



Project No: 185487

KING MABHOKO AND GOGO ESTHER MAHLANGU ROAD
IN DR JS MOROKA LOCAL MUNICIPALITY. (RE-ADVERT)

C3.2: STANDARD SPECIFICATION

STANDARD SPECIFICATIONS

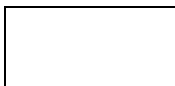
The standard specifications on which this contract is based are the **SANS 1200**

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SABS) in Pretoria, but are not limited to:

- SANS 1200 DB: 1989 – Earthworks (Pipe Trenches)
- SANS 1200 GA: 1982 – Concrete (Small Works)
- SANS 1200 GE: 1984 - Precast Concrete (Structural)
- SANS 1200 LB: 1983 – Bedding (Pipes)
- SANS 1200 LE: 1982 - Stormwater Drainage
- Red Book – Guidelines for Human Settlement, Planning and Design.
- TRH 4 – Structural Design of Flexible Pavements for Inter-urban and Rural Roads.
- TRH 14 – Guidelines for Road Construction Materials
- SABS 1200 M:1996 – Roads (general)
- SABS 1200 ME:1981 – Subbase
- SABS 1200 MF:1981 – Base
- SABS 1200 MFL:1996 – Base (Light Pavement Structures)
- SABS 1200 MH:1996 – Asphalt Base and Surfacing
- SABS 1200 MJ:1984 – Segmented Paving
- COLTO 1998 Edition
- Floodplain and River Corridor Management Policy, Version 2.1, May 2009
- Management of Urban Stormwater Impacts Policy, Version 1.1, May 2009
- Requirements of a Local Stormwater Management Plan, Draft 3, Feb 2006
- Requirements of a Stormwater Impact Assessment, Draft 2, Feb 2006
- Stormwater Management on Slopes Adjacent to Natural Areas, Version 1.0, November 2003
- Stormwater Management Planning and Design Guidelines for New Developments, Version 1.0, July 2002
- SANRAL Road Drainage Manual
- COLTO 1998 Edition
- Subsurface Drainage for Roads (TRH 15).
- Guidelines for Human Settlement Planning and Design (Red Book).



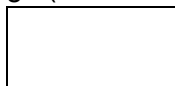
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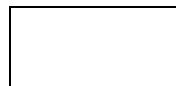
Witness 1



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- Guideline for the Provision of Engineering Services in Residential Townships (Blue book).
- UTG 1: geometric design of urban arterial roads
- UTG 5: Geometric Design of Urban Collector Roads
- UTG 7: Geometric design of Local Residential Streets.
- UTG 10: Guidelines for the Geometric Design of Commercial and Industrial Local Streets.

C3.3 Project Specification

C1.2 GENERAL REQUIREMENTS AND PROVISIONS PART C: MEASUREMENT AND PAYMENT

(i) Preamble

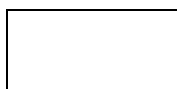
The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the Conditions of Contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item.

(ii) Items that will not be measured separately

The following required activities will not be measured or paid for separately and the Contractor shall include the cost thereof in other items as deemed appropriate:

1. Cleaning and removal to spoil of all spilt construction materials off public or privately-owned roads which are used as haul roads, access roads and detours or trafficked areas which are adjacent to the construction area when partial or half width construction is carried out.
2. Compliance with the requirements related to the Contractor's activities on properties outside the road reserve.
3. Carrying out any remedial work required to defective or rejected work.
4. Attendance at site meetings.
5. The provision, transport and application of construction water.
6. All work in restricted areas unless provided for in the Contract Documentation.
7. The design of any permanent work that may be specified to be designed by the Contractor in the Contract Documentation.
8. The design and construction of all temporary work.
9. The preparation and submission of design calculations and drawings for temporary and permanent work designed by the Contractor.
10. Setting out of the Works and the protection of beacons.
11. Obtaining any outstanding permits required to comply with the requirements of the EA, the EMP and the WULs that were not obtained by the Employer and included with the Contract Documentation.



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12. Compliance with the requirements relating to work on, over, under or adjacent to utilities.
13. The Contractor's process control testing.

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

For activities in Table C1.2-1 payment items specified in other Chapters or Sections of the specifications, where they relate to work under this Section, will be listed in the Pricing Schedule.

Table C1.2-1: Payment items from other Chapters or Sections

Activity	Section 1.2 reference	Section item reference
Provision and later removal of the contract sign boards.	A1.2.3.12	C1.3.2 of Chapter 1
Provision of all site security measures for the Contractor's facilities and equipment and at the Site of the Works, quarries, borrow pits and traffic accommodation facilities and equipment.	A1.2.3.17	C1.3.1 of Chapter 1
Provision of security at the engineer's offices, laboratories, and site and rented accommodation.	A1.2.3.17	C1.4.8 of Chapter 1
Obtaining construction/work permits from service authorities	A1.2.3.22b)	C2.1.3 of Chapter 2
Identification, protection and relocation of existing services	A1.2.7.3	C2.1.1 & C2.1.2 of Chapter 2
Acceptance quality control – sampling and testing requested by the Engineer	A1.2.8.2	C20.1.2.2 of Chapter 20

(iv) Items specifically for this Section of the specifications

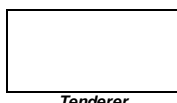
Item Description Unit C1.2.1 Environmental Management

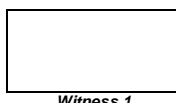
C1.2.1.1 Monitoring of compliance with and reporting on the EMP month

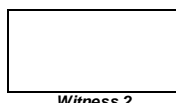
C1.2.1.2 Dedicated environmental officer (if specified in the Contract Documentation) month

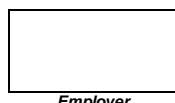
The unit of measurement for item C1.2.1.1 is the month or part thereof that the service is required and provided during the approved contract period. The contract rate shall include full compensation for the regular monitoring of compliance with and reporting on the EMP in accordance with the specified requirements.

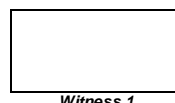
The unit of measurement for item C1.2.1.2 is the month or part thereof that the service is provided during the approved contract period. The contract rate shall include full compensation for the provision of a dedicated environmental officer including all employment costs, accommodation and transport costs and all other associated overhead costs.

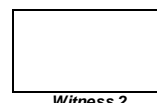

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Item	Description	Unit
C1.2.2	Programming and Reporting	
C1.2.2.1	Submission of a Scheme 1 Programme	lump sum
C1.2.2.2	Reviewing and updating a Scheme 1 Programme	month
C1.2.2.3	Submission of a Scheme 2 Initial Programme	lump sum
C1.2.2.4	Submission of a Scheme 2 Full Programme	month
C1.2.2.5	Reviewing and updating a Scheme 2 programme every month	lump sum
C1.2.2.6	Preparation and submission of all information and reports specified in the Contract Documentation	month

The unit of measurement for item C1.2.2.1 shall be the lump sum. The lump sum shall include full compensation for preparing and submitting a Scheme 1 Programme, including providing software and tutorials to the Engineer if required.

The unit of measurement for item C1.2.2.2 shall be the month or part thereof that the service is provided during the approved contract period. The monthly rate shall include full compensation for reviewing and updating the Scheme 1 Programme as required and for submitting a copy of the current programme to the Engineer at the end of each month.

The unit of measurement for item C1.2.2.3 shall be the lump sum. The lump sum shall include full compensation for preparing and submitting a Scheme 2 Initial Programme, including providing software and tutorials to the Engineer if required

The unit of measurement for item C1.2.2.4 shall be the lump sum. The lump sum shall include full compensation for preparing and submitting a Scheme 2 Full Programme.

The unit of measurement for item C1.2.2.5 shall be the month or part thereof that the service is provided during the approved contract period. The monthly rate shall include full compensation for reviewing and updating the Scheme 2 Initial and Full Programmes as specified in the Contract Documentation and for submitting a copy of the current programme to the Engineer at the end of each month.

The unit of measurement for item C1.2.2.6 shall be the month or part thereof that the service is provided during the approved contract period. The monthly rate shall include full compensation for collecting and reporting on all data and information specified in the Contract Documentation and for submitting it to the Engineer at the specified times.



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Item	Description	Unit
C1.2.3	Routine road maintenance of existing public roads within the Site of the Works or other public roads outside the Site of the Works which are used as detours	
C1.2.3.1	Grass cutting	hectare (ha)
C1.2.3.2	Drain cleaning	kilometre (km)
C1.2.3.3	Cleaning out culverts	cubic metre (m ³)
C1.2.3.4	Collection of rubbish / litter	kilometre (km)
C1.2.3.5	Base patching using crushed stone material stabilised with bitumen	kilometre (km)
C1.2.3.6	emulsion and cement	cubic metre (m ³)
C1.2.3.7	Base and/or surface patching using cold premixed asphalt	kilogram (kg)
C1.2.3.8	Base and/or surface patching using hot plant mixed asphalt	ton (t)
C1.2.3.9	Replacement of damaged guardrails including posts	metre (m)
C1.2.3.10	Grading of temporary gravel deviations and existing roads used as detours	kilometre (km)
C1.2.3.11	Watering of temporary gravel deviations and existing roads used as detours	kilolitre (kl)
C1.2.3.12		provisional sum
C1.2.3.13	Other road maintenance work ordered by the Engineer	percentage (%)
	Handling cost, profit and all other charges in respect of item C1.2.3.11	month
	Liaison with the routine road maintenance contractor	

Payment will only be made under items C1.2.3.1 to C1.2.3.13 when the relevant item of routine maintenance work has been ordered by the Engineer in writing and the Engineer has confirmed in writing the scope, quantity and/or frequency of work that is to be carried out.

The unit of measurement for item C1.2.3.1 shall be the hectare. The contract rate shall include full compensation for cutting and removing grass in restricted and steep access areas with hand tools in addition to mowing and removing grass in more accessible areas.

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The unit of measurement for items C1.2.3.2 shall be the kilometre of side or median drain cleaned. Each drain shall be measured separately. The contract rate shall include full compensation for the removal of all silt, mud, gravel, rocks and any other obstructions in the drain as well as for loading and hauling the removed material to spoil regardless of the haul distance.

