

- (b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by operator shall remain electrically charged,
- (c) All practical steps shall be taken to prevent danger to persons employed, from risk of fire or explosion, or flooding. No floor, roof or other part of a building shall be so overloaded with debris or materials as to render it unsafe.

All necessary personal safety equipment as considered adequate by the Engineer shall be available for use of persons employed on the site and maintained in a condition suitable for immediate use, and the Contractor shall take adequate steps to ensure proper use of equipment by those concerned.

- (a) Workers employed on mixing asphalt materials, cement and lime mortars/concrete shall be provided with protective footwear, hand gloves and goggles.
- (b) Those engaged in handling any material, which is injurious to eyes, should be provided with protective goggles.
- (c) Those engaged in welding works shall be provided with welder's protective eye-shields.
- (d) Stonebreakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- (e) When workers are employed in sewers/ drain channel or manholes, which are in use, the Contractor shall ensure that drain slab covers/ manhole covers are opened and are ventilated at least for an hour before workers are allowed to get into them. Covered Drains/ Manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to public.
- (f) The Contractor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting the following precautions shall be taken;
- (g) No paint containing lead or lead products shall be used except in the form of paste or ready-made paint.
- (i) Suitable face masks shall be supplied for use by workers when paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.
- (ii) Overalls shall be supplied by the Contractor to workmen and adequate facilities shall be provided to enable working painters to wash during and on cessation of work.

When work is done near any place where there is risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following:

- (a) (i) These shall be of good mechanical construction, sound material and adequate strength and free from patent defects and shall be kept in good repair and in good working order.
- (ii) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.
- (b) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in-charge of any hoisting machine including any scaffold winch or give signals to operator.
- (c) In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with safe working load. In case of hoisting machine

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having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond safe working load except for the purpose of testing.

- (d) In case of departmental machine, safe working load shall be notified by the Engineer, as regards Contractor's machine the Contractor shall notify safe working load of each machine to the Engineer whenever he brings it to site of work and get it verified by the Engineer.
11. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards, hoisting appliances shall be provided with such means as will reduce to the minimum risk of accidental descent of load, adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel such as gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.
  12. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in a safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.
  13. These safety provision shall be brought to the notice of all concerned by display on a notice board at prominent place at the work spot. Persons responsible for ensuring compliance with the Safety Provisions shall be named therein by the Contractor.
  14. To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the Contractor shall be open to inspection by the Engineer or his representative and the inspecting officers.
  15. Notwithstanding the above provisions 1 to 14, the Contractor is not exempted from the operation of any other Act or Rule in force.



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APPENDIX - V

INDEMNITY BOND ON STAMP PAPER OF VALUE OF Rs. 100/-

In consideration of Guwahati Metropolitan Development Authority incorporated under GMDA Act, 1985 and having its office at Guwahati Metropolitan Development Authority, Bhangagarh, Guwahati - 781005 (Hereinafter referred to as the Development Authority, which expression, shall unless it be repugnant to the context or meaning thereof includes its successors or assigns) having awarded to M/s. \_\_\_\_\_ a Partnership/ Proprietorship/ Private Limited/ Limited firm carrying in such name and style the business of construction (hereinafter referred to as the Contractor which expression shall, unless it be repugnant to the context or meaning thereof, includes its partners or Partner/Proprietor for the time being or its surviving Partner or his heirs and executors) for the work of \_\_\_\_\_

\_\_\_\_\_ at an \_\_\_\_\_ percent above / below estimated cost of Rs. \_\_\_\_\_ and in compliance with one of the terms and conditions of the said Contract.

We, M/s. \_\_\_\_\_ being the Contractor do hereby agree and undertake and indemnify and save harmless the Development Authority in consequence of the manufacturing defect, patent manufacturing defect and construction defect found in the constructed work at any time in a defect liability period of \_\_\_\_\_ years with the grant of completion certificate by the Development Authority to the Contractor in accordance with and subject to the provision of the said contract.

It is hereby agreed and declared that the City Engineer of the Development Authority or any officer acting as such City Engineer of the Development Authority shall be the Competent Authority to decide upon the question as to the defects in the construction of works and the remedy to be applied by the Contractor for their rectification at his cost and his decision shall be final, conclusive and binding upon both the Development Authority and the Contractor, provided that the City Engineer shall so decide after giving an opportunity to the Contractor to represent his case.

