

**General Specifications
&
Performance Requirements**

SECTION ONE : GENERAL**1. Scope of work**

These specifications cover the technical issues of the tender.

2. Drawings**2.1 Tender Drawings**

The required number of contract Drawings are available at the date of Tender and are included in the list of Drawings attached to these Specifications. All work shall be performed in accordance with the Drawings Furnished together with the Contract Documents and any such additional drawings as may be issued by the Project Supervisor from time to time during the progress of the work or by the contractor as directed by the Engineer. Additional drawings which are required will be furnished to the Contractor in due time so as to enable him to perform the work shown thereon in its proper sequence and for any advance planning that may be necessary for the efficient performance of such work. The Project Supervisor will decide in such instance whether additional drawings are required for advance planning of the works and determine the time required for the same, and may request the Contractor to prepare such drawings.

2.2 Shop Drawings

If at any time before the commencement or during the progress of the work it appears to the Contractor that for the proper execution of a specific part of the Works, shop Drawings are necessary, these Drawings shall be prepared by the Contractor at his own expense and submitted to the Project Supervisor for approval. On the other hand, the Project Supervisor shall have authority to order at any time and the Contractor agrees to provide at his own expense any number of shop Drawings which, in the opinion of the Project Supervisor are necessary for the proper execution of a specified work. The Contractor shall not proceed with the above mentioned work unless these shop Drawings are approved by the Project Supervisor.

3. ABBREVIATIONS OF STANDARDS

The following abbreviations covering the Standards used for the works under the Contract shall have the significance set forth opposite each:

BS	British Standards Specifications
CP	Code of Practice
ASTM	American Society for Testing and Materials

ISO International Standard Organization
LS Local Standards

4. STANDARDS

The works have been designed to incorporate and utilize economically goods, materials and workmanship to various specifications which are detailed herein. Reference is commonly made to British Standards (BS) and British Standard codes of practice (CP) and local standards (LS) and to the American Society for Testing and Materials Standards (ASTM).

Different national or international standards (DIN or ISO etc.) that correspond to the specified Standard may be used provided that their requirements are not less stringent, and provided that the Contractor presents copies of such Standards translated into English. If any redesign of the works is necessitated by the adoption of such alternatives the costs incurred shall be borne by the Contractor. Those references shall in every case be deemed to include the latest edition or issue of such standards.

5. UNITS OF MEASUREMENTS AND ABBREVIATIONS

All units of weights and measurements shall be based on the Metric System of Weights and Measurements except standard products which may be expressed in nominal units of the Imperial System.

The metric terms and symbols occurring in the contract Documents are based on the “System International d’Unites” (SI System).

Abbreviation	Description
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LM	Linear Meter
SM	Square Meter
CM	Cubic Meter
KG	Kilogram
TON	1000 Kilogram
MM	Millimeter
CM	Centimeter
M	Meter
LS	Lump Sum

6. DEFINITIONS

Wherever the words defined in this section or pronouns used in their stead occur in the Contract Documents, they shall have the meanings herein given.

As Directed, as Required, etc.

Wherever in the contract documents, or on the drawings, the words “as directed”, as described “as ordered, “ as requested," as required” “ as permitted” or words of like import are used, it shall be understood that the direction description, order request requirements or permission of the Project Supervisor is intended. Similarly, the words approved, acceptable satisfactory and words of like import shall mean approved by acceptable to or satisfactory to the Project Supervisor.

Approved

This word when applied by the Project Supervisor to the Contractor’s drawings or documents shall mean that the drawings or documents are satisfactory from the standpoint of interfacing with contractor’s furnished components of the installations, and/or that the Project Supervisor have not observed any statement or feature that appears to deviate from the specification’s requirements. Except for the interfacing with the contractor’s furnished components, the contractor shall retain the entire responsibility for complete conformance with all of the Specification’s requirements.

7. INCONSISTENCY IN CONTRACT DOCUMENTS

The contractor shall execute the works according to the provisions of the contract documents. Any work indicated in one of the documents but omitted and/or not stated in one or more of the other documents shall be treated as though it were included in all of them.

If any two documents of the contract conflict as to the quantity of the work to be carried out, the discrepancy shall be brought to the notice of the Project Supervisor, who shall instruct the contractor which of the two conflicting documents to regard as correct.