The unit of measurement for item C1.2.3.3 shall be the cubic metre. The contract rate shall include full compensation for the removal of all silt, mud, gravel, rocks and any other obstructions from inside the culvert or from the culvert entrance and exit as well as for loading and hauling the removed material to spoil regardless of the haul distance.

The unit of measurement for item C1.2.3.4 shall be the kilometre measured along the centreline of the road or along the median of a dual carriageway road. The contract rate shall include full compensation for collecting all the rubbish / litter within the road reserve boundary and carting it to an approved disposal site regardless of the haul distance.

The unit of measurement for items C1.2.3.5, C1.2.3.6 and C1.2.3.7 shall be the cubic metre, kilogramme and tonne respectively. The contract rates shall include full compensation for excavating the failed area of the road to the depth indicated by the Engineer, cleaning out and squaring off the excavation, priming the compacted crushed stone surface or the floor and sides of the excavation as applicable and then backfilling the excavation as specified in the Contract Documentation. The contract rates shall also include full compensation for all final site cleaning and removal to spoil of all surplus regardless of the haul distance.

The unit of measurement for item C1.2.3.8 shall be the linear metre of guardrail replaced. The contract rate shall include full compensation for removing the damaged guardrails and posts to spoil or storage as specified by the Engineer, reinstating or replacing any displaced or damaged guardrail posts and providing and installing a new guardrail in the correct position.

The unit of measurement for item C1.2.3.9 shall be the kilometre of temporary gravel deviation, or existing gravel road used as a detour, which is graded smooth with a motor grading to remove all corrugations and to redistribute the bladed gravel material evenly across the road surface as and when instructed by the Engineer in writing. The contract rate per kilometre shall include full compensation for providing and maintaining the motor grader and grading the road surface to restore the riding quality as specified in the Contract Documentation, regardless of any variations in the width of roadway being graded.

The unit of measurement for item C1.2.3.10 shall be the kilolitre of water sprayed on the surface of the existing temporary gravel deviation or existing gravel road being used as a detour as and when instructed by the Engineer in writing. The contract rate shall include full compensation for providing, transporting and spraying the water on the road surface.

The provisional sum allowed under item C1.2.3.11 shall provide for all other routine road maintenance work carried out by the Contractor that may be required as specified in the Contract Documentation or as ordered by the Engineer. The provisional sum shall be paid in accordance with the provisions of the Contract Documentation. Where applicable existing contract rates or accepted day work rates will be used.

The percentage under item C1.2.3.12 is a percentage of the amount spent under item C1.2.3.11 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and carrying out the maintenance work.



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The unit of measurement for item C1.2.3.13 shall be the month or part thereof that the service is provided during the approved contract period. The contract rate shall include full compensation for all the Contractor's activities, meetings and correspondence related to liaising with and accommodating the activities of the Employer's routine road maintenance contractor. Payment under this item will only be applicable if some of or all of the routine maintenance work is carried out by a separate contractor appointed by the Employer.

Item	Description	Unit
C1.2.4	Stakeholder liaison	month


The unit of measurement for item C1.2.4 shall be the month or part thereof that the service is provided during the approved contract period. Part of a month shall be calculated to two decimal places. The contract rate shall include full compensation for all on-going stakeholder liaison that the Contractor is required to carry out after the contract has been awarded as specified in Section A1.2, Clause A1.2.3.18, including informing stakeholders of the Works procedures and of the accommodation arrangements for pedestrians and non-motorised traffic through or over the site of the Works, providing health and safety information to stakeholders, arranging and attending meetings, providing meeting facilities and sandwiches, tea, coffee or soft drinks. Payment of the monthly sum shall be made every month for the duration of the approved contract period regardless of the amount of stakeholder liaison required during that month.


Item	Description	Unit
C1.2.5	Safety	
C1.2.5.1	Health and safety plan	lump sum
C1.2.5.2	Implementation of health and safety plan	month


The unit of measurement for item C1.2.5.1 shall be the lump sum. The lump sum shall include full compensation for assessing the risks associated with the Works, reviewing and taking cognisance of the Employer's health and safety specifications and/or requirements, preparing the Contractor's health and safety plan and for the submission of a copy of the plan to the Engineer.


The unit of measurement for item C1.2.5.2 shall be the month, or part thereof for the duration of the approved contract period. Part of a month shall be calculated to two decimal places. The contract rate shall include full compensation for implementing the health and safety plan, including the provision of a dedicated, full time health and safety officer, carrying out all the required site health and safety training and briefings, staff medical evaluations, monitoring and administering the health and safety plan and for supplying all transport, personal protection safety items, other health and safety equipment, safety notices and any other health and safety related items that are required on site. The contract rate shall also include the provision of a monthly health and safety compliance report to the Engineer.


Item	Description	Unit
C1.2.6	Work adjacent to properties	
C1.2.6.1	Survey of adjacent properties	number (No.)



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C1.2.6.2 Preventive and/or mitigation measures

provisional sum

C1.2.6.3 Handling cost, profit and all other charges in respect of item C1.2.6.2 percentage (%)

The unit of measurement for item C1.2.6.1 shall be the number of properties adjacent to the Works that need to be surveyed, as agreed in advance with the Engineer. The contract rate shall include full compensation for carrying out all the requirements given in clause A1.2.3.13.

The provisional sum allowed under item C1.2.6.2 shall provide for all additional preventive and/or mitigation measures required that are approved by the Engineer as being necessary after the Contractor has implemented all other reasonable measures to avoid and/or reduce the damaging effects relating to carrying out the Works adjacent to properties. The amount payable to the Contractor shall be calculated in accordance with the requirements given in the Contract Documentation or agreed to by the Engineer.

The percentage under item C1.2.6.3 is a percentage of the amount spent under item C1.2.6.2 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and carrying out the agreed preventive and/or mitigation measures.

Item	Description	Unit
C1.2.7	Road safety audits	
C1.2.7.1	Stage 4 work zone traffic management audit	provisional sum
C1.2.7.2	Handling cost, profit and all other charges in respect of item C1.2.6.1	percentage (%)
C1.2.7.3	Stage 5 pre-opening stage traffic safety audit	provisional sum
C1.2.7.4	Handling cost, profit and all other charges in respect of item C1.2.6.3	percentage (%)

The provisional sum allowed under item C1.2.7.1 shall be used to pay the actual cost of appointing an independent auditor and carrying out a Stage 4 work zone traffic management audit as prescribed in the SARSAM and in Clause A1.2.3.20 a) and for preparing the audit report and submitting two copies of the report to the Employer and the Engineer.

The percentage under item C1.2.7.2 is a percentage of the amount spent under item C1.2.7.1 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and carrying out the specified audit.

The provisional sum allowed under item C1.2.7.3 shall be used to pay the actual cost of appointing an independent auditor and carrying out a Stage 5 pre-opening stage traffic safety audit as prescribed in the SARSAM and in Clause A1.2.3.20 b) and for preparing the audit report and submitting two copies of the report to the Employer and the Engineer.

The percentage under item C1.2.7.4 is a percentage of the amount spent under item C1.2.7.2 which shall include full compensation



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for all handling costs, profit and all other charges in connection with arranging and carrying out the specified audit.

Item	Description	Unit
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C1.2.8 Dayworks

C1.2.8.1 Personnel

- (a) Unskilled labourer hour
- (b) Semi-skilled labourer hour
- (c) Skilled labourer hour
- (d) Gang leader hour
- (e) Foreman hour
- (f) Skilled Artisan hour

C1.2.8.2 Construction equipment (specify size and/or model number) hour

- (a) Motor grader hour
- (b) Vibratory roller hour
- (c) Pneumatic roller hour
- (d) Front end loader hour
- (e) Tractor loader backhoe hour
- (f) Excavator hour
- (g) Compressor hour
- (h) Other equipment (specify) hour

C1.2.8.3 Vehicles (specify size)

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- (a) Light delivery vehicle km
- (b) Flatbed truck km
- (c) Dump truck km
- (d) Other vehicles (specify) km

C1.2.8.4 Materials

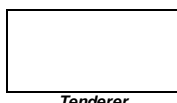
- (a) Procurement of materials provisional sum
- (b) Contractor's handling costs, profit and all other charges in respect of item C1.2.8.4(a) percentage (%)

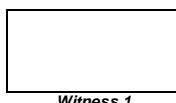
The unit of measurement for items C1.2.8.1(a) to C1.2.8.1(f) shall be the hour that the personnel are engaged on the work inclusive of transport to and from the site. Non-working hours for meal breaks, rest periods, transport breakdowns, lack of construction equipment or materials or any other reason shall not be measured. The contract rates shall include full compensation for all overhead charges and profit, leave pay, bonuses, subsistence, allowances, Employer's contributions, additional payment for overtime where applicable, insurances, housing, site supervision, provision and use of small hand tools and appliances, non-mechanical plant and equipment and consumable stores as well as for all administrative, supervisory, operative and contingent costs related to the supply of personnel.

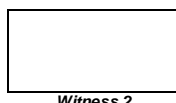
The unit of measurement for items C1.2.8.2(a) to C1.2.8.2(g) shall be the hour that the construction equipment is engaged on the work inclusive of transport to and from the site. Non-working hours for operator meal breaks and rest periods, equipment breakdowns and maintenance, lack of materials or any other idle time or reason shall not be measured. The contract rates shall be an all-inclusive hire charge for the use of the construction equipment and operator and shall include full compensation for all administrative, supervisory, fuel, maintenance, operational, transportation, depreciation and any other contingent costs and profit relating to the operation of the construction equipment. The contract rates shall be based on the type and size of equipment that the Contractor intends to provide for the construction of the main Works.

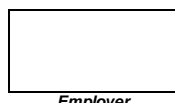
The unit of measurement for items C1.2.8.3(a) to C1.2.8.3(d) shall be the kilometre travelled by the vehicle while engaged on the dayworks. The contract rates shall be an all-inclusive hire charge for the use of the vehicle, the driver and the driver's assistant/s if required. The contract rates shall also include full compensation for all administrative, supervisory, fuel, maintenance, operational, transportation, depreciation and any other contingent costs and profit relating to the operation of the vehicle.