We hereby agree and undertake irrevocable and unconditionally to carry out duly each and very decision, order, direction or instruction as may be issued by the said City Engineer or as the case may be, the officer of the Development Authority in his behalf and to rectify properly and promptly the defect found by him.

FOR AND ON BEHALF OF M/S. \_\_\_\_\_  
Place: - \_\_\_\_\_  
Date: - \_\_\_\_\_

SEAL  
Notary, Assam State

BEFORE ME  
Notary, Assam State

Noted and Registered at \_\_\_\_\_  
Serial Number \_\_\_\_\_  
For & on Behalf of Development Authority  
Accepted by \_\_\_\_\_



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Chief Executive Officer

Guwahati Metropolitan Development Authority

## SECTION - D

## SPECIAL PROVISIONS OF CONTRACT

## 1. GENERAL

## 1.1 Extended Scope of the Contract

The contract comprises the planning, designing, drawing, supplying materials and equipments, construction, testing of materials, all supply items, the piles and the structures upto commissioning and defect liability period of one year, the provision of all labour, materials, constructional plant, temporary works and everything (whether or a temporary or permanent nature) required in and for such planning, design, construction, completion and maintenance so far as the necessity for providing the same in specified in or reasonably to be inferred from the contract.

## 1.2 Item wise details of the lump sum prices and interim payment schedule

The successful contractor will, against each of the job items quoted in the schedule of prices on lump sum basis, submit a detailed break up of lump sum prices for the approval of the Chief Engineer for the purpose of preparing interim payment schedule and calculating the consumption of materials to be issued by the Development Authority. The break ups will be such as to fairly agree with the lump sum price quoted. The Engineer shall have the authority to modify the break up of prices keeping, however, the total of the prices fairly equal to the lump sum amount quoted. Lump sum prices quoted in the schedule of prices shall remain fixed irrespective of the variations in items and quantities during actual execution compared with those provided in the break-ups.

Such break-ups for Civil Works shall include for each of the unit

- i) Pilling
- ii) Cement Concrete
- iii) Reinforcement
- iv) Brick Work
- v) Structural Steel Work
- vi) Doors, Windows, Rolling Shutters, Gates etc.
- vii) Roof Treatment
- viii) Plumbing and Sanitary Works
- ix) Pipe Lines and appurtenant structures
- x) Finishing works and other miscellaneous works (to be specified by the Contractor)
- xi) Laying of DI, HDPE and MS pipe of different dia.

The above mentioned details should be submitted by the contractor as early as possible after receipt of the Letter of Intent in order to enable him to start any sub-items of work and to receive interim payments. Where a component includes civil mechanical and electrical equipment, the break ups should invariably be submitted.

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**1.3 Store shed**

The Contractor shall provide at his own cost a store shed of adequate capacity for storing materials. The shed should be of such construction that it must protect the materials against deterioration. A raised platform well above the highest flood level shall be made for stacking cement in such a way that the cement received earlier can be consumed first so as to avoid deterioration due to prolonged stacking. If any modifications to the store shed is suggested by the Engineer for better storing of materials that should be carried out by the Contractor at his own cost.

**1.4. Land for Contractor's Establishment**

For the purpose of constructing Contractor's Store yard, godown, site office and ancillaries, he may utilize portion of the land belonging to the Development Authority/ Corporation at such location as would not interfere to execute other works. For all these, the Contractor shall have to obtain the requisite permission of the Chief Executive Officer. The Contractor shall for this purpose submit to the Engineer for his approval a plan of the proposed layouts for the site facilities. The Engineer reserves the right to alter and modify the Contractor's proposals as the Engineer may deem fit.

**1.5 Water and Electricity for Construction**

**1.5.1** The Contractor shall have to make his own arrangement for supply of water and for electrical power that may be required for or in connection with the works. No payment on this account will be entertained. However, Development Authority may assist in getting power.

**1.5.2** Arrangement for supply of piped water may not be possible. The Contractor will have to make arrangement for supply of drinking water and water required for constructions works by sinking tube wells or other suitable alternatives. The Tenderer shall investigate this matter during site inspection before submission of tenders. No payment will be entertained on this account.

**1.5.3** Nevertheless, electrical power from usual supply agencies may not be continuously available due to various reasons including load shedding. In case of non-availability of electrical power the contractor will have to make his own arrangements for electrical power through generators. Contractor should include such aspects while quoting his rate. No payment will be entertained on this account. When drawing power from the authority's power point, the contractor shall have to bear the cost of electrical charges. The route of conveyance shall be subject to approval by the Engineer-in-Charge and will be in accordance with I.E. Rules.

