A - GENERAL NOTES

Items in the preambles section of these Bills of Quantities are deemed to qualify and to form part of every description of measured work to which they refer including composite descriptions.

No amendment which has not been authorized in writing by the Engineer shall be made to these Bills of Quantities.

The Contractor shall not use these Bills of Quantities as a construction programme or for the purposes of ordering materials or arranging sub-contracts. The references for these activities shall be the drawings, specification and instructions issued by the Engineer.

These pricing preambles are a standard and comprehensive set and hence may exceed the requirements of this particular project. The bidder is supposed to refer to the relevant sections of these Preamble Notes.

Bidders are requested to see that no page is missing, nor duplicating and that all TRADES are carried to the SUMMARY of the Bill of Quantities.

The bill of quantities shall be read in conjunction with the Conditions of Contract, Technical Specifications, Drawings and the method of measurement described in this document. General directions, descriptions and specifications of work and materials are not necessarily repeated nor summarized in the bill of quantities. References to the drawings and relevant sections of the Technical Specifications shall be made before entering prices against each item in the bill of quantities.

Drawings, Specifications and Bill of Quantities and all other documents are complementary and if any item is included in any of them, it shall deem to be included in all.

Amendments shall not be made to the tender Bill of Quantities without the authority, in writing, of the Engineer's Representative.

Provision has been made for the total of each page to be collected at the end of each page and to be carried to the collection page at the end of each section of these Bills of Quantities Total of each section then is carried to the Bill Summary.

The Contractor should allow against the items or in the prices for everything contained in these Bills of Quantities which has a monetary value.

Lump sums shall not be certified for payment unit rates are approved by the Engineer.

Payment against any item in the Bill of Quantities will be made only if such item has actually been carried out by the contractor to the satisfaction of the Engineer. If the Contractor intends to execute any alternative method of construction, the Engineer's prior approval thereof shall be obtained prior to execution of such work in order to ensure payment against the relevant item.

Unit rates may be used reciprocally in the settlement of accounts unless conflict between them occurs. The Contractor is, therefore, to ensure that identical items occurring in separate bills are not priced at different rates unless this is his deliberate intention.

The Contractor shall check against the summaries that each copy of the Bills of Quantities is complete in the number of pages and in the reproduction of each page.
The Contractor’s prices and extension shall be entered in waterproof ink.

Unit rates and extensions shall be given in Sri Lankan Rupees to a maximum of two significant places of decimals.

The various documents collectively referred to herein as the Bills of Quantities jointly constitute the Bill of Quantities referred to in the Conditions of Contract.

Every description shall read as if the phrase “and the like” were incorporated into it.

Where specific classifications have been given but are deemed to include other categories of work only the classified item shall be given in descriptions.

“Prices also to include”; items under this heading fall into two categories:

a) Those which are deemed to be included in descriptions and therefore, in prices.

b) Those for which the Contractor shall allow in his prices.

“Approved”, “Directed”, “Selected” and similar expressions shall relate to the Engineer’s decision.

“Falls”, “Slopes”, “Weathered”: inclined from the horizontal in one plane.

“Cross Falls”, “Cross Slopes”, “Cross weathered”: inclination from the horizontal in more than one plane.

**Extent of Work**

The extent of work as provided in this Bills of Quantities shall consist of all work as specified by the Drawings, Specifications and the Bills of Quantities in this for the **Upgrading of Durayappah Stadium at Jaffna to a District Level Sports Complex – Stage I**

**Estimated Quantities in the Bill of Quantities**

Quantities in the Bill of Quantities are estimated and shall not be considered as accurate for the purpose of procurement of materials and for the quantity of work to be carried out as per the drawings.

**Materials**

All materials, equipment supplied shall be new, unused without any defects.

All materials, equipment and accessories stated herein shall be the best of their respective kind and shall comply with the requirements of the relevant Standards, Specifications or equivalent where such exists. In all cases of permanent work specifications, model nos., makes etc., and other technical data shall be approved by the Engineer before an order is placed, and all materials, equipment, accessories and spares etc., supplied shall correspond in quality with the approved samples. The Engineer will exercise the right to reject all such items not complying in quality with the standard of the approved items and all costs incurred by this rejection shall be borne by the Contractor. All such rejected items shall be removed from the site. The Contractor shall provide the necessary details to the Engineer regarding the dates and sources of obtaining such items.

**Method of Measurement**

Whenever the method of measurement is not clear from documents available, the principles as given in the Sri Lanka Standard 573 (1st Revision 1999), Method of Measurement of building work shall be applicable.
The final quantities shall be computed net using dimensions from the drawings, relative to Existing Ground Levels as per the agreed drawings persuading to the Conditions of Contract, except where clearly stated otherwise under individual items in the drawings and the BOQ. No allowance shall be made for bulking, shrinkage or waste.

If geometric tolerances on the Contractor’s work, whether they are within or without the specified tolerances, cause any increase in quantities relative to the computed net quantities from the drawings then such increases shall deem to be included in the rates and such additional quantities shall not be included in the measurement for payment. No deduction shall be made for tolerances within the specified limits.

Quantities shall be measured with the same place of decimal as stated in the bills.

**Inspection of Site**
Bidder is requested to visit the site to acquaint themselves with all existing conditions, and with the nature and extent of work to be done under this contract as no extras will be allowed on the plea of want of information due to neglect of their part in this regard.

**Trade Name**
Where reference is made to certain manufactures' products and items identified by registered trademarks, this has been done for the sole purpose of defining and establishing standards of quality and performance and not with the intention of restricting the procurement of material or fitting to a particular manufacturer. Any other materials equipment and accessories or equivalent may be used provided that the characteristics of type, quality, and appearance finish, method of construction and/or performance is not less than specified and provided also that the approval is first obtained, by the Engineer.

**Rates**
The rate for each item must be comprehensive and must include for complying in all respects with the requirements of the aforesaid Specifications, these Pricing Preambles, and cover all obligations under the Contract, and all matters and things necessary for the proper construction, completion and maintenance of the Works. No claim for additional payment will be entertained due to any error or misunderstanding by the Contractor of the work involved.

The rates and prices entered in the Bills of Quantities shall be the all-inclusive value of the completed work and shall have taken full account of all requirements and obligations, covered by all parts of the contract, including the following - unless expressly stated otherwise:

i. All setting out and survey works including in - survey and out - surveys

ii. Preparation and submission of detailed shop drawings, as built drawings, working drawings, Operations and Maintenance Instructions as and when required by the Engineer.

iii. Complying in every respect with the requirements and the considerations of the specifications and drawings.

iv. All considerations arising from the definitions incorporated into each preamble section.

v. Temporary works
vi. Complying with any limitations and constrains on the use of the site

vii. Dealing with the existing flow of water from any source including ground water, sewage and the like.

viii. The effect on the phasing of the Works or any element of the Works to the extent set forth or reasonably implied in the documents on which the Bid is based.

ix. Locating and taking measures for the support and full protection of pipes, cables and other apparatus during the progress of the Works, obtaining written consent of appropriate authority to interrupt the service or supply and for keeping the Engineer informed of all arrangements he makes with the owners of privately owned services or supplies and Public Authorities as appropriate.

x. General obligations, liabilities and risk involved in the execution of the Works set forth or reasonably implied in the documents on which the Bid is based.

xi. Land required for tips and stockpiles including all costs for obtaining any necessary licenses and approvals.

xii. Allowance for phasing requirements of works, effect on programming of the works of all traffic diversions and construction activity associated with diversion or installation of services.

xiii. For all restrictions on working due to inclement weather or weather related conditions, shipping movements and working operations within the site.

xiv. For working alongside and liaising with other Contractors working on the same site.

xv. Attendance and transport for surveys, sampling and testing, carried out by the Engineer.

xvi. Performing all sampling and testing which are required to be carried out by the Contractor, and supplying results of such tests.

xvii. Providing required material delivery certificates.

xviii. Complying with environment statutory requirements, obtaining necessary permissions, licenses etc. from relevant Municipal Council and/or any other relevant authority under which particular item of work is to be executed, and providing relevant documentation for the same, unless otherwise included in the Preliminaries;

xix. Labour, material and all connected costs;

xx. The supply of materials, goods, storage and all costs connected therewith including haulage, taking over of materials and goods supplied by others, storage, carriage, freightage, returning packing, hoisting or lowering, placing and compacting of materials and goods in position, including usual auxiliary material etc., replacing work, goods or materials damaged, broken, lost or stolen until the issue of a Certificate of Completion;

xxi. Preparatory works and setting out of particular item;

xxii. Plant and equipment unless otherwise included in Preliminaries;

xxiii. Handling of materials and working in situation where there is very restricted working space or no working space;
xxiv. Square cutting and waste of materials;
xxv. Forming of ends, angles, mitres and junctions between straight and raking or curved work;
xxvi. Protecting and cleaning;
xxvii. All other incidental works and necessary works which are not described in the BOQ, but described in the aforesaid specifications and or shown in the drawings for the proper completion of the relevant items of work;
xxviii. Establishment charges, overheads and profit.
xxix. All necessary scaffolding work including supply, erection and dismantling.

If the Bidder fails to price any items in the Bill of Quantities then the cost of the work under such items shall be held to be spread over and included in the prices given against other items of work.

Duct shall include draw wires.

Holes, mortises, pockets, grooves, chases and the like and items described as “built in” and “cast in” shall include making in its fullest sense and through, around, into over and up to the items concerned.

Items described as “cut” shall include general making good similarly.