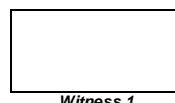
The provisional sum allowed under item C1.2.8.4(a) shall include full compensation for the cost of all materials (excluding value added tax) that are required for the dayworks as ordered by the Engineer. The provisional sum shall be paid in accordance with the provisions of the Contract Documentation.

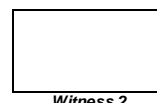

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The percentage under item C1.2.8.4(b) is a percentage of the amount spent under item C1.2.8.4(a) which shall include full compensation for all handling costs, profit and all other charges for ordering, providing, transporting and handling the materials.

Item Description Unit C1.2.9 Disposal of non-useable assets

C1.2.9.1 Disposal of non-useable assets identified in the Contract Documentation at time of tender rate (per asset)
(list items and quantity)

C1.2.9.2 Disposal of non-useable assets not identified at time of tender provisional sum

C1.2.9.3 Handling cost, profit and all other charges in respect of item C1.2.9.2 percentage (%)

The unit of measurement for item C1.2.9.1 shall be the lump sum tendered by the Contractor to dispose of the listed non-useable assets that are described in the Contract Documentation and listed under this item. The rate tendered by the Contractor can be positive or negative depending on the cost of disposing of the assets against the value that the Contractor may wish to place upon them.

The provisional sum allowed under item C1.2.9.2 shall provide for the disposal of any non-useable assets that were not already identified in the Contract Documentation under item C1.2.9.1. The amount payable to the Contractor shall be calculated in accordance with the requirements given in the Contract Documentation or agreed to by the Engineer. The provisional sum may be positive or negative depending on the cost of disposing of them against the value that the Contractor may wish to place upon them.

The percentage tendered under item C1.2.9.3 is a percentage of the amount spent under item C1.2.9.2 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and disposing of the non-useable or not required road furniture assets. If the provisional sum agreed under item C1.2.9.2 is a negative amount, then this item C1.2.9.3 will not be applicable.



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C1.3 CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS PART C: MEASUREMENT AND PAYMENT

(i) Preamble

The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the Conditions of Contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item. **(ii) Items that will not be measured separately**

There are no activities mentioned in this section that are not measured in this Section.

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

There are no payment related items mentioned in this Section that are measured in other Sections of the specifications. **(iv) Items specifically for this Section of the specifications**

Item	Description	Unit
C1.3.1	The Contractor's general obligations	
C1.3.1.1	Fixed obligations	lump sum
C1.3.1.2	Value-related obligations	
C1.3.1.3	Time-related obligations	lump sum
		month

The lump sums under items C1.3.1.1 and C1.3.1.2 and the contract rate per month for item C1.3.1.3 shall together include full compensation for all the Contractor's costs, charges, overheads and profits in respect of all the Contractor's General Obligations as specified in Clause A1.3.2.

Item C1.3.1.1

The unit of measurement for item C1.3.1.1 is the lump sum. The lump sum shall include full compensation for the fixed part of the Contractor's general obligations, i.e. that part which is substantially fixed and is not a function of the value of the Works or of the time required for the completion of the Contract.

Payment of this lump sum will be made in three instalments, as follows:

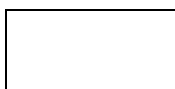
- The first instalment, 50 % of the lump sum, will be paid after the Contractor has completed the establishment of the construction camps, site offices, laboratories and housing, has provided the personnel, staff and equipment required to commence the Works in accordance with all the specified requirements and has made a substantial start with construction of the Works in accordance with the approved programme.



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- The second instalment, 35 % of the lump sum, will be paid when the value of the Work done reaches one half of the Contract Amount, excluding contingencies and price adjustments in terms of the Contract Documentation.
- The third and final instalment, 15 % of the lump sum, will be paid when the Works have been completed and taken over by the Employer.

Item C1.3.1.2

The unit of measurement for item C1.3.1.2 is the lump sum. The lump sum shall include full compensation for that part of the Contractor's general obligations which is a function of only the value of the Works, but not of the period of completion of the Works.

Should the final value of the Works (excluding any contract price and special material adjustment payments made in terms of the Contract Documentation) increase or decrease in relation to the tendered contract price (less any allowances, if any, in the tendered contract price for contract price adjustment and special material adjustment payments), the lump sum for payment item C1.3.1.2 will be increased or decreased accordingly pro rata. The adjusted lump sum will be the full settlement of any difference in value-related general obligations resulting from an increased or decreased value of the work.

Payment of this lump sum will be made in instalments in each payment certificate (usually issued monthly). The value of each instalment will be in proportion to the value of Work done up to the date that the payment certificate is prepared (excluding the value of any price adjustments made in terms of the Contract Documentation).

Item C1.3.1.3

The unit of measurement for item C1.3.1.3 is the month or part thereof that the services are provided for the approved duration of the contract. Part of a month shall be calculated to two decimal places.

The contract rate shall include full compensation for that part of the Contractor's general obligations which are mainly a function of construction time. The contract rate will be paid monthly, pro rata for parts of a month, from the date of commencement in terms of the Contract Documentation until the end of the original Contract Period specified for completion of the Works.


If the original Contract Period for completion has been extended in terms of the Contract Documentation, then time-related obligations for the extensions shall be compensated for as stipulated by the Contract Documentation.

The following conditions also apply to the time related payment made under item C1.3.1.3:

- Should the Works be certified as having been completed before the original contractual date for completion of the Works the Contractor will then be entitled to payments of the monthly time related amount for the unexpired original Contract Period specified for completion of the Works.
- Should the progress of the Contractor, calculated in terms of the value of the work done to date, be in arrears by more than 10 % relative to the accepted cash flow estimate (suitably adjusted for any



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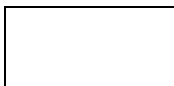
change in the scope of work and/or extension of time granted) then the payments in respect of this item may be limited to a total payment to date which is in the same ratio as the actual value of Work done relative to the estimated total value of all the Work that has to be done.

Item Description Unit C1.3.2 Contract sign boards square metre (m²)

The unit of measurement for item C1.3.2 is the total square metre (m²) area of the approved contract sign boards (usually two) provided and erected by the Contractor in the positions on site indicated by the Engineer. The contract rate for item C1.3.2 shall include full compensation for all costs associated with providing, erecting and for the later removal of the contract signboards as soon as the Works have been completed.



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C1.4 FACILITIES FOR THE ENGINEER PART C: MEASUREMENT AND PAYMENT

(i) Preamble

The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the conditions of contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item.

(ii) Items that will not be measured separately

Dismantling, moving and re-erecting any or all of the Engineer's facilities that may become necessary due to the Contractor's decision to relocate his own facilities will not be measured separately. The Engineer's facilities will only be paid for once unless otherwise specified in the Contract Documentation or if the Engineer specifically requests that they be moved for reasons other than relocation of the Contractor's own facilities.

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

There are no payment related items mentioned in this Section that are measured in other Sections of the specifications.

(iv) Items specifically for this Section of the specifications

The Contractor shall confirm the Engineer's exact requirements before making arrangements for, ordering or supplying any of the items listed in the pricing schedule for this Section.

With respect to payment items listed under payment item section numbers C1.4.1, C1.4.2 and C1.4.3 the following method of payment shall apply to these items:

- 80 % of the amount due will be paid when the item is provided and erected, fitted or installed and taken over by the Engineer.
- A further 10 % will be paid when the value of all permanent work done, excluding escalation, exceeds one-half of the tendered amount.
- The remaining 10 % will be payable when the items have been removed from the site.

Item	Description	Unit
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C1.4.1 Site accommodation

C1.4.1.1	Offices and conference room	square metre (m ²)
C1.4.1.2	Laboratories	
C1.4.1.3	Open concrete working floors and	square metre (m ²)
C1.4.1.4	verandas	
C1.4.1.5	Roofs over open concrete working floors and verandas	square metre (m ²)
C1.4.1.6	Store rooms inside the laboratory	square metre (m ²)
C1.4.1.7	Car ports	square metre (m ²)
C1.4.1.8	Ablution unit (equipped as specified)	number (No)
C1.4.1.9	Change room with a shower	number (No)
C1.4.1.10	Kitchen unit (equipped as specified)	number (No)
C1.4.1.11	Type A prefabricated house (equipped as specified)	number (No)
C1.4.1.12	Type B prefabricated house (equipped as specified)	number (No)
C1.4.1.13	Type C prefabricated house (equipped as specified)	number (No)
C1.4.1.14	Rented housing paid for by the Contractor	provisional sum
	Contractor's handling costs, profit and all other charges in respect of item C1.4.1.13	percentage (%)

The unit of measurement for items C1.4.1.1 to C1.4.1.5 shall be the square metre (m²) of each facility, measured according to the internal floor area. The contract rates shall include full compensation for the construction or provision of these Engineer's facilities all complete in accordance with the specifications given in the Contract Documentation. Where offices are provided in existing buildings the passageways, hallways and any other office space in excess of the Engineer's requirements shall not be measured for payment.



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The unit of measurement for items C1.4.1.6 to C1.4.1.12 shall be the number of units provided. The contract rates shall include full compensation for the construction or provision of these Engineer's facilities all complete in accordance with the specifications given in the Contract Documentation.

The contract rates for items C1.4.1.1, C1.4.1.2, C1.4.1.3, C1.4.1.6, C1.4.1.7, C1.4.1.8, C1.4.1.9, C1.4.1.10, C1.4.1.11 and C1.4.1.12 shall also include full compensation for clearing and grubbing the areas under and around the buildings, the excavation and backfilling of any foundations required, the loading and hauling of the excavated material to spoil if required, regardless of haul distance, and the provision and maintenance of a trafficable surface to provide all weather mud and dust free access for vehicles and pedestrians to and around the buildings.

The provisional sum allowed under item C1.4.1.13 shall provide for the cost of arranging and paying for rented accommodation for the Engineer's site staff and for providing services at the rented accommodation as instructed by the Engineer. The provisional sum shall be paid in accordance with the provisions of the Contract Documentation.

