

Chapter III

Preparation of Bill of Quantities

(Including Preambles to Bill
of Quantities)

Preparation of Bill of Quantities

Sub-division of Bill of Quantities

- 1 The Bill of Quantities is to be divided as appropriate into separate levels of identification, in the sequence set down in Table 1.

Note: The use of Table 1, level 4 sub-heading is optional dependent on the chosen method of billing described in Paragraph 2(c) General Principles.

Quantities

- 2 Quantities shall be expressed in whole numbers except for units of measurement of tonnes and hectares in which case the quantities shall be to three decimal places.

Units of Measurement

- 3 The following abbreviations shall be used for the units of measurement:

Unit	Abbreviation	Unit	Abbreviation
millimetre	mm	sum	sum
metre	m	number	no
square millimetre	mm ²	hour	h
square metre	m ²	week	wk
hectare	ha	item	item
cubic metre	m ³	vehicle week	v/wk
kilogramme	kg	man hour	m/hr
tonne	t	day	day

Special Preliminary Items

- 4 Provision is made in Table 1 for the inclusion of “Special Preliminary” items in the Bill of Quantities.

“Special Preliminary” items are not included in Chapter IV Units and Method of Measurement as their use is intended to be restricted and particular to a given Contract.

“Special Preliminary” items shall not be used for Temporary Works, cofferdams, accesses, advance operations and the like unless the work or operation is unusual in relation to the Works, and:

- (a) the magnitude of such work, not separately measured, is such as to be disproportionately high in cost in relation to the measured work with which it is associated; or
- (b) an operation, not separately measured, is required to be executed far in advance or after the main measured operation to which it relates.

The inclusion of “Special Preliminary” items in a Contract shall be entirely at the discretion of the Engineer. Whether a “Special Preliminary” item is included in the Bill of Quantities or not shall in no way relieve the Contractor of his obligations under the Contract.

Alternative Types of Pavement **5** Where the Contract provides for Alternative Types of Pavement a separate Bill of Quantities is to be provided within Series 600: Earthworks, of the Roadworks General Bill; and Series 700: Pavements, of the Main Carriageway, Interchanges and Side Roads Bills as appropriate, for each Type of Pavement permitted by the Contract.

Immediately preceding the separate sets of alternative Bills in Series 600 : Earthworks and Series 700: Pavements respectively an Index (Table 2) is to be provided of the Alternative Types of Pavement.

Provision is to be made for each Bill of Quantities in Series 600 of the Roadworks General Bill and in Series 700 of the Main Carriageway, Interchanges and Side Roads Bills to be priced and included as appropriate in the Tender.

Alternative Types of Safety Fence **6** *Not used*

Structures Where a Choice of Designs is Offered **7** Where the Contract provides for a structure designed by the Contractor to be constructed as an alternative to the structure which has been designed by the Engineer, a separate Bill of Quantities is to be provided for each of the two construction procedures permitted by the Contract.

Each of the two individual Bills of Quantities is to be provided in accordance with the various Chapters and Series of the Method of Measurement for all the works contained within the Designated Outline (with the exception of those works scheduled as not to be included). For the structure designed by the Contractor the Bill of Quantities is to comprise a single item in accordance with Series 2500. The Bill for the structure designed by the Engineer is to be compiled in accordance with the appropriate Series. Those works scheduled as not to be included in either of these alternative Bills of Quantities shall be included by the Engineer in other Bills compiled in accordance with the appropriate Series.

Provision is to be made for only the one Bill of Quantities which relates to the form of construction elected to be constructed by the Contractor to be priced and included in the Tender Total.

Immediately preceding the separate alternative Bills of Quantities an Index (Table 4) is to be provided for the alternative forms of construction permitted by the Contract.

Structures Designed by the Contractor **8** Where the Contract provides only for a structure designed by the Contractor to be constructed a Bill of Quantities comprising a single item for all the works within the Designated Outline (with the exception of those works scheduled as not to be included) is to be provided in accordance with Series 2500. Those works scheduled as not to be included in this single item are to be included by the Engineer in other Bills compiled in accordance with the appropriate Series.

Earthworks within the Designated Outlines shall not be included by the Engineer in the Earthworks Schedules.