**1.6 First-Aid Facilities**

The Contractor shall arrange for medical attentions to be promptly available when necessary. He shall for this purpose provide a number of First-Aid stations at suitable locations within easy reach of the workmen and other staff engaged in the Works. Each First-Aid station shall be properly equipped and will remain in charge of a suitably qualified person. The Contractor shall also provide for transport of serious cases to the nearest hospital. All these arrangements shall be with the approval of the Engineer.

**1.7 Fire Fighting Arrangement**

The Contractor shall provide suitable arrangement for fire fighting. For this purpose he shall provide requisite number of Fire-Extinguishers and adequate number of buckets, some of which are to be always filled with sand and some with water. These equipments shall be provided at suitable prominent and easily accessible places and shall be properly maintained.

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themselves. If that be not possible, the matter shall be referred to the Engineer whose decision shall be final and binding on all the parties.

However, the site allocated to the contractor may be fenced at the Contractor's cost provided any necessary access to others as it required is given. The contractor will be permitted to use only the access to the site as indicated on the site plan prepared by the successful bidder and approved by the Engineer.

**1.14 Approval of Materials and Equipment to be used**

Samples in large enough quantity of materials with descriptive data requiring prior approval shall be furnished by the contractor to the Engineer in good time before the collection of such materials and equipment so as to permit inspection and testing. The samples shall be properly marked to show the name of the materials, name of the manufacturer, and place of origin and item for which it is to be used. Only upon approval, the materials of approved quality shall be brought to site. Samples approved shall be on exhibition at all times, properly stored and prevented from deterioration for the purpose of comparison with the materials brought to site of work from time to time for use in works.

**1.15 Testing & Testing Equipment**

**1.15.1** Testing of materials to be used in the permanent work or of the quality of finished items shall have to be done from manufacturer's own testing site and or from the laboratory approved by the Engineer at the expense of the contractor.

The contractor shall afford at his own cost necessary facilities in providing the requisite materials and other assistance that may be required by the Engineer including transport of the test specimens to the laboratory referred to above as will be necessary.

**1.15.2** The Contractor shall provide at his own cost necessary equipment for such testing which by the nature of work may have to be done at site or for taking samples for testing in laboratories. These include sufficient number of slump cones, standard 150 mm metal cube moulds, sets of I.S. sieves, weighing balances, graduated measuring cylinders, complete set of equipment for in-site density test, thermometers and any other miscellaneous equipment that may be required by the Engineer or his Representative. The Contractor shall also provide necessary arrangement for curing of concrete cube specimens, as instructed by the Engineer.

The contractor shall provide all the testing equipments needed to test the cement, concrete, coarse and fine aggregates, bricks, water etc. prior to supply those materials at site. It is the contractor's responsibility to keep all those testing equipments in a workable condition all the time as he may be instructed to test the samples of concrete (slump or cube), and other materials supplied by him, by the Engineer-in-Charge or his representatives. Before use of these materials testing at work site shall have to be made and is to be reported in the 'technical format' which has been asked to design by the bidders.

**1.15.3** The Engineer reserves the right to instruct the contractor to take representative samples from any batch/stack of concrete, coarse & fine aggregates, bricks and other materials supplied by the contractor and test the same. The contract is bound to remove the batch/stack of materials from the site immediately and supply/prepare a new fresh stack/batch is the Engineer or his representatives find the test results unsatisfactory.

**1.16 Construction Records**

The Contractor shall keep and supply to the Engineer the up-to-date records of the dimensions and positions of all permanent works (showing therein any approved deviation between the drawing and the work as actually executed). The information available from the records must be adequate and complete to enable preparation of "as-made" drawing by the Contractor from these records.

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**1.17 Progress Photographs**

The Contractor shall, at his own cost and expense arranges to take periodic photographs to show the progress of work or interesting features thereof. The time and the position where from a photograph is taken should be as per direction of the Engineer or his Representative. Three copies of each of these photographs to an enlarged size of about 25 cms x 20 cms together with the CD/DVD shall be supplied to the Engineer and these shall become the property of the Employer. Each photograph shall be suitably captioned with the date of the photograph, location and other relevant particulars. Further prints and CD of the photograph, location and other relevant particulars shall not be kept by the Contractor or reproduced without written permission of the Employer. Digital Camera with 6.0 Mega pixels should be used for taking photos.