Where the word “allow” is used the cost of the items shall be the responsibility of the Contractor. The sum quoted by the Contractor will be certified in part or full, by assessing the actual cost incurred and the level of satisfactory completion of the specific work item.

In the event of their being any discrepancies between details on drawings, descriptions in specifications and descriptions in the Bills of Quantities then the rates and pricing shall be deemed to relate to the documents order of precedence set out in the Form of Agreement.

The amounts set against any Provisional Sums for supply of materials shall be the net CIF amount adjusted for all discounts and customs duties. The amounts set against any items of profit shall include for all costs in connection with letters of credit, bank charges, interest charges and insurance after the materials come under the control of the Contractor.

The Contractor should leave the whole of the works ready for immediate occupation to the satisfaction of the Engineer including the following:

a) Cleaning and touching the buildings both inside and out, leaving all surfaces free of cracks, blemishes or splashes.

b) Easing, oiling and adjusting and making good of finishes to all fittings, doors, windows, ironmongery and the like.
c) Cleaning and polishing all marble glass, anodised aluminium and sanitary ware, including the removal of all protective coverings, paint splashes and the like. Replacement of all or any chipped, cracked or broken items.

d) Balancing of air conditioning installations where applicable.

e) Removal of rubbish, debris or excess spoil from the site and raking over and cleaning all unused parts of the site.

Analysis of Rate
Bidders shall submit an analysis of rates for any item or items if called upon to do so by the Engineer in the event of a dispute. The Engineer’s assessment shall be the final.

Samples
Rates of all items shall be inclusive of providing specifications, model nos., maintenance manual, makes, technical information, catalogue and literature, when requested by the Engineer for approval. No extra payments will be allowed for submission of the same.

Nature of the Work
Bidders are strictly advised to inspect the site and acquaint themselves regarding:

1. Extent and nature of the work to be done.
2. Site conditions.
3. Storage facilities etc.,
4. Transport facilities etc.,
5. Weather conditions in the area.
6. Limitation of working time
7. Transport and handling materials etc., and
8. Security and limitation due to security conditions
9. Status of areas adjoining to work.
10. Access to the site.
11. Status of existing structures

Dimensions
All the dimensions for the items stated in this Bills of Quantities, drawings or specifications should be checked at the site by the Contractor prior to commencing all such work. In the event of any discrepancies, the Contractor is advised to inform the Engineer for necessary instructions.

Value Added Tax (VAT)
Unit rates shall not include Value Added Tax. (VAT) The Bidder shall provide his estimated VAT component separately together with the detail calculation at the Grand summary as shown. The Employer shall pay VAT to the Contractor on submission of his invoice based on the payment certificates issued by the Engineer.
Discount
If the bidder is anticipating giving any discounts, it shall be mentioned separately in the space allocated in the summary of Bill of Quantities. Provisional Sums shall not be considered when calculating discount.

Rate only
Items in the Bill of Quantities where “Rate only” is specified shall be priced as required for a unit quantity of that item and shall not be carried to the total of Bill of Quantities.

Fix only
The expression "fix only" used in these Bills of Quantities means that the Contractor shall provide the following facilities:

a) Fixing with all necessary accessories and the like.
b) Supplying full size templates, giving and marking dimensions and taking responsibility for their accuracy.

c) Getting in, protecting, handling, distribution, placing in position and assembling as required.

d) Casing up and protection, including clearing away protection on completion of the works including Sub-Contractor works.

e) Full cost of replacement of any item which are damaged, broken, lost or stolen after the acceptance of the items from the supplier or Employer and until handing over the complete Works.

f) Other necessary and usual facilities and documentation.

Supply only
The expression "supply only" used in these Bills of Quantities means that the Contractor is to provide for everything in connection with such Items except fixing in position.

Provisional Sum
Payments for all provisional items shall be as per actual measurements of work done at site. The contractor is advised to keep proper records for such items with the approval of the Engineer. Provisional Sums have been allowed in the Bills of Quantities, which have to be spent wholly or in part as requested by the Engineer.

Prime Cost
Items in the Bills of Quantities where “Prime Cost” sum indicated that denotes an indication of quality of materials or work required. Escalation cost is not included with that cost and it represent market price during the bidding period.

The unit and lump sum prices
The unit and lump sum prices of the Bill of Quantities (referred to as the Contract Rates) shall, except in so far as is otherwise provided for under the Contract, be deemed to cover all obligations set out in the Contract, and all matters or things necessary for the proper completion and maintenance of the Works, and shall be fixed and binding upon the Contractor.
Upgrading of Durayappah Stadium, Jaffna
Ministry of Sports

Unit prices when applied to the quantity of work performed under the Contract shall, and other sums specifically determined under the provisions of the Contract, constitute full remuneration to the Contractor under the Contract.

Metric and Imperial Conversion
Wherever imperial and/or metric units has been referred, it shall be considered with correct conversion from one to other as relevant.

Metric units are used throughout the Bill of Quantities for measurement purposes unless otherwise indicated. Abbreviations used in the Contract are as follows:-

Abbreviations

- \( m \) = metre
- \( m^2 \) = square metre
- \( m^3 \) = cubic metre
- \( mm \) = milli metre
- \( nr \) = number
- \( kg \) = kilogram
- \( t \) = tonne
- \( h \) = hour
- \( pc \) = Prime cost
- \( pro. \) = Provisional sum
- \( Rs, LKR \) = Sri Lankan Rupees
- \( Cts \) = cents
- \( Ltr \) = litres
- \( CP \) = Code of Practice
- \( BS \) = British Standard
- \( BOQ \) = Bill of Quantities
- \( > \) = exceeding
- \( \geq \) = equal to or exceeding
- \( \leq \) = not exceeding
- \( < \) = less than
- \( \% \) = Percentage

Sub – Contractors

Sub-contractors, whether nominated or not, are to be let on a current form of sub-contract designed for use in conjunction with the General Conditions of Contract amended as necessary to incorporate the appropriate provisions of the main Conditions of Contract.

The Contractor should ascertain from sub-contractors and suppliers before the work is put in hand particulars of positions in which chases, holes, mortises and the like will be required to be formed or left. No claim for the extra costs of cutting away work already built due to the Contractor’s failure to ascertain these particulars will be admitted.
The Contractor shall provide for approval a list of sub-contractors who will be employed on the works. Any sub-contractors which the Contractor proposes to use for the works are subject to the approval of the Engineer and Employer.

If the Contractor is refused permission to use any of his proposed sub-contractors then the work shall be sub-let at no extra cost to an approved sub-contractor.

Any sub-contractor who has not been approved by the Engineer shall not be used in connection with the carrying out or the works.

**Nominated Sub-Contractors**

At the time of every valuation of the works for certificate purposes the Contractor shall submit to the Engineer a statement from each of the nominated sub-contractors showing:

a) The gross amount (including cash discount and retention) claimed in the current certificate.
b) The net amount received from the Contractor to date excluding agreed contra charges.

Amounts in respect of nominated sub-contractors will not be included in valuations unless these statements are received.

These statements will be accepted as reasonable proof of payment to nominated sub-contractors under the Conditions of Contract or otherwise the receipted invoices of nominated sub-contractors are to be submitted to the Engineer as proof of such payments.

At the time of the settlement of accounts and as one of the documents referred to in the Conditions of Contract the Contractor is to obtain a statement from each of the nominated sub-contractors that the sums and / or credits to be included in the settlement of accounts in respect of such nominated sub-contractors are accepted in full and final settlement of their sub-contracts.

The word “attendance” means that Contractor shall provide the following attendances and facilities:

a) Use of Contractor’s administrative arrangements.
b) Use of Contractor’s constructional plant at site.
c) Use of Contractor’s facilities at site.
d) Use of temporary works at site.
e) Clearing away rubbish from the central point of collection.
f) Use of Contractor’s scaffolding at site.
g) Unloading, distributing, hoisting and placing in position items of plant and machinery.
h) Supplying full size setting out templates and giving and marking dimensions and taking responsibility for their accuracy.
i) Providing working space and stores.
j) Other necessary and usual facilities, documentation, general inter-trades attendance, labour and assistance.
The Contractor shall allow for any additional costs incurred due to sub-contractors working different hours and extended hours to those worked by the Contractor.

**Day Works**

A Day-Works bill is included in the Bill of Quantities for use when a work is executed on a day-work basis in accordance with the General Conditions of Contract. Work shall not be executed as day-works except by the written order of the Engineer. Please also refer to the Notes under the Day Works Bill.

- **Labour**

  Payment in respect of labour used in the execution of the day works shall be at the hourly rate stated in the Day-work Bill. Separate payment shall be made in respect of the amount of wages of the Contractor’s Site Supervisory, Administrative Staff or other minor categories of labour not listed.

  The inserted rates for labour shall cover all bonuses, statutory charges and all other charges and costs in respect of or incidental to the employment of the said labour, except only the cost of materials and Constructional Plant. The rate shall also include the costs in respect of portable tools such as picks, shovels, barrows, trowels, ladders, hand-saws, buckets, trestles, hammers, chisels and all items of a like nature, which for the purpose of work executed on a day-work basis shall not be considered as Constructional Plant.

- **Materials and Goods**

  Payment in respect of materials or goods used in the execution of work on a day-work basis shall be at net cost of materials or goods plus the required percentage addition stated in the Appendix to tender.

  The “net cost of materials” means the net cost of such materials or goods delivered by the supplier to store or stockpile on the Site.

  The stated rate shall cover the costs of taking delivery and putting into the store or stockpile, usage of any minor tools/equipment not listed under plant and equipment, storage, overheads and all other charges and costs in respect of or incidental to the procurements and handling of such materials or goods.