Preambles to Bill of Quantities

- 9** The matters set out under the heading “Preambles to Bill of Quantities” (1-17) hereafter are always to be included as a preamble to the Bill of Quantities. Additional numbered preambles may be included as necessary. Amendments to the Method of Measurement are to follow paragraph 18 (see notes to compiler).

TABLE 1

Level 1 Division	Level 2 Construction Heading	Level 3 MMRW Series Headings	Level 4 Sub-Headings	Notes
(i) Preliminaries	Preliminaries	100 Preliminaries		Special Preliminaries should be inserted under level 3
(ii) Roadworks	Roadworks General	200 Site Clearance	Non-tidal open water and tidal water	Geotechnics should be inserted under level 4. Hedgebanks and the like should be inserted under level 3 Series 600
		300 Fencing		
		400 Safety Fences, Safety Barriers and Pedestrian Guardrails		
		600 Earthworks		
	Main Carriageway	500 Drainage and Service Ducts	Non-tidal open water and tidal water	Cycle tracks and the like should be inserted under level 3 Series 1100
		700 Pavements		
		1100 Kerbs, Footways and Paved Areas		
	Interchanges	500 Drainage and Service Ducts	Non-tidal open water and tidal water	Cycle tracks and the like should be inserted under level 3 Series 1100
		700 Pavements		
		1100 Kerbs, Footways and Paved Areas		
Side Roads	500 Drainage and Service Ducts	Non-tidal open water and tidal water	Cycle tracks and the like should be inserted under level 3 Series 1100	
	700 Pavements			
	1100 Kerbs, Footways and Paved Areas			
Signs, Motorway Communications and Lighting	1200 Traffic Signs and Road Markings			
	1300 Road Lighting Columns and Brackets			
	1400 Electrical Work for Road Lighting and Traffic Signs			
		1500 Motorway Communications		

TABLE 1 (contd.)

Level 1 Division		Level 2 Construction Heading	Level 3 MMRW Series Headings	Level 4 Sub-Headings	Notes
Division	Sub-Division				
(iii) Structures	Structure in form of Bridge or Viaduct; Name or Reference	Special Preliminaries			Special Preliminaries should be inserted as a separate construction heading under level 2
		Piling	1600 Piling and Diaphragm Walling	Non-tidal open water and tidal water	
		Substructure-End Supports	500 Drainage and Service Ducts 600 Earthworks 1100 Kerbs, Footways and Paved Areas 1700 Structural Concrete 1800 Structural Steelwork 1900 Protection of Steelwork Against Corrosion 2300 Bridge Expansion Joints and Sealing of Gaps 2400 Brickwork, Blockwork and Stonework	Non-tidal open water and tidal water	To include wingwalls and paved areas beneath structures
		Substructure – Intermediate Supports Substructure – Main Span Substructure – Approach Spans	As for End Supports	As for End Supports	To include piers and columns

TABLE 1 (contd.)

Level 1 Division		Level 2 Construction Heading	Level 3 MMRW Series Headings	Level 4 Sub-Headings	Notes
Division	Sub-Division				
		Superstructure - Main Span	500 Drainage and Service Ducts		
		Superstructure - Approach Spans	1700 Structural Concrete 1800 Structural Steelwork 1900 Protection of Steelwork Against Corrosion		
		Superstructure - Arch Ribs	2100 Bridge Bearings 2300 Joints and Sealing of Gaps 2400 Brickwork, Blockwork and Stonework		
		Finishings	400 Safety Fences, Safety Barriers and Pedestrian Guardrails 600 Earthworks 700 Pavements 1100 Kerbs, Footways and Paved Areas 2000 Waterproofing for Structures 2200 Parapets 2400 Brickwork, Blockwork and Stonework		Pavements, footways and the like to be included here if no Roadworks Bill of Quantities
	Retaining Wall, Culvert, Subway, Gantry, Large Headwall, Gabion Wall, Diaphragm Wall, Pocket Type Reinforced Brickwork Retaining Wall and the Like; Name or Reference	Special Preliminaries			Special Preliminaries should be inserted as a separate construction heading under level 2

TABLE 1 (contd.)

