates and Prices to be Inclusive

505.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **segmental paving** shall be inclusive of:

- Provision of samples.
- Excavation in all materials including rock.
- Backfilling with embankment quality material and compaction.
- Disposal of surplus excavated material.
- Trimming, grading, levelling and compacting base and sides of excavations.
- Bedding and surround material.
- Subgrade preparation.
- Subbase and basecourse layers.
- Header courses and mortar footings.
- Finishing up to abutting surfaces including coloured mortar or concrete seal.
- Filling joints with sand.
- Making good any damage and replacing losses and breakages.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Reinstatement of surrounding surfaces.

506 ENRICHMENT SEALS

506.1 Classification of Items

Separate items shall be provided for the following:

- Enrichment seals.

506.2 Units of Measurement

The units of measurement shall be:

506.2.1 Enrichment seal m²

506.3 Method of Measurement

506.3.1 Enrichment seal shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

506.4 Rates and Prices to be Inclusive

506.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **enrichment seal** shall be inclusive of:

- Surface preparation including sweeping, removal of loose material, watering and rolling.
- Finishing up to abutting surfaces.

- c) Protection and maintenance of surfaces.
- d) Protection of adjacent structures and kerbs.
- e) Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
- f) Removal, storage and reinstatement of existing guide posts and signs.
- g) Reinstatement of surrounding surfaces.

507 MICROSURFACING

507.1 Classification of Items

Separate items shall be provided for the following:

- Microsurfacing.

507.2 Units of Measurement

The units of measurement shall be:

507.2.1 Microsurfacing m³

507.3 Method of Measurement

507.3.1 Microsurfacing shall be measured compacted in place of dry mineral aggregate (excluding filler).

507.4 Rates and Prices to be Inclusive

507.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **microsurfacing** shall be inclusive of:

- a) Mix design.
- b) Provision of samples.
- c) Surface preparation including sweeping, removal of loose material, watering and rolling.
- d) Finishing up to abutting surfaces.
- e) Protection and maintenance of surfaces.
- f) Protection of adjacent structures and kerbs.
- g) Removal and disposal of existing road pavement markings and raised pavement markers to spoil off-site.
- h) Removal, storage and reinstatement of existing guide posts and signs.
- i) Reinstatement of surrounding surfaces.

508 COLD PLANING

508.1 Classification of Items

Separate items shall be provided for the following:

- Cold planing.

508.2 Units of Measurement

The units of measurement shall be:

508.2.1 Cold planing m²

508.3 Method of Measurement

508.3.1 Cold planing shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

508.4 Rates and Prices to be Inclusive

508.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cold planing** shall be inclusive of:

- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Disposal to spoil off-site.
- Reinstatement of surrounding surfaces.

509 POLYMER MODIFIED BITUMINOUS SURFACING

509.1 Classification of Items

Separate items shall be provided for the following:

- Primerseal coats.
- Seal coats.
- Reseal coats.

509.2 Units of Measurement

The units of measurement shall be:

509.2.1 Polymer modified bituminous surfacing m²

509.3 Method of Measurement

509.3.1 Polymer modified bituminous surfacing shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

509.4 Rates and Prices to be Inclusive

509.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **polymer modified bituminous surfacing** shall be inclusive of:

- Surface preparation including sweeping, removal of loose material, watering and rolling.
- Preparation, removal and rehabilitation of temporary storage areas.
- Precoating aggregate.
- Adhesion agents.
- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Removal and disposal of existing road pavement markings and raised pavement markers to spoil off-site.
- Removal, storage and reinstatement of existing guide posts and signs.
- Reinstatement of surrounding surfaces.

510 FULL DEPTH ASPHALT PAVEMENT

510.1 Classification of Items

Separate items shall be provided for the following:

- Tack coats.
- Asphalt of uniform thickness and grade.
- Asphalt of uniform thickness and grade with Polymer Modified Binder (PMB).
- Asphalt of varying thickness.
- Asphalt of varying thickness with PMB.

510.2 Units of Measurement

The units of measurement shall be:

510.2.1 Tack coat; asphalt of uniform thickness and grade m²

510.2.2 Asphalt of varying thicknesst

510.3 Method of Measurement

510.3.1 Tack coat and asphalt of uniform thickness and grade with or without PMB shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

510.3.2 Asphalt of varying thickness with or without PMB shall be calculated from certified weighbridge docketts and shall exclude waste, excess material and rejected material.

510.4 Rates and Prices to be Inclusive

510.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **tack coat** shall be inclusive of:

- Surface preparation including cleaning, sweeping and removal of loose material.
- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
- Removal, storage and reinstatement of existing guide posts and signs.
- Reinstatement of surrounding surfaces.

510.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **asphalt** shall be inclusive of:

- Surface preparation including cleaning, sweeping and removal of loose material.
- Finishing up to abutting surfaces.
- Protection and maintenance of surfaces.
- Protection of adjacent structures and kerbs.
- Removal and disposal of existing road pavement marking and raised pavement markers to spoil off-site.
- Temporary raised pavement markers.
- Removal, storage and reinstatement of existing guide posts and signs.
- Reinstatement of surrounding surfaces.
- Polymer Modified Binder where stated.

UNITS AND METHOD OF MEASUREMENT
SERIES 600 – TRAFFIC FACILITIES

SUPERSEDED

SERIES 600 – TRAFFIC FACILITIES

601 SIGNS

601.1 Classification of Items

Separate items shall be provided for the following:

- Signs.
- Removal of redundant signs.
- Relocation of signs.
- Replacement of sign posts.
- Replacement of sign panels.

601.2 Units of Measurement

The units of measurement shall be:

601.2.1 Signs; removal of redundant signs; relocation of signs; replacement of sign posts; replacement of sign panels No.

601.3 Method of Measurement

601.3.1 Signs shall be measured as the complete installation and shall be subdivided into groups as either, single post signs, double post signs or major signs.

601.4 Rates and Prices to be Inclusive

601.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **signs** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Footings.
- e) Concrete, formwork, reinforcement.
- f) Sockets in structures.
- g) Surface treatments including corrosion protection, painting and anti-graffiti coating.
- h) Reinstatement of pavements and surrounding surfaces.
- i) Temporary screening of signs.

601.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant signs** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Removal of existing footings.
- d) Reinstatement of pavements and surrounding surfaces.
- e) Delivery of salvageable material to nominated storage area.
- f) Disposal to spoil off-site.

601.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of signs** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Removal of existing footings and disposal to spoil off-site.

- e) Storage.
- f) Footings.
- g) Reinstatement of pavements and surrounding surfaces.
- h) Temporary screening of signs.
- i) Cleaning of sign panels and posts.

601.4.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **replacement of sign posts** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Removal of existing footings and disposal to spoil off-site.
- e) Footings.
- f) Concrete, formwork, reinforcement.
- g) Surface treatments including corrosion protection, painting and anti-graffiti coating.
- h) Reinstatement of pavements and surrounding surfaces.
- i) Removal, storage, reinstatement and cleaning of sign panels.
- j) Support and bracing to sign panel of multiple post signs.
- k) Removal, storage and reinstatement or replacement (where required) of fixings, brackets and the like.
- l) Temporary screening of signs.

601.4.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **replacement of sign panels** shall be inclusive of:

- a) Removal of existing sign panels and disposal to spoil off-site.
- b) Removal, storage and reinstatement or replacement (where required) of fixings, brackets and the like.
- c) Surface treatments including corrosion protection, painting and anti-graffiti coating.
- d) Temporary screening of signs.

602 GUIDE POSTS

602.1 Classification of Items

Separate items shall be provided for the following:

- Guide posts.
- Removal of redundant guide posts.
- Relocation of guide posts.

602.2 Units of Measurement

The units of measurement shall be:

602.2.1 Guide posts; removal of redundant guide posts; relocation of guide posts No.

602.3 Method of Measurement

602.3.1 Guide posts shall be measured as the complete installation.

602.4 Rates and Prices to be Inclusive

602.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **guide posts** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Footings.
- e) Sockets in structures.
- f) Surface treatments including corrosion protection, painting and anti-graffiti coating.
- g) Reinstatement of pavements and surrounding surfaces.

602.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant guide posts** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Removal of existing footings.
- d) Reinstatement of pavements and surrounding surfaces.
- e) Delivery of salvageable material to nominated storage area.
- f) Disposal to spoil off-site.

602.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of guide posts** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Removal of existing footings and disposal to spoil off-site.
- e) Storage.
- f) Footings.
- g) Sockets in structures.
- h) Reinstatement of pavements and surrounding surfaces.
- i) Cleaning of guide post.

603 ROAD SAFETY BARRIER SYSTEMS AND TRAFFIC BARRIERS FOR STRUCTURES

603.1 Classification of Items

Separate items shall be provided for the following:

- W beam road safety barrier systems.
- Thrie beam road safety barrier systems.
- Precast concrete road safety barrier systems
- Insitu concrete road safety barrier systems
- Wire rope road safety barrier systems inclusive of end treatments and transitions.
- End treatments and transitions for; W beam, Thrie beam, precast and insitu concrete road safety barrier systems.
- Steel section traffic barriers for structures.
- W beam traffic barriers for structures.
- Thrie beam traffic barriers for structures.

- Precast concrete traffic barriers for structures.
- Insitu concrete barriers for structures
- End treatments and transitions for traffic barriers for structures.
- Removal of redundant road safety barrier systems and traffic barriers for structures.
- W beam and Thrie beam barrier curved to a radius of 45m or less.

603.2 Units of Measurement

The units of measurement shall be:

- 603.2.1 Road safety barrier systems; traffic barriers for structures, W beam and Thrie beam barrier curved to a radii of 45m or less, removal of redundant road safety barrier systems, removal of redundant traffic barriers for structures.....m
- 603.2.2 Barrier end treatments and transitions No.

