

## PRELIMINARIES AND GENERAL REQUIREMENTS

### 1. GENERAL

#### 1.1 Scope

The purpose of the Preliminaries and General Requirements is to identify what items are needed for the mobilisation of the contractor from the date of Site Possession and what items are required to be implemented throughout the contract until the issuance of Substantial Completion Certificate

#### 1.2 Reference to other Sections

Throughout the Specifications and Bills of Quantities, references are occasionally made to other sections. All such references are intended solely for the convenience of those using the documents, and the absence of a reference in no manner excludes the application of every other section in the Specifications which may, in the opinion of the Engineer, have any bearing upon the point in question, the intention being that the Contract Documents shall be read and applied as a whole.

#### 1.3 General Scope of works

The Contractor shall furnish, except as otherwise expressly provided in the Contract, all materials, equipment and labour to complete the works in accordance with the terms of this Contract, Conditions of Contract, General Requirements, Specifications, Bill of Quantities and Drawings.

Without in any way limiting the scope of the foregoing, the works shall include all necessary clearing and grubbing; excavation; backfilling; ditching; sheeting; shoring, bracing and supporting; preparing and maintaining access roads; surveying and field investigations; supplying, transporting and installing necessary material and equipment; testing and supplying and placing all construction materials necessary for the works.

### 2. CONTRACTOR TO INVESTIGATE

No plea for ignorance of conditions that exist or that may thereafter exist or of conditions or difficulties that may be encountered in the execution of the works as a result of non-cognizance of local conditions, laws and regulations and/or failure to make the necessary examinations and investigations shall be accepted as an excuse for any failure or omission on the part of the Contractor to fulfil his contractual obligations.

The Contractor shall also make all the investigations necessary to thoroughly inform himself regarding all facilities for access to the site, characteristics of the site. Conditions affecting supply of labour, water, electricity for temporary lighting and power as well as any local regulations and restrictions and generally any matters which may affect his prices as no claim on the ground of lack of knowledge in any respect will be entertained.

### **3. SITE CONDITIONS**

#### **3.1 General**

The contractor should be aware of any restrictions that may affect the site and should therefore factor in his cost such restrictions.

#### **3.2 Protection and diversion of existing services**

The contractor shall be responsible for notifying the service authorities and the Engineer of his intention to expose the services and where so required by the service authority shall not commence operations until the service authority is represented on the Site.

The Contractor shall excavate, protect until backfill and backfill in a manner so as not to damage the services. As soon as a service is encountered in the excavation whether previously located or discovered during the course of excavation for the Permanent Works the Contractor shall forthwith call the attention of the Engineer and the appropriate service authority thereto. The Contractor shall be responsible for maintaining all such services including natural and artificial watercourses encountered by him in the construction of the Works and shall make good any damage caused directly or indirectly by his activities.

#### **3.3 Traffic Arrangements**

The Contractor shall seek information on and comply with all requirements and recommendations regarding traffic safety measures. The Contractor shall arrange alternative temporary access with the owners or tenants of properties and shall submit details of such agreed temporary access arrangements where necessary.

#### **3.4 Disposal of surplus materials**

Surplus material and debris arising from the Works shall be dumped in agreed disposal sites at the expenses of the Contractor. The Contractor shall indemnify the Employer against any claims arising from unauthorized disposal of such materials.

#### **3.5 Water Control**

Without prejudice to other stipulations in the Contract, all constraints related to the presence of or risks caused by water, all additional work which may prove necessary on this account, all damage caused by water, all pumping in all structures not mentioned in the Contract which the Contractor may find he has to build for water control purposes shall be at the expense of the Contractor.

Before any works are begun, the Contractor shall submit to the Engineer's approval the methods and arrangements he proposes to apply in order to protect the Works, unless these are imposed by the designs incorporated in the Contract. Such Engineer's approval shall not relieve the Contractor of his obligations and responsibilities under this Section.

### **4. REGULATIONS**

The Contractor shall comply with all provisions of the rules, regulations and orders of local authorities where the site is located. The Contractor shall co-operate with the relevant authorities in promptly furnishing

any information that may be required by such authorities. It shall be the obligation of the Contractor to keep himself informed of these rules, regulations and orders.