If the contractor should discover that any work has been omitted and/or not indicated entirely or partially from all the documents, but that such work is essential to the safely or proper functioning of the works, he shall report the facts immediately to the Project Supervisor. If the work is something which in the opinion of the Project Supervisor could not have been foreseen by an experienced contractor, the Project Supervisor shall issue to the contractor a variation order stipulating the details of the work to be done.

Save as aforesaid in the above paragraph, no additional payment shall be made in respect of work carried out in connection with discrepancies between the various contract documents.

8. ERRORS IN COMPUTING CONTRACT DOCUMENTS

The contractor shall be responsible for any error which he makes in computing any quantities of material and labor required or costs involved or through any lack of knowledge of the site of misunderstanding of anything shown or implied on the drawings or in the specifications and/or the bills of quantities.

The contractor must refer any discrepancy in the drawings or the specifications to the Project Supervisor before proceeding in any of the works. The decision of the Project Supervisor as to the interpretation of the discrepancy will be final.

Any item or items of work not specifically shown on the drawings or referred to in the specifications but which would be necessary for the proper construction of the works in

accordance with the best practice is implied and must be included for as incidental to the contract price. Any item for which the contractor has not inserted a price in the Bills of quantities shall be deemed to be covered by other prices or rates therein.

9. TEMPORARY WORKS AND REINSTATEMENT

The contractor shall provide and maintain all temporary roads and tracks necessary for movement of plant and materials and clear same away at completion and make good all works damaged or disturbed.

The contractor shall submit drawings and full particulars of all temporary works to the Project Supervisor before commencing same. The Project Supervisor may require modifications to be made if he considers them to be insufficient and the contractor shall give effect to such modifications but shall not be relieved of his responsibilities for the sufficiency thereof.

The contractor shall provide and maintain weatherproof sheds for storage of materials pertinent to the works both for his own use and for the use of the employer and clear same away at the completion of the works.

The contractor shall divert as required, at his own cost and to the approval of the Project Supervisor, all public utilities encountered during the progress of the works, except those specially indicated on the drawings as being included in the contract.

Where diversions of services are not required in connection with the permanent works, the contractor shall uphold, maintain and keep the same in working order in existing locations.

The contractor shall make good, at his own expense, all damage to telephone, telegraph and electric cables or wires, sewers, water, or other sewers, except where the public Authority or private party owning or responsible for the same elects to make good the damage. The cost incurred in so doing shall be paid by the contractor to the public Authority or private party on demand.

All injury to the surface of the land, to the beds of water-courses, projecting banks, etc., where disturbed by the works (other than where specifically ordered by the Project Supervisor) shall be repaired by the contractor or the authorities concerned, at the contractor's expense. All such making good shall be to the approval of the Project Supervisor.

The requirements detailed above shall be provided and maintained at the expense of the contractor.

The employer shall not be liable for loss or injury to any temporary works.

10. EXISTING FACILITIES

The existing facilities services must be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained from employer and Project Supervisor in advance, portions of the existing facilities may be taken out of service for short periods corresponding with period of minimum service demands. Such permission will not relieve the contractor of any of his responsibilities under this contract.

11. LINES AND GRADES

The contractor shall keep the Project Supervisor informed, a reasonable time in advance, on the times and places at which he intends to do work, in order that lines and grades may be established and necessary measurements for record and payment made with a minimum of inconvenience to the Project Supervisor or delay to the contractor. The contractor shall have no claim for damages or extension of time on account of delays in the giving of lines and grades, making record measurements or destruction of such marks and the consequent necessity for replacement.

The Project Supervisor will furnish the contractor with such basic lines and grades as he, the Project Supervisor, deems necessary, but this shall not be construed to mean all lines, grades, elevations and measurements. It shall be the contractor's responsibility before commencing any section of the work to establish and locate the permanent bench marks to be used through proper survey procedures. The contractor shall refer all temporary bench marks thereto.

The contractor shall be responsible for the stake-out survey for construction purposes and the replacement of monuments and property markers disturbed by the work. The survey shall proceed in advance of the construction at a rate satisfactory to the Project Supervisor. The contractor shall keep the Project Supervisor fully informed as to the progress of the stake-out survey.