603.3 Method of Measurement

- 603.3.1 Road safety barrier systems and traffic barriers for structures shall be measured as the developed length along the centreline of the barrier between the barrier end treatment and/or transition posts.
- 603.3.2 Removal of redundant road safety barrier systems and redundant traffic barriers for structures shall be measured as the developed length along the centreline of the barrier between each end treatment and/or transition post.
- 603.3.3 Shop curved steel sections of W beam and Thrie beam where the barrier is curved to a radius of 45m or less shall be measured as “Extra Over” the relevant barrier system.

603.4 Rates and Prices to be Inclusive

- 603.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for; **W beam, Thrie beam and wire rope road safety barrier systems, steel section, W beam and Thrie beam traffic barriers for structures, W beam and Thrie beam where the barrier is curved to a radius of 45m or less, end treatments and transitions** shall be inclusive of:
- a) Preparation of shop drawings.
 - b) Examining and checking steel for segregation, laminations, cracks and surface flaws, and carrying out any remedial works.
 - c) Cutting, marking off, drilling, notching, machining, form fitting, edge preparation, cambering, welding, rivets, bolting, pre-heating and taking measures to counteract shrinkage or distortion due to welding, gouging, thermal cutting or heat treatment.
 - d) Handling, lifting, assembly and erection including jacking, craneage and stacking steelwork clear of the ground.
 - e) Baseplates, sockets, ends, ramps, angles, joint fittings, bolts, holding down bolts, washers, nuts, fastenings, casting in bolts, bonding agents, attachments, fixings, fillers and sealing materials and the like.
 - f) Wedging and grouting under base plates.
 - g) Temporary packers, bracing, wedging, packing, bolting and welding and subsequent removal and making good damaged materials and coatings.
 - h) Excavation in all materials including rock.
 - i) Backfilling with embankment quality material and compaction.
 - j) Disposal of surplus excavated material.
 - k) Footings.
 - l) Concrete, formwork, reinforcement.

- m) Joining to existing road safety barrier systems, traffic barriers for structures, balustrades and handrails.
- n) Post sockets including epoxy mortar and dry sand.
- o) Descaling and wire brushing parts of steelwork to be encased in or in contact with concrete.
- p) Materials testing and providing certificates of compliance.
- q) Weld testing and inspection.
- r) Fabrication inspection and air tightness including provision of threaded nipples and their removal and seal welding hole after testing.
- s) Protecting steelwork including making good damaged materials and coatings.
- t) Providing run on and run off plate extension plates and extending welds at joints.
- u) Qualification tests for welders.
- v) Procedure trials for welding, flame cutting and shearing.
- w) Surface treatments including corrosion protection.
- x) Reinstatement of pavements and surrounding surfaces.

603.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **insitu concrete road safety barrier systems and traffic barriers for structures, end treatments and transitions** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Trimming, grading, levelling and compacting base and sides of excavations.
- e) Bedding and surround material.
- f) Mix design and trial mixes.
- g) Formwork, reinforcement, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- h) Recesses, fillets, chamfers, drip grooves, splays, rebates, drip grooves and the like.
- i) Holes, ducts, pockets, sockets, mortices, cast-in items and the like.
- j) Joining to existing road safety barrier systems and traffic barriers for structures.
- k) Finishing up to abutting surfaces.
- l) Protection and maintenance of surfaces.
- m) Reinstatement of pavements and surrounding surfaces.

603.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant road safety barrier systems and traffic barriers for structures** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Removal of existing footings, anchor blocks, end treatments and transitions.
- d) Reinstatement of pavements and surrounding surfaces.
- e) Delivery of salvageable material to nominated storage area.
- f) Disposal to spoil off-site.
- g) Making good severed ends of existing barrier systems.

604 PAVEMENT MARKING

604.1 Classification of Items

Separate items shall be provided for the following:

- Road pavement markings.
- Raised pavement markers.
- Temporary raised pavement markers.
- Removal of redundant painted road pavement markings.
- Removal of redundant raised pavement markers.

604.2 Units of Measurement

The units of measurement shall be:

- 604.2.1 Road pavement markingsm², m, No.
- 604.2.2 Raised pavement markers; removal of redundant raised pavement markers ... No.
- 604.2.3 Temporary raised pavement markers; removal of redundant painted road pavement markings.....Item

604.3 Rates and Prices to be Inclusive

604.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **road pavement markings** shall be inclusive of:

- a) Provision of temporary traffic signs and traffic control devices.
- b) Surface preparation including cleaning, sweeping and removal of loose material.
- c) Tack coats and prime coats.
- d) Protection of existing surfaces.
- e) Removal of temporary raised pavement markers and disposal to spoil off-site.

604.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **raised pavement markers** and **temporary raised pavement markers** shall be inclusive of:

- a) Provision of temporary traffic signs and traffic control devices.
- b) Surface preparation including cleaning, sweeping and removal of loose material.
- c) Tack coats and prime coats.
- d) Adhesives and grout.
- e) Removal of temporary raised pavement markers and disposal to spoil off-site.

604.3.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant road pavement markings** and **removal of redundant raised pavement markers** shall be inclusive of:

- a) Provision of temporary traffic signs and traffic control devices.
- b) Protection and making good any existing surfaces.
- c) Disposal to spoil off-site.

605 GRAB RAILS AND BOLLARDS

605.1 Classification of Items

Separate items shall be provided for the following:

- Grab rails.
- Bollards.
- Removal of redundant grab rails
- Removal of redundant bollards.
- Relocation of grab rails.
- Relocation of bollards.

605.2 Units of Measurement

The units of measurement shall be:

605.2.1 Grab rails; bollards; removal of redundant grab rails; removal of redundant bollards; relocation of grab rails; relocation of bollards No.

605.3 Method of Measurement

605.3.1 Grab rails and bollards shall be measured as the complete installation.

605.4 Rates and Prices to be Inclusive

605.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **grab rails** and **bollards** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Footings.
- e) Concrete, formwork, reinforcement.
- f) Sockets in structures.
- g) Surface treatments including corrosion protection, painting, reflective tape and anti-graffiti coating.
- h) Reinstatement of pavements and surrounding surfaces.

605.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant grab rails** and **removal of redundant bollards** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Removal of existing footings.
- d) Reinstatement of pavements and surrounding surfaces.
- e) Delivery of salvageable material to nominated storage area.
- f) Disposal to spoil off-site.

605.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of grab rails** and **relocation of bollards** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Removal of existing footings and disposal to spoil off-site.
- e) Storage.
- f) Footings.
- g) Concrete, formwork, reinforcement.
- h) Sockets in structures.
- i) Reinstatement of pavements and surrounding surfaces.
- j) Cleaning of grab rails and bollards.
- k) Reinstatement of surface treatments including corrosion protection, painting, reflective tape and anti-graffiti coating.

SUPERSEDED

**UNITS AND METHOD OF MEASUREMENT
SERIES 700 – ELECTRICAL AND LIGHTING**

SUPERSEDED

SERIES 700 – ELECTRICAL AND LIGHTING

701 ROADWAY LIGHTING

701.1 Classification of Items

Separate items shall be provided for the following:

- Lighting pole bases.
- Lighting poles.
- Luminaires.
- Switchboards.
- Conduits.
- Excavation in rock for conduits.
- Directional drilling conduits.
- Cable pits.
- Cabling.
- Connection to consumer mains.

701.2 Units of Measurement

The units of measurement shall be:

- 701.2.1 Lighting pole bases; lighting poles; luminaries; switchboards; cable pits No.
- 701.2.2 Conduits; excavation in rock for conduits, directional drilling conduits and cablingm
- 701.2.3 Connection to consumer mains.....Item

701.3 Method of Measurement

- 701.3.1 The lighting pole type, height, base, outreach, luminaire, with or without emergency telephone mounting etc. is variable and details of these components will need to be included in the item description for each different combination.
- 701.3.2 The cabling core size will vary dependant on the street lighting design and will require a separate item for each cable size.
- 701.3.3 Excavation in rock for conduits shall be measured as “Extra Over” the conduit item
- 701.3.4 Directional drilling conduits shall be measured as “Extra Over” the conduit item.

701.4 References

- 701.4.1 The rates and prices for excavation in rock shall be in accordance with [Series 300 – Earthworks, Part 302](#).

701.5 Rates and Prices to be Inclusive

- 701.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **lighting pole bases** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Disposal of surplus excavated material.
 - d) Concrete, formwork, reinforcement.
 - e) Holding down bolts complete with nuts, washers and grouting.
 - f) Conduits between pole base and cable pit including all purpose made screwed and threaded connections, bends, tees, draw wire, fittings and the like.
 - g) Reinstatement of pavements and surrounding surfaces.

701.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **lighting poles** shall be inclusive of:

- a) Lighting poles erected complete.
- b) Access door.
- c) Slip base, slip washer, slip base holding down bolts, nuts, lock-nuts, washers, shims.
- d) Levelling base, initial and re-torquing of holding down bolts.
- e) Drains.
- f) Covering holding down bolts with bituminous paint.
- g) Grouting holding down bolts.
- h) Surface treatments including corrosion protection and painting.
- i) Pole number.

701.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **luminaires** shall be inclusive of:

- a) Control gear, fuses, switches and the like.
- b) Wiring and connections.
- c) Bird guard.
- d) Focusing and testing.

701.5.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **switchboards** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Concrete, formwork, reinforcement.
- e) Holding down bolts complete with nuts, washers and grouting.
- f) Electrical equipment, wiring, switches, connections, light sensitive relays, earthing, earth stakes, fittings and the like.
- g) Conduits entering into the switchboard including screwed and threaded connections, bends, tees, draw wire, fittings, covers and the like.
- h) Surface treatments including brushed aluminium finish and anti-graffiti coating.
- i) Switchboard number.
- j) Locks and keys.
- k) Drains.
- l) Weatherproofing including door seals.
- m) Reinstatement of pavements and surrounding surfaces.

