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## ARM4 - A Working Guide - Section B - Preliminaries

Tony Cunningham

Technological University Dublin, [tony.cunningham@tudublin.ie](mailto:tony.cunningham@tudublin.ie)

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# **ARM4 – A Working Guide - Section B - Preliminaries**

**Tony Cunningham**  
**School of Surveying and Construction Management**  
**Dublin Institute of Technology**

## **Foreword.**

This paper is a companion to the Agreed Rules of Measurement 4<sup>th</sup> Edition (ARM) and is provided as a guide to help better understanding of ARM and to clarify its contents. It is hoped that it may remove some of the disagreements which can arise on construction projects due to differences of interpretation. The paper follows ARM sequence, stating the rules first and following these with notes and commentary on the individual rules. Some items contained within the ARM are self-explanatory, and therefore require no further comment.

Because contractual terms and arrangements are a central concern of the preliminaries bill, this paper has been written with a particular focus on the principal Irish standard forms of contract which may call for a bill of quantities to be prepared in accordance with ARM. These are the Royal Institute of Architects in Ireland (RIAI) 'yellow' form of contract and the Public Works Contracts PW-CF1 and PW-CF5. The employer provides the design as part of all three of these contracts.

While this paper attempts to clarify and explain various items in the ARM, it does not seek to override the ARM or any of its provisions.

## **Introduction**

The preliminaries section is normally the first section of a bill of quantities. The scope of this element is set out at Element (06) in the *National Standard Building Elements and Design Cost Control Procedures* (National Building Elements Committee, 1993) as including: 'plant and vehicles which cannot be allocated to any one element or group of elements; temporary works, including temporary site communications; protection; watching; hoardings; drying out the works; testing; site supervision, and overheads.'

More recently the United Kingdom *New Rules of Measurement - NRM2* (2012) has defined main contract preliminaries as:

items that cannot be allocated to a specific element, sub-element or component. Main contract preliminaries include the main contractor's costs associated with management and staff, site establishment, temporary services, security, safety and environmental protection, control and protection, common user mechanical plant, common user temporary works, the maintenance of

site records, completion and post-completion requirements, cleaning, fees and charges, sites services and insurances, bonds, guarantees and warranties. . . .

Preliminaries are work and other expenditure that is necessary but forms no part of the finished construction. The preliminaries section of the contract documents sets out the general obligations of the contract. These are items of a general nature related to the project as a whole and not specific to any single trade or element, for example, water for the works. It could be said that the preliminaries form the framework around which the contract is organised. The preliminaries describe the location, size and complexity of the project both in terms of its construction and management. This enables contractors to plan how the work is to be carried out. Decisions relating to matters such as plant, equipment, management resources, manpower resources and systems etc. are reflected within the pricing of this element of the bill.

Preliminaries usually represent a significant proportion of the total cost of a building project and often exceed 10% of the contract sum. As building operations become more complex, and the contracting role becomes increasingly more involved in off-site construction, the pricing of the preliminaries takes on added importance for main contractors. Preliminaries is the section of the bill where contractors price the organization and coordination functions, and by choosing efficient methods of carrying out the work a contractor can reduce programme times, which may produce savings in management and accommodation costs, thereby gaining a competitive advantage over rival companies.

Preliminaries must be fully described in accordance with the provisions of section B of ARM. Hore, O’Kelly and Scully (2009) explain that the preliminaries section in a bill of quantities contains three separate and distinct types of item, namely: items which are informative only and have no identifiable cost such as project parties, items which are not specific to any work section but have an identifiable cost, such as insurance, and items for fixed and time-related identifiable costs which derive from the contractor’s expected method of carrying out the work, such as providing temporary accommodation.

It is common to refer to the preliminaries section as the ‘project overheads’. It should be noted, however, that preliminaries items are direct costs specific to the particular site. They are not intended to cover head office costs. The preliminaries should however include a proportion to cover overheads and profit similar to that applied to the unit rates contained in the subsequent measured work sections of the bill.

The information contained in the preliminaries section falls into four general categories: Preliminary Particulars; Contract; Work by Nominated Sub-contractors, Goods and Materials from Nominated Suppliers and Works by Public bodies, and General facilities and obligations.

# 1 Preliminary Particulars

## 1.1 Project, parties and consultants

The following shall be given:

The name, nature and location of the project.

A general description of the works.

The names and addresses of the Employer and Consultants together with their respective roles.