Restrictions to photography or security restrictions that may be applicable to any particular area must be carefully and rigidly observed.

The number of photographs for each component/ work (each consisting of three prints and the CD/DVD as aforesaid) upto completion/ erection shall not expected to exceed 100 (one hundred). No photograph of the plant and other installations shall be taken without prior approval of the concerned officers.

**1.18 Satisfactory completion of various items**

The sub-works included in the Schedule of Prices are job works on lump sum basis. The various items of the sub-work are to fit in perfectly in the whole plant in every respect so as to form effective working parts of the whole plant as per satisfaction of the Engineer. Each sub-work will be considered as complete when it is completed as per specifications and put into commission, as per standards, as a successful component part of the whole plant.

**1.19 Checking Quality of Work**

Engineer should consider if necessary to satisfy himself as to the quality of the work, and the quality of the supplied material. The Contractor shall, at any time during continuance of the contract, offer sample of work done or if necessary pull down a reasonable part of the work enough for such inspection and testing as the Engineer may direct and the Contractor shall make good the same at his cost and to the satisfaction of the Engineer without any extra cost.

**1.20 Recording Measurements**

Though the offer is on lump sum basis, the Contractor shall give not less than five days notice, in writing to the Engineer, about the work which is proposed to be covered or placed beyond the reach of measurements so that measurements may be taken before the work is covered, bar bending schedule is to be provided five days before the casting date. If any work is covered without such written notice, the same shall be uncovered at the cost of the Contractor and in default hereof no payment or allowances shall be made for such work. These requirements apply for all the component items executed for the sub-work for which lump sum price is quoted.

**1.21 Reports and Returns**

The Contractor shall maintain at site daily records of progress with regard to the works carried out, labour engaged and construction equipment deployed. These will form the basis of preparing periodic reports and returns as may be required by the Engineer and in the manner as directed by him.

These daily records shall be made accessible to the Engineer or his Representative as and when desired by him. The contractor shall also submit a weekly return on the first day of each

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week for the preceding week showing update progress and progress during the previous week of all important items of work. The contractor's payment may be withheld if he fails to submit the progress report timely.

**1.22 Site Order Books**

1.22.1 For the purpose of quick communication between the Engineer or his Representative and the Contractor or his Agent or Representative, Site Order Books shall be maintained at site in the manner described below. Any communication relating to the works may be conveyed through records in the Site Order Books. Such a communication from one party to the other shall be deemed to have been adequately served specified elsewhere in the General Conditions of Contract. Each Site Order Book shall have machine-numbered pages in triplicate and shall be carefully maintained and preserved.

1.22.2 The Contractor shall keep Site Order Books at various places site work is being carried out so as to be readily available to the Engineer or his Representative. Any instruction or order which the Engineer or his Representative may like to issue to the Contractor may be recorded by him in the Site Order Book and two copies thereof taken by him for his record. The Contractor or his Agent or Representative may similarly maintain separate Site Order Book for any communication he may like to send to the Engineer or his Representative. Two copies thereof when sent to the Engineer's Representative and receipt obtained thereof, will constitute adequate service of the communication to the Engineer.

1.22.3 The Site Order Book intended primarily for facility of quick but recorded communication between persons working at site on behalf of the two parties. All important communication between the Engineer or the Employer and the Contractor or his agent shall be through letters and not through Site Order Books.

**2. EMPLOYER'S MATERIAL**

**2.1 Preamble**

To avoid delay in the smooth progress of the work, some materials when procured by the Employer in advance shall be used by the Contractor. These will be issued to the Contractor for utilization in the Works, under terms and conditions stipulated hereinafter.

Procurement of railway wagons for transport of large quantities of materials required to be moved by rail, is a time consuming process. Procurement of cement and steel materials require prior permission from appropriate authorities and involves considerable time-lag between the submission of requisite application and actual supply.

**2.2 Materials if supplied by the Employer**

2.2.1 For reasons explained above, the Employer is making arrangement for advance procurement of the materials listed below for issue to the Contractor for use in the Works under terms and conditions and at rates fixed by the Engineer, stipulated hereinafter for the respective items of material.

- a) Cement required for the Works
- b) Steel materials as required for reinforcement and for other works

2.2.2 If, in the interest of the Works, any material other than those listed in clause 2.2.1 above be issued to the Contractor, the provisions of Clause 2 shall apply strictly and the issue rate thereof shall be as fixed by Engineer.