  The costs of taking the materials from the store or stockpile on site to the place where they are used shall be paid for at the appropriate day-work rates for labour and Constructional Plant.

- **Constructional Plant**

  The inserted rate for Constructional Plant shall be paid for the plant when actually employed directly in the execution of the work on a day-work basis, excluding any travelling time, associated movement on the site with a prime mover or idling hours. The rate shall include the following:

  a) The cost of Constructional Plant including maintenance and spares, fuel and fuel distribution, oil grease, and any other consumables.
  b) The cost of crews, operators/drivers and attendants.
  c) All overheads, profits and other costs associated with the plant being required to work on a day-work basis.
B – TRADE PREAMBLES

1. PRELIMINARIES

A list of general preliminary items is given in this Bills of Quantities. The Bidder shall include their prices for total preliminary work in their quote.

- TEMPORARY SERVICES

The Contractor shall provide and maintain temporary services necessary for the execution of the Works under the Contract. The Contractor shall make applications and install such services in accordance with the regulations and requirements of the relevant authorities.

The Contractor shall be responsible for all costs and charges in connection with the installation, alteration, shifting, adapting use and maintenance of such services. On completion of the Works, the Contractor shall disconnect such services, which are no longer required by him and or the Employer and clear away all traces.

Power
The Contractor shall apply and pay for the required power and install temporary electrical installation for the Works, site office, Engineer’s and Consultant’s Offices, Stores, labour huts, yards and site lighting and testing for mechanical and electrical services done by others.

A stand-by Generator, with adequate capacity, should be made available by the Contractor at the site for use in an emergency and or during power failures. The cost of supplying, installing running and maintaining of the stand-by generator shall be borne by the Contractor.

Water
The Contractor shall apply and pay for the continuation of temporary water supply connection to the site and construct storage tanks with adequate capacity, together with the necessary internal temporary PVC distribution system including an overhead tank at an adequate elevation, water pumps as may be required and providing taps, valves, etc. in order to provide water for the Works, for drinking purposes, and also for washing, bathing and sanitary facilities required by the Contractor’s workmen, the Employer, and the Engineer’s staff.

Communication
The Contractor shall provide temporary telephone facilities to the Engineer’s office.

The Contractor shall provide telephone, fax facilities and other communication facilities to his site office as required by him.

The Contractor shall be responsible for applying for connections and paying all charges for installation, rental, shifting and adapting same from time to time as may be required maintenance and the calls taken by him.
• **SAFETY MEASURE AND HEALTH**

The Contractor shall provide and maintain the following safety measures in accordance with the regulations and requirements stipulated by the relevant Statutory Authorities.

i. Safe working conditions.

ii. Safe means of access and exit.

iii. Safety systems for Plant, Machinery and Equipment.

iv. Appropriate safety equipment required at the site and yards such as Helmets, Gum Boots, Masks, Welding Masks, Safety Belts, etc to the workmen and others engaged in the Works.

v. Safety nets, safety canopies, safety signs, handrails, guardrail, platforms and other measures ensuring safety of workmen and other engaged in the Works.

vi. Training, instructions, information and supervision as may be required to enable employees to avoid any potential dangers and hazards.

vii. All measures ensuring the health and workmen including satisfactory welfare facilities, working conditions and environment.

Safety signs should be in the Sinhala, Tamil and English languages.

Services of a suitably qualified and experienced safety officer shall be available at the site on a full time basis.

A comprehensive first aid box shall be made available at the site office by the Contractor and he shall ensure that at least three of his staffs are trained in first aid measures.

A vehicle suitable for transporting injured workmen should be made available at the site by the Contractor.

All costs in connection with safety and health shall be borne by the Contractor.

• **ACCESS TO SITE**

The Contractor shall acquaint himself with the traffic flow on main roads leading to the site and the restrictions imposed by the Authorities in respect of certain types of vehicles permitted to use such roadways. The Contractor shall organize and plan movement of materials and equipment to the site take into consideration the factors effecting such movements in order to minimize delays and disruptions to work caused by traffic congestion, restriction etc.

The Contractor shall be responsible for maintaining, keeping clean, repairing and rectifying damaged roads, footpath and pavements.

If damages are caused to existing roadways due to the Contractor's operations, they shall be made good to the approval of the Engineer or the Authorities concerned. All costs in connection therewith shall be borne by the Contractor.
• SITE OFFICE AND FACILITIES TO ENGINEER

The Contractor shall provide office accommodation and separate sanitary accommodation as specified hereinafter for the use of the Engineer and the Consultants of the Employer. Servicing and maintaining the above accommodation for the entire duration of the Works shall be indicated in sufficient detail in the Bid submitted and the completed facilities shall be subject to the Engineer’s approval. The Contractor shall employ one (1) labourer throughout the construction period and make all payments and bear other expenses as required by the prevailing Labour Laws etc.

The office and sanitary accommodation shall be made ready for use within the Contractor’s mobilization period.

Cost of alteration, shifting offices and adopting same from time to time shall be borne by the Contractor.

Unless expressly specified otherwise by the Engineer, the spaces and facilities required are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Approx. area of the space required for the Engineer’s Office is approx. 60 sq.m complete with sanitary and washing facilities and accessories</td>
<td>Item</td>
<td></td>
</tr>
<tr>
<td>2. Office table with 2 chairs</td>
<td>Set</td>
<td>2</td>
</tr>
<tr>
<td>3. Drawing drawers Aluminium or similar with clips to Clips to keep about 50 drawings</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>4. Filing Cabinet – 4 Drawers</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>5. Computer &amp; printer</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>6. Facsimile machine</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>5. Telephone</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>6. Waste paper basket</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>7. Magi Board</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>8. Display Board</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>9. Electric Kettle</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>10. Water Filter</td>
<td>No.</td>
<td>1</td>
</tr>
<tr>
<td>11. First Aid Box</td>
<td>No.</td>
<td>1</td>
</tr>
</tbody>
</table>
• **SITE SECURITY**

The Contractor shall provide all necessary fencing, hoardings, watching and lighting for the security of site and safeguarding the Works. The shelters, guard house and other facilities to be provided for the watchmen to do their duty in an efficient manner. Altering shifting and adapting same from time to time shall also be the responsibility of the Contractor. All costs in connection with this shall be borne by the Contractor.

• **UNDERGROUND SERVICE LINES, ETC.**

The Contractor shall obtain relevant information about the underground drainage lines, telecommunication and electrical services lines, etc. from the relevant authorities. However, it is the responsibility of the Contractor to examine, investigate and satisfy himself as to the actual location and correct levels of the said existing service lines. Neither the Employer nor the Engineer shall be responsible for the reliability and acceptability of records and information obtained by the Contractor from the said Authorities.

• **SITE NAME BOARD AND WARNING SIGNS**

The Contractor shall prepare and erect a site name board and warning signs as designed by the Engineer. The site name board shall be 4.0x2.5 m. The height of the board above ground level and the supporting structure shall be as directed by the Engineer. The warning signs shall be erected along both access roads as directed by the Engineer.

• **TEMPORARY WORKS**

The Contractor shall submit to the Engineer details, particulars, drawings, etc. of all temporary works necessary for the Works for letters information. The Engineer reserves the right to call for technical justification of the Contractor’s proposals and to order any necessary modifications. But the Contractor shall be solely responsible for the stability and safety of all temporary works and for the quality of the permanent works resulting from the Temporary Works eventually adopted.

• **INSPECTION OF SITE**

**Particular Attention**

All the dimensions given in the drawing should be checked at the site by the Contractor prior to commencing all work. In the event of any discrepancies, the Contractor shall inform the Engineer and request instructions well in advance and prior to commencing work.
PROGRAMMING OF THE WORKS

Master Programme and Records

The Contractor shall furnish in duplicate to the Engineer the Programme and particulars called for in the General Conditions of Contract. The Programme shall be in the form of a critical path network with explanatory notes, capable of being monitored and updated continuously during the progress of the Contract. The Programme shall show inter alia:

- The dates of possession and the completion named in the Appendix to the Conditions of Contract.
- The dates as determined or proposed for procurement, delivery to site of materials, commencement and completion of erection or installation of work in all trades and the labour force involved.
- The dates by which the Contractor requires information from the Engineer.

The following shall be considered in preparing the Programme and Master Programme and revisions there to mainly due to reasons when the site at a constrained location and security requirements.

- Inadequate storage facilities on site.
- The eventual necessity of multi-shift working and/or working during week-ends or Public holidays to overcome the above restraining circumstances.

Failure to consider the above implications, which are neither necessarily in the given order of priority nor to be considered as complete shall not entitle the Contractor to claim for additional time or extra costs whatsoever.

The critical path network or other similar network shall describe major plant allocations and requirements and major site operations.

Each month throughout the construction period the Contractor shall submit to the Engineer further copies of the Programme marked up to show the progress to date together with any revision of the Programmes. These shall be submitted one week before the monthly site progress meetings.

In the event of the Contractor failing to prepare and complete the Critical Path Network and Works Programme as described above within four weeks of the award of this Contract or such extended time as approved by the Engineer.

Daily Returns

The Contractor shall supply by 12 noon on every working day the following daily returns as may be required by the Engineer.