### *Commentary*

Rule 1.1 requires the name, address and nature of the project to be given. The general description of the works is usually evident from the tender drawings which accompany the bill of quantities. These typically include the 'general arrangement drawings' required under Rule 8 of Section A of ARM, which show the plans at the various floor levels, the elevations, and the principal sections through the building. These enable contractors to establish the scope of the works in terms of its size, shape, storey height and complexity and identify the general nature of the substructure, structure and completion elements of the building. This information together with specification of the principal finishes, services, fittings and siteworks elements are stated in composing these general descriptions.

The UK *SMM7 Measurement Code* (1988) states that 'the description of the work as a whole and the circumstances in which it is to be constructed is intended to convey to the estimator an initial impression of the types of work involved, including any particular or unusual features or conditions that are relevant. Bearing in mind that much of the information required to give this initial impression will be readily available from the drawings that accompany the tender documents, the description required under this rule can be kept relatively succinct. In addition, as the estimator proceeds through the bill, further general information will become apparent from the descriptions which precede individual sections.'

Seeley (1989) provides the following sample bill description:

The work comprises the erection of a single storey health centre, overall size 36.50 x 17.20 x 2.26m high to eaves, with a total floor area of 542m<sup>2</sup>. The construction consists of concrete trench fill foundations, external cavity walls of faced brickwork and concrete block with aluminium windows and doors in hardwood frames. The roof is of concrete covered with asphalt. Internally walls are plastered and painted. Services comprise low pressure hot water and heating, electrical installation, fire alarms and emergency lighting. External works include services, drainage, fences, car park and landscape work.

The identification of the employer and consultants enables contractors to investigate the experience, reputation, and financial standing of the client and the reputation and competence of the consultants.

Taken together with the description of the site, this enables tendering contractors to decide whether or not to submit a tender for the project.

### ***1.2 Description of site***

Information to indicate the boundaries of the site, the means of access and the position of the works shall be given. Attention shall be drawn to any adjacent or abutting buildings. Attention shall be drawn to any drainage, water, gas, and other mains or power services known to exist on, under, or over the site. Information to facilitate visiting the site shall be given.

#### ***Commentary***

It should be noted that *Rule 8 Drawn Information in Section A – General Rules* of ARM requires a site/block plan to ‘locate the outline and position of the building site in relation to town plan or other wider context and to locate the position of the building in relation to general layout of site and means of access.’ Such site/block plan should ideally be marked up to show the particulars required by this rule.

With regard to adjacent or abutting buildings, the *SMM7 Measurement Code* provides the following guidance: ‘the reference to existing buildings relates only to those buildings which could have an influence on cost. This could arise from their close proximity making access difficult, their heights relative to the possible use of tower cranes or the fragility of, for example, an historic building, necessitating special care.’

### ***1.3 Drawings and other documents***

A list shall be given of the drawings and other documents from which the Bill of Quantities has been prepared. The list shall identify those issued to tenderers.

Addresses where drawings and other documents not issued to tenderers may be inspected, by appointment or otherwise, shall be given.

#### ***Commentary***

These show the nature and scope of the work to be carried out under the contract.

The *SMM7 Measurement Code* adds that the ‘drawings to be listed are those from which the bills of quantities have been prepared which is not the same as those required by the rules to be provided with the bill. Similarly all the drawings listed need not in due course be the contract drawings.’

Where bills of quantities are provided the contractor is **rarely** provided with all the drawings used to compile the bill. The detail is contained in the bill descriptions thus enabling the tender documentation to be kept concise and to the point. This rule advises contractors of all of the drawings used to compile the bill. Contractors may inspect these documents by appointment.

Ideally the design will be fully developed at the time tenders are sought. Fully developed plans and supporting details, structural and services drawings indicate a firm design and it is likely that there will be fewer changes during the construction stage in these instances. Insufficiently detailed drawings, on the other hand, signal continuing design development and the probability of significant post-contract variations.

## 2 Contract

Items shall be given in each case for the requirements of the following:-

### 2.1 Form, type and conditions of contract

Where the Conditions of Contract are standard and published for general use, particulars of the edition to be used and a schedule of the clause headings shall be given. Where the standard conditions provide for alternative or optional clauses the clauses which are to apply shall be stated. Amendments to standard conditions shall be given in full.