The percentage under item C1.4.1.14 is a percentage of the amount spent under item C14.1.13 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and paying for the rented accommodation.

Item	Description	Unit
C1.4.2	Items measured by area	
C1.4.2.1	Shelving as specified, complete with brackets	square metre
C1.4.2.2	Work benches with a concrete slab top	(m ²)
C1.4.2.3	Work-benches with a wooden top	square metre
C1.4.2.4	Constant-temperature baths of concrete and/or plastered brick	(m ²)
C1.4.2.5	Concrete footings and pedestals for laboratory equipment	square metre
C1.4.2.6	Roller blinds, opaque type	(m ²)
C1.4.2.7	Venetian blinds	square metre
C1.4.2.8	Notice boards	(m ²)
C1.4.2.9	White boards	square metre
C1.4.2.10	Galvanised wire mesh fencing for store rooms	(m ²)
C1.4.2.11	Galvanised wire mesh store room gate with a padlock	square metre



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square metre
(m²)

square metre
(m²)

square metre
(m²)

square metre
(m²)

The unit of measurement for items C1.4.2.1 to C1.4.2.11 shall be the square metre (m²) of the item supplied and installed as specified. The area shall be determined from the authorised outside dimensions in plan. The contract rates shall include full compensation for the construction or provision of these items all complete in accordance with the specifications given in the Contract Documentation.

Item	Description	Unit
C1.4.3	Items measured by number	
C1.4.3.1	Office swivel chair	number
C1.4.3.2	Office chair	(No)
C1.4.3.3	Draughtsman's stool	number
C1.4.3.4	Laboratory high chair	(No)
C1.4.3.5	Office desk with 3 drawers (at least one lockable drawer)	number
C1.4.3.6	Typist desk (L-shaped)	(No)
C1.4.3.7	Drawing table	number
C1.4.3.8	Conference table	(No)
C1.4.3.9	Bookcase	number
		(No)



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C1.4.3.10	Filing cabinet	number (No)
C1.4.3.11	General purpose steel cabinet with shelves	
C1.4.3.12	Wall mounted pivot plan filing system	number (No)
C1.4.3.13	220/250 volt power outlet plug point	number (No)
C1.4.3.14	400/231 volt 3-phase power outlet plug point	
C1.4.3.15	Single 1 500 m, 58 watt fluorescent tube ceiling light	number (No)
C1.4.3.16	Single 1 500 mm, 22 watt LED tube ceiling light	number (No)
C1.4.3.17	11 watt compact fluorescent bulb ceiling light	
C1.4.3.18	7 watt LED bulb ceiling light	number (No)
C1.4.3.19	Wash-hand basin	number (No)
C1.4.3.20	Laboratory basin	
C1.4.3.21	Extractor fan	number (No)
		number (No)
		number (No)
		number (No)
		number (No)
		number (No)
		number (No)



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C1.4.3.22Fume cupboard	number (No)
C1.4.3.23Fire extinguisher 9,0 kg, dry powder type	number (No)
C1.4.3.24Air-conditioning unit	number (No)
C1.4.3.25Heater	number (No)
C1.4.3.26Concrete specimen curing bath	number (No)
C1.4.3.27Waste paper basket	number (No)
C1.4.3.28UPS / Voltage stabiliser	number (No)
C1.4.3.29A3 / A4 colour printer, copier, scanner	number (No)
C1.4.3.30A4 colour printer, copier, scanner	number (No)
C1.4.3.31Rain gauge	number (No)
C1.4.3.32Minimum/maximum atmospheric temperature gauge	number (No)
C1.4.3.33Digital thermometer	number (No)
C1.4.3.34Mobile outdoor weather station	number (No)
C1.4.3.353,0 m aluminium straight edge complete with two measuring wedges	number (No)
C1.4.3.36Measuring wheel	number (No)
C1.4.3.37First aid kit	number (No)
C1.4.3.38Standpipe complete with 30 m of 19 mm dia. heavy duty hose pipe	number (No)
	number (No)
	number (No)
	number (No)

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number
(No)

number
(No)

The unit of measurement for items C1.4.3.1 to C1.4.3.38 shall be the number of each item supplied and installed as specified. The contract rates shall include full compensation for the provision and installation of these Engineer's facilities all complete in accordance with the specifications given in the Contract Documentation. On completion of the contract these items will be returned to the Contractor and the contract rates shall make allowance for any depreciation in value over the duration of the contract period.

Item	Description	Unit
C1.4.4	Prime cost items	
C1.4.4.1	Cell phones costs, including pro-rata rentals, for calls made in connection with contract administration	prime cost sum
C1.4.4.2	Handling costs and profit in respect of item C1.4.4.1	
C1.4.4.3	The provision of a direct independent telephone line for the Engineer, including the monthly rental charges and the cost of business calls	percentage (%)
C1.4.4.4	Handling costs and profit in respect of item C1.4.4.3	prime cost sum
C1.4.4.5	The provision of internet connectivity and WiFi data for Engineer's site staff	percentage (%)
C1.4.4.6		
C1.4.4.7		



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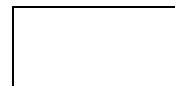
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C1.4.4.8	Handling costs and profit in respect of item C1.4.4.5	prime cost sum
C1.4.4.9	The provision of paper and ink for a combination colour printer/copier/scanner	percentage (%)
	Handling costs and profit in respect of item C1.4.4.7	prime cost sum
	The provision of a complete 220/250 volt single phase electrical power installation, including all poles, insulators, wiring, switchboards, mains connections, meters etc.	percentage (%)
	Handling costs and profit in respect of item C1.4.4.9	prime cost sum
	The provision of a complete 440/231 volt three phase electrical power installation, including all poles, insulators, wiring, switchboards, mains connections, meters etc.	percentage (%)
C1.4.4.10	Handling costs and profit in respect of item C1.4.4.11	prime cost sum
C1.4.4.11	Provision of a 440/231 volt three phase electricity generator if electricity from a power supply authority is not available on site	percentage (%)
C1.4.4.12	Handling costs and profit in respect of item C1.4.4.13	prime cost sum
C1.4.4.13	The provision of all gas installations required at the site offices, laboratories and at the Engineer's staff accommodation (if required), including gas storage cylinders, tubing, regulators, gas burners and shut-off cocks	percentage (%)
C1.4.4.14	Handling costs and profit in respect of item C1.4.4.15	prime cost sum
C1.4.4.15		percentage (%)
C1.4.4.16		prime cost sum

The unit of measurement for items C1.4.4.1, C1.4.4.3, C1.4.4.5, C1.4.4.7, C1.4.4.9, C1.4.4.11, C14.4.13 and C1.4.4.15 is the prime cost sum which shall be the invoiced cost of these items.

The percentage for items C1.4.4.2, C1.4.4.4, C1.4.4.6, CC1.4.4.8, C1.4.4.10, C1.4.4.12, C1.4.4.14 and C1.4.4.16 is a percentage of the amount spent under the relevant prime cost item. It shall include full compensation for the handling costs of the Contractor and the profit for providing the specified service.



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Item	Description	Unit
C1.4.5	Services at site offices, laboratories and site accommodation	
C1.4.5.1	Fixed costs	lump sum
C1.4.5.2	Running costs	month

The unit of measurement for item C1.4.5 shall be the lump sum. The lump sum shall include full compensation for all costs, administration charges and other general costs related to providing the specified services for the Engineer's site facilities. These services include the provision of a potable water supply, a sewerage system, septic tanks, conservancy tanks, refuse containers etc. as well as the excavation and backfilling of any service trenches required and the loading and hauling of the excavated material to spoil if required, regardless of haul distance.

The unit of measurement for item C1.4.5.2 shall be the month or part thereof for the duration of the approved contract period. The contract rate shall include full compensation for the provision of electricity and gas, sewage removal, refuse and rubbish removal, cleaning services, maintenance and repairs as specified and required. The contract rate shall also include the partial cost, proportional to the amount of electricity supplied to the Engineer's offices, laboratory and site accommodation, of running a generator only when electricity from a power supply authority is not available on site.

Item	Description	Unit
C1.4.6	Office staff	
C1.4.6.1	Secretary / receptionist	month
C1.4.6.2	Technical assistant	month

The unit of measurement for items C1.4.6.1 and C1.4.6.2 is the month or part thereof for the duration of the approved contract period. The contract rate shall include full compensation for providing the specified staff member and for all wages, Employer contributions, accommodation, transport and other staff related costs incurred by the Contractor.

Item Description Unit C1.4.7 Site inspection transport

C1.4.7.1 Provision of a bus, mini-bus or combi van for site inspection purposes
(specify type and size of per day vehicle)

C1.4.7.2 Travel on site kilometre (km)

The unit of measurement for item C1.4.7.1 is a day regardless of the number of hours that the vehicle is used during that day. The contract rate shall cover all the costs of providing the specified vehicle with an experienced licensed driver when required by the Engineer.

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The unit of measurement for item C1.4.7.2 is the total kilometres travelled during the site inspection by the vehicle, as instructed by the Engineer. The contract rate shall include full compensation for all fuel, maintenance and depreciation costs. Any kilometres covered in delivering and removing the vehicle from site will not be measured for payment.

Item	Description	Unit
C1.4.8	Site security measures for the Engineer's facilities	
	Supply and installation of all required security measures at the Engineer's site offices and laboratories	lump sum
	Provision of security guards / watchmen and an armed response service at the Engineer's site offices and laboratories	month
C1.4.8.1	Supply and installation of all required security measures at the Engineer's site accommodation	lump sum
C1.4.8.2	Provision of security guards / watchmen and an armed response service at the Engineer's site accommodation	month
C1.4.8.3	Supply and installation of an alarm system at the Engineer's rented accommodation (No. of houses stated)	lump sum
C1.4.8.4	Provision of an armed response service at the Engineer's rented accommodation (No. of houses stated)	month
C1.4.8.5		
C1.4.8.6		

The unit of measurement for items C1.4.8.1 and C1.4.8.3 is the lump sum. The lump sum shall include full compensation for the provision of all security measures required at the at the Engineer's site office, site laboratory and site accommodation as specified in Clause A1.2.3.17.