## 5. STANDARDS, CODES AND ABBREVIATIONS

General Standard specifications and codes of the following listed authorities wherever cited herein are referred to by use of the abbreviations shown below. All materials and workmanship shall comply with requirements of these standards.

E.N	European Standards
CYS	Cyprus Standards
B.S.	British Standards
T.S.	Turkish Standards
D.I.N	German Standards [Deutsches Institute fur Normung]
A.S.T.M.	American Society for Testing of Materials
I.S.O	International Standard Organization

Where reference is made to a Specifications by one of the above mentioned it is understood that the latest revision thereof shall apply.

## 6. COST ITEMS

The contract shall implement the following preliminaries and general requirements and shall price these accordingly in the bills of quantities.

Description	Implemented by
Performance bank guarantee	At contract signature
Insurances	After site possession - at mobilisation
Contractor's site facilities	At mobilisation
Engineer's field office	At mobilisation
Temporary power and light	At mobilisation
Temporary water	At mobilisation
Site surveillance cameras	At mobilisation
Site delimiting barriers (upon instructions from Engineer)	At mobilisation
Project signboard	At mobilisation
Health & Safety plan and implementation	At mobilisation
Site surveys & records	Before commencement
Setting Out (upon instructions from Engineer)	After commencement
As-built drawings	At substantial completion

The above items are listed in the bills of quantities as Preliminaries and General Items and the contractor shall price these accordingly considering all costs. Breakdown of the prices may be required by the Engineer for approval.

## MOBILISATION

### 7. INSURANCES

The contractor shall obtain the insurances for the works within 72 hours of being given the site possession as per the Clauses 21, 22, 23 and 24 of the General Conditions of Contract. The insurances must be valid 30 days beyond the issuance of the Substantial Completion Certificate. Copies of the policies shall be given to the Engineer.

### 8. TEMPORARY FACILITIES

Starting from the date of site possession the Contractor shall implement and shall bear all the cost of installation of all temporary facilities within the plot of the works, their maintenance and upkeep until the time to remove these facilities from the site.

Contractor shall establish his temporary facilities in the plot in such a way so as not to disrupt his works. Once these are removed, locations where these were situated will be restored to its original shape and form. Thus, the contractor has to record the condition before installing the site facilities.

#### 8.1 CONTRACTOR SITE FACILITIES

The Contractor shall provide and maintain on the site prefabricated, modular and portable and located within the delimited area of the site and within the plot:

- ONE office; at least 10m<sup>2</sup>
- Resting/eating room for the site personnel; at least 15m<sup>2</sup>
- Sanitary facilities (toilets and washbasins) – at least 1 no
- Additional covered areas can be installed for storage of materials.

The Contractor shall submit layout of the distribution of the site facilities, photos/sketches of the types and dimensions to the approval of the Engineer.

Contractor's site facilities must be kept clean and maintained properly. All consumables associated with above facilities shall be borne by the Contractor. These facilities are not for sleeping during non-working hours.

Items that are going to be used for the works such as scaffolds, machinery/equipment, materials, etc. are not eligible to be included under the mobilisation items.

The site facilities shall be furnished and equipped as the contractor deems fit.

The workbook must be prepared and made ready.

After 30 days of the substantial completion being issued, the contractor will remove all from the site and take all the items.

If there is a need to install site facilities outside the plot of the project, the contractor shall investigate and obtain all permissions and consents from the owner and/or caretaker and/or relevant authorities. The same conditions as above will apply.

**Payments will be made prorated at each payment certificate.**

## **8.2 ENGINEER'S SITE OFFICE**

The Engineer's site office shall be **prefabricated, modular and portable** one that can be manufactured elsewhere and installed on the site.

The office shall compose (at least);

- 8 m2 for the office; 10 m2 for the meeting room; 1 toilet & washbasin; 1.5 m2 for the kitchenette

Prior to ordering and installation of the site office the contractor shall submit the sketches with dimensions, layout and type must be submitted to the review and approval of UNDP. The office should be connected to water, wastewater and electricity.