Where the conditions of contract are not standard or not published for general use the conditions shall be set out in full in the tender documents or a schedule of clause headings shall be given where a full set of conditions is supplied with the tender documents. In either case where the conditions provide for alternative or optional clauses, the clauses which are to apply shall be stated.

Where there is an appendix to the Conditions of Contract requiring insertions to be made, a schedule of the insertions shall be set out in the Bill of Quantities.

### *Commentary*

This section provides the contractor with the opportunity to price all matters in connection with the contract arrangements. These identify the form, type, conditions of contract, options selected, amendments to the standard conditions and appendix/schedule details to be inserted.

A key function of contracts is to allocate risks between the contracting parties and it is essential that this is done clearly if disputes are to be avoided. As Murdoch and Hughes (2008, p. 105) point out '*contracts are drawn up with the intention of relying upon them in a court of law at some point in the future*'. The contractual arrangements set out the obligations and rights of the parties, and the detailed conditions under which the contract will operate. Building contracts in Ireland are predominantly arranged on the basis of a standard form of building contract. Private sector contracts are commonly entered into on an RIAI Contract, while works funded through the Exchequer are awarded using one of the Public Works Contracts.

The RIAI publish four contracts of which two, the 'yellow' and the 'blue' forms are widely used. The 'with quantities' or 'yellow' form is suited to substantial projects and a bill of quantities is provided to tendering contractors under this arrangement. Clause 3 of the RIAI contract requires that where a bill of

quantities is a contract document it must comply with ARM. In these cases the employer bears the quantities risk and errors in the billed quantities are rectified. On smaller projects and/or where a bill is not a contract document the contract is typically based on drawings and specifications and these are entered into on a 'without quantities' basis. In these instances the 'blue' RIAI form is commonly used. Where a bill of quantities is not provided the tendering contractors must measure the work themselves and they bear the risk for any under-measured quantities. The specification provided under this arrangement usually contains preliminaries information but there is no obligation requiring it to comply with ARM. The RIAI 'short' form of contract which is suited for small domestic alteration and improvement works. No bills of quantities are prepared in connection with this form. The RIAI also publish a plain English form of contract.

Five forms of Public Works Contract, PW-CF1 to 5, referred to as the 'long' forms of contract, were introduced in 2007. The suite of contracts has since expanded to cover a range of procurement options and currently comprises eleven forms of contract. Four of these contracts relate to typical new-build building contracts, the choice of which, depends on who provides the design. Major building projects over €5 million in value use either PW-CF1 for 'traditional' projects where the employer provides the design, or PW-CF2 for contractor design and build projects. PW-CF5 is used on 'minor works' projects which do not exceed the €5m threshold. PW-CF6 is described as the 'short' form of contract and is used on projects not exceeding €500,000. Other forms within the suite cater for enabling works, conservation projects, framework arrangements for term contracts, and early contractor involvement for very large projects.

Bills of Quantities *may* be provided with the PW-CF1 and PW-CF5 forms of contract. Initially public sector contracts were intended to be awarded on a 'without quantities' basis. Section 5.3 of the *Training Manual* (NPPU, 2007 p.33) states that '*Contracts for the most part will be lump sum and the Contractors will own the "quantities risk", however Contracting Authorities can make a choice about the contractual status of the bill of quantities.*' The *Training Manual* then provides guidance for contracting authorities on how discrepancies between the Works Requirements and Bills of Quantities should be approached. It suggests that:

Employers should carefully consider the circumstances that warrant the use of Bills of Quantities. The policy is to have design developed so that "No" can be inserted in this box [Risk Nr 17 – quantities risk]. This requires comprehensively developed design documentation including, for example, completed reinforcement drawings and mechanical and electrical designs. In circumstances where ground conditions risk [Risk Nr 19] is being passed on to the Contractor in traditional contracts "No" should always be inserted. (p. 41)

Where, however contracting authorities elect to retain the ‘quantities risk’ the bill of quantities must be prepared in accordance with ARM. The *Training Manual* states: ‘*Subject to the foregoing, bills of quantities (if used) should be prepared in accordance with the standard methods of measurement approved by the GCCC and should incorporate any GCCC amendments.*’

If the form of contract is a standard form, such as one of the RIAI, or one of the Public Works Contract forms, it will **not** be sent out with tender documents, as contractors will almost certainly have a copy, or they can readily obtain or access one. Nevertheless particulars of the edition to be used and a schedule of the clause headings must be given in this section of the preliminaries.