- A list of the labour employed on the previous day specifying the number employed in each trade, including expatriate labour. (summary of labour and Plant required weekly)
- Particulars of all materials and goods delivered off-site and on-site.
Monthly Progress Report

The Contractor shall submit to the Engineer not later than the 5th working day of every month a Progress Report for the previous month which shall include the following items and information:

- The marked Programme submitted at the previous Monthly Site Progress Meeting amended (if necessary) to indicate agreed revisions
- Weather conditions (daily rainfall, temperature, humidity etc)
- Summary of construction Plant on-site and off-site including dates of arrival and departure of items.
- Summary of principal materials and manufacturers items placed on order and delivered to the sites.

SECURITY REQUIREMENTS

The Contractor shall allow for ascertaining and complying with Police requirements and for all costs as necessary incurred in connection therewith.

The Contractor shall also allow for requirements of the security departments of the Employer.

DRAWINGS OF TEMPORARY WORKS AND METHOD OF ERECTION

As early as possible after acceptance and in accordance with the approved Programme the Contractor shall furnish to the Engineer complete drawings of that part of the temporary work and staging.

AS BUILT DRAWINGS

Unless otherwise specified the Contractor shall deliver to the Engineer two sets of hard copies to appropriate scale and on appropriate size paper, and one set of AutoCAD compatible soft copy in a compact disk.

Drawings of the buildings site work such as, paving, fencing, drainage, electrical ducts, water sewerage system and all other services.

All drawings, documents and manuals shall be to a standard format. All drawings shall be to the size required by Engineer.

The Bid shall be deemed to include the cost of the preparation, supply and delivery of all drawings, instruction manuals, transparent copies on polyester and information and copies thereof which the Contractor is required to provide under the terms of the Contract.
• **ANNOYANCE TO NEIGHBOURS**

No work in any trade shall be carried out in such a manner as to cause any nuisance to adjacent owner’s tenants or the public.

2. **DEMOLITIONS / ALTERATIONS / REPAIR AND MAINTENANCE**

The work in this section comprises demolitions, alterations including extensions and repairs and site clearance.

No building is to be demolished, altered or repaired in any way without the prior approval and authorization from the Engineer. Failure by the Contractor to comply with this Clause may result in additional expense by the Contractor in reinstating the building to its original state.

Demolitions are to be carried out in accordance with the British Standard CP 94 or as specified otherwise by the Engineer.

The Contractor shall be responsible for the full protection of those parts of the buildings which are to remain including the provision of tarpaulins, dust sheets, padded ladders and the like. Damage caused shall be made good at the Contractor’s expense.

The order of procedure, extent and scope of work of demolitions to be done as described in the respective demolition item.

Use of Explosives or blasting on the site to demolish existing structure shall not be carried out without prior approval of the Engineer.

The description and the quantities of materials given covering the major items in the structure to be demolished are approximate and are to be used as only a guidance in the preparation of the Bid.

1. The Bidder is advised to visit the site and inspect the type and extent of demolishing work to be done prior to pricing these items. It is the contractor's responsibility to do all demolishing, dismantling and removing etc., without any damages to any existing work to be retained. Any damages to such structures are to be rectified with no extra cost to the Employer.

2. All useable materials in demolished parts shall be a property of the Contractor and all debris to be disposed away.

3. Necessary approvals to be obtained from relevant authorities prior to disposal of demolished parts and debris.

4. Prior approval to be obtained from the Engineer regarding the type and capacities of the equipment to be used in each type of demolishing. Only the selected, approved equipments will be allowed to use for this project to minimize vibration, noise and any structural effect to existing work within the site and surround.

5. The Contractor shall take all precautions to avoid dust, sound and any nuisance to neighbours and carry out all demolishing with the approval of the requirements of the relevant authorities.
6. Rates for demolishing shall include for carrying out all work with equipments suitable to the nature of this work on an approved method. All precautionary measures to be done to the approval of the Engineer prior to commencement of any demolishing work to avoid damage to workers, outsiders, existing services, adjoining properties, public services and to minimize dust, noise and disturbance to others etc.,

All demolished materials, except for the items determined as the Property of the Employer, shall become the property of the Contractor.

All demolished materials which shall become the property of the Employer shall be carefully stacked / stored where directed and protected until the decision of the Engineer is given as to the reuse of such materials in the works or keeping them in Employer’s possession or their disposal. If such materials are to be reused in the works or are to be purchased by the Contractor at the request of the Employer, its valuation as deemed reasonably shall be made by the Engineer and the amount of such valuation shall be deducted from the money due to the Contractor in the interim valuation.

Any materials recovered from the demolitions and become the property of the Contractor shall not be used in the works, unless with the prior approval of the Engineer, provided also that the rate for the item of works on which the same material is used is reduced to a level as deemed reasonable by the Engineer.

The site where the demolition work is being executed shall be adequately barricaded in order to prevent entry of unauthorized personnel and a sign board marked “Danger” in Sinhala, Tamil and English Languages shall be prominently displayed.

Removal of demolished materials shall be carried out as the demolition work proceeds and shall be completed within the duration of demolition activities.

**Method of Measurement**
Dimensions are approximate and for guidance only.

**Definitions**
Demolish, remove, take down, dismantle, etc. includes for removing debris, spoil, rubbish or the like from site.

Demolish includes removing incidental items including windows, doors and plaster and clearing from the site.

Prepare to receive new work includes removing all alien materials, old fixings and ironmongery, making good block work or studding, existing finishes and all preliminary work appropriate to the item of operation in question.

Remove includes stripping, hacking, taking, breaking and cutting up, out, off, down.

Removal of doors, windows and frames includes taking off said door or window, taking out frame, lining architraves and all associated joinery taking out threshold cills pelmets or rails, taking up floor springs, preparing opening to receive new work.
Remove sanitary fittings and all items involving the removal of sanitary fittings includes taking out sanitary fittings, complete with brackets, bearers, backboard and drainers, disconnecting wastes and services, stopping off out of sight and making good.

Remove services and all items involving the removal of services includes stopping off out of sight and making good.

Set aside includes handling carefully, cleaning, temporarily casing up, covering, protecting and moving about the site, including storing.

Modify, adapt includes cutting, fitting, altering and all other work necessary to suit the finishes work including cleaning, renewing parts and all incidentals and leaving in good working order.

Overhaul includes cleaning, renewing parts and all incidentals and leaving in good working order.

Overhaul/ Repair door or window and frame includes piecing out and repairing damaged portions including frame and lining, repairing and re-fixing frame and lining, hacking out defective putties and re-puttying, hacking out broken glass and re-glazing, raking out and repointing frames, overhauling, oiling and adjusting ironmongery, easing and adjusting, taking off and shooting bottom to clear new finish and rehanging.

Fix only includes in addition to previous definition fixing by whatever method is most appropriate, casing up and protecting and clearing away protection on completion of the works.

Re-fix includes taking items from store, sorting, securing with new fixing if necessary including cleaning, renewing parts and all incidentals and leaving in good working order.

Cut opening includes quoining up jambs, forming recessed reveals, cutting toothing and bonding, levelling and preparing bottom of opening, cutting and pinning lintels and pinning up over.

Block up opening includes cutting, toothing and bonding, pinning up and levelling and preparing bottom of opening and as required removing arch / lintel and sill.

Blank opening means one which does not contain a window or door.

Make good and making good includes making good in its fullest sense to match existing work through, around, into, over and up to new items and openings and proper jointing to existing.

Make good structure includes making good as previously defined all structure and cutting, toothing and bonding, pinning up, levelling and preparing, filling and facing up and all labours.

Make good finishings includes making good as previously defined all finishings (including rubbing out) to ceilings and soffits, walls and floors and making good skirtings, architraves and joinery and all labours.

Make good decorations includes making good all decorations to ceilings and soffits, walls, floors and joinery including preparing, priming and bringing forward to the full number of existing coats and matching in texture and colour.

Reinstate includes the full reinstatement of the item or of adjacent work to the condition it was in prior to the commencement of the Contract.
Unless otherwise measured separately rates for demolition shall include for

a. Removing debris
b. Providing temporary shoring
c. Grubbing up existing foundation
d. Disconnecting and shifting of existing services.
e. Making good to work disturbed

3. EXCAVATION AND EARTH WORK

Definitions

Rock is defined as any material met with which is of such size or position that, in the opinion of the Engineer it can only be removed by means of wedges, special plants or explosives.

Should the Contractor be able to use any excavated material arising from the works as general filling then it shall be measured as material back filled in making up levels with a deduction of items for filling and for material removed from site.

Method of Measurement

All work under this section is measured net.

The method of measurement and re-measurement will be entirely at the discretion of the Engineer but generally will be as follows:

1. Where there is no reduced level excavation, other excavations will be measured from natural ground level.
2. In instances where there is excavation to reduce levels other excavations will be measured from the reduced level.
3. Depths of all excavations are taken from the immediate filled ground level.
4. The Contractor shall be responsible for the design and execution of the excavation and earthwork support methods where necessary, which is subject to scrutiny by the Engineer. However, scrutiny by the Engineer shall not in any way relieve the Contractor of his responsibilities and duty regarding care of work.
5. Existing Ground level indicated in the drawings shall be the level of trimmed ground free of all structure, paving, plinths, foundations and the like.
6. Where a compacted earth fill is specified or indicated in drawings it shall mean approved granular fill of imported material, or selected excavated material.
7. Dewatering shall mean disposal of surface water and ground water collected or found in excavated areas which is likely to adversely affect the Works.
8. Disposal of ground or surface water shall be done by any accepted method, with the least inconvenience to the public and in accordance with relevant local government regulations.
9. Excess excavated material shall be the property of the Contractor, who is responsible for disposal of such material at a location off or within the site as quickly as possible, as directed by the Engineer.