The unit of measurement for items C1.4.8.2 and C1.4.8.4 is the month or part thereof that the services are provided at the engineer's site office, site laboratory and site accommodation as specified in Clause A1.2.3.17. Part of a month shall be calculated to two decimal places.

The unit of measurement for item C1.4.8.5 is the lump sum per house. The lump sum shall include full compensation for the provision of an alarm system at the Engineer's rented accommodation as specified in Clause A1.2.3.17.

The unit of measurement for item C1.4.8.6 is the month or part thereof per house that an armed response service is provided at the engineer's rented accommodation as specified in Clause A1.2.3.17. Part of a month shall be calculated to two decimal places.

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C1.5 ACCOMMODATION OF TRAFFIC PART C: MEASUREMENT AND PAYMENT

(i) Preamble

The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the conditions of contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item.

(ii) Items that will not be measured separately

The following required activities will not be measured or paid for separately and the Contractor shall include the cost thereof in other items as deemed appropriate:

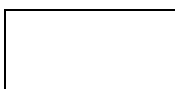
1. Removal of any material that is driven onto or spilt on any temporary roads, public roads or privately owned roads that are being used to accommodate traffic during the haul of material or while any construction operations are being carried out.
2. The provision of lighting for construction access and exit points during night work. All costs related to illuminating the area of the access and exit points at night, as specified in Clause A1.5.7.9, shall be included in the relevant payment items applicable to the work being carried out at night.
3. The provision of the flashing amber lights / light bars and "Construction Vehicle" warning boards which shall be fitted to the Contractor's vehicles and construction equipment. All costs related to the provision of these warning devices shall be included in the relevant payment items applicable to the work being carried out.
4. The provision of safety clothing, warning flags and amber LED strobe light wands for traffic safety officers, flagmen and traffic controllers; the cost of these shall be included in the rate for providing these personnel.
5. The cleaning, repair or replacement of any traffic control facilities damaged by the Contractor's staff and/or vehicles and construction equipment or were dirtied / damaged because they were:
 - not correctly stored, handled or transported,
 - not correctly attached to their support bases, poles or frames,
 - not correctly erected or ballasted OR
 - erected in the incorrect position and/or not maintained in their correct position which made them likely to be damaged by passing vehicles.
6. The replacement of any traffic control facilities that are stolen from the Site of the Works. (All traffic control facilities provided on the Site of the Works shall be covered by the Contractor's insurances or by the Contractor should he elect not to insure them.)

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

For activities shown in Table C1.5-1 payment items specified in other Chapters or Sections of the specifications, where they relate to work under this Section, will be listed in the Pricing Schedule.



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Table C1.5-1: Payment items from other Chapters or Sections

Activity	Section 1.5 reference	Section item reference
Identification, protection and relocation of existing services	A1.5.3.11	C2.1.1 & C2.1.2 of Chapter 2
Temporary deviations	A1.5.5.1	Chapters 1, 3, 4, 5, 9 & 10 - All relevant pay items as applicable
Temporary culverts	A1.5.5.2	C3.2.1 to C3.2.24 of Chapter 3 as applicable
Temporary road restraint systems	A1.5.5.3 & A1.5.6.1(a)	C11.4.1 to C11.4.15 of Chapter 11 as applicable
Temporary fencing and gates	A1.5.5.4	C11.5.1 to C11.5.10 of Chapter 11 as applicable
Temporary road signs and removal, storage, covering and re-erection of existing road signs	A1.5.5.5 & A1.5.6.1(c)	C11.6.1.8, C11.6.1.10, C11.6.1.12, C11.6.2, C11.6.3, C11.6.5, C11.6.6, C11.6.7 & C11.6.10 of Chapter 11 as applicable
Temporary road markings and road studs	A1.5.5.6	C11.7.1 to C11.7.10 of Chapter 11 as applicable

(iv) Items specifically for this section of the Specifications

Item	Description	Unit
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C1.5.1 Accommodation of pedestrian and non-motorised traffic

C1.5.1.1 Accommodation of pedestrian and non-motorised traffic	month
--	-------

C1.5.1.2 Construction of temporary pedestrian walkways and/or cycle paths:

- | | |
|--|--------------------------------|
| (a) Gravel surfaced pedestrian walkways / cycle paths | square metre (m ²) |
| (b) Bitumen surfaced pedestrian walkways / cycle paths | square metre (m ²) |
| (c) 60 mm concrete block paved pedestrian walkways / cycle paths | square metre (m ²) |

The unit of measurement for item C1.5.1.1 shall be the month or part thereof that the accommodation of pedestrian and/or non-motorised traffic is required on site during the approved Contract Period. No distinction will be made with respect to the type and/or number of pedestrian crossings, walkways and cycle paths required.

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The contract rate for item C1.5.1.1 shall include full compensation for the costs of complying with all the general obligations of the Contractor, including keeping pedestrians and non-motorised traffic informed of the accommodation arrangements and facilities, for the costs of placing, maintaining and relocating temporary signage and all other traffic control facilities as often as required and for any other related costs that are not covered by, or included in, the other items given below.

The unit of measurement for items C1.5.1.2(a), (b) and (c) shall be the square metre of temporary pedestrian walkways and/or cycle paths constructed as specified in the Contract Documentation. The contract rate shall include full compensation for all design and supervision costs together with any other general costs associated with providing the temporary pedestrian walkways and/or cycle paths. It shall also include full compensation for the cost of constructing and later removing the walkways and/or cycle paths when they are no longer required.

All loading and hauling of material required, for the construction of walkways and cycle paths shall be included in the contract rates.

Item	Description	Unit
C1.5.2	Accommodation of vehicular traffic	month

The unit of measurement for item C1.5.2 shall be the month or part thereof that the accommodation of vehicular traffic is required on site during the approved Contract Period. No distinction will be made with respect to the type and/or number of detours, deviations or partial / half width road sections used to accommodate the traffic. The contract rate for item C1.5.2 shall include full compensation for complying with all the general obligations of the Contractor, including keeping motorists informed of the traffic accommodation arrangements and facilities, for the costs of placing, maintaining, relocating and protecting from damage all temporary and permanent signage and all other traffic control facilities as often as required for constructing the Works and for carrying out testing and inspections and for any other related costs that are not covered by, or included in, the other items given below.

Item	Description	Unit
C1.5.3	Liaison with traffic authorities	month

The unit of measurement shall be the month or part thereof that the liaison with the traffic authorities, or the Employer's traffic control centre, is required on site, regardless of the frequency of liaison that is required during each month during the approved Contract Period.

The contract rate for item C1.5.4 shall include full compensation for all the Contractor's costs incurred while complying with all the requirements specified in Clause C1.5.7.7.

Item	Description	Unit
C1.5.4	Construction of temporary deviations	

The applicable payment items required for the construction of temporary deviations shall be taken from the relevant chapters and sections in Chapters 1, 3, 5, 9 and 10 and inserted into the Pricing Schedule here. Each payment item for the construction of temporary deviations shall be preceded by the main payment item number C1.5.4 / followed by the payment number for the applicable payment item.

The unit of measurement for each item shall be as specified in the relevant payment item given in the applicable section of the pricing schedule. The contract rates for these items shall include full



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compensation for the construction of temporary deviations or the repair / upgrading of detours as specified in the relevant section of these Specifications.


Item	Description	Unit
C1.5.5	Maintenance of temporary deviations	
C1.5.5.1	Grass cutting	hectare (ha)
C1 5.5.2	Drain cleaning	kilometre (km)
C1.5.5.3	Cleaning out culverts	cubic metre (m ³)
C1.5.5.4	Collection of rubbish / litter	cubic metre (m ³)
C1.5.5.5	Base patching using crushed stone material stabilised with bitumen emulsion and cement	kilometre (km)
C1.5.5.6	Base and/or surface patching using cold premixed asphalt	cubic metre (m ³)
C1.5.5.7	Base and/or surface patching using hot plant mixed asphalt	kilogram (kg)
		tonne (t)
C1.5.5.8	Replacement of damaged guardrails	metre (m)
C1.5.5.9	Grading of temporary deviations and existing roads used as detours	kilometre (km)
C1.5.5.10	Watering of temporary deviations and existing roads used as detours	kilolitre (kl)
C1.5.5.11	Other road maintenance work ordered by the Engineer	provisional sum
C1.5.5.12	Handling cost, profit and all other charges in respect of item C1.5.6.11	percentage (%)


Payment will only be made under items C1.5.5.1 to C1.5.5.12 when the relevant item of maintenance work has been ordered by the Engineer in writing and the Engineer has confirmed in writing the scope, quantity and/or frequency of work that is to be carried out.


The unit of measurement for item C1.5.5.1 shall be the hectare. The contract rate shall include full compensation for cutting grass in restricted and steep access areas with hand tools in addition to mowing grass in more accessible areas.



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The unit of measurement for items C1.5.5.2 shall be the kilometre of side or median drain cleaned. Each drain shall be measured separately. The contract rate shall include full compensation for the removal of all silt, mud, gravel, rocks and any other obstructions in the drain as well as for loading and hauling the removed material to spoil regardless of the haul distance.

The unit of measurement for item C1.5.5.3 shall be the cubic metre. The contract rate shall include full compensation for the removal of all silt, mud, gravel, rocks and any other obstructions from inside the culvert or from the culvert entrance and exit as well as for loading and hauling the removed material to spoil regardless of the haul distance.

The unit of measurement for item C1.5.5.4 shall be the kilometre measured along the centreline of the temporary deviation. The contract rate shall include full compensation for collecting all the rubbish / litter alongside the temporary deviation and carting it to an approved disposal site regardless of the haul distance.