The site office will be equipped with 2 inverter air-conditioning units of 9000/12000BTU each.

ONE new laptop computer (latest versions in the market) must be provided with the relevant softwares.

ONE combined printer/copier/scanner to be installed and connected to the laptop.

**ONE Apple IPAD with internet SIMCARD data connection of at least 2GB to be provided.**

ONE regular telephone with simcard will be provided.

ONE water dispenser with heating and cooling properties and its 19lt water bottle. Sufficient supplies of cups & glasses, coffee, tea, sugar etc.

Furnishing will compose of;

ONE meeting table of 3mx2m with 8 chairs,

ONE office desk & chair,

ONE lockable filing cupboard of 1x1 meter dimension.

ONE board of 2x1.5 is to be installed in the meeting room wall.

Necessary stationery materials, such as papers, pens, pencils, ink and rubbers, etc.

Set of PPE equipment for the approved visitors; 10 hardhats + 10 vests + 10 pairs of shoes (sizes 38 – 44)

Colours of hardhats and vests to be different colour than the contractor's ones.

The Contractor shall be responsible for erecting, furnishing, making water and electricity connections and disconnections, lighting, wall mounted socket outlets, maintaining and completely servicing the site office.

Maintenance and upkeep of the office includes cleaning, repairs, consumables, toiletries, water, electricity & internet telephony usage.

After 30 days of the substantial completion being issued, the contractor will remove all from the site and take all these items.

**Payments will be made prorated at each payment certificate.**

#### **9. TEMPORARY POWER AND LIGHT**

The Contractor shall arrange to get temporary power to the site and bear all costs associated with these. The Contractor shall furnish all wiring, lamps, switches, fuses, receptacles, etc., as may be required for his work. Temporary power and light circuits shall be thoroughly insulated and waterproof. The temporary power and light system shall be subject to the inspection and approval of the electricity authority.

All charges for connection and usages will be borne by the contractor.

After 30 days of the substantial completion being issued, the contractor will disconnect all the temporary connections.

**Payments will be made prorated at each payment certificate.**

#### **10. TEMPORARY WATER**

The Contractor shall arrange to get temporary mains water to the site and bear all costs of plumbing, piping, pumping, etc. and other costs associated with these. If there is no mains connection to the site the contractor shall cart in potable water and store in polyethylene tanks. This water shall be used for the site activities. After 30 days of the substantial completion being issued, the contractor will disconnect all the temporary connections and/or remove the water setup.

**Payments will be made prorated at each payment certificate.**

#### **11. CAMERA SURVEILLANCE**

The contractor shall install cameras that will monitor the site during the works day and night (take necessary measures such as UPS against electricity shortcuts up to 5 hours). CCTV cameras must be installed in all possible locations that will cover all the site. The locations of camera will be approved by the Engineer. Cameras must relay images to the computers/smart phones that the contractor and the Engineer will assign. Records of the visuals must be kept for 7 days and then can be deleted; at any given time there must be 7 days of recording.

**Payments will be made prorated at each payment certificate.**

#### **12. TEMPORARY SITE DELIMITING BARRIERS**

The Contractor shall install temporary site delimiting barriers if the site does not have existing perimeter walls and/or fences.

If the site is not delineated the Contractor shall obtain the services of a licensed topography firm to establish the plot boundaries.

These barriers will be premade in metal and shall be transported and installed on concrete pads. Height of the barriers will be 2m. Fabric material will cover the barriers, the colour of which will be instructed.

Maintenance of the barriers and the fabric throughout and until the time to remove is the responsibility of the contractor and all costs associated with these shall be borne by the contractor.

After 30 days of the substantial completion being issued, the contractor will remove the temporary barriers and fabrics.

**Payments will be made prorated at each payment certificate.**

### **13. PROJECT SIGNBOARD**

The Contractor shall manufacture sign/notice board/s and erect these where directed by the Engineer within the plot boundaries.

The sign/notice board shall be 1.20 x 1.20 m and texts of the signboard shall be given by the Engineer.