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### 2.3 General Condition of Issue of Material

2.3.1 Employer's materials shall be issued to the Contractor to the extent of requirements as assessed and in suitable installments as decided by the Engineer. For this purpose the Contractor shall submit to the Engineer and advance programme showing his time-phase requirements of Employer's materials, in the form and manner as may be directed by the Engineer.

2.3.2 Indents for materials to be issued by the Employer shall be submitted by the Contractor to the Engineer or his Representative, well in advance. The Engineer shall have full discretion to specify the maximum and the minimum quantities for which an individual indent is to be placed.

While every attempt will be made to issue Employer's materials according to indents placed by the Contractor, the Employer or the Engineer cannot guarantee such timely issue and no compensation shall be payable to the Contractor for any delay under unavoidable circumstances. The Engineer may however, grant reasonable extension in the Time of Completion if, in his opinion, such failure in timely issue of Employer's materials is responsible for slowing down of the progress of work.

Without waiting for indent from the Contractor, the Engineer may, if he finds it necessary, direct that cement be received by the Contractor immediately on arrival of a consignment or consignments. In that event the Contractor shall make necessary arrangements to receive the materials according to instructions and subsequent indents shall be placed and approved.

2.3.3 Employer's materials shall be issued to the Contractor against proper receipts as may be specified by the Engineer. The value of materials issued shall be recovered from progressive bills or other dues of the Contractor. At the discretion of the Engineer, the amount of recovery from a bill may be only for such quantities of the non perishable materials as have been till then consumed in the works. Cost of cement and other perishable goods will be recovered in full from subsequent bill/ bills.

2.3.4 The Contractor shall be responsible to lift the material from the place of issue and for transport of the same to his own store or immediate work site as the case may be, The issue rates (i.e. rates at which subsequent recovery would be made from the contractor) as stipulated hereinafter, apply to the respective materials lying at the place of issue. All subsequent operations in handling, transport, proper storage and other incidentals will be the responsibility of the Contractor at his own cost and expense.

2.3.5 Unless any specific place of issue is mentioned hereinafter in respect of any particular material, Employer's materials shall be issued to the Contractor from any of the Employer's store within the Guwahati Metropolitan Area.

While attempt would be made to issue materials from such available sources as would minimize transport and handling on the part of the Contractor, it must be clearly understood that the Employer does not bind himself to any commitment in this respect.

2.3.6 Employer's materials issued to the Contractor are intended for proper utilization in the works. The contractor shall take all measures necessary for proper storage and guarding and shall be responsible for any damage to or loss of these materials. No payment on account of storage & guarding will be entertained.

The Contractor shall have to satisfy the Engineer regarding proper utilization of Employer's materials issued to the Contractor. The value of any material which can not be satisfactorily accounted for shall be recovered from bills or other dues of the Contractor at an enhanced rate to be decided by the Employer.

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The Contractor shall be required to maintain proper record of receipt and normal use of all materials issued to him and submit extracts when called for by the Engineer, in such manner and form as the latter may prescribe.

#### 2.4 Cement

2.4.1 The Cement shall be Ordinary Portland Cement 33 grade complying with IS: 269. The unit weight of cement would be taken as 1440 kg/cubic meter in accordance with IS 875 Part-I-1987.

2.4.2 The issue rate includes the cost of container bags. Cement shall be issued as standard weight bags i.e. each bag of 50 kg. The Contractor shall have to satisfy himself of its content both quantitatively and qualitatively at the point of lifting. Once accepted, the Contractor shall have to account for on the basis that each bag contained 50 kg. However, cement shall be used in the work on the basis of weight.

2.4.3 If at the time of issue the Contractor is apprehensive that the quality of the cement does not comply with the relevant standards specified, he may ask for the cement to be tested. The Engineer shall then have representative sample of the particular consignment sent for test.

If the result of the test be found to be satisfactory the Contractor shall have to accept the said consignment and the responsibility of the Employer shall cease.

If the result of the test be unsatisfactory, the Contractor may refuse to accept the said consignment, in which case, the Engineer shall arrange issue of cement of requisite quality from other consignments. Nevertheless, the Engineer may at his discretion still direct that the cement be used in unimportant items of work where the strength consideration is not very important. The Contractor shall in that case take delivery of such cement and store the same separately for use in such works as the Engineer or his Representative may direct. In respect of works done with such cement of sub-standard quality, the responsibility of the Contractor to produce finished products of the specified requirements shall cease. Issue rate of such cement will be different from normal one and at reduced cost determined by the Employer.