Level 1 Division		Level 2 Construction Heading	Level 3 MMRW Series Headings	Level 4 Sub-Headings	Notes
Division	Sub-Division				
		Main Construction	500 Drainage and Service Ducts 600 Earthworks 1100 Kerbs, Footways and Paved Areas 1600 Piling and Diaphragm Walls 1700 Structural Concrete 1800 Structural Steelwork 1900 Protection of Steelwork Against Corrosion 2300 Bridge Expansion Joints and Sealing of Gaps 2400 Brickwork, Blockwork and Stonework	Non-tidal open water and tidal water	
		Finishings	400 Safety Fences, Safety Barriers and Pedestrian Guardrails 600 Earthworks 700 Pavements 1100 Kerbs, Footways and Paved Areas 2000 Waterproofing for Structures 2200 Parapets 2400 Brickwork, Blockwork and Stonework		Pavements, footways and the like to be included here if no Roadworks Bill of Quantities

TABLE 1 (contd.)

Level 1 Division		Level 2 Construction Heading	Level 3 MMRW Series Headings	Level 4 Sub-Headings	Notes
Division	Sub-Division				
(iv) Structures Where a Choice of Designs is Offered	Structure Designed by the Engineer;		To comply with the Principles set down above for Structures		To include works within Designated Outlines with the exception of works scheduled as not to be included. This division is not to be used where the Contract provides only for a structure designed by the Contractor
	Name or Reference				
(v) Structures Designed by the Contractor	Structure Designed by the Contractor;				To include works within Designated Outlines with the exception of works scheduled as not to be included
	Name or Reference				
(vi) Service Areas	Structure;				
(vii) Maintenance Compounds		Roadworks Structures	To comply with the principles set down above for Roadworks and Structures	To comply with the principles set down above for Roadworks and Structures	
		Roadworks Structures			
(viii) Accommodation Works		Interests; Name or Reference			
(ix) Works for Statutory or Other Bodies		Body; Name or Reference	To comply with the principles set down above for Roadworks and Structures	To comply with the principles set down above for Roadworks and Structures	
		Daywork			
(x) Daywork		Daywork			
(xi) PC and Provisional Sum		PC and Provisional Sum			To include PC and Provisional Sums not allocated to a particular construction heading

TABLE 2

(This Table 2 is an example of the introduction and index to be inserted as a separate page immediately preceding each set of the separate Bills of Quantities included within Series 600: Earthworks in the Roadworks General Bill and Series 700: Pavements in the Main Carriageway, Interchanges and Side Roads Bills, to cover the alternative Types of Pavement permitted in the Contract.)

A separate Bill of Quantities is provided for each Alternative Type of Pavement permitted by the Contract. The tenderer shall price, extend and carry to the collection in the Bill of Quantities for each Type of Pavement permitted in the Contract.		
Index		
Type of Pavement	Bill No.*	Page(s)
Flexible	(6A) (7A)	
Flexible Composite	(6B) (7B)	
Rigid	(6C) (7C)	

*See Chapter III, Item 5 "Alternative Types of Pavement"

TABLE 3

Not Used

TABLE 4

(This Table 4 is an example of the introduction and index to be inserted as a separate page immediately preceding the separate Bills of Quantities included within the Bill for Structures Where a Choice of Designs is Offered (as defined under paragraph 7 of the Preparation of Bill of Quantities).)

Bill No. Structures Where a Choice of Designs is Offered A separate Bill of Quantities is provided for each of the two construction procedures permitted by the Contract. Notwithstanding the provisions of paragraph 4 of the Preambles to Bill of Quantities, the tenderer shall price, extend and carry to the collection of Bill No.: Structures Where a Choice of Designs is Offered, only that Bill of Quantities appropriate to the form of construction he has elected to construct.			
Index			
Type of Structure	Structure No.	Bill No.	Page(s)
Structure Designed by the Engineer		... A	
Structure Designed by the Contractor		... B	

(Repeat for each structure)