The Contractor shall erect the sign/notice board on suitable supports in positions within the site as directed by the Engineer. The sign/notice board shall be left in position and maintained during the works until the end of the Defects Liability Period. After 30 days of the final completion being issued, the contractor will remove the signboard.

**Payments will be made once the signboard is installed.**

### **14. HEALTH & SAFETY**

The Contractor shall implement the HS Plan prepared by the designated HS officer and elaborate on the health safety risk matrix submitted at the bidding stage. The HS Officer shall supervise all aspects of health & safety on site and shall report every **TWO WEEKS** on any activity pertaining to health & safety.

Report should be written in good English and should be proof-read before submission.

The HS Officer shall sign the report.

**Upon approval of the report relevant payment shall be made against each report.**

#### **14.1 Health & safety requirements**

**The Contractor's HS Officer shall prepare a Health and Safety Plan** and shall include all matters related to construction site health and safety. Responsibility and liabilities lie with the HS Officer and the Contractor.

The Contractor shall be responsible for the safety of all workmen and other persons entering the Works and shall, at his own expense (where not otherwise stated) take all measures necessary to ensure their safety.

Provision of proper safety and emergency regulations include fire, gas (if any) and electric shock prevention, stretchers and first aid boxes, together with rescue facilities generally, for each place of working.

Notices written in relevant languages (Turkish, Greek and English) shall be erected at points likely to be used by the public and warning the public of the existence of the Works. These notices shall be in addition to any statutory requirements.

Personal protective equipment shall be available and used by the personnel including: safety helmet, eye protection, ear protection, hand protection, foot protection, harnesses and belts.

Provision and maintenance of suitable lighting to provide adequate illumination of the Works with appropriate spares and standby equipment

Provision of good and safe access to any part of the Works.

**14.2 First Aid**

The Contractor shall provide and maintain at the site a completely equipped first-aid kit, as required by Health & Safety requirements, in a clean orderly condition, which shall be readily accessible at all times to all his employees and the Engineer & his staff. The Contractor shall designate at least two employees who are properly trained to be in charge of the first aid. At least one such employee shall be available to render first-aid at all times that work is being carried on.

**First aid certificates of these employees must be provided to the Engineer.**

In locations of rural settings and out of any town and especially in the hot/warm period (April – November) vials of serum against snake bites must be provided and maintained accordingly.

**14.3 Thermometer and Hygrometer**

The Contractor shall install a thermometer and hygrometer to gauge the temperature and humidity from May to October and shall record these two parameters at least 3 times at intervals of 2 hours during the day. Heat Stress Index shall be followed and implemented as per the universally accepted chart.

**14.4 Prevention of noise**

The Contractor shall take noise intensity readings as required by the Engineer and shall submit the results to the Engineer. The Contractor shall comply with measures required by the Engineer to keep noise and disturbance to the reasonable minimum. The hours of usage of any noisy machinery or plant for the above purpose shall be controlled by the Engineer or by his agent all in conformity with the relevant regulations currently in force.

**14.5 Fire prevention**

The Contractor shall make arrangements and provide sufficient number and type of fire-fighting equipment to the satisfaction of the Engineer. The Contractor shall remove all rubbish and surplus material of a flammable nature and take such other steps as the Engineer may require but this shall not relieve the Contractor of any of his obligations under the Contract.

**PRELIMINARIES****15. SITE SURVEYS and RECORDS****RECORD OF CONDITIONS BEFORE DEMOLITION AND/OR CONSTRUCTION**

The Contractor shall perform survey of the site prior to start of any works. The Contractor shall agree the surface topography and ground conditions of the site and the immediate surrounding areas to the extent considered necessary for the works. The Contractor shall survey the existing conditions of roads and facades and keep the corresponding records.

The records shall include the condition of existing services and facilities, location of columns, roads, walkways, walls, roof, doors, windows, shutters, ornamental and/or decorative elements, etc.. The records shall include photographs and spot levels, coordinates/location as necessary and written descriptions of the site conditions. All buildings and structures situated adjacent to the site or close enough to the works which the Engineer considers could be affected by the construction of the works are to be structurally surveyed both internally and externally and agreed with the Engineer prior to construction work commencing. The survey is to include



photographs where appropriate. The survey and the monitoring records on one soft and one hard copy shall be submitted for approval to the Engineer.