The exact position of all work shall be established from control points which are established by the contractor and approved by the Project Supervisor if necessary the Project Supervisor may modify such points. Any error, apparent discrepancy or omission in the data shown or required for accurately accomplishing the stake-out survey shall be referred to the Project Supervisor who shall take whatever corrective measures he deems necessary.

The contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the contract. Damaged, destroyed or inaccessible reference points, bench marks or stakes shall be replaced by the contractor. Existing or new control points that will be or are destroyed during construction shall be re-established and all reference ties recorded therefore shall be furnished to the Project Supervisor. All stake-out survey work shall be referenced to the bench mark and manhole centers given by the Project Supervisor.

All computations necessary to establish the exact position of the work from control points shall be made and preserved by the contractor. All computations, survey notes and other records necessary to accomplish the work shall be neatly prepared and made available to the Project Supervisor upon request or furnished upon contract completion.

All instruments, equipment stakes and other material necessary to perform the work shall be provided by the contractor.

All stakes used shall be of a type acceptable to the Project Supervisor, clearly and permanently marked so as to be legible at all times. It shall be the contractor's responsibility to maintain these stakes in their proper position and location at all times. Any existing stakes or markers defining property lines and survey monuments which may be disturbed during construction shall be properly tied in to fixed reference points before being disturbed and accurately reset in their proper position upon completion of the work.

The Project Supervisor may check all or any portion of the stake-out survey work or notes made by the contractor and any necessary correction to the work shall be immediately made. Such checking by the Project Supervisor shall not relieve the contractor of any responsibilities for the accuracy or completeness of his work.

12. WATER FOR THE WORKS

The contractor shall provide all necessary water for the works and tests, with all temporary plumbing and storage, pay all charges, and alter, adapt and maintain temporary work as necessary and remove and make good at completion.

13. ELECTRICAL POWER AND LIGHTING FOR THE WORKS

The contractor shall provide all necessary artificial lighting and power for the execution and security of the works and for protection, with all meters, temporary wiring and fittings, etc., pay all charges, and alter, adapt and maintain the temporary work as necessary and remove and make good at completion.

14. MEDICAL FACILITIES

The contractor shall arrange for medical attention to be available when necessary and shall provide dressing stations complete with all adequate first aid equipment within easy access of each works area on the site. The contractor shall display in suitable places the names of his employees who are available from time to time to render first aid. The contractor shall provide for the transport of serious cases to the nearest hospital.

15. CUSTOMS AND LOCAL DUES

All state dues, tolls rates, duties, fees and charges in connection with the works shall be deemed to be included by the contractor in his contract unit Rates.

16. MATERIALS, GOODS AND WORKMANSHIP

Materials, goods and workmanship shall be of the best quality of their respective kind. The contractor shall carry out everything necessary for the proper execution of the works, whether or not shown on the Drawings or described in the specifications.

17. SPECIFIED MANUFACTURER'S PRODUCTS

Manufacturer's name or catalogue number, if shown in the specification or indicated on the Drawings, are given only for indicative purpose and for general reference only. It shall be

understood that the actual material supplied shall meet the requirements of the specifications, and if necessary, the material specified under such manufacturer's name or catalogue indicated for reference, shall be modified under the direction of the Project Supervisor.

Provided always that such modified material shall meet the requirements of the specified material together with the requirements of other materials specified for other trades in these specifications under the direction of the Project Supervisor.

Any modification under such conditions shall not give the right to the contractor to claim against any loss or extra cost incurred.

18. ALTERNATIVE MATERIALS

Should the contractor wish to offer alternative items or materials to those specified he shall supply details of such alternatives together with details of any reduction in the contract price should the alternative be allowed to be substitute for the specified items or materials. All offered alternatives shall comply fully in all respects with the specifications of the particular items or materials. Acceptance or refusal of such alternatives will be entirely at the discretion of the Project Supervisor.

If during the course of the contract certain materials or items required for use in the works should be unobtainable, despite the best effort of the contractor, the contractor may offer for the approval of the Project Supervisor alternative materials or items, provided that they possess the minimum requirements of the originally specified material.

In the event of acceptance of any alternative materials or items a suitable price reduction shall be made in respect of any decrease in value but no price addition shall be made in respect of increase in value.