### *Optional Clauses*

The RIAI and PW-CF1 and CF5 contracts contain a number of instances where alternative or optional clauses may apply; the chosen option must be stated in the preliminaries. For example, RIAI Clause 3 identifies whether or not the bill of quantities is a contract document, Clauses 21 and 22 provide options for the Employer to take out the necessary public liability, employer’s liability, and all risks insurance cover instead of the contractor taking out these policies. Clause 26, *Responsibility for Existing Structures* is struck out unless the contract is for alteration or extension of existing buildings.

If the conditions of contract are not standard then the conditions must be included in full in the bill or alternatively presented as a separate volume with the tender documents as a separate volume with the tender documents and listed in the bill for pricing.

### *Modifications of contract conditions*

Special clauses may sometimes be added to the conditions of a standard form of contract and these together with any modifications to clauses should be detailed in the bill. Such amendments must also be made to the actual contract that is to be signed by the employer and successful contractor, as it is not advisable to rely on a clause in the bill alone even though it may be one of the contract documents. (Lee, Trench and Willis, 2011) Clause 3 of the RIAI Contract states that ‘*nothing in contained in the said Bill shall override, modify or affect in any way whatsoever the application of or interpretation of that which is contained in these conditions.*’ Similarly Section 1.3 of the Public Works Contracts emphasises that if there is an inconsistency between the contract documents, that the conditions of contract take precedence over the works requirements and pricing document.

The practice of amending standard forms of contract is said to be widespread on private sector contracts. The Liaison Committee (2006), however, ‘strongly recommends the use of the standard forms of building contract in unamended form. The ... Committee is firmly of the opinion that, if alterations to



the standard forms have to be made, it is essential in the interests of good practice and of economic building that they be kept to an absolute minimum.’

Likewise, the *Training Manual* states that Public Works Contracts ‘are to be used without amendments. ... However, in exceptional and rare circumstances, consideration can be given to amendments to non core elements of the new forms of construction contracts. The request for any such amendments from those bodies required to use the new contracts should be submitted to the GCCC for consideration and approval as appropriate. Other public bodies (such as commercial semi-state bodies) wishing to use the new forms of construction contracts but with amendments, should also submit a request to the GCCC for consideration and approval as appropriate.

### *Appendix / Schedule details*

The appendix or schedule is the part of the contract that specifies the project specific details. The purpose of the appendix is to gather together the various items which vary from contract to contract. This section sets out important data relating to the project such as the contract period, the level of liquidated and ascertained damages, the length of the defects liability period, the period of and time for interim certificates, the retention levels and arrangements, the period of final measurement, and the notice periods for seeking arbitration. There are seventeen items in the RIAI form that are required to be completed. The appendix details are stated in the preliminaries section of the bill of quantities or specification depending on which contractual arrangement is selected.

In the case of contracts PW-CF1 to PW-CF5, the schedule is in two parts: the employer completes Part 1 and part of Part 2C of the schedule before tenders are invited and includes it with the tender documentation. The tenderer completes Part 2 and the works proposals in Part 1B of the schedule and submits it with the tender response.

In the case of small works contracts under €500,000 the schedule for use with in PW-CF6, is in one part only; this is filled in by the employer and is attached to the form of tender issued with the tender documentation. (DPER, 2011)

## **2.2 Contractor’s liability**

The following shall be given unless already covered by the schedules given in accordance with Rule 2.1.

- a) Contractor’s liability for risk or injury to persons and property and for damage to the works.
- b) Where the Employer requires the Contractor to effect insurance in respect of the Contractor’s liability for any such risk, the relevant particulars shall be given.
- c) Where the Employer intends to relieve the Contractor of liability for any such risk, the relevant particulars shall be given.

The provisions relating to the insurance of contractor's liability are set out in Section 3 of the Public Works Contracts and Clauses 21-27 of the RIAI Contract. The default provisions of both contracts are that the contractor will take out employer's liability, public liability and all risks insurance. Both contracts, however, include the option for the employer to take out the necessary cover should this be considered appropriate. The levels of cover required are set out in Schedule 1 of the Public Works Contracts and the Appendix to the RIAI Contract. Unless otherwise stated, the Public Works Contract requires a minimum public liability insurance cover of €6,500,000 with an excess of €10,000 for damage to property, in addition to employers liability insurance cover of €13,000,000 with no excess, The corresponding default RIAI requirements are €3,000,000 for public liability and €13,000,000 for employer's liability cover. Both contracts set out a default level of 12½% for cover for professional fees in relation to remedial work covered by the all risks insurance.