10. Rates for compacted earth fill, granular fill and gravel and sand beds shall include for finishing sub-grade to slopes and falls, depositing in layers, levelling, blinding, and machine or hand-packing to form vertical or battered or level faces, and for forming sinking where required.

11. The contractor is obliged to remove any remaining debris and or parts of foundations, slabs and the like remaining under ground which would interfere with the proposed works.

12. The Contractor is advised to examine the soil report available with the Engineer for the type of soil encountered at the site during the investigation.

13. The Contractor is required to inspect the site in order to acquaint himself with the conditions of the site and subsoil condition prior to preparing his Bid.

14. The Contractor shall obtain all detail information from the relevant authorities in compliance with relevant acts, by laws and regulations to excavations and earth work supports.

15. The Contractor shall submit samples and obtain test certificate as required in the contract or as directed by the Engineer.

16. The Contractor is required to obtain prior approval from the Engineer for earthwork supports to sides of excavations, before commencement of the work.

17. Area of shoring / earth work supports will be measured from the commencing level of excavation to the bottom level of excavation.

Rates for Excavation and Earthwork shall include for:-

a. Accepting site as found and preparing site to a condition suitable for proper execution of the Works;

b. Excavating, filling and compacting by whatever means are necessary manually or by machine, in any type of ground or on concrete slab, except in rock requiring blasting.

c. Trimming and keeping sides plumb, keeping clean and consolidating bottom of excavations and formed earthwork structures and compacting bottom of excavations to the required density.

d. Any necessary additional work required under the Works and any additional excavation required for working space and the like and necessary earth work supports.

e. Any additional trimming or filling in small quantities required under the Work, provided, specified or approved unless otherwise measured separately ;

f. Fixing, maintaining in position and removing of earthwork supports.

g. Keeping all excavated areas free from surface / ground water by pumping or other approved method.

h. Making good all disturbed work including public roadways, pavements etc.
i. Preparation of earth surfaces to the specified levels and profiles to receive concrete.

Excavation in rock

Generally

Hard Rock

The bidder at the time of preparing the tender shall ascertain the prevailing laws and regulation as to the legal requirements of blasting rock and shall allow in his prices accordingly.

Hard rock required blasting

Rates for excavation in rock requiring blasting shall include for:-

a) Obtaining all necessary permits and taking precautionary measures during blasting operation.
b) Complying with all regulations and instructions issued by relevant government or local government authorities.
c) Additional Insurance cover; if necessary.

Sledding and stock piling excavated rock etc. as directed by the Engineer. (Maximum distance of stock pile 100 metre from the point of excavation).

Note:-
For the purpose of measurements, percentage of voids in stock pile shall be taken as 20% the volume considered for payment shall be the gross volume of stock pile X 0.80

Earth work support

a) Provisional quantities of earth work support (planking and strutting) are given in the BOQ.
b) Payment for planking and strutting will only be considered on actual quantities of work executed.

The Contractor shall obtain the prior approval of the Engineer before carrying out any alternative method of earth work supports than specified in the Contract.

Surface Treatment
Termite Protection / Applying Insecticides.

The quantity measured in the BOQ is the plinth area of the building in square metres.

The bidder shall assess the actual quantity of area to be treated and shall allow in the unit rate accordingly.

Rate shall include for providing guarantee as per contract.
4. CONCRETE, FORMWORK AND REINFORCEMENT

15.1 Concrete

1. The concrete used throughout this construction shall confirm to the requirements stated in the Specifications. Unless otherwise approved by the engineer ready mixed concrete from an approved manufacturer shall be used in the work.

2. Ready mixed concrete used shall conform to relevant specification provisions.

3. Formwork and necessary reinforcement shall be priced with concrete if separate items are not provided for such in the Bills of Quantities.

Rates for concrete shall include for the following unless measured separately:-

a. Obtaining ready mix concrete, where necessary, as per specifications, and obtaining test report from the manufacturer.

b. Transporting, admixtures, handling, pumping / hoisting and placing at any height or depth.

c. Packing and tamping around reinforcement, including vibrating.

d. Mixing, hoisting / lowering, placing in position and packing around reinforcements, site mixed concrete.

e. Vibrating and curing as specified.

f. All necessary stop boards, construction joints etc.

g. Finishing to slopes and falls and cross falls prepare surface ready for screed or paving where necessary including cutting to sizes and temporary supports to form necessary grooves.

h. Water bars / water stops where necessary.

i. Making good after removal of form work.

j. Making provisions, in concrete to fix any fixtures required under the work.

k. Making provisions, leaving openings, sleeves for all pipe work and making good around openings.

l. Rates for plain concrete blinding beds shall include for any necessary formwork at edges for the extra width of concrete which may be required in lieu.

m. Concrete strength testing as specified.

n. Expansion joints as required or as shown in the drawings / as per the specifications.

15.2 Reinforcement

1. It is the responsibility of the Contactor to calculate the actual requirement of reinforcement based on Construction Drawings, before placing the purchasing order.

2. Where high-yield steel is specified, steel conforming to specifications may be used. The Contractor shall, if required, submit a certificate of origin and compliance with the requirement of
related standards to the satisfaction of the Engineer. Such certificate shall be obtained from an 
Independent laboratory at the contractor's own cost.

3. Mesh reinforcement or other steel shall conform to the relevant standards and the Contractor shall 
obtain prior approval from the Engineer.

4. Standard length of reinforcing bar for the purpose of measurement shall be 6.0 m.

5. Payment for bar reinforcement shall be to the nearest second decimal places of a tonne (t).

Rates for reinforcement shall include for:–

a. Rolling margin;

**Note :-** Rolling margin is the difference in weight between the theoretical and actual weights of 
bar reinforcement of respective diameter. The minimum weight of steel stated below is 
considered as the theoretical weight.

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Minimum weight (kg/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0.222</td>
</tr>
<tr>
<td>8</td>
<td>0.394</td>
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<td>20</td>
<td>2.464</td>
</tr>
<tr>
<td>32</td>
<td>6.308</td>
</tr>
</tbody>
</table>

b. Preparation of bar bending schedules and obtaining the Engineer’s approval;

c. Straightening, cutting, bending, cleaning, hoisting, and tying in position of steel reinforcement at 
any height or depth;

d. Cutting waste and rolling margin of steel reinforcement;

e. Tying wire, spacer blocks, chairs, hangers etc;

f. All splicing, laps and passing at angles etc. in steel reinforcements other than designed laps;

g. Where Fabric reinforcement is used the cost of placing in position for all cutting, distance pieces, 
bending, holes, notching, tying wire, distance blocks, chairs, hangers, tying at laps and for the cost 
of materials in laps. (Laps will not be measured separately);

h. Aligning and supporting in position during concreting;
15.3 **Formwork**

Formwork shall be capable of achieving the specified finish.

1. Formwork shall include for all temporary or permanent forms moulds required for casting the concrete in-situ and all the temporary construction required for supports.

2. Formwork for the structural works shall be of approved quality timber, Plywood, or steel or any other approved materials.

3. Refer relevant specification provision for the full description of formed finishes.

4. Formwork shall be properly designed and strictly as described in the specifications for the particular type of concrete surface finish and it should be sufficiently strong and grout tight.

Rate for Formwork shall include for:-

a. Fabricating, setting up and erection at any height or depth and striking off and cleaning, preparing for reuse and removing of formwork;

b. All necessary props, joists, struts etc., incidental items and materials such as nails, screws anchors hooks etc for formwork at any level, including additional propping, strutting and supporting decks;

c. Formwork in narrow widths and small quantities; for setting up, strutting and supporting at any height;

d. Unrecoverable formwork;

e. Coating with form oil, sprayed plastics or lining;

f. Rubbing down and making concrete surface good after removal of formwork;

g. Sealing of joints to avoid leaking of cement grouting;

h. Cleaning the surface before concreting (removing dirt, saw dust etc.)

15.4 **Precast Concrete**

Where Pre-cast Concrete elements are used, rates for same shall include for: -

a. Casting with all necessary concrete, Formwork and reinforcements including forming pockets and the like and filling of such pockets, providing lifting hooks or other devices to the approval of the Engineer;

b. Loading, transporting to site, unloading, handling and stacking;

c. Hoisting to any height or depth including providing any lifting holes or other devices to the approval of the Engineer, erecting and fixing in position as specified, building in, including bedding and jointing in mortar / concrete as required, and any necessary strutting and supporting;

d. Complying with requirements of the relevant Preamble clauses;

e. High tensile wires, wedges, spacers, grill plates, etc. in case of pre-stressed concrete units and
labour in connection therewith;

f. Testing pre-cast units, if required.

5. MASONRY WORKS

1. Random rubble masonry work in retaining walls / foundations shall include for necessary footings etc.

2. Where masonry walls are unsupported laterally and the panel area is greater than 12 m², then stiffener beams and columns shall be introduced as per specifications and typical details to the approval of the Engineer. Concrete, form work and reinforcement in stiffener columns and beams will be measured separately.

Rates for Masonry work shall include for:-

a. Straight cutting and wastage;

b. For providing sleeves where necessary and making good;

c. Bonding ends of new walls or existing walls and bonding of different types of walls together;

d. Providing suitable flexible sealants to joints at masonry walls to RC structure;

e. Providing GI or stainless steel anchors netting to fix with RC work;

f. Concrete and Form work in stiffener columns and beams (these will not be measured and paid separately but will be deemed to be included in the brick work rates);

g. Building at any level or height, additional labour required, transporting, hoisting all cutting, bonding at angles and intersections, building into or against adjacent work, wedging and pinning up;

h. Necessary cutting required in walls which are not multiples of brick size;

i. Sampling and testing of bricks and brick work as per specifications and or relevant standards;

j. Filling cavities with cement sand mortar where necessary.

k. All necessary scaffolding work including supply, erection and dismantling.