In the event of refusal of any alternative materials or items the contractor shall not be relieved of any of his obligations under the contract and shall be solely liable for any delay or loss occasioned by his failure to provide the material or items as specified.

19. PERIODIC REPORTS

The contractor must present to the Project Supervisor's representative detailed reports and schedules as stipulated in the conditions of contract.

The contractor shall prove to the Project Supervisor's representative upon his request the correctness of the above mentioned reports without having the right to use such documents to support a claim for any extra payment or compensation whatsoever in regard or in relation to such reports.

20. SITE PROGRESS MEETINGS

During the course of the work, site progress meetings shall be held at regular intervals at least once every week in the presence of the Project Supervisor for the purpose of coordinating the contractor's works and to insure that full compliance with the various sequences of the contract are maintained. Minutes of such site meetings will be recorded, copies will be

distributed to all persons concerned and full effect shall be given to all instructions contained herein.

Prior to such meetings the contractor shall give to the Project Supervisor's representative details in writing of that portion of the works he proposes to construct during the coming two weeks with details of the plant and methods he proposes to employ. These proposals shall be discussed at the meeting and no work based on such proposal shall proceed without the approval of the Project Supervisor's representative.

The contractor shall have no claim against the employer for costs incurred by him in changing the method of working or in the provision and use of other additional plant.

21. CANCELLATION DUE TO SLOW PROGRESS

If the Project Supervisor shall be of the opinion that having regard to the state of the works at any time, the contractor will be unable to complete any section of the works by the time specified or by such extension thereof as he may be entitled to under the contract and the contractor has failed to carry out steps and to expedite the work in accordance with the conditions of contract or, if the Project Supervisor is of the opinion that such steps are inadequate, the Project Supervisor may by written order omit the whole or any part of the uncompleted work included in that section and the employer shall be at liberty to execute such omitted work by his own workmen or by other contractors. If the cost of such omitted or uncompleted work shall exceed the sum which would have been payable to the contractor on due completion of the said work, then the contractor shall, upon demand, pay to the employer the amount of such excess and it shall be deemed a debt due by the contractor to the employer and shall be recoverable accordingly.

22. PROTECTION FROM WEATHER AND FLOODS

The contractor shall keep the works well drained until the Project Supervisor certifies that the whole of the works is substantially complete and shall ensure that so far as is practicable all work is carried out in the dry. Excavated areas shall be kept well drained and free from standing water.

The contractor shall construct, operate and maintain all temporary dams, watercourses and other works of all kinds including pumping and well point dewatering plant that may be necessary to exclude water from the works while construction is in progress. Such temporary works and plant shall not be removed without the approval of the Project Supervisor's representative.

Notwithstanding any approval by the Project Supervisor of the contractor's arrangements for the exclusion of water, the contractor shall be responsible for the sufficiency thereof and for keeping the works safe at all times particularly during any floods and for making good at his own expense any damage to the works including any that may be attributable to flood. Any loss of production or additional costs of any kind that may result from floods shall be at the contractor's own risk. (Without any compensation)

23. CLEARING AWAY

The contractor shall take down and clear away all plan and temporary works, including sheds, mess rooms, sanitary conveniences, offices, latrines, sign-boards, and other temporary works, unless otherwise described, and make good.

The contractor shall remove all existing rubbish and debris and surplus materials from the site as they accumulate and at completion, and clean all surfaces, including those of the affected portions of the existing premises, internally and externally, remove stains and touch up paint work and polished work, and leave the works clean and to the satisfaction of the Project Supervisor at completion.

24. TESTS FOR WATERT LEAKAGE OF STRUCTURES

When ordered by the Project Supervisor the structures shall be tested with water by the contractor.

The structure when filled shall satisfy the test if at the end of one week no leakage is apparent.

25. TESTING ON COMPLETION

The Project Supervisor may before issuing the certificate of completion require any part of the works to be tested for conformity with the specification. Such tests shall be made at the contractor's expense.

26. INSPECTION

If work to be done away from the construction site is to be inspected on behalf of the employer during its fabrication, manufacture, or testing, or before shipment the contractor shall give notice to the Project Supervisor of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Project Supervisor in ample time so that the necessary arrangements for the inspection can be made.