### ***2.3 Insurance Liability of the Employer***

Where the cost of insuring any liability of the Employer is required to be included in the Contract Sum, such cost shall be given as a Provisional Sum.

In general, insurances are arranged by the contractor. On refurbishment projects, however, the employer usually takes out insurance to cover damage or destruction of the existing premises. An option is provided in both the Public Works Contracts and the RIAI Contract for the contractor to arrange such cover. Specialist or non-routine insurances such as non-negligence insurance clause may be covered by including a provisional sum in the bill of quantities.

### ***2.4 Local Authorities fees and charges***

Unless the Conditions of Contract otherwise provide, all fees and charges (other than those covered by Rule 4) which the Contractor is required to pay to local authorities shall be given as Provisional Sums.

Davidson and Hambleton (2006) note that the main contractor is entitled to overheads and profit on the expenditure of a provisional for work by statutory authorities. Hore et al. (2009) note that connection to public drainage services would be an example of the application of this rule.

### ***2.5 Obligations and restrictions imposed by the Employer.***

Items shall be given with particulars of any obligations or restrictions to be imposed by the Employer in respect of the following, unless they are covered by the schedules given in accordance with Rule 2.1:

- a) Access to and possession or use of the site.
- b) Limitations of working space.
- c) Limitations of working hours.
- d) Limitations on the operation of plant with respect to adjoining property.
- e) The use or disposal of any material found on the site.
- f) Hoardings, fences, screens, temporary roofs, temporary name boards and advertising rights.
- g) The maintenance and protection of existing services on, under or over the site.

- h) The execution or completion of the work in any specific order or in sections or phases, including any coincidental work not at the discretion of the Contractor.
- i) Maintenance of specific temperature and humidity levels. Alternatively a provisional or prime cost sum shall be given.
- j) Temporary accommodation and facilities for the use of the Employer including heating, lighting, furnishing and attendance.
- k) Provision of connections to voice and data communications systems for use of the Employer.
- l) Periodic usage and access charges on voice and data communications systems for use of the Employer.
- m) Provision of Project Supervisor Construction Stage services, by the Contractor and/or the Safety, Health & Welfare at work (Construction) Regulations.
- n) Any other obligation or restriction.

### ***Commentary***

In this subsection the contractor is provided the opportunity to price the obligations and restrictions imposed by the employer. This sub-section lists various headings setting out the employer's requirements, and details specific restrictions on how the contractor manages and carries out the works. The list, in general, relates to security/safety/protection issues, specific limitations on the contractor's programme and working methods, and facilities/temporary works/services to be provided by the contractor for the employer's use.

With regard to temperature and humidity control requirements, the *SMM7 Measurement Code* comments that the corresponding provision in SMM7 relates 'only to those cases where specific requirements for temperature and humidity levels are imposed by the employer. The attainment and maintenance of suitable levels necessary for satisfactory completion of the work including the installation of joinery, suspended ceilings, lift machinery etc. is the responsibility of the contractor.'

The final item in the list 'any other obligation or restriction' is a 'catch-all' provision and may relate to matters such as tendering, subletting and/or supply; provision, content and use of documents; management of the works; quality standards and control, and operation and maintenance of the finished building.

The *SMM7 Measurement Code* gives the following examples of other obligations and restrictions which may be imposed if applicable:

- Restrictions on the use of radios by employees
- Protection of trees
- Car parking arrangements for employees

- Restrictions on the employment of labour
- Restrictions on working area
- Restrictions on the use by the contractor of the permanent heating system for drying and obtaining necessary temperature and humidity levels.
- Special lighting.

### **3 Works by Nominated Subcontractors Goods and Materials from Nominated Suppliers. Work by Utility Providers and Work by Others Engaged Directly by the Employer.**

Items shall be given in each case for the requirements of the following:

#### ***3.1 Work by Nominated sub-contractors.***

Work which is required to be carried out by a nominated subcontractor shall be give as a Prime Cost Sum. The name of the firm to be nominated shall be given (if known) together with a description of the sub-contract work.

An item shall be given for any profits required by the Contractor.

An item shall be given for other charges required by the Contractor associated with the employment of each nominated subcontractor.