6. WATERPROOFING

1. Refer particular specification for waterproofing over RCC slab and other concrete structures. The Bidder shall submit with his Bid, a complete set of specifications and other technical information relevant to the products he intends to incorporate in the works, for water proofing purposes.

2. Waterproofing treatment over slab shall be of membrane type unless specified otherwise in the drawings or specifications, and shall be strictly in accordance with the Manufacturer’s Specifications.
3. The Contractor is obliged to furnish the Employer with a warranty valid for a period of ten (10) years after handing over the Works in the form required by the Employer.

Rates for waterproofing work shall include for:-

a. Executing water proofing work strictly as per manufacturer's instructions and for carrying out work through manufacturer's accredited agents or licensed specialist contractors.

b. Cleaning and preparing surface to be water proofed where necessary and application of water proofing materials as per specifications/manufacturer's instructions and to the best practice.

c. Providing product samples, finished specimen areas etc, if required by the Engineer.

d. Fair edges, rounded edges, drips, arises and angle fillets etc., forming internal and external angles, additional layers of reinforcing fabric and or flexible membrane at expansion joints and at junctions between horizontal and vertical surfaces.

e. Working around parapets and other vertical surfaces rising from the slab, rain water outlets etc.,

f. Complying with industrial regulations and requirements of relevant authorities.

g. Forming or chasing grooves rebates etc, where necessary and turning waterproofing materials into chases and pointing as specified.

h. Forming internal and external angles, bonding bricks and the like.

i. Lining to rain water outlets, cesspools, brackets, collars around existing structures and the like.

j. Cutting to line and jointing new to old asphalt.

k. Temporary screeds, ground and rules.

l. All necessary scaffolding work including supply, erection and dismantling.

m. Testing after completion, rectification (if any), and providing guarantees as specified.

7. WOOD WORK

1. All timber shall be approved quality Class 1 timber unless specified otherwise in the specifications or drawings.

2. The work shall include supply, fabricate and installation of doors / windows, with approved quality timber and finished as per the respective specification and the drawings.

3. All samples shall be provided for Engineer's approval prior to purchase of material.

4. All timber shall be pressured impregnated termite proof, seasoned, planed timber and sand papered by hand to have a smooth finish to receive paint.

5. Only 16% of moisture content is recommended for all timber.

6. The sizes given in the drawings and description of Bill of Quantities are final finished sizes after
7. The contractor shall check the measurement of openings physically at the site before fabricating the doors / windows.

8. All the locks and ironmongery shall be as approved by the Architect. Samples shall be approved by the Architect prior to purchase.

9. Ironmongery and door furniture used including nails, screws, hinges, stays, pull rings and the like shall be of brass unless specifically stated otherwise in the drawings or the specifications.

Unless specified otherwise, rates shall include for:

a) Hoisting and fixing in position, drilling and making good.

b) All necessary brass nails hinges and screws, glue, rawl plugs etc.,

c) 5mm thick clear float glass as appropriate to suit the respective doors and windows, unless specified otherwise in the drawings and schedules.

d) Fixing timber frames / sashes with brass screws, lock sets with 3 keys manufactured in Europe on all doors.

e) Painting with two coat of wood preservative, two coats of primer and two final coats of wood sheen spray paint.

8. STRUCTURAL STEEL, METAL WORK

Definitions
“Welding” is deemed to be in accordance with the specification and for the material to which it is to be used. Gusset plates, shoe plates, ends, caps, cleats, brackets, stiffeners, bolts, etc., have been included in the weights of the associated steel work in which they occur.

1. All steel / metal / GI sections should comply with the relevant standards and should posses the required thicknesses and grades as determined by the Engineer.

2. Metal work shall be fabricated carefully and accurately to ensure compliance with design and performance requirements using types and grades of metal as specified for the purpose. The finished work must be free from distortion and cracks.

3. All ferrous metals shall be free from rust seals and other defects and the various shapes shall be clearly rolled or otherwise formed to uniform section.

4. All non ferrous metal shall have uniform finished surfaces machined and buffed free from defects and section shall conform accurately to the sizes and shapes required.

5. All welds shall be properly made by experienced tradesman and shall be cleaned off and buffed smooth and even where visible in the finished work.

6. The Contractor shall submit detailed shop drawings of metal work components to the Engineer prior to fabrication of same.
7. The Contractor must ensure that all necessary inserts lugs etc., required for fixing metal work units, are embedded in accordance with the approved Shop Drawings.

8. The inserts etc., already placed in position shall not be shifted or removed without the written approval of the Engineer.

9. Where dissimilar metals are in contact, approved separators shall be used.

10. No allowance is made for the mass of weld fillets, black bolts, nuts, washers, rivets and protective coating.

Rates for metal work shall include for:-

a. All fabrication work, notching drilling for bolts etc.;

b. All welds and bolts;

c. Cutting and wastage;

d. Delivery, unloading, handling, hoisting, fitting and fixing in position at any height or depth and grinding of all exposed welds flush and smooth;

e. Providing separate strips etc, between dissimilar metals to prevent galvanic action;

f. Fixing all bolts and building in lugs etc.;

h. Making good the works disturbed;

i. Cleaning and applying two coats of rust inhibitive paint or the application of spray on fire proofing as per specifications to the unprotected steel trusses, beams and steel members to achieve a three hour fire rating;

j. Supplying samples of materials and composite units to the engineer for the approval;

k. All necessary scaffolding work including supply, erection and dismantling.

l. Rates for galvanising or similarly treated work are to include for the treatment of all ends to the approval of the Engineer.

9. WALL FINISHES

Rates for Wall finishes shall include for:-

a. Temporary rules, screeds grounds etc. for racking out joints of brick/block work and hacking concrete surface for forming key;

b. Forming joints between different surfaces and expansion joints;

c. Forming arises and stopping against joinery work, metal work etc.;

d. Making good or tile cutting to any required shape or size around pipes, sanitary fittings and fixtures;
e. Cutting and waste of tiles or other wall finishing materials;
f. Pointing to match tiles as approved;
g. Preparing surfaces for finishing or bed/backings;
h. Moulded and chamfered edges, rebated edges, splayed edges, round edges, grooves etc.;
i. All moulding work, plaster bands, decorative work in connection with plastering and finishing;
j. All necessary scaffolding work including supply, erection and dismantling;
k. Cleaning and polishing of tiles after completion;
l. Providing samples and obtaining necessary approvals as and when required by the Engineer.
m. Provide and obtain necessary approvals for the expansion joints if any
n. Protection of the completed work until the work is properly handed over to the Employer.

All narrow widths, small areas, columns, vertical surfaces of beams, edges of slab, lintels etc if not measured separately, will be measured with the main items.

10. CEILING FINISHES

Rates for ceiling finishes shall include for: -

a. Hacking concrete surface for forming key;
b. Forming joints between different surfaces and expansion joints;
c. Forming arises and stopping against joinery work, metal work etc.;
d. Making good around pipes, sanitary fittings and fixtures, light fittings etc.;
e. Moulded and chamfered edges, rebated edges, splayed edges, round edges, grooves etc.;
f. All moulding work, plaster bands, decorative work in connection with plastering, finishing work;
g. Joining of different types of ceiling finishes as shown on drawings;
h. Framing together all work in accordance with the best practices;
i. Nails, screws, glue, plugs, hangers, rods, sub-frames etc.;
j. Make good all work disturbed;
k. All necessary scaffolding work including supply, erection and dismantling;
l. Provisions made for lighting points, access panels etc., in different kind of ceilings;
m. All supporting system for suspended ceilings;
n. Additional materials/labour required for working around light fittings, A/C diffusers, grills, drops of different types of ceilings systems;
o. Providing access panels;
p. Cutting and wastage of all ceiling materials;
q. Protection of completed work until the work is properly handed over to the Employer;
r. Co-ordinating with other trades;
s. Providing samples and obtaining necessary approvals as and when required by the Engineer.

All narrow widths, small areas, soffit of beams, etc. not measured separately, but will be measured with the main item.

11. FLOOR FINISHES

Rates for Floor Finishes shall include for:-

a. Preparing surface for finishing or screed/backing;
b. Forming joints between different surfaces, and expansion joints;
c. Finishing to slopes, falls and cross falls;
d. Making good or tile cutting to any required shape or size around pipes, sanitary fittings and fixtures;
e. Cutting and wastage of tiles and other floor finishes;
f. Pointing to match tiles as approved;
g. Moulded and chamfered edges, rebated edges, splayed edges, round edges, grooves etc.;
h. All ends and angles of risers and edges of landings;
i. Cleaning and polishing of tiles after completion;
j. Providing samples and obtaining necessary approvals as and when required by the Engineer.
k. Provide and obtain necessary approvals for the expansion joints if any
l. Protection of the completed work until the work is properly handed over to the Employer.

All narrow widths and small areas if not measured separately, will be measured with the main items.

12. ROOFING WORK

1. Sheet roof coverings are deemed to include work to falls and cross falls, underlay in contact with the covering, work in forming voids other than holes, dressing/wedging in to grooves, hollows, recesses, cutting laps and the like, aprons, sills and ridges.

2. Work for flashings deemed to include laps, seams and ends, angles and intersections, rolls, up stands and down stands, dressing/wedging in to grooves, hollows, recesses and the like.