701.5.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **conduits** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Conduits including screwed and threaded connections, bends, tees, draw wire, fittings, covers and the like.
- e) Locating, working around and supporting pipes, cables, services, apparatus and the like.

- f) Laying and installing conduits in trenches including bedding and surround material.
- g) Casting into concrete and fixing within structures.
- h) Sealing exposed ends of conduits.
- i) Reinstatement of pavements and surrounding surfaces.

- 701.5.6 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cable pits** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Disposal of surplus excavated material.
 - d) Building in conduits.
 - e) Bellmouths to conduits.
 - f) Concrete, formwork, reinforcement.
 - g) Concrete surrounds.
 - h) Marker plaques.
 - i) Drains.
 - j) Reinstatement of pavements and surrounding surfaces.
 - k) Lids.
 - l) Padlock and keys (only when pits are used in the installation of, Series 700 - Cable Conduits For Intelligent Transport Systems, Part 704

- 701.5.7 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cabbling** shall be inclusive of:
- a) Lengths of cabling slack required to make the connections and to form loops in cable pits, poles, controllers and the like.
 - b) Supports and fixing devices required to support cabling.
 - c) Jointing, connecting and sealing including all connectors and insulating materials.
 - d) Identification markings.
 - e) Installation of cables within conduits.

- 701.5.8 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **connection to consumer mains** shall be inclusive of:
- a) Cabling, connection to power supply and point of attachment devices.

702 EMERGENCY ROADSIDE TELEPHONES

702.1 Classification of Items

Separate items shall be provided for the following:

- Emergency roadside telephones.
- Paved surrounds.

702.2 Units of Measurement

The units of measurement shall be:

- 702.2.1 Emergency roadside telephones No.
- 702.2.2 Paved surroundsItem

702.3 Method of Measurement

702.4 Rates and Prices to be Inclusive

702.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **emergency roadside telephones** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Footings.
- e) Holding down bolts complete with nuts, washers and grouting.
- f) Electrical equipment, wiring, switches, connections, connections to power supplies, connections to communication (Telstra or other) networks, earthing, fittings and the like.
- g) Conduits including screwed and threaded connections, bends, tees, draw wire, fittings and the like.
- h) Surface treatments including corrosion protection, painting and anti-graffiti coating.

702.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **paved surrounds** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Subgrade preparation.
- e) Subbase and basecourse layers.
- f) Concrete, formwork, reinforcement.
- g) Bedding.
- h) Blending surround to segmental paving including header courses and mortar bedding.
- i) Finishing up to abutting surfaces.
- j) Protection and maintenance of surfaces.
- k) Protection of adjacent structures and kerbs.
- l) Reinstatement of surrounding surfaces.

703 NOT USED

704 CABLE CONDUITS FOR INTELLIGENT TRANSPORT SYSTEMS

704.1 Classification of Items

Separate items shall be provided for the following:

- Conduits.
- Excavation in rock for conduits.
- Directional drilling conduits.
- Cable pits.

704.2 References

704.2.1 The units of measurement, the method of measurement and the rates and prices for conduits, excavation in rock for conduits, directional drilling conduits and cable pits shall be in accordance with **Series 700 – Electrical and Lighting, Part 701**.

- d) Locating, working around and supporting pipes, cables, services, apparatus and the like.
- e) Footings.
- f) Traffic signal poles, aspects, lanterns and traffic controllers erected complete.
- g) Camera pole and camera housing erected complete
- h) Advanced flashing warning signals poles, sign and aspects erected complete
- i) Electrical equipment, wiring, switches, connections, earthing, earth stakes, fittings and the like.
- j) Communications' equipment, wiring, switches, connections, connections to communication (Telstra or other) networks and the like.
- k) Equipment control software.
- l) Pole and traffic controller unit numbers.
- m) Surface treatments including powder coating, painting and anti-graffiti coating.
- n) Reinstatement of pavements and surrounding surfaces.
- o) Detection loops installed complete.
- p) Cable pits installed complete.

SUPERSEDED

**UNITS AND METHOD OF MEASUREMENT
SERIES 800 – BRIDGES AND MAJOR STRUCTURES**

SUPERSEDED

SERIES 800 – BRIDGES AND MAJOR STRUCTURES

801 EXCAVATION AND BACKFILL FOR STRUCTURES

801.1 Classification of Items

Separate items shall be provided for the following:

- Structural excavation.
- Excavation in rock.
- Embankment construction.

801.2 Units of Measurement

The units of measurement shall be:

801.2.1 Structural excavation m³

801.3 Method of Measurement

801.3.1 Structural excavation shall be measured as the volume which is to be occupied by the structure or foundation, plus any additional volume vertically above any part of the structure or foundation up to existing ground surface or earthworks final surface, whichever is the lower. In the case of structures or foundations constructed in fill material, no measurement shall be made. The total volume of excavation for any one structure or foundation shall be assigned to the item with a depth range within which its maximum depth falls.

801.3.2 Structural excavation shall commence at a depth not exceeding 1.0 metre and shall increase thereafter in 1.0 metre increments.

801.3.3 Excavation in rock shall be measured as “Extra Over” the structural excavation item.

801.4 References

801.4.1 The units of measurement, the method of measurement and the rates and prices for excavation in rock and embankment construction shall be in accordance with [Series 300 – Earthworks, Part 302](#).

801.5 Rates and Prices to be Inclusive

801.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **structural excavation** shall be inclusive of:

- a) Excavation in all materials except rock.
- b) Excavation above and below water level.
- c) Backfilling with embankment quality material and compaction.
- d) Disposal of surplus excavated material.
- e) Trimming, grading, levelling and compacting base and sides of excavations.
- f) Excavating around and between piles and the like.
- g) Additional excavation required by the Contractor in excess of the sizes measured, planking and strutting, timbering, shoring, temporary sheet piling and the like including backfilling, compaction and reinstatement.
- h) Protection of adjacent structures, drains, services, instrumentation and the like.
- i) Completion of earthworks final surfaces.

802 MECHANICALLY STABILISED EARTH WALLS

802.1 Classification of Items

Separate items shall be provided for the following:

- Mechanically stabilised earth wall.

802.2 Units of Measurement

The units of measurement shall be:

802.2.1 Mechanically stabilised earth wallItem

802.3 Rates and Prices to be Inclusive

802.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **mechanically stabilised earth wall** shall be inclusive of:

- a) Design, documentation and verification.
- b) Provision of samples and trial panels.
- c) Submission of details of proposed system for approval.
- d) Installation complete including levelling pads, footings, cappings, caulking and sealing between and under units.
- e) Excavation in all materials except rock.
- f) Backfilling with embankment quality material and compaction.
- g) Cement stabilised layer.
- h) Disposal of surplus excavated material.
- i) Protection of adjacent structures.
- j) Reinstatement of surrounding surfaces.
- k) Sandblasted concrete finish.
- l) Surface finishes including sandblasted concrete finish, curing, protection, treatment to concrete faces and anti-graffiti coating.

803 DISMANTLING AND DEMOLITION

803.1 Classification of Items

Separate items shall be provided for the following:

- Demolition of bridges.
- Removal of redundant deck overlay.
- Removal of redundant traffic barriers for structures and balustrades.

803.2 Units of Measurement

The units of measurement shall be:

803.2.1 Demolition of bridges; removal of redundant deck overlay m²

803.2.2 Removal of redundant traffic barriers to structures and balustradesm

803.3 Method of Measurement

803.3.1 Demolition of bridges and removal of redundant deck overlay shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

803.3.2 Removal of redundant traffic barriers for structures and balustrades shall be measured as the developed length along the centreline from each end, inclusive of anchors, end pieces or terminals.

803.4 Rates and Prices to be Inclusive

803.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **demolition of bridges** and **removal of redundant deck overlay** shall be inclusive of:

- a) Carrying out surveys of bridges prior to demolition.
- b) Disconnecting and sealing of services, and marking and recording the position of sealed services, including liaising with relevant authorities.
- c) Protecting areas, structures and surfaces adjacent to demolition works from damage.
- d) Making good damage to adjacent areas, structures and surfaces.
- e) Delivery of salvageable material to nominated storage area.
- f) Disposal to spoil off-site.

803.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant traffic barriers for structures and balustrades** shall be inclusive of:

- a) Protecting areas, structures and surfaces adjacent to demolition works from damage.
- b) Making good damage to adjacent areas, structures and surfaces.
- c) Delivery of salvageable material to nominated storage area.
- d) Disposal to spoil off-site.

804 NOT USED

805 NOT USED

806 NOT USED

807 NOT USED

808 INCREMENTAL LAUNCHING

808.1 Classification of Items

Separate items shall be provided for the following:

- Casting bay and temporary supports.
- Launching girder.
- Launching system.
- Launching of deck segments.

808.2 Units of Measurement

The units of measurement shall be:

808.2.1 Casting bay and temporary supports; launching girder; launching systemItem

808.2.2 Launching of deck segments No.

808.3 Rates and Prices to be Inclusive

808.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **incremental launching** shall be inclusive of:

- a) Design, documentation and verification.
- b) Clearing, preparation of the site, excavation in all materials including rock, filling, compaction, levelling, trimming and disposal of surplus material.
- c) Foundations, bases, hardstandings and supports.
- d) Construction, fabrication and erection of all temporary works including the casting bay, temporary supports, launching girder, launching system, launching bearings, lateral guides, launching jacks, braking systems, safety switches and other safety measures, communications systems and the like.
- e) Provision of everything necessary to support the design and construction loads.
- f) Setting to tolerances and allowing for tolerances, settlements, deflections, rotations and longitudinal movements.
- g) Launching.
- h) Controlling and monitoring jacking forces.
- i) Transferring the weight of the structure to the permanent bearings.
- j) Provision of survey plates/markers and monitoring.
- k) Surface treatments and protection.
- l) Maintenance of all temporary works.
- m) Protection of adjacent structures.
- n) Demolition and removal of all temporary works and all necessary remedial works required.
- o) Reinstatement of surrounding surfaces.