Attendance is the work to be executed or services to be provided by the Contractor by way of assistance to or facilitation of a nominated sub-contractor. ‘General attendances’ are provided to all nominated sub-contractors. ‘Special attendances’ are those which the Contractor may be required to provide to specific nominated sub-contractors in addition to general attendance.

General attendance on each nominated sub-contractor which shall be given as an item shall be deemed to include the use of Contractor’s temporary roads, hardstandings, standing scaffolding, standing power-operated hoisting plant, the provision of temporary lighting and water supplies, provision of space for the sub contractor’s own offices and the storage of his plant and materials and the use of the messrooms, sanitary accommodation and welfare facilities.

Where special attendance is to be provided by the Contractor an Item shall be provided for each such item of attendance and full information on the nature of the attendance required shall be stated in the description. In particular, where the following items of special attendance are to be provided, the requirements stated shall be compiled within the description of the attendance:

- a) Temporary access roads and hardstandings required in connection with, for example, structural steelwork, precast concrete components, piling, heavy items of plant — description of traffic to be catered for, width of carriageway, extent of accessway to be provided and remedial works to be carried out to the trafficked areas.
- b) Weatherproof covered storage and accommodation — floor area to be provided together with details of any enhancements required such as minimum eaves heights, lighting levels: power supply requirements, heating, ventilation, water and drainage services and, where a requirement, site location.
- c) Power supplies giving the phase and maximum electrical loading to be allowed for — the nominated sub-contractor shall be deemed responsible for the provision of transformers and temporary distribution cabling unless otherwise stated in the description.

d) -Scaffolding — the area of elevation or, in the case of ceiling access, the area to be scaffolded. Where access towers are to be provided the number, size and height of the towers shall be stated. The provision of scaffold boards and ladders and of all certification required for safe use shall be deemed to be included.

e) Unloading, hoisting and distributing — the size and weight of the items and their destination in the work shall be described.

f) Maintenance of specific temperature and humidity levels — the required temperatures and humidity levels shall be stated. The provision of plant and all necessary fuel/power supplies shall be deemed to be included. Any restrictions on the use of the permanent mechanical installation of the building shall be stated.

For all other special attendance items to be provided by the Contractor, the scope of the work required of the Contractor shall be detailed in the description.

In the case of all special attendance items the provision, maintenance and removal or any plant, equipment or work required and the reinstatement of any part of the Works disturbed shall be deemed to be included.

The provision of any special attendance not listed in the Bill of Quantities shall be deemed to be included in the PC Sum for the nominated sub-contract

‘Builders work’ to be carried out by the Contractor in connection with work by nominated subcontractors shall be given in accordance with the appropriate requirements of these Rules.

### ***Commentary***

The rules in this section govern how nominated sub-contractors should be covered in the bills of quantities for main contracts. The Liaison Committee (2006) describe nominated sub-contractors as ‘Sub-Contractors employed by the main Contractor in accordance with standard subcontracts having been specifically selected by the Employer or Design Team to carry out a significant portion of the project, or specialist works, or works which involve a specialist design function.’

Nominated subcontractors are therefore *appointed* by the architect or contract administrator but are *employed* by the contractor. This arrangement remains common under the RIAI Contracts but the approach has been abandoned in the Public Works Contracts which, at present, does not cater for this practice. The nominated subcontract packages may be tendered concurrently with the main contract tender, frequently, however, they are tendered during the construction phase.

Nominations are typically made on foot of prime cost sums (p.c. sums) describing the work. Nominations may also be made by naming a firm to carry out work covered by a provisional sum or where a variation requires additional specialist work. The bill of quantities must include an item for contractor’s profit for each p.c. sum. This is a lump sum item and is not subject to adjustment should the account vary. General attendance on nominated sub-contractors as defined above, is usually given separately as a single item.

The *SMM7 Measurement Code* recommends the ‘Bills of quantities used for inviting tenders from potential nominated sub-contractors should be drawn up in accordance with [ARM] as a whole as if the work was the main contractor’s work. This means, for example, that bills issued to potential nominated sub-contractors should include preliminaries and be accompanied by the drawings which the rules required.’

‘As much information as possible should be given in respect of nominated sub-contractors’ work in order that tenderers can make due allowance when assessing the overall programme and establishing the contract period if not already laid down. A simple list of the component elements of the work might not be sufficient, but a list describing in addition the extent and possible value of each element would be more helpful. The location of the main plant e.g. whether in the basement or on the roof would clearly have a bearing on the tenderers’ programmes. It is good practice to seek programme information when obtaining estimates from sub-contractors so that this can be incorporated in the in the bill of quantities for the benefit of tenderers.’