The unit of measurement for items C1.5.5.5, C1.5.5.6 and C1.5.5.7 shall be the cubic metre, kilogramme and tonne respectively. The contract rates shall include full compensation for excavating the failed area of the temporary deviation to the depth indicated by the Engineer, cleaning out and squaring off the excavation, priming the compacted surface or the floor of the excavation, and the sides of the excavation as applicable, and then backfilling the excavation as specified in the Contract Documentation. The contract rates shall also include full compensation for all final site cleaning and removal to spoil of all surplus material regardless of the haul distance.

The unit of measurement for item C1.5.5.8 shall be the linear metre of guardrail replaced. The contract rate shall include full compensation for removing the damaged guardrails to spoil or storage as specified by the Engineer, reinstating or replacing any displaced or damaged guardrail posts and providing and installing a new guardrail in the correct position.

The unit of measurement for item C1.5.5.9 shall be the kilometre of gravel surfaced temporary deviation which is graded smooth with a motor grading to remove all corrugations and to redistribute the bladed gravel material evenly across the road surface. The contract rate per kilometre shall include full compensation for providing and maintaining the motor grader and grading the road surface to restore the riding quality as specified in the Contract Documentation, regardless of any variations in the width of roadway being graded.

The unit of measurement for item C1.5.5.10 shall be the kilolitre of water sprayed on the surface of temporary deviations as and when instructed by the Engineer in writing. The contract rate shall include full compensation for providing, transporting and spraying the water on the road surface.

The provisional sum allowed under item C1.5.5.11 shall provide for all other maintenance work carried out by the Contractor on the temporary deviations that may be required as specified in the Contract Documentation or as ordered by the Engineer. The provisional sum shall be paid in accordance with the provisions given in the Contract Documentation. Where applicable existing contract rates or accepted day work rates will be used.

The percentage under item C1.5.5.12 is a percentage of the amount spent under item C1.5.5.11 which shall include full compensation for all handling costs, profit and all other charges in connection with arranging and carrying out the maintenance works.

Item Description

Unit



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C1.5.6 Removal of temporary deviations

kilometre (km)

The unit of measurement for item C1.5.6 shall be the kilometre. The contract rate shall include full compensation for removing temporary deviations as specified in Clause A1.5.7.10g). The contract rate shall include for all removal, loading and hauling operations required regardless of the haul distance.

Item

Description

Unit

C1.5.7 Temporary traffic control facilities

Delineators including mounting bases and ballast:

Single sided, reversible left or right (size indicated)

number
(No)

Double sided, reversible left or right (size indicated)

number
(No)

C1.5.7.1 Traffic cones, minimum height 750 mm

(a) Flagmen

number
(No)

(b) Traffic controllers

man-shift

C1.5.7.2 Provision of illuminated traffic signs:

man-shift

C1.5.7.3 Sign mounted flashing amber lights (2 lights with the specified power supply) mounted on a backing board which is:

C1.5.7.4 (i) 900 mm wide x 150 mm high

number
(No)

(ii) 1 200 mm wide x 200 mm high

C1.5.7.5 Flashing LED illuminated arrow board

(a)

number
(No)
number
(No)

(b)

number
(No)

(c) Illuminated road sign – R & TR series (diameter indicated) number (No)

(d) Illuminated road sign – TW series (length of sides indicated) number (No)

(e) Mobile variable message sign number (No)

(f) Mobile variable message sign with a speed measuring and display capability month

C1.5.7.6 Maintenance of illuminated traffic signs:



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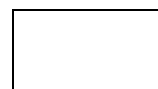
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- (a) Sign mounted flashing amber lights (a pair of two lights mounted on a separate backing board) month
- (b) Flashing LED illuminated arrow board month
- (c) Illuminated road sign – R & TR series (diameter indicated) month
- (d) Illuminated road sign – TW series (length of sides indicated) month
- (e) Mobile variable message sign month
- (f) Mobile variable message sign with a speed measuring and display capability month

C1.5.7.7 Traffic calming devices:

- (a) 25 mm high x 100 mm wide asphalt rumble strips metre (m)
- (b) 50 mm high x 500 m wide asphalt rumble strips metre (m)
- (c) 150 mm high x 3 m wide asphalt speed control humps metre (m)

C1.5.7.8 Traffic control stations month

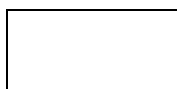
C1.5.7.9 Cleaning of traffic control facilities month

The unit of measurement for items C1.5.7.1(a), C1.5.7.1(b) and C1.5.7.2 shall be the number of delineators or traffic cones used on site. The contract rates shall include full compensation for the provision, placing and relocation of delineators and traffic cones as often as required. Payment for these items shall only be made once when they are first provided on site regardless of how many times they are repositioned and reused during the construction of the Works.

The unit of measurement for items C1.5.7.3 and C1.5.7.4 shall be the number of flagmen and traffic controllers respectively employed for a working shift in accordance with the requirements specified in Clause A1.5.7.11(e). The contract rate shall include full compensation for the provision of trained flagmen and traffic controllers and for all wages, Employer contributions, accommodation, transport and other staff related costs incurred by the Contractor, including their recruitment and training costs.

The contract rate shall also include full compensation for providing all flagmen and traffic controllers with conspicuous orange or bright yellow clothing and safety boots, safety jackets utilizing retro-reflective and/or fluorescent panels in red, yellow and/or white as well as a red warning flag or an amber LED strobe wand during hours of darkness as specified in Clauses A1.5.6.2e) and f).

The unit of measurement for items C1.5.7.5(a) to C1.5.7.5(f) shall be the number of illuminated traffic signs that are supplied and delivered to site as specified in the Contract Documentation and/or as specified by the Engineer. The contract rates shall include full compensation for the provision of the illuminated traffic signs, including poles and brackets, portable mounting frames and ballast and portable trailers where applicable, and for removing them from site when they are no longer required.



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The unit of measurement for items C1.5.7.6(a) to C1.5.7.6(f) shall be the month or part thereof during the approved Contract Period that these traffic safety devices are erected / positioned on site as specified. The contract rates shall include full compensation for maintaining the warning signs, providing a suitable electricity power supply and relocating the warning signs as often as required during the construction period and for removing them from site when they are no longer required.

The unit of measurement for items C1.5.7.7(a), C1.5.7.7(b) and C1.5.7.6(c) shall be the metre of rumble strip or speed control hump installed on the road. The contract rates shall include full compensation for the provision and construction of the traffic calming devices.

The unit of measurement for item C1.5.7.8 shall be the month or part thereof during the approved Contract Period that each traffic control station is in operation on the site of the Works. The contract rate shall include full compensation for the provision and construction/erection of the traffic control shelter complete as specified in clause A1.5.6.1f) including the provision of the specified traffic signals, communication devices, flood lighting and the cost of supplying electricity. The contract rates shall also include full compensation for moving the traffic control points to new locations as often as required and for removing them from site when they are no longer required.

The unit of measurement for item C1.5.7.9. shall be the month or part thereof during the approved Contract Period that the traffic signs and delineators on the Site of the Works are kept clean. The contract rate shall include full compensation for the cleaning of all the delineators and signs on site at least once a week and more often if required as specified in Clause A1.5.7.11d).

Item	Description	Unit
C1.5.8	Traffic safety officer	Man-month

The unit of measurement for item C1.5.8 shall be the months or part thereof during the approved Contract Period that each traffic safety officer is deployed on the site of the Works. The contract rate shall include full compensation for the provision of a trained and experienced traffic safety officer and for all wages, Employer contributions, accommodation, transport and other staff related costs incurred by the Contractor, including their recruitment and training costs.

The contract rate shall also include full compensation for the provision of a safety jacket utilizing retro-reflective and/or fluorescent panels in red, yellow and/or white, a cell-phone and anything else the traffic safety officer requires to fulfil his duties and obligations as specified in Clause A1.5.7.12.

The contract rate shall also include full compensation for the provision, operation and maintenance of a vehicle provided for the sole use of the traffic safety officer as specified in Clause A1.5.6.4, including the provision of an amber flashing roof light or light bar and a "TRAFFIC CONTROL" warning sign.

Item	Description	Unit
C1.5.9	Traffic safety vehicle	month

The unit of measurement for item C1.5.9 shall be the month or part thereof during the approved Contract Period that the traffic safety vehicle is deployed on the site of the Works.

The contract rate shall include full compensation for the provision, operation and maintenance of a traffic safety vehicle, including the driver and any assistants required, as specified in Clause A1.5.6.3, including the provision of an amber flashing roof light or light bar, a "TRAFFIC CONTROL" warning sign, a high visibility reflective rear chevron panel and an approved proprietary rear mounted impact attenuator device.

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Item Description Unit C1.5.10 Tow trucks

C1.5.10.1 Provision of a tow truck on call for light vehicles weighing less than two tonnes month

C1.5.10.2 Provision of a tow truck on call for heavy vehicles weighing two tonnes or more month

The unit of measurement for items C1.5.10.1 and C1.5.10.2 shall be the month or part thereof during the approved Contract Period that the tow trucks are ordered by the Engineer to be on call for use on the site of the Works whenever they are required.

The contract rate shall include full compensation for the provision when required, the operation and the maintenance of the tow trucks.

Payment for towing vehicles off the road and/or on to a storage or repair facility will not be made as this cost is to be recouped from the owner of the towed vehicle by the Contractor or the tow truck operator.

Item	Description	Unit
C1.5.11	Provision of safety equipment for visitors	
C1.5.11.1	Provision of reflective safety vests for visitors	number (No.)
C1.5.11.2	Provision of hard hats for visitors	number (No.)

The unit of measurement for items C1.5.11.1 and C1.5.11.2 shall be the number of each item provided as specified, and approved by the Engineer. The contract rates for the various safety items shall include full compensation for provision thereof and maintenance in good working order.

Item	Description	Unit
C1.5.12	Additional traffic accommodation facilities ordered by the Engineer:	
C1.5.12.1	Provision of additional traffic accommodation facilities	prov sum percentage (%)
C1.5.12.2	Handling cost, profit and all other charges in respect of item C1.5.12.1	

The provisional sum allowed under item C1.5.12.1 shall cover for the provision, erection and later removal of all additional traffic accommodation items that may be ordered by the Engineer. The provisional sum shall be paid in accordance with the provisions of the Contract Documentation.