Preambles to Bill of Quantities

General Directions

- 1 The Bill of Quantities has been prepared in accordance with the Method of Measurement for Road Works.
- 2 In the Bill of Quantities the sub-headings and item descriptions identify the work covered by the respective items, read in conjunction with the matters listed against the relevant marginal headings “Item Coverage” in Chapter IV of the Method of Measurement for Road Works, these Preambles and the amendments to the Method of Measurement immediately following these Preambles. The nature and extent of the work is to be ascertained by reference to the Drawings, Specification and Conditions of Contract. The rates and prices entered in the Bill of Quantities shall be deemed to be the full inclusive value of the work covered by the several items including the following, unless expressly stated otherwise:
 - (i) Labour and costs in connection therewith.
 - (ii) The supply of materials, goods, storage and costs in connection therewith including delivery to Site. Taking delivery of materials and goods supplied by others, unloading, storage, and costs in connection therewith.
 - (iii) Plant and costs in connection therewith.
 - (iv) Fixing, erecting and installing or placing of materials and goods in position.
 - (v) Temporary Works.
 - (vi) The effect on the phasing of the Works or any element of the Works to the extent set forth or reasonably implied in the documents on which the tender is based.
 - (vii) General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the tender is based.
 - (viii) Establishment charges, overheads and profit.
 - (ix) Waste.
 - (x) Attendance and transport for sampling and testing carried out by the Engineer, tests carried out by the Contractor, supplying results of tests carried out by the Contractor and providing test certificates.
 - (xi) Complying with Quality Assurance schemes and providing certificates of conformity.
 - (xii) Preparation and supply of detailed working drawings.
 - (xiii) Awaiting approvals and or consents.

Measurement	3	(i) The measurement of work shall be computed net from the dimensions stated in the Contract unless otherwise stated in the Method of Measurement. (ii) Where the tender documents provide for the Contractor to select the type of buried structure (where the structure is not within Designated Outlines) to be constructed then the measurement of all work in each area so affected shall be based upon the thinnest pavement construction and surfacing over structures permitted by the Contract in that area for the particular type of buried structure the Contractor has elected to construct.
Pricing of Items	4	Each individual item shall have a rate or price entered against it. Rates and prices shall be expressed to two decimal places.
Alternative Specified Materials, Designs and Options Within Types of Pavement	5	<i>Not used</i>
Privately and Publicly Owned Services or Supplies	6	The information in the Contract as to the whereabouts of existing services and mains is believed to be correct but the Contractor shall not be relieved thereby of his obligations under the Contract. The Contractor shall include in his rates and prices for locating and taking measures for the support and full protection of pipes, cables and other apparatus during the progress of the Works, obtaining the written consent of the appropriate authority to interrupt the service or supply and for keeping the Engineer informed of all arrangements he makes with the owners of privately owned services or supplies, Statutory Undertakers and Public Authorities as appropriate.
Labours	7	Labours in connection with Nominated Sub-contractors shall include: (i) in the case of work or services executed – for affording the use of existing working space, access, temporary roads, erected scaffolding, working shelters, staging, ladders, hoists, storage, latrines, messing, welfare and other facilities existing on Site and the provision of protection, water, electricity for lighting and clearing away rubbish and debris arising from the work; (ii) in the case of goods, materials or services supplied – for taking delivery, unloading, storing, protecting and returning crates, cartons and packing materials.
Roadworks Overall Requirements	8	The Contractor shall allow in his rates and prices for complying with requirements in respect of pavement construction, horizontal alignments, surface levels and surface regularity of pavement courses, cold weather working, use of surfaces by traffic and construction plant, and general requirements for sub-bases and road bases.

**Work Within and Below
Non-tidal Open Water or
Tidal Water**

- 9 The Contractor shall allow in his rates and prices for taking measures required to execute the work separately measured as being within and below non-tidal open water or tidal water. Subject to and without prejudice to the Conditions of Contract the datum stated in the Contract shall be used for the measurement of work affected by non-tidal open water or tidal water irrespective of the actual level of water encountered in the Works.

Notwithstanding the foregoing, and the provisions of Chapter II paragraph 2, the Contractor shall allow in his prices for any items of structures designed by the Contractor provided under Series 2500, for taking measures required to execute work within and below non-tidal open water or tidal water although no separate measurement is provided and whether or not a datum is stated in the Contract.