‘The rule for special attendance is included to enable proper provision to be made for costs beyond those envisaged in the definition of general attendance. ... .’

In order to generate reliable cost control information, the various nominated sub-contract work packages are usually dispersed throughout the various elements of the bill of quantities rather than being included within the preliminaries section of the bill.

### ***3.2 Goods and materials from nominated suppliers***

Goods and materials which are required to be obtained from a nominated supplier shall be given as a Prime Cost Sum. The name of the supplier to be nominated shall be given (if known).

An item shall be given for any profit required by the Contractor.

An item shall be given for other charges required by the Contractor associated with the employment of each nominated supplier.

Fixing goods and materials shall be given in accordance with the appropriate sections of these Rules.

Taking delivery, unloading, storing and hoisting the goods and materials and returning packing materials to the nominated supplier carriage paid and obtaining credits therefore shall be deemed to be included with the items for fixing. Particulars shall be given where the Contractor is required to pay the costs of conveying goods and materials to the site and/or of any special packing or similar requirements.

#### ***Commentary***

Nominated suppliers are suppliers where the architect / contract administrator has made the selection and approval of the supplier who is then employed by the main contractor. These suppliers supply specified materials to be fixed by the main contractor. These supply-only contracts are included in the bill as p.c.

sums. The work is tendered during the contract period or concurrent with the main contract tender. (Keily and McNamara, 2003)

The contractor is given the opportunity to add profit onto the prime cost sum and for other charges required by the contractor.

### ***3.3 Work by Utility Providers***

Work which is to be carried out by a Statutory Authority, Public Undertaking or Public or Private Utility Providers shall be so described and given as a Provisional Sum.

An item shall be given for any profit required by the Contractor.

An item shall be given for other charges required by the Contractor associated with the employment of each utility provider.

#### ***Commentary***

The contractor is given the opportunity to add profit onto the provisional sum and for other charges required by the contractor for this class of work.

### ***3.4 Work by others engaged directly by the Employer***

A description shall be given of work by others directly engaged by the Employer. Any attendance required shall be given in accordance with Rule 3.1.

The employer may wish to employ other specialist artists, tradesmen or contractors to carry out defined work. If this is required then it should be described and included under this section. Details of any attendances which need to be provided should be stated in the measured items. If materials are to be provided by the employer this should also be stated in the item.

## **4 Contractor's general cost items.**

**For convenience in pricing, items for the following shall be given:**

- a) Supervision and co-ordination of the Works
- b) Plant, tools and vehicles
  - (i). Bringing to site, erecting and removing on completion
  - (ii) Maintaining on site for the duration of the works
- c) Scaffolding
  - (i). Bringing to site, erecting and removing on completion
  - (ii). Adjusting and maintaining on site for the duration of the works
- d) Site administration including the provision and keeping of all statutory records.
- e) Security
- f) Provision of clearly identifiable site perimeters and surroundings.

- g) Provisions for protection of the public from site operations and arrangements for protection of third parties and visitors to the site in accordance with all statutory requirements
- h) Transport for work people
- i) Protecting the works from inclement weather
- j) Water for the works. Particulars shall be given if water will be supplied by the Employer
- k) Temporary lighting and power for the works. Particulars shall be given if current will be supplied by the Employer.
- l) Temporary roads, hardstandings, crossing and similar items
- m) Temporary accommodation for the use of the Contractor
- n) Temporary storage areas including suitable and separate storage for dangerous materials or substances
- o) Temporary telephones for the use of the Contractor
- p) Traffic regulations
- q) Welfare facilities for work people to be in compliance with the fourth schedule of the Safety Health and Welfare at Work (Construction) Regulations.
- r) Safety Health and Welfare at Work provisions including items for the following:
  - i The operation of the requirements of the SAFE PASS and CONSTRUCTION SKILLS CERTIFICATES SCHEMES
  - ii. Safety Officers and all safety supervisors, first aiders, inspectors and certifiers required
  - iii. Tests and certificates on plant and equipment
  - iv. Safety signs and signals
  - v. Provision of Personal Protective Clothing and Personal Protective Equipment
  - vi. Provision and maintenance of emergency routes and exits and designated personnel responsible for emergency procedures
  - vii. Energy distribution installations
  - viii. Temporary Fire detection and fire fighting systems
  - ix. Maintenance of appropriate working conditions and work stations
  - x. Provision and maintenance of on-site traffic routes
  - xi. Provision of first aid equipment and first aid room as appropriate
- s) disbursements arising from the employment of work people
- t) Maintenance of public and private roads
- u) Removing rubbish, protective casings and coverings and cleaning the works on completion
- v) Compliance with waste management statutory requirements
- w) Drying the works
- x) Temporary fencing, hoardings, gates, doors, screens, fans, planked footways, guardrails. gantries, floor, stair, roof edge protection, and protection of openings, safety nets and similar items
- y) Control of noise, pollution and compliance with statutory obligations
- z) Protection of the works