809 NOT USED

810 DRIVEN STEEL PILES AND DRIVEN CONCRETE PILES

810.1 Classification of Items

Separate items shall be provided for the following:

- Mobilisation and demobilisation of piling plant.
- Piles.
- Galvanising of steel piles.
- Other surface treatments of piles.
- Preparation, handling and pitching of piles.
- Driving of piles.
- Site welded splice to steel piles.
- Extending piles.
- Re-driving of piles.
- Cutting tops off piles.

810.2 Units of Measurement

The units of measurement shall be:

- 810.2.1 Mobilisation and demobilisation of piling plantItem
- 810.2.2 Steel piles; steel pile extensions and galvanisingt
- 810.2.3 Concrete piles; preparation, handling and pitching of piles; site welded splice to steel piles; cutting off tops of piles No.
- 810.2.4 Driving of piles; concrete pile extensions; re-driving of pilesm
- 810.2.5 Surface treatment of piles (except for galvanising) m²

810.3 Method of Measurement

- 810.3.1 Mobilisation and demobilisation of piling plant shall be measured separately for each bridge or structure.
- 810.3.2 The mass of steel piles, steel pile extensions and galvanising shall be calculated using the nominal unit mass of each section in accordance with the relevant Australian Standard. No allowance shall be made for rolling margin.
- 810.3.3 The number of steel piles shall be stated in the item description.
- 810.3.4 Driving piles shall be measured from the toe to the underside of the structure or foundation, or in the case of piles to be extended, to the site joint provided that after re-driving the site joint is below the structure or foundation. The length of re-driving shall be excluded.
- 810.3.5 Redriving piles shall be measured from the site joint to the underside of the structure or foundation, provided that after re-driving the site joint is below the structure or foundation.
- 810.3.6 Surface treatment of piles shall be measured as "Extra Over."

810.4 References

- 810.4.1 The units of measurement, the method of measurement and the rates and prices for galvanising shall be in accordance with **Series 800 – Bridges and Major Structures, Part 835**.

810.5 Rates and Prices to be Inclusive

- 810.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **mobilisation and demobilisation of piling plant** shall be inclusive of:
 - a) Bringing piling plant and equipment to the site of the structure.
 - b) Erecting and setting up piling plant and equipment including site preparation, levelling and provision of access ramps and hardstands.
 - c) Moving and setting up piling plant and equipment at each pile position including site preparation, levelling and provision of access ramps and hardstands.
 - d) Dismantling and removing piling plant and equipment.
 - e) Removal of access ramps and hardstands.
- 810.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **steel piles** and **steel pile extensions** shall be inclusive of:
 - a) Fabrication of steel piles into required lengths.
 - b) Preparation of pile toe and head.

- 810.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **concrete piles** shall be inclusive of:
- Concrete, formwork, reinforcement.
 - Prestressing.
 - Pile shoes, tapered points, head bands, chamfers, lifting points and reference markings.
- 810.5.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **preparation, handling and pitching of piles** shall be inclusive of:
- Fixing pile in piling plant ready for driving.
- 810.5.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **driving piles** shall be inclusive of:
- Pre-boring or jetting where permitted by the Superintendent.
 - Dollying below existing ground level.
 - Taking observations and compiling records of each pile.
 - Driving of piles including temporary supports and any necessary guide arrangements.
 - Additional costs for premature cutting off head of each pile as driving completed to facilitate driving of adjacent piles.
 - Moving piling plant and equipment between piles at individual sites.
- 810.5.6 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **site welded splice to steel piles** shall be inclusive of:
- Cutting off and disposal of surplus length of pile to spoil off-site.
 - Forming connection with old work including welding.
 - Lost time, moving piling plant and equipment, standing time and disruption caused by the process of lengthening.
- 810.5.7 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **concrete pile extensions** shall be inclusive of:
- Cutting off and disposal of surplus length of pile to spoil off-site.
 - Forming connection with old work including splicing, tying or welding reinforcement.
 - Concrete, formwork and reinforcement.
 - Precast members and the like, joints, fitments, head bands.
 - Lost time, moving piling plant and equipment, standing time and disruption caused by the process of lengthening including waiting for the concrete to achieve a specified strength or age.
- 810.5.8 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **re-driving piles** shall be inclusive of:
- Driving to a set or level.
 - Taking observations and compiling the records of piles.
 - Driving of piles including temporary supports and any necessary guide arrangements.
 - Moving piling plant and equipment back and driving lengthened pile.

- 810.5.9 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cutting off tops of piles** shall be inclusive of:
- a) Cutting off and disposal of surplus length of pile to spoil off-site.
 - b) Forming holes in steel members.
 - c) Capping plates.
 - d) Cutting and stripping concrete from the head to the required level and exposing the reinforcement required for bonding into the structure.
 - e) Fixing reinforcement required to bond into the structure.
 - f) Bending and tying the projecting reinforcement required to bond into the structure.
 - g) Removal of surface treatments.

811 INCLUDED WITH 810

812 BORED PILES

812.1 Classification of Items

Separate items shall be provided for the following:

- Mobilisation and demobilisation of piling plant.
- Steel pile casings.
- Preparation, handling and pitching of pile casings.
- Installation of pile casings.
- Excavation within steel pile casing.
- Reinforcement in piles.
- Concrete in piles
- Cutting tops off piles.
- Pile integrity testing.
- Pile load testing.

812.2 Units of Measurement

The units of measurement shall be:

- 812.2.1 Mobilisation and demobilisation of piling plantItem
- 812.2.2 Steel pile casings and reinforcement in pilest
- 812.2.3 Preparation, handling and pitching of pile casings; integrity testing; load testing and cutting off tops of piles No.
- 812.2.4 Installation of pile casings;m
- 812.2.5 Concrete in piles and excavation within steel pile casing; m³

812.3 Method of Measurement

- 812.3.1 Mobilisation and demobilisation of piling plant shall be measured separately for each bridge or structure.
- 812.3.2 The mass of steel pile casings shall be calculated using the nominal unit mass of each section in accordance with the relevant Australian Standard. No allowance shall be made for rolling margin.
- 812.3.3 The number of steel pile casings shall be stated in the item description.
- 812.3.4 Installation of pile casings shall be measured from the toe of the casing to the underside of the structure or foundation.
- 812.3.5 Excavation within steel pile casings and concrete in piles shall be measured from the toe of the casing to the underside of the structure or foundation.

812.4 References

- 812.4.1 The units of measurement, the method of measurement and the rates and prices for excavation within pile casings shall be in accordance with **Series 800 – Bridges and Major Structures, Part 801**.
- 812.4.2 The units of measurement, the method of measurement and the rates and prices for concrete shall be in accordance with **Series 800 – Bridges and Major Structures, Part 820**.
- 812.4.3 The units of measurement, the method of measurement and the rates and prices for reinforcement shall be in accordance with **Series 800 – Bridges and Major Structures, Part 822**.

812.5 Rates and Prices to be Inclusive

- 812.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **mobilisation and demobilisation of piling plant** shall be inclusive of:
- Bringing piling plant and equipment to the site of the structure.
 - Erecting and setting up piling plant and equipment including site preparation, levelling and provision of access ramps and hardstands.
 - Moving and setting up piling plant and equipment at each pile position including site preparation, levelling and provision of access ramps and hardstands.
 - Dismantling and removing piling plant and equipment.
 - Removal of access ramps and hardstands.
- 812.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **steel pile casings** shall be inclusive of:
- Design and fabrication of steel pile casings into required lengths.
 - Preparation of pile toe and head.
- 812.5.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **preparation, handling and pitching of pile casings** shall be inclusive of:
- Fixing pile case in piling plant ready for installation.
- 812.5.4 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **installation of pile casings** shall be inclusive of:
- Pre-boring or jetting where permitted by the Superintendent.
 - Dollying below existing ground level.
 - Taking observations and compiling records of each pile casing.
 - Installation of pile casings including temporary supports and any necessary guide arrangements.
 - Additional costs for premature cutting off head of each pile as installation completed to facilitate installation of adjacent piles.
 - Moving piling plant and equipment between piles at individual sites.
 - Removal of steel pile casing on completion of concreting.

- 812.5.5 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **cutting off tops of piles** shall be inclusive of:
- a) Cutting off and disposal of surplus length of pile to spoil off-site.
 - b) Forming holes in steel members.
 - c) Cutting and stripping concrete from the head to the required level and exposing the reinforcement required for bonding into the structure.
 - d) Fixing reinforcement required to bond into the structure.
 - e) Bending and tying the projecting reinforcement required to bond into the structure.

813 INCLUDED IN 812

814 NOT USED

815 NOT USED

816 NOT USED

817 NOT USED

818 NOT USED

819 FALSEWORK

819.1 Classification of Items

Separate items shall be provided for the following:

- Provision and erection of falsework.
- Maintenance of falsework.
- Removal of falsework.

819.2 Units of Measurement

The units of measurement shall be:

819.2.1 Provision and erection of falsework; maintenance of falsework; removal of falseworkItem

819.3 Rates and Prices to be Inclusive

819.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **falsework** shall be inclusive of:

- a) Design, documentation and verification.
- b) Provision everything necessary to support formwork and design loads.
- c) Protection of adjacent structures.
- d) Setting falsework to tolerances and allowing for settlements and deflections.
- e) Provision of openings through falsework.
- f) Provision of safety rails, barricades, netting and the like.

820 CONCRETE FOR STRUCTURES

820.1 Classification of Items

Separate items shall be provided for the following:

- Differing qualities and classes of in-situ concrete.
- Various in-situ concrete elements.