Dealing with Flow

- 10 The Contractor shall allow in his rates and prices for taking measures to deal with the existing flow of water, sewage and the like.

**Reimbursement by the
Employer of Fees, Rates,
Taxes and Engineer's
Telephone Calls**

- 11 The Employer will reimburse the Contractor the actual price paid by the Contractor in respect of:
- (i) fees, rates and taxes – the sums certified by the Engineer as properly repayable to the Contractor in accordance with Clause 27 of the Conditions of Contract;
 - (ii) Engineer's telephone calls – telephone calls charged to the number or numbers allocated to the Engineer.

Any other cost, charge or expense in respect of these items shall be allowed for in the rates and prices for temporary accommodation.

**Site Limitations and
Constraints**

- 12 The Contractor shall allow in his rates and prices for complying with any limitations and constraints on the use of the Site.

Hard Material

- 13 For the purposes of the Contract the following are designated as Hard Material in accordance with Chapter 1 Definitions, paragraph 1(i)(i):
- (a)* strata;
 - (b) those deposits designated by limits shown on the Drawings;
 - (c) existing pavements, footways, paved areas (but excluding unbound materials) and foundations in masses in excess of 0.20 cubic metres.

**Equivalent
Products
and Materials**

- 14 Where the Contractor offers an equivalent product or material in place of the one identified or specified, which is accepted for incorporation into the Works by the Engineer, then the rates and prices in the Bill of Quantities shall be deemed to include for all the obligations and costs associated with the incorporation of the equivalent into the Works, including design, provision of data and drawings, certificates, awaiting approvals, resubmissions and modifications and amendments to the Works.

Unless specifically stated to the contrary in the Contract the measurement of the Works affected by the incorporation of the equivalent products and materials shall be based on the Tender documents and not on the Works as amended and completed to incorporate the equivalent products and materials.

**Permanent Works
Designed by the
Contractor**

- 15 Where the Contract requires part(s) of the Permanent Works to be designed by the Contractor, the rates and prices in the Bill of Quantities shall include for all the obligations and costs associated with the incorporation of the Contractor's design into the Works, including design, provision of data and drawings, certificates, awaiting approvals, resubmissions and modifications and amendments to the Works.

**Structures Designed
by the Contractor**

- 16 In respect of each priced Bill for a structure designed by the Contractor, the Contractor shall prepare a priced schedule of quantities. This priced schedule shall be prepared in accordance with the relevant Chapters and Series of the Method of Measurement and submitted to the Engineer for his acceptance within 7 working days of the date of the Engineer's approval in writing of the Contractor's design. References to such structures and associated works within Chapters and Series other than Series 2500 are included to enable the Contractor to prepare the priced schedule of quantities and to enable the Engineer to prepare a Bill of Quantities where a specifically designed option is included for such a structure.

The quantities, rates and prices in the priced schedule of quantities shall in each case, when extended and totalled, give the amount entered in the priced Bill of Quantities against the item for the relevant structure designed by the Contractor.

The priced schedule of quantities shall only be used for the valuation of monthly statements and for the valuation in accordance with Clause 52 of the Conditions of Contract of variations ordered by the Engineer in connection with structures designed by the Contractor.

Unless specifically stated to the contrary in the Contract the measurement of the Works affected by the incorporation of the Contractor's design shall be based on the Tender documents and not on the Works as amended and completed to incorporate the Contractor's design.

The parts of the Works included by the Contractor in the priced schedule of quantities shall include all the parts of the Works within the Designated Outline except those designed and scheduled by the Engineer as not to be included.

Earthworks within the Designated Outlines shall not be included by the Engineer in the earthworks schedules.

Alterations for Road Authorities 17 *Not used*

†**Amendments to the Method of Measurement** 18 For the purposes of the Contract the Method of Measurement for Road Works is amended in accordance with the pages immediately following.

[Notes to compiler:

The Preambles to Bill of Quantities (duly completed) must be reproduced unaltered and bound in the Bill of Quantities.

* To be completed by compiler as appropriate.

† Where amendments to Chapter IV of the Method of Measurement are required in accordance with paragraph 1(b) of Chapter II, General Principles, this preamble should be the last numbered preamble and inserted immediately prior to the amendments.]