The percentage under item C1.5.12.2 is a percentage of the amount spent under item C1.5.12.1 which shall include full compensation for all handling costs, profit and all other charges for the provision, erection and later removal of the additional traffic accommodation facilities.

C1.6 CLEARING AND GRUBBING PART C: MEASUREMENT AND PAYMENT

(i) Preamble

The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the conditions of contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under



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the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item.

(ii) Items that will not be measured separately

The following required activities will not be measured or paid for separately and the Contractor shall include the cost thereof in other items as deemed appropriate:

1. Loading and offloading of cleared material and grubbed material.
2. Keeping the cleared and grubbed areas free of weeds and alien vegetation until the Works have been completed and have been taken over by the Employer, as specified in Clause A1.6.7.1.
3. Removing deleterious or unsuitable material that was not properly removed during the clearing and grubbing operation from areas where topsoil is to be stockpiled or windrowed, as specified in Clause A1.6.7.6.
4. Keeping topsoil stockpiles and windrows free of weeds, as specified in Clause A1.6.7.6.
5. Re-clearing areas that were cleared and grubbed too far in advance of the Works, as specified in clause A1.6.7.8.

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

For activities shown in Table C1.6-1 payment items specified in other chapters or sections of the specifications, where they relate to work under this section, will be listed in the Pricing Schedule.

Table C1.6-1: Payment items from other Chapters or Sections

Activity	Section 1.6 reference	Section item reference
Clearing and grubbing for site offices, laboratories and site accommodation	A1.6.1	Included in item C1.4.1 of Chapter 1
Hauling of cleared and grubbed material to designated spoil areas	A1.6.7.2, A1.6.7.4, A1.6.7.5	C1.7.2 of Chapter 1
Clearing and shaping accumulated sediment in existing unlined open drains	A1.6.7.2	C3.1.2 of Chapter 3
Excavating and clearing accumulated sediment in existing lined drains and drainage systems	A1.6.7.2	C3.1.3 of Chapter 3
Removal, breaking up, loading, transporting and disposal of concrete kerbing, channelling, down-chutes etc.	A1.6.7.2	C3.3.16 of Chapter 3
Removal, loading, transporting, offloading and stacking of guardrails	A1.6.7.2	C11.4.7 of Chapter 11
Moving or removal and loading, transporting, offloading and stacking of fencing and gates	A1.6.7.2	C11.5.3 & C11.5.4 of Chapter 11
Removal, loading, transporting, offloading and storage of road signs	A1.6.7.2	C11.6.6, C11.6.7 & C11.6.10 of Chapter 11
Replanting of shrubs and trees from a site nursery	A1.6.7.3	C11.8.9.2 of Chapter 11



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Preparation of topsoil stockpile sites	A1.6.7.6	C4.1.10 & C4.1.11 of Chapter 11
Reinstatement of topsoil stockpile sites	A1.6.7.6	C4.1.13, C4.1.14 and C4.1.15.1(c) / C4.1.15.2(c) of Chapter 4 as applicable
Hauling topsoil to stockpile	A1.6.7.6	C1.7.2.1(a) of Chapter 1

(iv) Items specifically for this Section of the Specifications

Item	Description	Unit
C1.6.1	Clearing	
C1.6.1.1	Clearing with machines and some hand labour where necessary	hectare (ha)
C1.6.1.2	Clearing with hand labour only when labour enhanced work is specified	hectare (ha)
C1.6.1.3	Clearing for new fence lines (over a width of 2,0 m)	kilometre (km)
C1.6.1.4	Clearing for service trenches (over the agreed width required)	square metre (m ²)

The unit of measurement for items C1.6.1.1 and C1.6.1.2 is the hectare. The quantity shall be taken as the area (to the nearest 0,01 ha) designated by the Engineer and cleared in accordance with this Standard Specification.

The unit of measurement for item C1.6.1.3 is the kilometre of 2,0 m wide cleared fence line strip.

The unit of measurement for item C1.6.1.4 is the square metre of cleared area along the service trench. The area to be measured shall be calculated by multiplying the length cleared by the agreed width required to excavate the trench, temporarily stockpile the excavated material alongside and place the service materials alongside the trench prior to installation.

The contract rate shall include full compensation for all work necessary for the clearing of the surface, the removal of rocks and boulders up to 0,15 m³ each in size, the removal of grass, bushes, shrubs, any other vegetation, all trees with a girth of less than 1,0 m, cutting of branches, demolishing of structures or parts of structures (except those structures specifically listed in the Contract Documentation and measured separately under item C1.6.4,) and the loading of the cleared material.

Hauling of the cleared material to a designated spoil area will be measured from the point of loading to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item C1.7.2.



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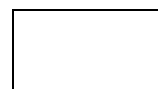
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No additional payment will be made for the removal of a certain amount of sand, soil or gravel material which may be inherent in, or unavoidable, during the process of clearing, regardless of the quantity removed.

Where topsoil can be removed without the necessity of first doing clearing, no payment will be made for clearing.

Item	Description	Unit
C1.6.2	Grubbing	
C1.6.2.1	Grubbing with machines and some hand labour where necessary	hectare (ha)
C1.6.2.2	Grubbing with hand labour when labour enhancement work is specified or it is not practical to use a machine	hectare (ha)
C1.6.2.3	Grubbing by hand for new fence lines (over a width of 2,0 m)	kilometre (km)
C1.6.2.4	Grubbing by hand for service trenches (over the agreed width required)	square metre (m ²)

The unit of measurement for items C1.6.2.1 and C1.6.2.2 is the hectare. The quantity shall be taken as the area measured in hectares (to the nearest 0,01 ha) as designated by the Engineer in writing and grubbed in accordance with these specifications.

The unit of measurement for item C1.6.1.3 is the kilometre of 2,0 m wide cleared fence line strip.

The unit of measurement for item C1.6.1.4 is the square metre of cleared area along the service trench. The area to be measured shall be calculated by multiplying the length cleared by the agreed width required to excavate the trench, temporarily stockpile the excavated material alongside and place the service materials alongside the trench prior to installation.

The contract rate shall include full compensation for all work necessary for the grubbing the area, removing all tree roots larger than 75 mm in diameter and all tree stumps, backfilling of cavities, demolishing and disposal of foundations of buildings and structures, the removal of rubbish, rubble or other unsuitable or waste material and the loading and offloading of the grubbed material. Hauling of the grubbed material to a designated spoil area will be measured from the centroid of the loading area to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item C1.7.2.

No additional payment will be made for the moving of a certain amount of soil or gravel material which may be inherent in, or unavoidable, during the process of grubbing, regardless of the quantity removed.

Only the areas confirmed in writing by the Engineer to be grubbed shall be measured for payment.

Item	Description	Unit
C1.6.3	Removal and grubbing of large trees and tree stumps:	

C1.6.3.1	Girth equal to or exceeding 1,0 m up to and including 2,0 m	number (No)
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C1.6.3.2	Girth exceeding 2,0 m up to and including 3,0 m	
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C1.6.3.3 Girth exceeding 3,0 m

number
(No)

C1.6.3.4 Removal of trees in forests and plantations

number
(No)

hectare
(ha)

The unit of measurement for items C1.6.3.1 to C1.6.3.3 shall be the number of trees of each size removed. The girth of trees and stumps shall be measured as specified in Clause A1.6.7.1. Trees and stumps with a girth exceeding 1,0 m shall be measured individually and classified in size increments exceeding 1,0 m up to 2,0 m, exceeding 2,0 m up to 3,0 m and exceeding 3,0 m, as indicated in the items above. (Trees with a girth of less than and up to 1,0 m shall not be paid for individually and the cost of removing all small trees and bushes with a girth of less than and up to 1,0 m shall be included in the contract rates for item C1.6.1 and item C1.6.2.)

The contract rates shall include full compensation for all work necessary for the removal and grubbing of trees and stumps of all sizes, including removal of the roots, the backfilling and compaction of the cavities left after the stump and roots have been removed with approved material, and the loading and offloading of the cut timber and grubbed root material. Hauling of the grubbed material to a designated spoil area will be measured from the centroid of loading area to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item C1.7.2.

Where construction is carried out through forests or plantations, or where the number of trees with a girth exceeding 1,0 m renders individual measurement impracticable, the removal and grubbing of trees in such areas shall be measured under item C1.6.3.4. The quantity shall be taken as the area measured in hectares (to the nearest 0,01 ha) as designated by the Engineer in writing. If this method of measurement is used, the areas where it applies will be shown on the drawings, stated in the Contract Documentation and/or indicated to contractors during the site inspection. The contract rate per hectare shall include full compensation for all work as described for the removal of individual trees above.

Item Description Unit C1.6.4 Removal of buildings and structures

C1.6.4.1 (Identify type and location of each building or structure with a separate sub-item) lump sum

The unit of measurement for each building or structure that is removed shall be the lump sum. The lump sum shall include full compensation for all work necessary for demolishing and removing the buildings or structures, including removal of the foundations and the loading and offloading of all the material. Hauling of the removed building or structural material to a designated spoil area will be measured from the point of loading to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item C1.7.2.

Item	Description	Unit
C1.6.5	Spreading organic matter and covering with soil	cubic metre (m³)

The unit of measurement for item C1.6.5 shall be the cubic metre of organic matter, measured as 50% of the measured load volume of the haul vehicle being used, spread out at the designated spoil site or in



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the borrow pit, as instructed by the Engineer, and covered with enough soft material to fill the voids and provide a covering layer at least 150 mm thick over all the spread material.

Item Description Unit C1.6.6 Mulching selected organic matter cubic metre (m³)

The unit of measurement for item C1.6.5 shall be the cubic metre of organic matter that is selected from the cleared and grubbed material, cut and shredded to make a mulch and stockpiled or spread out at the designated area, as instructed by the Engineer.

The volume shall be measured loose in stockpile or calculated from an agreed estimate of the area covered by the mulch multiplied by the agreed average spread depth.