If the Engineer requires additional information the contractor shall submit supplementary report for approval.

**Payment will be made once the Site Survey & Records report is approved.**

## **16. SETTING OUT**

### **16.1 Reference points, lines and levels**

The Contractor shall carry out site surveys and will establish relevant Benchmarks and Reference Points at appropriate locations on the site of the works.

The Contractor shall be responsible for transferring the lines and levels from these points to all points of construction. The Contractor must set the line, levels and grade by means of surveyor's instruments or other approved means.

The setting out by the Contractor shall include, but shall not be limited to, the preparation of topographical maps including coordinates system and/or axis, the installation of centre line stakes, grade and offset stakes, sight rails and batter boards.

The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments and labour in connection therewith. The checking of the setting out of any lines or levels by the Engineer shall not in any way release the Contractor from his responsibility for the correctness therefore. The Contractor shall carefully protect and preserve all Benchmarks, Reference Points and other items used in setting out the works.

The Contractor shall prepare a Setting-Out Report and submit for the approval of the Engineer.

**Payment will be made once the Setting-Out report is approved.**

## **WORKS**

### **17. WORK PROGRAMME**

This work programme shall show clearly how the works shall be organized by section and the corresponding proposed progress on the main items, structures and sub-trades of the Contract. The Work program shall indicate the area of work, the plot number, the number of construction crews, plant and equipment to be employed, etc.

The Engineer may require the Contractor to revise his proposed schedule at any time, as provided for in the General Conditions. The Contractor is advised that he shall not be permitted to work haphazardly throughout the whole area of the Contract but shall be required to complete several items of one section insofar as possible, before permitting that working crew to start working in another work of the next section.

### **18. WORK TO CONFORM**

All work shall conform during its progress and on its completion, truly to the lines, levels and grades shown on the Drawings and shall be built in a thoroughly substantial and workmanlike manner, in accordance with the Drawings and Specifications subject to such modifications and additions as may be deemed necessary by the Engineer during its execution and in no case shall any work in excess of the requirements of the Drawings and Specifications be paid for unless ordered in writing by the Engineer.

#### **19. PROTECTION & REPAIR OF PROPERTY, STRUCTURES & UTILITIES**

No responsibility shall be assumed by the Employer for the correctness or completeness of the Drawings with respect to existing utilities, pipes, catch basins, chambers or other objects either under-ground or on the surface and should plots of such be found incorrect or incomplete the Contractor shall have no claim on that account.

The Contractor shall, at his own cost and expense, and in a manner approved by the Engineer sustain in their places and protect from injury any conduits, cables, pipes, roadways, buildings and all other structures or property in the vicinity of his work, whether above ground or underground, or which appear within the excavations.

He shall, at all times, have sufficient quantities of timber and plank, chains, etc. on the site, and shall use the same as required for sheathing or sheet piling and bracing the sides, roofs and ends for excavations, and for sustaining or supporting any and all structures that are endangered.

When the construction is adjacent to or on residential property the excavation, disposal of the material, and backfill operations shall be performed in such a manner as to restore the properties to their original conditions as nearly as practicable as determined by the Engineer.

Any stones, trees, brush or other deleterious matter left by construction operations shall be removed by the Contractor by hauling to approve disposal areas or by means acceptable to the Engineer before final replacement of the soil. The Contractor shall carry on his operations in such sequence and in such manner as to minimize disturbance to the public and to interfere as little as possible with the operations of property users.

#### **20. WORK PROTECTION**

It shall be a requirement of this Contract that the Contractor erect protection around the Wreck as specified. Until the Wreck is protected fully the contractor shall not undertake any cutting, welding, grinding in the room of the Wreck.

The Contractor will remove from the site of the works any machine or tool unsuitable for the works specified, or of insufficient efficiency and will replace them by approved equipment without being entitled to any extra payment for transport, loss of working hours, or any other damage or loss caused by replacing the equipment.