Maintaining temporary works, adapting, clearing away and making good shall be deemed to be included with the items. Notices and fees to Statutory Authorities or Public or Private Utility Providers or Undertakings related to the preceding items shall be deemed to be included with those items.

### ***Commentary***

The ‘contractor’s general cost items’ enable contractors to price the site set up and allow the preliminaries to be broken down for the evaluation of interim payments. (Kiely and McNamara, 2003). This section of the preliminaries is given for convenience in pricing and is often referred to as the ‘contractor’s preliminaries’, it is often lengthy and contains a large amount of information.

The *SMM7 Measurement Code* relating to the corresponding SMM7 rules comments that ‘Whilst the details given in bills of quantities under this rule constitute a check list for tenderers, the items generally are implicit in the contract and as such are at the discretion and risk of the contractor.’ The *Code* adds that ‘there is a possibility of a number of items appearing either under the heading of ‘Employer’s requirements or as ‘Contractor’s costs.’ This is because some work, such as providing temporary hoardings, may on occasion be fully defined on the tender documents and on other occasions be left to the contractors discretion.’

It is not considered necessary to examine each of these rules individually, however, it is considered instructive to refer to other measurement codes such as SMM7 which may inform the scope of the rules in greater detail. For example, regarding supervision and coordination of the works, a reading of SMM7 suggests that this item would cover management personnel, trades supervision, engineering, programming, and production staff, quantity surveying support staff, and site administration staff required under rule ARM Rule 2.4(d). It appears that this section covers all staff whose cost has not been included in the unit rates in the subsequent measured works sections. Likewise, regarding plant tools and vehicles; the corresponding item in SMM7 relating to mechanical plant lists the following plant which may be covered by this rule: cranes, hoists, personnel transport, transport, earthmoving plant, piling plant and paving and surfacing plant. ARM requires a single item to be given in this section for bringing to site, installing, and removing plant on completion and a second item to be given for maintaining plant on site for the duration of the works.

### **Concluding Remarks**

Preliminaries due to their general nature are not quantified. *NRM2* explains that:

It is not possible for the quantity surveyor/cost manager to quantify the main contractor’s preliminaries. This is because it is for the contractor to interpret the information provided as part of the tender invitation documentation. From the information provided, the main contractor will

ascertain his method of working and the resources required to complete the building project, as well as identify any other cost items that are to be recovered.

ARM differs significantly from SMM7 and NRM2 in how preliminaries are to be measured and priced. The UK methods of measurement, particularly NRM2, require significantly more information to be provided to tenders. The main contract preliminaries section of NRM2, for example, now runs to 25 pages of tabulated rules plus a further 25 pages of pricing schedule notes.

A second major difference relates to need to provide separate items for fixed and time related costs to be given for many of the employer's restrictions and contractor's general pricing items within the preliminaries section; - ARM does not require this to be done. The cost of many of preliminaries items depends on the contract period and length of time that staff, plant and equipment are required on site. Many of these items contain both fixed costs and time related charges. Fixed charges occur where the cost is independent of activity or length of time required. Time related charges are dependent on length of time they are required on site and activity.

NRM2 stresses the importance of obtaining a full and detailed preliminaries breakdown that clearly identifies the items, shows how the price for each item, and how the total price for preliminaries has been calculated. It advises quantity surveyors to instruct contractors to submit this breakdown as part of the tender. The quantity surveyor should also make it clear to the main contractor in the preliminaries bill that costs relating to items that are not specifically identified by the main contractor in his or her full and detailed breakdown will be deemed to have no cost implications or have been included elsewhere within his or her rates and prices.

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