Item Description Unit C1.6.7 Re-clearing of previously cleared areas hectare (ha)

The unit of measurement for item C1.6.7 shall be the hectare. The quantity shall be taken as the area in hectares (to the nearest 0,01 ha) agreed to by the Engineer for re-clearing in accordance with these specifications.


The contract rate shall include full compensation for all work necessary for the clearing of the surface, grubbing if necessary, backfilling of holes and for loading the material, all as described in this section. Hauling of the re-cleared material to a designated spoil area will be measured from the point of loading to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item C1.7.2.


(Re-clearing required because the Contractor cleared and grubbed an area too soon, as well as keeping cleared areas free from weeds and alien vegetation, is the Contractor's responsibility and will not be measured and paid for under this item.)

Item	Description	Unit
C1.6.8	Conservation of vegetation:	
C1.6.8.1	Establishment of a temporary nursery	number (No)
C1.6.8.2	Removal, storage and maintenance of shrubs	number
C1.6.8.3	Removal, storage and maintenance of trees, girth up to and including 1,0 m	(No)
C1.6.8.4	Removal, storage and maintenance of trees, girth exceeding 1,0 m	number (No)
C1.6.8.5	up to and including 2,0 m	number
C1.6.8.6	Removal, storage and maintenance of trees, girth exceeding 2,0 m up to and including 3,0 m	(No)
	Removal, storage and maintenance of trees, girth exceeding 3,0 m	number (No)
		number (No)


The unit of measurement for item C1.6.8.1 shall be the number of temporary nurseries established on site as agreed with the Engineer. The contract rate shall include full compensation for clearing and



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levelling the nursery site, installing fencing, shade netting and wind breaks, for providing plant containers where necessary and for installing a water supply system.

The unit of measurement for items C1.6.8.2 to C1.6.8.6 shall be the number of shrubs or trees of each size removed from site and replanted/stored and maintained in a temporary nursery. The contract rate shall include full compensation for all work necessary for carefully removing the shrubs and trees with their root systems intact and for correctly replanting, storing, watering and maintaining them in a temporary nursery until they are removed for replanting.

Item	Description	Unit
C1.6.9	Conservation of topsoil:	
C1.6.9.1	Stockpiling topsoil	cubic metre
C1.6.9.2	Windrowing topsoil	(m ³) cubic metre (m ³)

The unit of measurement for item C1.6.9.1 shall be the cubic metre of topsoil stockpiled. The contract rate shall include full compensation for excavating, loading, off-loading and stockpiling the topsoil at the designated stockpile site. Hauling of the topsoil to a designated stockpile site will be measured from the centroid of the loading area to the centroid of the designated stockpile site following the shortest practical route. Payment for haulage will be made under item C1.7.2.

The unit of measurement for item C1.6.9.2 shall be the cubic metre of topsoil excavated and placed into windrows. The contract rate shall include full compensation for excavating and moving the material into windrows in the designated storage area.

Item	Description	Unit
C1.6.10	Disposal of hazardous waste material:	

C1.6.10.1 Disposal of hazardous waste material at an approved hazardous waste material facility.
provisional sum

C1.6.10.2 Handling cost, profit and all other charges in respect of item C1.6.10.1 percentage (%)

The provisional sum allowed under item C1.6.10.1 shall cover the cost of disposing hazardous waste material at an approved hazardous waste facility, extra over the cost of clearing and/or grubbing the hazardous waste material which is paid for under items C1.6.1 and/or C1.6.2. The provisional sum shall be paid in accordance with the provisions of the Contract Documentation.

The percentage under item C1.6.10.2 is a percentage of the amount spent under item C1.6.10.1 which shall include full compensation for all handling costs, profit and all other charges for the disposal of the hazardous waste material.



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C1.7 LOADING AND HAULING PART C: MEASUREMENT AND PAYMENT

(i) Preamble

The tendered rate for each item shall include full compensation for providing, operating, maintaining and decommissioning upon completion, of all the construction equipment, labour, tools, incidentals and supervision to carry out the activity or construct the works in the item, unless otherwise stated.

Any prime cost or provisional sums shall be paid in accordance with the provisions of the conditions of contract. The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost or provisional sum. This percentage shall cover all the Contractor's handling, supervision, profit and liability costs to provide the services in the prime cost or provisional sum item.

(ii) Items that will not be measured separately

The following required activities will not be measured or paid for separately and the Contractor shall include the cost of these activities in other pay items as already specified for the appropriate pay item or as deemed appropriate by the Contractor:

1. The loading and hauling of commercial materials from either Employer or Contractor identified suppliers/sources shall not be measured for payment.
2. The loading of materials on site will not be measured and paid for separately except for loading already stockpiled material and for loading material that has been placed in heaps or windrows where the relevant payment item in other Chapters specifically states that the loading will be paid for separately.
3. The hauling of materials on site will not be measured and paid for separately where the relevant payment item specifically states that the hauling operation is included in that payment item.
4. The hauling of materials on site over a localised distance of up to 1,0 km will not be measured and paid for separately where the relevant payment item specifically states that the initial haul of the material over a distance of up to 1,0 km is included in the pay item.

(iii) Items to be measured and paid for using items specified elsewhere in the specifications

There are no items mentioned in this section that are measured and paid for elsewhere in this Standard Specification.

(iv) Items specifically for this Section of the specifications

The following payment items will be inserted in the Pricing Schedule under the relevant payment section where loading and/or hauling of materials is applicable. The payment item shall commence with the relevant section number followed by / and then by the applicable loading and hauling payment item numbers given here.

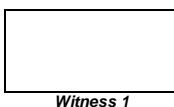
Item	Description	Unit
C1.7.1	Loading	

C1.7.1.1 Loading from stockpile using machines and some hand labour where necessary cubic metre (m³)

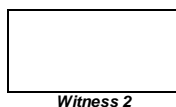
C1.7.1.2 Loading from heaps or windrows using machines and/some hand labour where necessary cubic metre (m³)



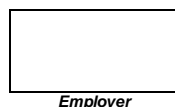
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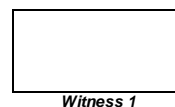
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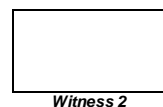
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C1.7.1.3 Loading by hand only from stockpile or heaps when labour enhancement work is specified or cubic metre (m³) it is not possible to use machines

Loading is generally considered to be part of the operation that produced the material which is being loaded, such as excavation, grubbing, cleaning, demolition etc., and it is therefore not usually measured separately for payment. Loading shall only be measured separately for payment for loading stockpiled material and for loading material that has been placed in heaps or windrows where the relevant payment item specifically states that the loading will be paid for separately.

The unit of measurement for items C1.7.1.1 to C1.7.1.3 shall be the cubic metre of material loaded into the hauling vehicles. These pay items shall only apply for those activities where the relevant pay item does not specify that the loading is included in the contract rate for that pay item.

The quantity of all soil and gravel materials loaded for hauling for use on the site of the Works shall be the compacted volume of material measured in its final position in the Works calculated using the dimensions given in the Contract Documentation or specified in writing by the Engineer.

The quantity of all materials loaded for hauling to temporary stockpile for later use in the Works, to borrow pits for backfilling purposes or for disposal at designated spoil areas shall be taken as 70% of the measured load volume of the haul vehicle being used to transport soil and gravel material and 50% of the measured load volume of the haul vehicle being used to transport hard material and/or boulders.

The contract rate for item C1.7.1.1 shall include full compensation for loading material from a stockpile and loading it into the hauling vehicles.

The contract rate for item C1.7.1.2 shall include full compensation for loading excavated material from heaps or windrows at the point of collection, including any windrowing and/or localised sorting / stockpiling that may be required, and loading it into the hauling vehicles.

The contract rate for item C1.7.1.3 shall include full compensation for loading excavated material at the point of collection on site or loading it from stockpile by hand and loading it by hand into the hauling vehicles. This item is only applicable when the Contractor has been instructed to load the material by hand in the Contract Documentation or by the Engineer to enhance the labour component of the Works or if it is not practical to use machines due to the restricted nature of the work.

Item	Description	Unit
------	-------------	------

C1.7.2 Hauling


C1.7.2.1 Hauling material for use in the Works and off-loading it on the site of the Works:


- | | | |
|-----|---|---|
| (a) | Soil, gravel, crushed stone and pavement layer material | cubic metre - kilometre (m ³ - km) |
| (b) | Boulders and hard material | cubic metre - kilometre (m ³ - km) |

C1.7.2.2 Hauling material to spoil and off-loading it at a designated spoil or stockpile area:


- | | | |
|-----|--|---|
| (a) | Cleared and grubbed material (organic matter and all other unsuitable or waste material) | cubic metre - kilometre (m ³ - km) |
|-----|--|---|



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(b)

Soil and gravel material cubic
metre - kilometre (m^3 - km)

(c) Boulders, hard material and concrete cubic metre - kilometre (m^3 - km)

The unit of measurement for items C1.7.2.1 and C1.7.2.2 shall be the cubic metre – kilometre (m^3 - km) which is calculated as the product of the quantity of material loaded, as measured in items C1.7.1.1, C1.7.1.2 or C1.7.1.3, multiplied by the applicable haul distance which shall be calculated as defined in Clause A1.7.3.1.

These pay items shall only apply for those activities where the relevant pay item does not specify that all the hauling is included in the contract rate for that pay item.

The quantity of all soil and gravel materials hauled for use on the site of the Works shall be the compacted volume of material measured in its final position in the Works calculated using the dimensions given in the Contract Documentation or specified in writing by the Engineer.

The quantity of all materials hauled to temporary stockpile for later use in the Works, to borrow pits for backfilling purposes or to designated spoil areas shall be taken as 70 % of the measured load volume of the haul vehicle being used to transport soil and gravel material and 50 % of the measured load volume of the haul vehicle being used to transport hard material and boulders.

The quantity of all organic matter hauled to borrow pits or to designated spoil areas shall be taken as 50 % of the measured load volume of the haul vehicle being used.

The contract rate shall include full compensation for hauling the material and off-loading it at the required or designated position.



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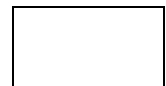
Witness 2



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Witness 1



Witness 2