## **21. PROTECTION, REPAIR AND MAINTENANCE OF CONSTRUCTION**

All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and any portion damaged shall be reconstructed by the Contractor at his own expense. Should any of the floors or other parts of the structures become heave, cracked or otherwise damaged all such damaged portions of the work shall be completely repaired and made good by the Contractor at his own expense and to the approval of the Engineer. If in the final inspection of the works, any defects, faults or omissions are found, the Contractor shall carry out repairs and/or replacement by proper materials and workmanship without any cost to the Employer. Further, the

## **22. DRAWINGS**

The works are to be built of the materials and to the sizes, dimensions and grades as called for in the Specifications and Contract Drawings and such other Drawings as may be added from time to time by the Engineer during the progress of the work. The only drawings referred to in these Specifications are the drawings provided by the Employer to the Contractor.

Additional working drawings showing details in accordance with which the work is to be constructed will be furnished from time to time by the Contractor and shall then become a part thereof after approval of the Engineer. The Contractor shall be governed by figured dimensions, as given on the Drawings. Where required dimensions are not shown in figures, the Contractor shall obtain such portion of the work to which they refer.

## **23. “AS BUILT” DRAWINGS AND WORKING DRAWINGS**

### **23.1 As built drawings**

After the works have been completed, the Contractor shall furnish to the Engineer a copy of drawings (hard copies) and one digital prepared from conditions as surveyed during construction, showing the Works as constructed together with all other information that may either be required or be useful for the operation and maintenance of the Works in the future, such as alignment, depth and levels of utilities, dimensions and location of structures, size of pipelines and services encountered during excavation.

The “As-Built” Drawings shall be submitted for review and approval of the Engineer periodically for sections completed. In 30 days of the issuance of the substantial completion certificate, the contractor shall submit for the review and approval set of final complete as-built drawings. Once the approval is given the contractor shall submit 2 sets of printed as built drawings and one in DVD/flashdisk.

The amount for preparing the As-Built Drawings as required under this subsection is included in the bills of quantities as a percentage item to the contract amount. If the as-built drawings are not submitted at the time of the final payment, the amount in the bills will be deducted and the Employer shall use this amount to engage an architect to complete the as-built drawings.

### **23.2 . Working drawings**

For the portions of the works done under this Contract, where detail drawings are to be supplied by the Contractor, a copy of same plus as many copies as the Contractor may require for his own use with

descriptions shall be submitted to the Engineer for review. All drawings shall be in the English language, and all dimensions shall be in Metric system. Symbols shall be in accordance with approved Standards. All drawings submitted for approval shall conform to ISO paper sizes and recommended to be traced on A2 and/or A3 paper sizes. Title legend and numbering shall be approved by the Engineer.

### **23.3 Submission and approval**

The Contractor shall submit in one hard copy and one electronic copy to the Engineer, for review, information or approval, all brochures, designs and drawings which has to be prepared by the Contractor (except for "As-Built"). The Engineer will analyze all such designs and drawings, will appraise them as to whether they are reasonable and consistent with the Contract Drawings, will approve if requested and will order changes when deemed necessary.

The Contractor shall bring to the attention of the Engineer any variation to the Contract in the document submitted for approval. Review of the Contractor's drawings by the Engineer shall not relieve the Contractor of the responsibility for the correctness thereof, nor from the results arising from any error or omission of details of design.

## **24. ELEMENTS FOR RE-USE**

The dismantling and/or removal of the existing construction and/or structures elements shall be done with extreme care to avoid destruction/damage and in order to appreciate its exact condition. Existing element such as wood, timber, iron, I-beam, stone, adobe, tiles, marble and/or similar building element can be proposed for re-use if in good condition. If it is established by the Contractor and approved by the Engineer that the element has lost its technical, structural and load-bearing characteristics it shall be removed from the site and shall not be proposed re-use for any rehabilitation works.

Any element acceptable for re-use proposed and/or recommended by the Contractor and/or Engineer, shall be recorded, measured and properly stored in accordance with its nature and corresponding storage requirement. All elements for re-use shall be reconditioned, cleaned, protected, and painted as per specifications before installation.