820.2 Units of Measurement

The units of measurement shall be:

820.2.1 Concrete m³

820.3 Method of Measurement

820.3.1 No deduction shall be made for:

- a) Built-in items, pipes, holes, ducts, pockets, sockets, mortices and the like each not exceeding 0.10 cubic metres in volume,
- b) Reinforcement and prestressing materials,
- c) Individual fillets, chamfers, splays, drip grooves, rebates, recesses, grooves and the like not exceeding 100 millimetres in girth.

820.3.2 The area of blinding concrete shall be stated in the item description.

820.4 Rates and Prices to be Inclusive

820.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **concrete** shall be inclusive of:

- a) Mix design.
- b) Trial mixes.
- c) Mixing, placing in or against any surface including soil faces, compaction, finishing to unformed surface finishes.
- d) Formwork to upper inclined surfaces, except where separate items have been measured.
- e) Making good after removal of formwork including the removal of laitance.
- f) Construction, contraction and expansion joints (whether shown on the Drawings or not), except where separate items have been measured.
- g) Scabbling of construction joints, contraction joints and expansion joints.
- h) Curing and protecting, including evaporation retarding coating and all special requirements.
- i) Falls, cambers and shaped profiles.
- j) Weep holes, pipe sleeves and the like.
- k) Holes, ducts, pockets, sockets, mortices and the like not exceeding 0.10 cubic metres each in volume including formwork.
- l) Formwork to edges of blinding concrete.
- m) All additional concrete required filling overbreak and working spaces.
- n) All sundry items such as sockets, levelling pins, proprietary construction joint material, strips of polystyrene, bond breakers and the like, except where measured separately.
- o) Filling of tie bar holes.

821 FORMWORK

821.1 Classification of Items

Separate items shall be provided for the following:

- Differing qualities and classes of formwork.
- Various in-situ concrete elements.
- Curved formwork.
- Permanent formwork.
- Void formers.

821.2 Units of Measurement

The units of measurement shall be:

821.2.1 Formwork	m ²
821.2.2 Void formers	m

821.3 Method of Measurement

- 821.3.1 Formwork shall be measured as the net area in contact with the finished concrete, subject to the qualifications stated below. No deduction shall be made for openings each not exceeding one square metre.
- 821.3.2 Formwork 300mm wide and less shall not be measured separately but the areas shall be included in the general formwork areas.
- 821.3.3 Formwork shall not be measured to:
- Construction, contraction and expansion joints (whether shown on the Drawings or not).
 - Pockets, cored holes, boxings, holes, ducts, sockets, mortices and the like each not exceeding 0.10 cubic metres in volume.
 - Rebates, chases, fillets, chamfers, splays, drip grooves, recesses, grooves and the like not exceeding 100 millimetres total girth measured on the faces in contact with the concrete.
 - Edges of blinding concrete.
 - Upper inclined surfaces of concrete, unless formwork to upper inclined surfaces of concrete is shown on the Drawings.
 - Unformed surfaces.
- 821.3.4 Where concrete, other than blinding concrete, is placed in structural foundations, formwork shall be measured to the sides of such concrete foundations regardless of whether or not any formwork is used, except where it is expressly stated on the Drawings that the concrete is to be cast against the soil face.
- 821.3.5 Profiled formwork shall be measured as the plane (not developed) area of the profile concrete. No allowance shall be made for bearing surfaces for permanent formwork.
- 821.3.6 Formwork shall be included in the Schedule of Rates or Bill of Quantities in the same sequence as items of concrete.
- 821.3.7 The number of void formers shall be stated in the item description.

821.4 Rates and Prices to be Inclusive

- 821.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **formwork** shall be inclusive of:
- Design, documentation and verification.
 - Provision of samples and trial panels.
 - Centring, fabricating, erecting, assembling, cutting, levelling, fixing in position, fitting and taking measures to produce the required shapes of concrete.
 - Falsework, except where measured separately.
 - Setting formwork to tolerances and allowing for settlements and deflections.
 - Forming cambers and falls.
 - Linings, release agents, surface retarders and other measures to produce the required finish to the surface of the concrete.
 - Filleting to form rebates, chases, chamfers and splayed internal angles drips, blockings, boxings and other ancillary items not exceeding 100mm total girth.
 - Cutting and fitting around projecting members, pipes, reinforcement and the like.

- j) Sealing joints between formwork panels and adjoining surfaces and components.
- k) Forming all construction joints, contraction joints and expansion joints, except where separate items have been measured.
- l) Scabbling of construction joints, contraction joints and expansion joints.
- m) Providing personnel to check formwork during concrete placement.
- n) Maintaining in place until striking and allowing for any variation from the minimum period for striking arising from weather conditions.
- o) Striking, taking down and removing.
- p) Making good concrete after removal including the removal of laitance.
- q) Protection of surrounding surfaces.
- r) Executing the work in the sequences required.
- s) Withdrawing through confined openings where required by the sequence of construction.
- t) Any additional concrete provided in lieu of formwork to fill overbreak and working spaces.

821.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **void formers** shall be inclusive of:

- a) Fixing void formers to prevent displacement during concreting operations.
- b) Capping or blocking off ends where applicable.
- c) Sealing ends and joints.
- d) Cutting and fitting around projecting members, pipes, reinforcement and the like.
- e) Where required, removal of void formers.
- f) Where required, the provision of drains and vents to void formers.

822 STEEL REINFORCEMENT

822.1 Classification of Items

Separate items shall be provided for the following:

- Bar reinforcement.
- Wire reinforcement.
- Fabric reinforcement.
- Trench mesh.
- Mechanical splices.
- Galvanising.

822.2 Units of Measurement

The units of measurement shall be:

822.2.1 Bar reinforcement; wire reinforcement	t
822.2.2 Fabric reinforcement	m ²
822.2.3 Trench mesh	m
822.2.4 Mechanical splices	No.

822.3 Method of Measurement

822.3.1 The mass of bar reinforcement and wire reinforcement shall be calculated using the nominal unit mass of each section in accordance with the relevant Australian

Standard. No allowance shall be made for rolling margin or for the mass of chairs, spacers, hangers, supports and the like.

- 822.3.2 Bar reinforcement and wire reinforcement shall be grouped into diameters less than 16mm, diameters 16mm to 36mm and diameters exceeding 36mm.
- 822.3.3 Single lengths of bar reinforcement and wire reinforcement in excess of 10 metres shall not be measured separately but shall be included with the general reinforcement masses.
- 822.3.4 No allowance shall be made for laps to fabric reinforcement and trench mesh. No deduction shall be made for openings each not exceeding one square metre.
- 822.3.5 Reinforcement shall be included in the Schedule of Rates or Bill of Quantities in the same sequence as items of concrete.

822.4 References

- 822.4.1 The units of measurement, the method of measurement and the rates and prices for galvanising shall be in accordance with **Series 800 – Bridges and Major Structures, Part 835**.

822.5 Rates and Prices to be Inclusive

- 822.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **bar reinforcement, wire reinforcement, fabric reinforcement and trench mesh** shall be inclusive of:
- Provision of bending schedules.
 - Cleaning, cutting and bending.
 - All chairs, spacers, hangers, blocks, supports and the like where required and securing reinforcement in position with tie wire or approved equivalent.
 - Extra reinforcement at laps.
 - All lengths in excess of 10 metres.
 - All welding of reinforcement.
 - Epoxy coatings.
 - Protection of projecting reinforcement.
- 822.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **mechanical splices** shall be inclusive of:
- Protective wrapping.
 - Greasing.
 - Epoxy coatings.

823 NOT USED

824 PRESTRESSING OF CONCRETE

824.1 Classification of Items

Separate items shall be provided for the following:

- Anchorages.
- Couplers.
- Prestressing tendons.
- Prestressing bars.
- Stressing and grouting.

824.2 Units of Measurement

The units of measurement shall be:

- 824.2.1 Anchorages; couplers; prestressing bars; stressing and grouting No.
824.2.2 Prestressing tendonsm

824.3 Method of Measurement

- 824.3.1 Tendons shall be measured as the plan length between the outside faces of anchorages and couplers.
824.3.2 The number of prestressing tendons shall be stated in the item description.

824.4 Rates and Prices to be Inclusive

- 824.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **anchorages** and **couplers** shall be inclusive of:
- Tendon anchorages, couplers, bearing plates, cones, wedges, reinforcing helices, grout inlets, vents and other components and fixing to tendons.
 - Forming recesses and jack seatings.
- 824.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **prestressing tendons** and **prestressing bars** shall be inclusive of:
- Forming, installing and sealing tendon ducts, sheaths or duct formers to profile.
 - Steel cables, wires, strands or bars, tagging, binders, spacers, and proving that tendons and bars are free to move between anchorages or couplers in ducts.
 - Grout inlets, vents and other components.
 - Allowing for variation of length in tendons contained in the same Schedule of Rates or Bill of Quantities item.
 - Cleaning tendons, bars, components and ducts.
 - Marking grout and vent points with tendon or bar identification.
- 824.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **stressing and grouting** shall be inclusive of:
- Checking the accuracy of load measuring equipment and adjusting.
 - Applying prestress in one or more stages.
 - Gripping and trimming tendons.
 - Taking observations and compiling a record of stressing and grouting operations and supplying copies to the Superintendent.
 - Flushing out for grout, grouting trials, grouting, sealing vent holes and end anchorages, treating ends of tendons.
 - Allowing for variation of length in tendons contained in the same Schedule of Rates or Bill of Quantities item.
 - Calculation in respect of the required jacking force and extension.
 - Releasing tension and re-tensioning where pull-in is greater than that agreed by the Superintendent.

825 SANDBLASTED CONCRETE FINISH

825.1 Classification of Items

Separate items shall be provided for the following:

- Various in-situ concrete elements.

825.2 Units of Measurement

The units of measurement shall be:

825.2.1 Sandblasted finish to in-situ concrete m²

825.3 Method of Measurement

825.3.1 The measurement shall be the area of the sandblasted finish to in-situ concrete surfaces shown on the Drawings or specified, except for concrete faces formed with profiled formwork in which case the measurement shall be the plane (not developed) area of the concrete. No deduction shall be made for openings each not exceeding one square metre.