2.4.4 If, on the other hand, the Engineer or his Representative is apprehensive that the quality of cement (of specified standard) which had been issued to the Contractor, has since deteriorated due to long or defecting storage by the Contractor or for any reason whatsoever, he may similarly have the cement tested before the cement is used in the works. If the results of the test indicate that the cement does no longer comply with the specified standards, the cost of such test shall be borne by the Contractor and he would have to abide by the directions of the Engineer in respect of the disposal or utilization of the cement thus damaged but full recovery rate will be applied.

#### 2.5 Steel

2.5.1 Steel bars for use in reinforcement required for the permanent works shall be issued in lengths as available with the Employer. These may be either mild steel bars or cold-twisted deformed bars. The recovery shall be on the weight calculated on the basis of length issued and the standard sectional weight for the particular diameter.

In all cases, the Contractor is to utilize the steel materials in such a way as to minimize wastage on account of cut pieces. All wastage shall be to the Contractor's account. Any straightening, cleaning etc. of the steel materials received from the Employer, shall also be done by the Contractor at his own cost.

The tenderer should quote the rates with excess weight if any due to Rolling Tolerance of Steel materials (M.S., cold Twisted Bars or TMT Steel bars). No additional payment in this regard will be entertained. Consumption of the Steel Bars will be based on approved drawings and Standard Chart. Consumption for Steel materials shall be computed in the table of the chart subject to a variation of plus/minus five (5%) percent.

**3. NO INTEREST ON DUES**

No interest will be payable by the Development Authority on the amount due to the Contractor pending final settlement.

**4. DISPOSAL OF THE EXCAVATED MATERIALS**

All materials obtained from any excavation required to be carried out under this contract will be the property of the Development Authority and the Contractor shall not have any claim on it. It will not be used for any purpose other than refilling the excavations as needed or leveling the compound or in construction of any embankment or in any manner as directed by the Engineer. After completion of work or earlier if so directed by the Employer the surplus excavated materials shall be disposed off by the contractor within a distance of 13 km without any extra cost, but only after being so directed by the Employer. Transportation cost beyond 13 km will however be paid at the rate to be approved by the Employer.

**5. POSSESSION OF WORK**

The Development Authority shall have the right to take possession for use of any completed or partly completed part of the work. Such possession or use shall not be deemed to be an acceptance of any work not completed in accordance with the agreement.

**6. TENDER TO STRICTLY COMPLY WITH SPECIFIED CONDITIONS AND ALL OTHER SPECIFICATIONS**

It should be clearly noted that the tenderer have to strictly comply with the specifications and other terms and conditions laid down in this document and no variations are permissible. This is necessary for the purposes of comparison of tenders received.

The Contractor shall stand guarantee for the works carried out under this contract.

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SECTION - E  
GENERAL TECHNICAL SPECIFICATIONS

GENERAL

1.6 SITE CONDITION

The site of the Intake structure for raw water has been shown in location Map. The site of Water Treatment Plant and underground sump cum pumping station are also shown in enclosed Maps. The main distribution reservoir is at hill top. Six new hill top reservoirs are to be constructed and firm foundations are to be designed. Two ESR on plane ground are to be constructed on suitable foundation. Two service reservoirs are at plain land and will be elevated service reservoir. Two booster pumping station will be constructed. The Tenderer shall verify the location of the intake structure, Raw Water pump House, Water Treatment Plant, Semi underground reservoir, and booster pumping station, service reservoirs and alignment of pipeline and shall apprise himself of the local condition before submitting the Tender.

2.0 SUB-SOIL REPORT

Sub-soil investigation was carried out by soil-experts engaged by the Employer's Consultant at the site of the proposed intake structure and has been made available to the bidders.

The Tenderer should satisfy himself about the adequacy of the data for the design of pile foundation for different structures. The tenderer may carry out soil investigation before submission of his tender by drilling bore hole at work site at his own cost for his own satisfaction and to assess the safe bearing capacity. The successful Tenderer shall have to undertake fresh investigation of soil at the exact location of the structure at his own cost to design the foundation properly. Records of such sub-soil investigation such as bore hole logs, soil samples, SPT values etc., shall be done by the contractor duly witnessed and authenticated by the Engineer or his competent authorised representative. When approved by the Engineer the data can be utilized for design purpose.