The works for checking, investigating, and storing buildings elements for re-use are included in the present scope of works. The Contractor will be responsible for damages that may occur to any existing building element during dismantling and/or removal; any damages to building elements will be repaired and/or the element replaced at the Contractor's expenses.

## **25. RESPONSIBILITY FOR MATERIAL**

The contractor has to present the list of materials, which will be used during the construction, while submitting a proposal. All information; test result, documents, etc... related to materials will be submitted with the proposal, The Contractor shall be responsible for all material furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labour required for the replacement of installed material discovered defective prior to the end of the guarantee period.

**23. MATERIALS AND WORKMANSHIP**

All materials furnished under this Contract shall be new, of best quality, first-class in every respect and purchased from a known and approved manufacturer/supplier. The material shall be installed, constructed and finished in a workmanlike manner. Materials shall be suitable for the service intended and selected and fabricated in accordance with the best Engineering practice. Unless otherwise specified herein, all materials shall conform to the appropriate standard specification requirements.

**24. SUBMISSION OF SAMPLES AND DATA**

In addition to any specific provision in the Contract for the sampling and testing of materials, the Contractor shall submit to the Engineer, as he may require, samples, drawings, catalogues, diagrams and other descriptive data for all mechanical, electrical, structural, architectural and such other materials and equipment as may be designated by the Engineer and which the Contractor proposed to incorporate in the Works. Such samples, if approved, will be retained by the Engineer.

No materials or goods, of which samples have been submitted, shall be used in the Works, unless and until such samples have been approved in writing by the Engineer. The Engineer may reject any materials and goods which in his opinion, are inferior to the samples thereof previously approved and the Contractor shall promptly remove such materials and goods from the Site, at his own expense.

**25 TESTS****25.1 General**

The Contractor shall afford the Engineer all facilities, assistance, labour and appliances necessary for the convenient supervision of testing, weighing, or analysis of all materials or goods. The Contractor shall provide and execute the tests of any materials or goods or as the Engineer may require, and shall arrange for tests to be undertaken at independent laboratory/ies. Should the Engineer not inspect any materials or goods at the place of manufacture, the Contractor shall obtain Certificates of Test from the suppliers of such materials and shall submit to the Engineer.

**25.2 Manufacturer's Certificate Of Compliance – Mill Certificates**

In the case of standard labelled stock products of standard manufacture which have a record of satisfactory performance in similar work over a period of not less than 2 years, the Engineer may accept a statement from the Manufacturer attested by a certificate that the product conforms to the applicable Specifications. In the case of materials for which such practice is usual, the Engineer may accept the manufacturer's certified mill and laboratory certificate.

**25.3 Cost of Tests**

The costs of all tests made by the Contractor and/or at the Engineer's instructions on all materials as requested in the Contract and the cost of tests on finished work as specified in the contract shall be borne by the Contractor.

**25.4 Acceptance of Materials**

The approval by the Engineer of any material or equipment shall in no way relieve the Contractor of any of his responsibilities for meeting all of the requirements of the Specifications and shall not prevent subsequent rejection if such material or equipment is later found to be defective or not conforming to the Specifications.

## **26. "OR EQUAL" CLAUSE**

Whenever a material or article required is specified or shown on the drawings by using the name of the propriety product or of a particular manufacturer or vendor, any material or article which will perform adequately the duties imposed by the general design will be considered equal and satisfactory provided the material or article so proposed is of equal substance and function in the Engineer's opinion. It shall not be purchased or installed without his written approval.

## **27 PROTECTION OF FINISHES**

The Contractor shall take every care to prevent damage to the works and shall ensure that adequate protection is given to all works from the activities of following trades and any third party.

Vulnerable parts of the works particularly liable to damage shall be protected as may be reasonably required by the Engineer and shall be deemed to be insured against damage in accordance with the conditions of contract.

## **28 CLEANING**

The debris accumulated on the working platform and on the roofs shall be removed through dustproof canals, which shall be constructed by the Contractor. The rubbles and other debris shall never be thrown down from the roof and from the working platform. The Contractor shall be sensitive on this subject and shall do the clearing frequently. The Contractor, before leaving the site after the completion of the works, shall clear the site. This clearing shall be done before leaving the storage area also.