3. All timber in roof framework shall be selected, well-seasoned and treated with pressure impregnated system and shall bear a certificate for treatment for timber from the relevant treating specialist.
4. All timber in roof framework shall be as specified in drawings and specifications and shall be approved by the Engineer before application of any termite treatment.

Rates for roofing work shall include for:-

a. Laps, raking, straight and circular cutting and waste on roof covering materials;
b. All cutting, notching, drilling, trimming, framing, jointing, splayed edges and the like;
c. Cutting and other waste of all materials;
d. All necessary scaffolding work including supply, erection and dismantling;
e. All structural steel work (new and existing) shall be sand blasted and painted with one coat of approved rust – inhibitive primer, one coat of an approved under coat and two finishing coats of approved epoxy paint or otherwise as specified and to the approval by the Engineer.
f. Members of any length;
g. Fixing in position complete with all necessary nails, screws, clips, rivets, straps, and the like;
h. All shop fabrication work, making, delivery, unloading, hoisting, elevating and fixing in position as per detail drawings;
i. Ridge capping, gable capping and flashing unless otherwise measured separately.
j. Junction boxes, reducers of any size, mitre ends, running heads etc for roof plumbing installation system. (For rain water gutters and down pipes.)

Roof Plumbing

Unless otherwise measured separately rates for all rain water pipes shall include for

a. All necessary fittings such as bends inspection openings, tees etc.
b. Gutters are deemed to include joints in the running length and brackets
c. Cutting and jointing gutters to fittings is deemed to be included
d. Down pipes are deemed to include brackets joints and cuttings and the like

13. PAINTING

1. All paint material shall be of quality acceptable to the Architect and shall be from a manufacturer approved by the Engineer.

2. All surfaces to receive paint shall be well cleaned and smoothened as specified and the prepared surface shall be approved by the Engineer before applying paint.

3. Cavities and uneven surfaces in plastered areas shall be filled with gypsum or other suitable approved filler material and allowed to set, and sand papered to give a smooth and even surface.
Rates for painting shall include for:-

a. All necessary scaffolding work including supply, erection and dismantling;
b. Preparation of surfaces, cleaning down;
c. Smoothing, knotting, stopping etc.;
d. Protecting floors, fittings etc.;
e. Removing and replacing door and window furniture and cleaning upon completion;
f. Providing samples and specification of all paints to be used in the works;
g. Preparation of approved plastered wall surfaces before applying paint;

All narrow widths and small areas if not measured separately will be measured with the main items.

14. ALUMINIUM AND METAL WORK INSTALLATION

General

1. A detail submission of catalogues, technical specifications, characteristics, literature and other data fully describing the system, components, fixtures, fasteners, locks, hardware, glass and other materials should be forwarded with the Bid.

2. Prepare and submit shop drawings and design calculations (Note: Wind pressure for design purpose should be consider as 1200 N/m²) where required and obtain Engineer’s approval prior to proceeding with the fabrication and work. The contractor shall check site dimensions and make fabrication work correspond to the “Approved” Shop Drawings.

3. All metal shall be well formed to shape and size, with sharp lines or angles. Shearing and punching shall be left clean to true lines and surfaces shop connections shall be welded or riveted and site connections bolted unless otherwise noted. Use flat-headed counter sunk rivets where riveted connections are exposed to view in finished work. Bolts shall be turned up tight, and threads nicked to prevent loosening. All bolts shall be provided with washers.

4. Joints between Glass panes shall be Butt Joints.

5. Contractor shall carry out glazing work according to the drawings and specifications.

6. Aluminium work shall be carried out by a specialist Sub Contractor who can provide the performance guarantee for aluminium components and shall be in an approved system with all standard fixings, sub frame etc.,

7. All glasses in partition, doors, windows etc., shall be as shown in relevant drawings

8. The Bidder is requested to provide the details of his aluminium sub-contractor, country of origin, micronage, thickness, type and make of glasses etc., along with his Bid. Samples of all items required in aluminium work shall be submitted for prior approval without any additional cost.
9. All necessary ironmongery such as hinges, lock, hooks etc., shall be approved quality and compatible with the system proposed.

10. All locks, hinges, floor springs, handles, push and pull plates and other necessary ironmongery shall be imported of best quality manufacture approved by the Engineer.

11. All units shall be complete with all necessary glazing inserts, sealing strips, gaskets, skids, weather strips, glazing beads and all necessary ironmongery.

12. All aluminium units shall be designed to resist penetration of external moisture to the inside of the building. Fixing of frames for all units to the building shall be such as to ensure solid, void free, waterproof joints. The joints shall be caulked with a building mastic which does not sag or run, non hardening, non-staining and can be painted.

13. All imported aluminium extrusions shall be in approved colour powder coated sections.

Rates for Aluminium and Metal Doors, Windows, Shop Fronts, Fire Doors and Sky Lights shall include for:

a. Measuring the sizes of openings at site and preparing Shop Drawings / Working Drawings before fabrication commences.

b. All necessary welding materials, cutting to length bending and shaping as required buffing all visible welds smooth and even for fabricating work delivery, handling, hoisting, jointing, polishing and fixing in position.

c. Form exposed connections with hairline joints, which are flush, and smooth using concealed fasteners wherever possible. If exposed fasteners are unavoidable use counter sunk flat head screws or bolts.

d. Raking and curved cutting where necessary.

e. Normal edges are deemed to include with the glazing.

f. Sub frames in aluminium

g. all necessary ironmongery such as hinges, lock, hooks etc., of approved quality

h. All glasses in partition, doors, windows etc.

i. Supply and fixing of the system to masonry / concrete wall, floor or ceiling inclusive of all approved materials, components fasteners, fixtures, locks and hardware.

j. Lifting, hoisting of materials / components to the required floors, levels by any means acceptable to the Engineer.

k. Providing all necessary scaffolding.

l. Maintaining an approved protective coating until practical completion.

m. Removing protective coating, Cleaning down both sides and making good all damages.

n. Testing of all Aluminium units for water infiltration after and during installation.

o. Measuring the sizes of openings at site and preparing Shop Drawings before fabrication
commences.
p. Coordinating with other trades.

q. Supplying necessary documents certifying the Aluminium components and the glass with respect to:
   i. Source and country of manufacture.
   iii. Conformity to Specifications.
   iv. Conformity to System offered.
   v. Conformity to the product offered.

r. Furnishing an acceptable guarantee for the system and the installation for a period of ten years from the date of practical completion and hand over. The format of the guarantee should be submitted with Bid.

s. Appropriate beadings, sealant, screws, nails, washers etc.

t. Protection of the completed work until proper handing over to the Employer.

15. ELECTRICAL INSTALLATION

1. Work shall be carried out by an experienced electrical contractor who has had previous experience in similar projects and shall have necessary tools, equipment and experienced staff for Electrical installation and Testing.

2. When procuring main cables the Bidder shall take into account actual physical measurements to avoid joints. Special orders shall be placed with manufacturers for cable lengths more than 100 meters.

3. All imported products and fittings shall have the country of manufacture and the specification number marked distinctly.

Rates for Electrical works shall include for :-

a. Assembling and jointing together and for any jointing material; for fixings and supports to each and any background inclusive of all fixing materials, components and special mountings; for cutting and pinning or building in all fixings and supports, including subsequently making good; and for disconnecting and re-fixing equipment and fittings to enable other trades to proceed.

b. All wall, ceiling or floor sleeves and plates as required including any necessary packing and water tight cable entries at locations with risks of water leaks.

c. All identification plates, discs, labels, type of service indicators, warning notices, circuit schedules, instruction charts and the like.

d. Marking the position of all holes, mortises, chases, sinking and the like in both the structure and its coverings and for forming or cutting away same as required and for building in and all making good in connection therewith.
e. Switchboards, switchgear, distribution boards, control gear, fittings, equipment and the like shall include for all fuses, MCBs, RCCBs, isolators, relays, contactors, instrumentation, indicators, interlocks, metering, cable entry boxes, gland plates earthing connection and the like and levelling.

f. Bus way systems where applicable shall include fire barriers, bends, joints, end boxes, end covers, fuses, hangers, expansion joints and all other installation material.

g. Cables shall include for all fixings as necessary, cable terminations and glands, joint boxes, earthing lugs, bus bar clamps and the like; for drawing cable into conduit or ducts, laying into trunking or trenches, or fixing to cable tray or the fabric of the building; for bonding to earthing points and the like; and for all identification labels, markers and tags as required. Installation of underground cables shall include cutting trenches, laying cables as required by regulations, filling with sand, supplying and laying protecting tiles, warning tapes and compacting.

h. All PVC conduits shall be embedded, unless otherwise specified. Raceways and accessories shall be of galvanized steel and shall include bends, tees, covers, joints, brackets, hangers and all other required installation material.

i. Conduiting, (rigid and flexible) cable trays, trunking, ladders and any other means of support and/or mechanical protection to cables, forming openings in trunking; for bushing materials, pin racks and fire barriers; for suspension sets; and for all fittings, accessories, boxes and the like.

j. Lamp fittings shall include for all associated lamps, control gear ballasts, starters, capacitors, diffuses, suspension sets and fixings including boxes, conduit boxes, wooden blocks, moulded pattresses, break-joint rings, ceiling roses, connector blocks, compression glands, flexible cords, all wiring and the like as required.

k. Lighting and small power (or socket outlet) wiring circuits shall include PVC insulated copper cables including earth cable of required cross section drawn in PVC or other conduits as per Specifications including junction boxes, ceiling boxes, wall boxes and electrical and other accessories.

l. Accessories shall include all necessary back plates, boxes, screws, nuts and bolts, iron / G.I. brackets, rods, clips as per specification and all other necessary materials to complete the installation.

m. Transporting of all electrical equipment shall include the use of cranes, folk lifts and all other methods of transport.

n. Protective painting to plant, equipment, conduit and the like shall include for all preparatory work and painting with rust inhibitive or other protective paint or coating.

o. Decorative painting to all exposed plant, equipment, conduit and the like shall include for all preparatory work, primers, undercoats and finishing coats of paint to approved colours.

p. Preparing, making applications to statutory authorities and all follow up work and co-ordination to obtain permanent electrical connection to the building. Statutory payments made to authorities in this respect will be reimbursed to the contractor by the Client on submission of documentary proof of such payments.

q. Coordination of work with other services / subcontractors.
16. WATER SUPPLY, SEWERAGE AND DRAINAGE WORKS

General

The work comprises of labour and materials necessary to all appliances and fittings and joining them to the respective mains in a manner directed by the Engineer.