In respect of all items of equipment and materials to be imported for incorporation in the permanent works the contractor shall submit to the Project Supervisor's representative in the English language inspection and test reports issued in the country of origin and certified by an independent inspector or inspection firm of international repute approved in advance by the Project Supervisor. The reports shall certify that all such items are in full compliance with the contract requirements and specifications and shall be accompanied by full details of sampling, inspection and test results. Each such report shall be submitted prior to the shipment of the related items to the site.

No extension of time on account of delays due to inspection shall be granted as such time as is needed for inspection shall be considered to have been considered in the schedule of the works.

Material and equipment procured within the country for incorporation in the permanent works shall be inspected at the place of origin by competent and experienced specialized personnel appointed by the contractor and approved by the Project Supervisor. Inspection and test reports certifying that the related item is in full compliance with the contract requirements and specification shall be submitted prior to its incorporation in the works.

The certification herein prescribed shall be submitted whether or not the Project Supervisor or his representative has exercised the right to witness test or make inspections at the point or origin. The Project Supervisor shall be entitled to apply the conditions of contract in respect of items not so certified. Certification shall be furnished at the contractor's expense. It shall not relieve the contractor of the obligation to ensure that all material and workmanship incorporated in the works shall be in full compliance with the contract requirements and specification at the time of final handing over of the completed works.

27. PROTECTION OF FINISHES

The contractor shall take every care to prevent damage to the works from whatever cause and shall ensure that adequate protection is given to all works from the activities of following trades and nominated subcontractors. Vulnerable parts of the work particularly liable to damage shall be protected as may be reasonably required by the Project Supervisor's representative.

28. PROTECTIVE EQUIPMENT AND CLOTHING

The contractor shall provide and maintain all necessary protective and safety equipment and clothing for the operative and site staff.

29. METHODS OF MEASUREMENT AND PAYMENT

29.1 Description

This section covers methods of measurement and payment for items of work under this contract.

The total tender price shall cover all work required by the contract documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment supplies, and appurtenances; providing all construction plant, equipment, tools, testing, and performing all necessary labor and supervision to fully complete the work, shall be included in the unit price and lump sum price tender. All work not specifically set forth as a pay item in the Bill of Quantities shall be considered

as subsidiary obligation of contractor and all costs in connection therewith shall be included in the prices tender.

29.2 Quantities

All estimated quantities stipulated in the tender form or other contract documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the work and (b) for the purpose of comparing the tender submitted for the work. The actual amounts of work done under unit price items may differ from the estimated quantities. The basis of payment for work will be the actual work done and paid using the unit price rate (re-measured) .Contractor agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and the estimated amounts.

30. DEMOLISHED MATERIAL:

The contractor shall at his expense progressively remove transport out of the site to approved dump site all surplus materials rubble and debris from the site.

31.QUALITY OF WORKS AND MATERIALS (SAMPLES)

The contractor shall submit samples of materials the contractor intends to use within the project, all such materials should be tested through a competent laboratory with a wide reputation to enable the supervisor to issue his approval in due time before incorporating these materials in the work. Should in the supervisor's opinion the samples so prepared by the contractor, not meet the requirements of the specifications, the contractor shall prepare a new sample until it is approved by the Project Supervisor, such approval will never relieve the contractor from any of his obligations. All costs in connection with preparing the said works samples under the provisions of this clause shall be at the contractor's expense.

32.TEST'S RESPONSIBILITY

The contractor shall be responsible for all the obligations in concern with tests required throughout the specifications and the supervisor's instructions, tests shall be made at the contractor's expense, obligations in concern of the tests needed for quality control arrangements, all the tests should be carried out by a competent laboratory having a very wide reputation and to be in previously approved by the supervisor. If the result of any of the tests required does not meet entirely or partially the technical specification, all the defected works should be removed and replaced making good and retested, the contractor shall bear the full responsibility of the entire obligations of the costs of removal, replacing, making good, test expenditures at the contractor's own expense.

33.SITE INVESTIGATION

The contractor shall be deemed to have visited the site of works and satisfied himself to the nature of the ground and made himself conversant with the local condition to be encountered during the execution of each contract, and his unit rates in the bill of quantities have included all the necessary cost to execute the works.