825.3.2 Sandblasted finish to precast concrete members and precast concrete parapet panels shall not be measured.

825.4 Rates and Prices to be Inclusive

825.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **sandblasted concrete finish** shall be inclusive of:

- a) Samples and trial panels.
- b) Exposing aggregates, removing loose material from the concrete and washing down.
- c) Protection of surrounding surfaces.
- d) Dust control.

826 NOT USED

827 NOT USED

828 PRECAST CONCRETE MEMBERS AND PARAPET PANELS

828.1 Classification of Items

Separate items shall be provided for the following:

- Beams.
- Planks.
- Members.
- Parapet panels.

828.2 Units of Measurement

The units of measurement shall be:

828.2.1 Beams; planks; members; parapet panels No.

828.3 Method of Measurement

828.3.1 The length of beams, planks or parapet panels shall be stated in the item description.

828.4 Rates and Prices to be Inclusive

828.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **precast concrete members** and **precast concrete parapet panels** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Mix design.
- c) Trial mixes and trial members.
- d) Formwork and reinforcement.

- e) Surface finishes including sandblasted concrete finish, curing, protection and treatment to concrete faces.
- f) Recesses, fillets, chamfers, splays, rebates, drip grooves and the like.
- g) Holes, ducts, pockets, sockets, mortices, cast-in items and the like.
- h) Matching members for side-by-side construction.
- i) Marking members for identification and delivery in matching sequence.
- j) Lifting devices including removal of lifting devices and filling or reinstatement of voids and holes.
- k) Erection and fixing in final position.
- l) Temporary bracing or stays to prevent displacement.
- m) Bedding, jointing and pointing including cramps, dowels or other fixing devices.
- n) Caulking and sealing between and under units.
- o) Cutting and trimming.
- p) Prestressing tendons, prestressing bars, ducts, anchorages and couplers, stressing and grouting.

829 INCLUDED WITH 828

830 STRUCTURAL STEELWORK

830.1 Classification of Items

Separate items shall be provided for the following:

- Columns.
- Beams.
- Bracing.
- Beam base plates.
- Column base plates.

830.2 Units of Measurement

The units of measurement shall be:

830.2.1 Structural steelwork	t
830.2.2 Base plates	No.

830.3 Method of Measurement

830.3.1 The mass of structural steelwork shall be calculated from the overall length of the members with no deductions for splay cuts or mitred ends. The total mass of the finished member comprising rolled sections, plates, stiffeners, cleats and splice plates shall be calculated using the nominal unit mass of each section in accordance with the relevant Australian Standard. No allowance shall be made for rolling margin, shear studs, weld fillets, bolts, nuts, washers, rivets and protective coatings.

830.3.2 The number of columns, beams or braces shall be stated in the item description.

830.4 Rates and Prices to be Inclusive

830.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **structural steelwork** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Examining and checking steel for segregation, laminations, cracks and surface flaws, and carrying out any remedial works.

- c) Cutting, marking off, drilling, notching, machining, form fitting, edge preparation, cambering, welding, rivets, bolting, pre-heating and taking measures to counteract shrinkage or distortion due to welding, gouging, thermal cutting or heat treatment.
- d) Shear studs including welding to steel members.
- e) Handling, lifting, assembly and erection including jacking, craneage and stacking steelwork clear of the ground.
- f) Bolts, holding down bolts, washers, nuts, fastenings, casting in bolts, bonding agents, attachments, fixings, fillers and sealing materials and the like.
- g) Wedging and grouting under base plates.
- h) Temporary earthworks, skates, packers, bracing, wedging, packing, bolting and welding including that required for concrete work and transporting beams, subsequent removal and making good damaged materials and coatings.
- i) Descaling and wire brushing parts of steelwork to be encased in or in contact with concrete.
- j) Materials testing and providing certificates of compliance.
- k) Weld testing and inspection.
- l) Fabrication inspection and air tightness including provision of threaded nipples and their removal and seal welding hole after testing.
- m) Protecting steelwork including making good damaged materials and coatings.
- n) Providing run on and run off plate extension plates and extending welds at joints.
- o) Qualification tests for welders.
- p) Procedure trials for welding, flame cutting and shearing.

831 MINOR STEEL ITEMS

831.1 Classification of Items

Separate items shall be provided for the following:

- Minor steel items.

831.2 Units of Measurement

The units of measurement shall be:

831.2.1 Minor steel itemsm², m, No., Item

831.3 Method of Measurement

831.3.1 Galvanising, painting and other surface finishes shall not be measured separately.

831.3.2 Expansion joint edgings and expansion joint cover plates shall be measured in **Series 800 – Bridges and Major Structures, Part 870**.

831.4 Rates and Prices to be Inclusive

831.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **minor steel items** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Examining and checking steel for segregation, laminations, cracks and surface flaws, and carrying out any remedial works.

- c) Cutting, marking off, drilling, notching, machining, form fitting, edge preparation, cambering, welding, rivets, bolting, pre-heating and taking measures to counteract shrinkage or distortion due to welding, gouging, thermal cutting or heat treatment.
- d) Shear studs including welding to steel members.
- e) Handling, lifting, assembly and erection including jacking, craneage and stacking steelwork clear of the ground.
- f) Bolts, holding down bolts, washers, nuts, fastenings, casting in bolts, bonding agents, attachments, fixings, fillers and sealing materials and the like.
- g) Wedging and grouting under base plates.
- h) Temporary earthworks, skates, packers, bracing, wedging, packing, bolting and welding including that required for concrete work and transporting beams, subsequent removal and making good damaged materials and coatings.
- i) Descaling and wire brushing parts of steelwork to be encased in or in contact with concrete.
- j) Materials testing and providing certificates of compliance.
- k) Weld testing and inspection.
- l) Fabrication inspection and air tightness including provision of threaded nipples and their removal and seal welding hole after testing.
- m) Protecting steelwork including making good damaged materials and coatings.
- n) Providing run on and run off plate extension plates and extending welds at joints.
- o) Qualification tests for welders.
- p) Procedure trials for welding, flame cutting and shearing.
- q) Surface treatments including corrosion protection, galvanising, painting and other surface finishes.
- r) Reinstatement of pavements and surrounding surfaces.

832 NOT USED

833 BRIDGE BALUSTRADES

833.1 Classification of Items

Separate items shall be provided for the following:

- Balustrades.
- Handrails.
- Anchor blocks, end treatments or transitions.
- Insitu concrete bases for posts.

833.2 Units of Measurement

The units of measurement shall be:

833.2.1 Balustrades, handrails	m
833.2.2 Anchor blocks, end treatments, transitions, insitu concrete bases for posts	No.

833.3 Method of Measurement

833.3.1 Balustrades and handrails shall be measured as the developed length along the centreline between the connections to anchor blocks, end pieces, terminations or transitions.

833.4 Rates and Prices to be Inclusive

833.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **balustrades, handrails, end treatments** and **transitions** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Examining and checking steel for segregation, laminations, cracks and surface flaws, and carrying out any remedial works.
- c) Cutting, marking off, drilling, notching, machining, form fitting, edge preparation, cambering, welding, rivets, bolting, pre-heating and taking measures to counteract shrinkage or distortion due to welding, gouging, thermal cutting or heat treatment.
- d) Handling, lifting, assembly and erection including jacking, craneage and stacking steelwork clear of the ground.
- e) Baseplates, sockets, ends, ramps, angles, joint fittings, bolts, holding down bolts, washers, nuts, fastenings, casting in bolts, bonding agents, attachments, fixings, fillers and sealing materials and the like.
- f) Wedging and grouting under base plates.
- g) Temporary packers, bracing, wedging, packing, bolting and welding and subsequent removal and making good damaged materials and coatings.
- h) Excavation in all materials including rock.
- i) Backfilling with embankment quality material and compaction.
- j) Disposal of surplus excavated material.
- k) Footings.
- l) Concrete, formwork, reinforcement.
- m) Joining to existing road safety barrier systems, traffic barriers for structures, balustrades and handrails.
- n) Post sockets including epoxy mortar and dry sand.
- o) Descaling and wire brushing parts of steelwork to be encased in or in contact with concrete.
- p) Materials testing and providing certificates of compliance.
- q) Weld testing and inspection.
- r) Fabrication inspection and air tightness including provision of threaded nipples and their removal and seal welding hole after testing.
- s) Protecting steelwork including making good damaged materials and coatings.
- t) Providing run on and run off plate extension plates and extending welds at joints.
- u) Qualification tests for welders.
- v) Procedure trials for welding, flame cutting and shearing.
- w) Surface treatments including corrosion protection, painting, reflective tape and anti-graffiti coating.
- x) Reinstatement of pavements and surrounding surfaces.

- 833.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **anchor blocks** and **insitu concrete bases for posts** shall be inclusive of:
- Excavation in all materials including rock.
 - Backfilling with embankment quality material and compaction.
 - Disposal of surplus excavated material.
 - Concrete, formwork and reinforcement.
 - Baseplates, sockets, holding down bolts, washers, nuts, fastenings, casting in bolts, bonding agents, attachments, fixings and the like.
 - Post sockets including epoxy mortar and dry sand.
 - Reinstatement of pavements and surrounding surfaces.

834 NOT USED

835 PROTECTIVE TREATMENT OF STEELWORK

835.1 Classification of Items

Separate items shall be provided for the following:

- Galvanising.
- Painting.
- Hot metal spray.

835.2 Units of Measurement

The units of measurement shall be:

- 835.2.1 Galvanisingt
 835.2.2 Painting; hot metal spray m²

835.3 Method of Measurement

- 835.3.1 Galvanising shall be measured as “Extra Over” the mass of steelwork and shall be the total mass galvanised of the finished member comprising rolled sections, plates, stiffeners, cleats and splice plates calculated using the nominal unit mass of each section in accordance with the relevant Australian Standard. No allowance shall be made for rolling margin, shear studs, weld fillets, bolts, nuts, washers, rivets and protective coatings.
- 835.3.2 Painting and hot metal spray shall be measured in square metres of the surface area of the steelwork treated.