The Contractor shall;

a. Supply a certificate stating that each item supplied has been subjected to the tests laid down in the specifications and conforms to the specifications and regulations of all the statutory authorities, in all respects.

b. Obtain approval and compliance from the Local (Municipal) and other Regulating Authorities before commencement of the installation, during and after completion of the installation.

c. Comply with the relevant standard as given under the specifications and with the regulations of the Local Authorities.

d. Ensure that all fittings and accessories indicated in the drawings and specifications include all pipe fittings and attachments, valves, gauges, switches, pumps and all such accessories as per the relevant standards for the proper functioning of the system and should not be limited to those given and indicated in the Plumbing Drawings.

e. Supply and fix sanitary appliances as shown on drawings completed with suitable traps and other fixtures viz.: seat covers, cisterns, etc.

f. Fix sanitary fixtures complete in position and connect to cisterns, taps, vents, waste and soil pipes.

g. Ensure that accessories and fittings identified in this Bills of Quantities shall be from one manufacturer wherever possible, similar design range and matched. The fittings and specials shall also be suitable in all respects to the pipe line to which these fittings and specials are fixed.

h. Prepare three sets of “as built drawings” and “preparation and maintenance manuals of equipment” with two sets for the client and one set for the Engineer.

i. The above items should all be accommodated in the quoted rates and no additional payments would be made for the same.

Sanitary Fittings and Plumbing

The whole of the sanitary works shall be carried out by a licensed sanitary plumber according to the layout and as specified and as directed at site. It should be noted that the positions shown on plans are approximate. Exact positions would be indicated at site.

Rates for sanitary fittings shall include for:

a. Fittings such as taps, waste water outlets, flushing cisterns, flush valves, internal overflows etc., the supporting brackets and incidental materials for fixing.

b. Assembling, jointing together, fixing components and jointing to pipes inclusive of necessary
c. Jointing and connecting pipes to sanitary fittings
d. Testing and commissioning of installation
e. Making good the work disturbed

Rates for Drainage Work shall include for:

a. Excavation, backfilling, planking and strutting, dewatering and disposal for surplus spoil
b. Laying of pipe to falls and gradients and all jointing and other incidental materials
c. All pipe specials such as bends, tees, junctions, elbows, etc.
d. Connection to sides of manholes etc.
e. Providing sleeves etc., when pipes pass through walls, foundations etc.
f. Giving notices, obtaining permits, paying fees etc.
g. Necessary scaffolding work including supply, erection and dismantling.
h. Painting of all surfaces of exposed pipe work.
i. Testing installation as specified in specifications, and/or to American, relevant standards

**Water Supply**

1. The Contractor is to pressure test pipes after fixing taps and stop cocks and fittings prior to concealing, under the supervision of the Engineer.

2. The Contractor shall provide the Engineer with the manufacturers' certificates of the standards, quality of the materials before commencing the works.

3. All Water Pumps should be mounted on inertia bases fitted with anti-vibration mountings. Flexible connections should be provided on connections between pump units and pipe work.

4. Where pipes pass through walls or slabs these shall be wrapped with a layer of inert material. For pipes exceeding 50mm dia., sleeve pipes shall be used for the full thickness of the slab walls, beams, retaining walls through which the pipe passes.

5. All taps, shower appliances, cocks and floor waste covers, used in the plumbing installation shall be chromium plated brass (CP brass) or stainless steel items unless otherwise stated.

Rates for Water Supply Plumbing Work shall include for:

a. Cutting and waste of pipes etc., and jointing of pipes
b. All specials such as elbows, bends, tees, junctions, plugs, reducers and similar pipe fittings except for valves which would be measured separately (Separate rates should be indicated for valves inclusive of the associated pipe fittings)
c. Connecting pipes to sanitary fixtures and appliances

d. Chasing to brick or concrete walls, columns, beams etc., and necessary racks, hangers and clips, for fixing to soffits etc., and making good all works disturbed

e. Necessary screws, nails, sockets, connection back nuts, standard pipe fixing or supporting clips, saddles, brackets, racks, straps etc.

f. Necessary scaffolding work including supply, erection and dismantling.

g. Painting of all surfaces of exposed pipe work.

h. Connecting different types of pipes

i. Testing and disinfecting after completion

j. Preparing and making applications and giving notices to the relevant authorities to obtain service connections to the building inclusive of any statutory payments to relevant statutory authorities

All Cold Water Piping shall be provided with flexible connections in pipe work and provided with the required pipe supports and anchoring as per the manufacturer’s specifications.

17. MECHANICAL VENTILATION

Rates shall include for supply, installation, commissioning and maintaining during the defect liability period of the following items for mechanical ventilation and air-conditioning system according to drawings and specifications and all complete to working order.

Rates for all plants and equipment shall include for:

a. Importation, clearing, transportation to site and installation at given position and necessary insurance.

b. Electrical connection, piping connection to equipment, sound insulation, hardware fixing and other material require for trouble free operation of the plant.

c. Testing and commissioning of total mechanical ventilation and air conditioning system.

d. All other items which are not specifically described in the Bill of Quantities but necessary for satisfactory completion working order.

e. All equipment shall be guaranteed for a period of 12 months from the date of commissioning.

Rates for ducting shall include for all supports, hangers, brackets, guide vanes, flow regulating devices, sound attenuates, acoustic duct lining air plenum lining etc., (where necessary) dampers, flexible connectors etc hardware tools and fixing jointing and insulating materials.

The construction of ductwork specified herein shall be fully completed to the ASHRAE or SMACNA standard and shall comply with the drawings and specifications.

Recommended sheet thickness for rectangular ducts (galvanized sheet steel) shall be as indicated in detail drawing.
All ducts have been measured in meters inclusive of bends, tees, and reduces, connections, hanging system elbows, branches etc and rates for ducting shall be accordingly.

Rate for ducts shall include for duct access doors to be provided where fire dampers are fitted for easy maintenance.

All pipes and ducts etc in and out to the building shall have flexible connection to accommodate moment due to any structural settlements to avoid any cracks.

18. FIRE PROTECTION, DETECTION & FIGHTING SYSTEM

Rates shall include for supply, installation, commissioning and maintaining of the following items according to drawings, specifications and complete to working order with all connections to the approval of the Engineer, Fire Department and other relevant authorities.

It is the Contractor’s responsibility to obtain approval from relevant fire authorities wherever necessary, before and after installation of items in this trade.

Rates for all pipes shall include for all pipe supports, hangers, saddles, brackets, screws, nails tees, bends, sockets, reducers and the like and fixing material, cutting holes and chases in concrete/brick/block work, etc., any builders work require and making good in all trades unless otherwise measured separately.

All valves shall be Hattersly, Crane or equivalent.

All pipes in and out to the building shall have flexible connection to accommodate moment due to any structural settlements to avoid any cracks.

19. HARD AND SOFT LANDSCAPING

Trees and Plants

1. All root balled trees, shrubs, creepers and other plants including sods for grass covers shall be obtained from licensed and recognised nurseries of the choice of the Contractor with prior written approval from the Engineer.

2. All costs and other work involved in complying with the local authority and governmental laws, rules and regulations and complying with the relevant Authority regulations including obtaining necessary licenses / permits pertaining to transporting and the source of supply of plants, and other planting materials shall be the responsibility of the Contractor.

3. All plants / trees will have the specified height / size measured as stipulated under the relevant Specifications.

4. If the Engineer decides any tree / plant not healthy or unsuitable for planting or not having the required height such trees / plants will be rejected. The Contractor shall replace at his own cost, such plants with healthy plants / trees as approved by the Engineer.
Rates for trees and plants shall include for:-

a. Preparation of trees for planting during the preparation period indicated under the Specifications;

b. Transporting, loading unloading and hoisting to the roof garden level with suitable temporary hoists or by other means;

c. Temporary storage of all plant materials in suitable location under the conditions required for the various types of plants until they are planted in position;

d. Transportation of trees / plant and other plant materials on site by suitable means;

e. Hoisting and planting in planting pits, cylinders or elsewhere prepared with soil topsoil and fertilisers as per the Specifications;

f. Providing sufficient staking, strutting, supporting and protective fencing or any other safety measures to all trees and plants until the trees / plants are properly established;

g. Providing sufficient protection to all plant materials including plants and trees, top soil, fertilizers and the like during the entire process and until the end of the maintenance period stipulated in the Specifications and the Bills of Quantities;

h. Maintenance of trees / plants during the entire maintenance period including watering, weeding, replacing dead or unhealthy plants / trees, fertilising, including full time maintenance labour / supervisor on site.