835.4 Rates and Prices to be Inclusive

- 835.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **galvanising, painting** and **hot metal spray** shall be inclusive of:
- Provision of samples.
 - Procedure trials.
 - Protection of adjacent surfaces.
 - Cleaning and preparation of surfaces.
 - Making good and touching up damaged surfaces.

836	NOT USED
837	NOT USED
838	NOT USED
839	NOT USED
840	NOT USED
841	NOT USED
842	NOT USED
843	NOT USED
844	NOT USED
845	NOT USED
846	NOT USED
847	NOT USED
848	NOT USED
849	NOT USED

850 TIMBER BRIDGE MAINTENANCE AND REFURBISHMENT

850.1 Classification of Items

Separate items shall be provided for the following:

- Preparation of timber decking to receive concrete overlay.
- Treatment of decking planks.
- Treatment of stringers.
- Routine maintenance of outside timber stringers.
- Timber handrail maintenance.
- Halfcap repair or replacement.
- Stringer or corbel replacement.
- Stringer strengthening.
- Groundline treatment of piles.
- Waterline treatment of piles
- Repair of split piles.
- Pile bands.
- Repair of split stringers.
- Stringer and corbel bolting.
- Pile repair.
- Deck drainage.
- Marine organism protection.
- Repair and installation of bolted connections.
- Bolt tightening and fastener maintenance.
- End grain sealing.
- Removal of deck vegetation.
- Vegetation and debris clearance below bridge.
- Termite inspection and treatment.
- Adjustment to road surface levels at approach slabs and expansion joints.

- Modifications to navigation pier protective systems.

850.2 Units of Measurement

The units of measurement shall be:

- 850.2.1 Preparation of timber decking to receive concrete overlay m²
- 850.2.2 Treatment of decking planks; treatment of stringers; routine maintenance of outside timber stringers; timber handrail maintenance; halfcap repair or replacement; stringer or corbel replacement; stringer strengtheningm
- 850.2.3 Groundline and/or waterline treatment of piles; repair of split piles; pile bands; repair of split stringers; stringer and corbel bolting; pile repair; deck drainage; marine organism protection; repair and installation of bolted connections No.
- 850.2.4 Bolt tightening and fastener maintenance No., Item
- 850.2.5 Endgrain sealing; removal of deck vegetation; vegetation and debris clearance below bridge; termite inspection and treatment; adjustment to road surface levels at approach slabs and expansion joints; modifications to navigation pier protective systemsItem

850.3 Method of Measurement

- 850.3.1 Preparation of timber decking to receive concrete overlay shall be measured as the plan area of the retained timber deck. No deduction shall be made for openings each not exceeding one square metre.
- 850.3.2 The number of timber stringers, corbels or halfcaps to be treated, maintained, replaced or strengthened shall be stated in the item description.

850.4 Rates and Prices to be Inclusive

- 850.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **preparation of timber decking to receive concrete overlay** shall be inclusive of:
- Removal of loose material and cleaning of retained deck planks.
 - Anti-fungal treatment.
 - Removal and replacement of unsound timber decking including machining timber to required sizes.
 - Tightening of timber decking including additional spikes where required.
 - Hessian.
- 850.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **timber bridge maintenance and refurbishment** shall be inclusive of:
- Removal of loose material and cleaning of retained bridge structure.
 - Anti-fungal treatment.
 - Adequately supporting the bridge structure.
 - Removal and disposal of redundant items, debris, rubbish and the like to spoil off-site.
 - Steel members complete with attached and loose connections, stiffeners, cleats, plates, shear studs, brackets, outriggers, corbels, flange plates, shims and the like.
 - Timber, steel or other packers.
 - Bolts, threaded rods, screws, chemical anchors, washers, curved washers, spikes and the like.
 - Site welding, site drilling, site cutting and the like.
 - Cutting and removing packing from conduits, ducts, pipes and the like.

- j) Removal and replacement of unsound timber including machining timber to required sizes.
- k) Filling unused bolt holes.
- l) Surface treatments including corrosion protection.
- m) Excavation in all materials including rock.
- n) Backfilling with embankment quality material and compaction.
- o) Disposal of surplus excavated material.
- p) Reinstatement of surrounding surfaces.
- q) Concrete, formwork and reinforcement.
- r) Acrylic wrapping.
- s) Waterproof paste, sealant, epoxy, grout, non-shrink cementitious grout and the like.

851 NOT USED

852 NOT USED

853 NOT USED

854 NOT USED

855 NOT USED

856 NOT USED

857 NOT USED

858 NOT USED

859 NOT USED

860 BRIDGE BEARINGS

860.1 Classification of Items

Separate items shall be provided for the following:

- Bridge bearings.
- Approach slab bearings.

860.2 Units of Measurement

The units of measurement shall be:

860.2.1 Bearings No.

860.3 Rates and Prices to be Inclusive

860.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **bearings** shall be inclusive of:

- a) Nuts, bolts, washers, dowels, dowel caps, protective caps, dust covers, sockets, sleeves, wrappings, adhesives and lubricants.
- b) Surface preparation and protection.
- c) Protective treatments including corrosion protection of metal components, painting and greasing.
- d) Marking bearings for identification purposes.

- e) Drilling or forming holes and pockets and casting-in bolts, dowels, sockets, base plates and anchorage assemblies and the like.
- f) Forming all plinths where required including all concrete, formwork and reinforcement.
- g) Temporary supports and stays to prevent displacement.
- h) Setting and releasing locking mechanisms.
- i) Adhesives, epoxy mortar, cement mortar, grout and the like including surface preparation.
- j) Alterations to concrete, formwork, reinforcement and the like.
- k) Testing of bearings.

861 NOT USED

862 NOT USED

863 NOT USED

864 NOT USED

865 NOT USED

866 NOT USED

867 NOT USED

868 NOT USED

869 NOT USED

870 COMPRESSION JOINT SEAL

870.1 Classification of Items

Separate items shall be provided for the following:

- Compression joint seal (inclusive of expansion joint edgings and cover plates).

870.2 Units of Measurement

The units of measurement shall be:

870.2.1 Compression joint sealm

870.3 Method of Measurement

870.3.1 The type and number of expansion joints shall be stated in the item description.

870.3.2 Expansion joint edgings and expansion joint cover plates shall not be measured separately.

870.4 Rates and Prices to be Inclusive

870.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **compression joint seal** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Preparing and cleaning surfaces.
- c) Priming and greasing surfaces of the joint.
- d) Adhesives and sealants.
- e) Masking, protection or other treatments and subsequent removal.
- f) Complying with temperature constraints.
- g) Expansion joint edgings and expansion joint cover plates.
- h) Preventing displacement.
- i) Templates, guides and temporary devices.
- j) Setting the joint.

- k) Forming or cutting sealing grooves in pavements including sealing.
- l) Bedding mortars, grouting materials, filling materials, sealants, nosings and the like including grouting in holding-down bolts.
- m) Treating surfaces of joint exposed at finished road level to prevent skidding.
- n) Making good the gap between joint and adjacent pavement surface.
- o) Surface treatments including corrosion protection to metal components.

871 FINGER PLATE EXPANSION JOINT

871.1 Classification of Items

Separate items shall be provided for the following:

- Finger plate expansion joint.

871.2 Units of Measurement

The units of measurement shall be:

871.2.1 Finger plate expansion jointm

871.3 Method of Measurement

871.3.1 The type and number of expansion joints shall be stated in the item description.

871.4 Rates and Prices to be Inclusive

871.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **finger plate expansion joints** shall be inclusive of:

- a) Preparation of shop drawings.
- b) Preparation and cleaning of surfaces.
- c) Templates, guides and temporary devices.
- d) Setting the joint.
- e) Protective or other treatments and greasing, including surface preparation.
- f) Forming or cutting sealing grooves in pavements including sealing.
- g) Bedding mortars, grouting materials, filling materials, sealants, nosings and the like including grouting in holding-down bolts.
- h) Temporary protection measures and subsequent removal.
- i) Treating surfaces of joint exposed at finished road level to prevent skidding.
- j) Making good the gap between joint and adjacent pavement surface.
- k) Surface treatments including corrosion protection.
- l) Cover plates

872 NOT USED

873 NOT USED

874 NOT USED

875 WATERPROOF MEMBRANE

875.1 Classification of Items

Separate items shall be provided for the following:

- Waterproof membrane.

875.2 Units of Measurement

The units of measurement shall be:

875.2.1 Waterproof membrane m²

875.3.1 Method of Measurement

875.3.1 Waterproof membrane shall be measured as the net area of the surface covered. No deduction shall be made for openings each not exceeding one square metre. No allowance shall be made for laps.

875.3.2 Waterproof membrane 300mm wide and less shall not be measured separately but the areas shall be included in the general waterproof membrane areas.

875.4 Rates and Prices to be Inclusive

875.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **waterproof membrane** shall be inclusive of:

- a) Preparing, cleaning and drying surfaces.
- b) Priming, adhesive coats, undercoats and intermediate coats as appropriate.
- c) Laying to falls, cambers and curves.
- d) Nibs, angle fillets, external angles, mitres, stops and the like.
- e) Sealing at edges, chases, around interruptions and projections and the like.
- f) Making good imperfections.
- g) Joints and overlaps.
- h) Making good up to abutting surfaces including cleaning.
- i) Temporary measures to provide for drainage of surface water.
- j) Temporary protection measures and subsequent removal.
- k) Protection of surrounding surfaces.

UNITS AND METHOD OF MEASUREMENT

SERIES 900 – MISCELLANEOUS

SUPERSEDED

SERIES 900 – MISCELLANEOUS

901 CONCRETE - GENERAL WORKS

901.1 Classification of Items

Separate items shall be provided for the following:

- Concrete infill.
- Footpaths.

901.2 Units of Measurement

The units of measurement shall be:

901.2.1 Concrete infill; footpaths m²

901.3 Method of Measurement

901.3.1 Concrete infill and footpaths shall be measured as the plan area. No deduction shall be made for openings each not exceeding one square metre.

901.4 Rates and Prices to be Inclusive

901.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **concrete infill** and **footpaths** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Trimming, grading, levelling and compacting base and sides of excavations.
- e) Subgrade preparation.
- f) Bedding and surround material.
- g) Formwork, reinforcement, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- h) Finishing up to abutting surfaces.
- i) Protection and maintenance of surfaces.
- j) Reinstatement of surrounding surfaces.

902 NOT USED

903 FENCING

903.1 Classification of Items

Separate items shall be provided for the following:

- Fences.
- Gates.
- Relocation of fences.
- Relocation of gates.
- Removal of redundant fences and gates.

903.2 Units of Measurement

The units of measurement shall be:

903.2.1 Fences; relocation of fences; removal of redundant fences and gatesm

903.2.2 Gates; relocation of gates No.

903.3 Method of Measurement

- 903.3.1 Fences shall be measured as the developed length along the centreline from each end.
- 903.3.2 Removal of redundant gates shall not be measured separately but shall be included in the length of redundant fence removal.

903.4 Rates and Prices to be Inclusive

- 903.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **fences** and **gates** shall be inclusive of:
- a) Clearing.
 - b) Excavation in all materials including rock.
 - c) Backfilling with embankment quality material and compaction.
 - d) Disposal of surplus excavated material.
 - e) Trimming or filling ground on line of fencing to maintain uniform clearance between bottom of fence or gate and ground.
 - f) Footings.
 - g) Baseplates, sockets, ends, ramps, angles, joint fittings, holding down bolts, washers, nuts, fastenings and the like.
 - h) Posts, hinges, fastenings, stops, locks, keys, fittings, chains, gate furniture and the like.
 - i) Strainer wires, strainer posts, strainer assemblies and the like.
 - j) Adjustment of fencing to a flowing alignment including additional lengths of posts.
 - k) Joining to existing fencing, walls, road safety barrier systems, traffic barriers for structures, handrails, balustrades and the like.
 - l) Making good severed ends of existing fences and other items, including fixing posts at ends of strained fences and restraining fences.
 - m) Forming openings in existing fences and making good.
 - n) Surface treatments including corrosion protection, painting, PVC coatings and powdercoating.
 - o) Reinstatement of pavements and surrounding surfaces.
- 903.4.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of fences** and **gates** shall be inclusive of:
- a) Clearing.
 - b) Excavation in all materials including rock.
 - c) Backfilling with embankment quality material and compaction.
 - d) Removal of existing footings and disposal to spoil off-site.
 - e) Disposal of surplus excavated material.
 - f) Trimming or filling ground on line of fencing to maintain uniform clearance between bottom of fence or gate and ground.
 - g) Footings.
 - h) Baseplates, sockets, ends, ramps, angles, joint fittings, holding down bolts, washers, nuts, fastenings and the like.
 - i) Posts, hinges, fastenings, stops, locks, keys, fittings, chains, gate furniture and the like.
 - j) Strainer wires, strainer posts, strainer assemblies and the like.
 - k) Adjustment of fencing to a flowing alignment including additional lengths of posts.

- l) Joining to existing fencing, walls, road safety barrier systems, traffic barriers for structures, handrails, balustrades and the like.
- m) Making good severed ends of existing fences and other items, including fixing posts at ends of strained fences and restraining fences.
- n) Forming openings in existing fences and making good.
- o) Reinstatement of pavements and surrounding surfaces.

903.4.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant fences and gates** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Removal of existing footings.
- d) Reinstatement of pavements and surrounding surfaces.
- e) Delivery to nominated storage area.
- f) Disposal to spoil off-site.
- g) Making good severed ends of existing fences and other items, including fixing posts at ends of strained fences and restraining fences.

904 NOISE WALLS

904.1 Classification of Items

Separate items shall be provided for the following:

- Reinforced concrete footings.
- Brick noise walls.
- Limestone noise walls
- Limestone retaining walls
- Piers.
- Cappings.
- Excavation in rock.

904.2 Units of Measurement

The units of measurement shall be:

904.2.1 Reinforced concrete footing	m ³
904.2.2 Brick and limestone noise wall, limestone retaining wall	m ²
904.2.3 Piers	m
904.2.4 Capping to pier	No.

904.3 Method of Measurement

904.3.1 No deduction to reinforced concrete footings shall be made for:

- a) Built-in items, pipes, holes, ducts, pockets, sockets, mortices and the like each not exceeding 0.10 cubic metres in volume.
- b) Reinforcement.
- c) Individual fillets, chamfers, splays, drip grooves, rebates, recesses, grooves and the like not exceeding 100 millimetres in girth.

904.3.2 Piers shall be measured as "Extra Over." The number of piers shall be stated in the item description.

904.3.3 Excavation in rock shall be measured as "Extra Over."

904.4 References

904.4.1 The units of measurement, the method of measurement and the rates and prices for excavation in rock shall be in accordance with **Series 300 – Earthworks, Part 302**.

904.5 Rates and Prices to be Inclusive

904.5.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **reinforced concrete footing** shall be inclusive of:

- a) Clearing.
- b) Topsoil removal and respreading of topsoil.
- c) Excavation in all materials except rock.
- d) Backfilling with embankment quality material and compaction.
- e) Disposal of surplus excavated material.
- f) Trimming, grading, levelling and compacting base and sides of excavations.
- g) Bedding and surround material.
- h) Formwork, reinforcement, surface finishes, curing, treatment of concrete faces, construction joints, expansion joints, contraction joints and joint fillers.
- i) Finishing up to abutting surfaces.
- j) Protection and maintenance of surfaces.
- k) Reinstatement of surrounding surfaces.

904.5.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **brick and limestone noise wall, limestone retaining wall and pier** shall be inclusive of:

- a) Bedding, jointing, coursing, pointing, fair-faced work, rough and fair cutting and cleaning.
- b) Brick and limestone copings, bands, plinths, corbels, sills, bullnoses and the like.
- c) Forming cavities, reveals, chases, rebates, recesses, angles, quoins and the like.
- d) Ties, dowels, cramps and the like.
- e) Centring and temporary supports.
- f) Bonding into existing work or tying to concrete or other types of structures.
- g) Reinforcement.
- h) Filling cavities.
- i) Building in pipes, bolts and the like and forming small openings.
- j) Damp-proof courses.

905 INCLUDED IN 904

906 STOCK GRIDS

906.1 Classification of Items

Separate items shall be provided for the following:

- Stock grids.
- Removal of redundant stock grids.

906.2 Units of Measurement

The units of measurement shall be:

906.2.1 Stock grid; removal of redundant stock grid No.

906.3 Rates and Prices to be Inclusive

906.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **stock grid** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Surface treatments including corrosion protection and painting.
- e) Reinstatement of pavements and surrounding surfaces.

906.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant stock grid** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Reinstatement of pavements and surrounding surfaces.
- d) Delivery to nominated storage area.
- e) Disposal to spoil off-site.

907 LITTER BINS

907.1 Classification of Items

Separate items shall be provided for the following:

- Litter bins.
- Removal of redundant litter bins.
- Relocation of litter bins.

907.2 Units of Measurement

The units of measurement shall be:

907.2.1 Litter bin; removal of redundant litter bin; relocation of litter bin No.

907.3 Rates and Prices to be Inclusive

907.3.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **litter bin** shall be inclusive of:

- a) Excavation in all materials including rock.
- b) Backfilling with embankment quality material and compaction.
- c) Disposal of surplus excavated material.
- d) Footings.
- e) Concrete, formwork and reinforcement.
- f) Surface treatments including corrosion protection, painting and anti-graffiti coating.
- g) Reinstatement of pavements and surrounding surfaces.

- 907.3.2 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **removal of redundant litter bin** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Removal of existing footings.
 - d) Reinstatement of pavements and surrounding surfaces.
 - e) Delivery of salvageable material to nominated storage area.
 - f) Disposal to spoil off-site.

- 907.3.3 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **relocation of litter bin** shall be inclusive of:
- a) Excavation in all materials including rock.
 - b) Backfilling with embankment quality material and compaction.
 - c) Disposal of surplus excavated material.
 - d) Removal of existing footings and disposal to spoil off-site.
 - e) Storage.
 - f) Footings.
 - g) Concrete, formwork and reinforcement.
 - h) Reinstatement of pavements and surrounding surfaces.
 - i) Cleaning of litter bin.
 - j) Reinstatement of surface treatments including corrosion protection, painting and anti-graffiti coating.

908 ANTI-GRAFFITI

908.1 Classification of Items

Separate items shall be provided for the following:

- Anti-graffiti coating.
- Inspections for occurrences of graffiti.

908.2 Units of Measurement

The units of measurement shall be:

- 908.2.1 Anti-graffiti coating m²
 908.2.2 Inspections for occurrences of graffitiItem

908.3 Method of Measurement

908.3.1 The measurement shall be the area of the anti-graffiti coating shown on the Drawings or specified, except for irregular surfaces in which case the measurement shall be the plane (not developed) area of the surface. No deduction shall be made for openings each not exceeding one square metre.

908.4 Rates and Prices to be Inclusive

- 908.4.1 In accordance with the Preambles, paragraph 2 General Directions, the rates and prices for **anti-graffiti coating** shall be inclusive of:
- a) Provision of samples and trial panels.
 - b) Removal of existing graffiti.
 - c) Preparation of the surfaces to receive the anti-graffiti coating.
 - d) Masking surrounding surfaces.