In the event of variation in soil data those obtained by the contractor during execution, the more conservative values obtained from the two sets of reports shall be adopted for design without any extra claim over the quoted price as accepted by the Department, unless otherwise permitted by the Engineer, Guwahati Metropolitan Development Authority.

3.0 TENDER DRAWINGS

3.1 The Site Layout Plan, general arrangement of the proposed project is shown in Tender Drawings. These drawings are meant for giving the Tenderer a general idea of the proposed Project. The various levels and dimension of the raw water intake structure, raw water pump house, water treatment plant, clear water sump, pump house and pump station and hill top reservoirs and elevated service reservoirs are fixed. Effective capacity of reservoir and sump are given below -

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## CAPACITY OF RESERVOIR / SUMP

Name	Location	Type of Reservoir / Sump	Capacity Required (cu)
South Guwahati (West)	At WTP Location at Sadilapur	Clear Water Sump	1100
<b>West Kamakhya</b>			
West Kamakhya (Main)	Kamakhya Hill top	Hill Top UGR	6300
West Kamakhya	Kamakhya Hill top	Hill Top UGR	9300
Kamakhya Hill Top (By Boosting)	Near Bhubaneswari Temple	Hill Top UGR	450
	Kamakhya Hill top	Sump for Boosting	100
<b>Ganeshpara</b>			
Ganeshpara East	Fatasil Hill	Hill Top UGR	5700
Ganeshpara West	Madhavdev Nagar	Hill Top UGR	3400
Ganeshpara Central (By Boosting)	Durga Sarubar	Hill Top UGR	1700
	Fatasil Hill	Sump for Boosting	380
Jalukbari	G U Hill Top	Hill Top UGR	6400
Mirjapur (ESR)	Mirjapur	ESR	1600
Borjhar (ESR)	Jogipara	ESR	1600

There may be variations in details and sizes of pump bases and cable trenches depending on the Specification of the suppliers of Pump, Motor etc. which should be accommodated by the successful Tenderer during construction without any extra cost to Employer. The final working drawings will be vetted by the pump motor suppliers in order to satisfy their requirements.

- 3.2 A tentative Lay-out Drawing for the shape and different levels of the reservoir and pump house is enclosed in the tender document. The Tenderer has to quote his Rate for whole project. While calculating the effective capacity of the underground reservoir, dead storage of water and free board will not be taken into account and the volume of R. C. C. columns etc. shall be deducted. The tenderer has to quote his rate on the basis of his own design as per Tender

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Stipulations, which is not to be submitted with the tender. Effective volume is therefore the quantity of water to be stored in excess of dead storage.

However a tentative design and lay-out drawing different from the tender drawing, showing the scope of civil work including size, shape, inlet and outlet arrangements, overflow arrangements etc. as proposed by him, shall have to be submitted with the tender. The work will however, be executed on the basis of the detailed designs and drawings submitted by the successful Tenderer which will be prepared by on the basis of the Technical Parameters and the terms and conditions of the tender document duly approved by the Engineer.

The RCC pile founded has to be in such a manner that the same can withstand all dead loads, live loads, effect of earthquake and service loads. The pile foundation must satisfy the settlement criteria.

**Requirement of Floor Spaces and tentative Room Sizes are to be provided by the successful bidders**

Description	Size of Room in MM
At R. L.	
(i) Unloading Platform	
At R. L.	
(i) Pump Floor, Pump Bay including Repair Bay	
(ii) Stair Block	
At R. L.	
L. T. Panel Fore Bay cum Control Room /	
Office Room	
Store Room	
Battery Room	
Lavatory	
Stair block	
At R. L.	
WBSEB Room, H. T. Room	

Note : Dimensions are in Millimeters.

**Mandatory Levels in Meters ( to be provided by the successful bidders):**

Existing Ground Level (Average)

Finished Ground Level

Top Water Level in CWR

Lowest water Level in CWR

Top of Concrete of Reservoir Roof

R. L. of Plinth of Entrance Lobby

Repair Bay

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Top R. L. of Crane rail  
 R. L. of Hook Level of Crane  
 Clear height of WBSEB Room / H. T. Room  
 Clear height of Control Room / Office Room /  
 L. T. Panel Room  
 Clear Opening for Roller Shutter for unloading Bay

**SUCCESSFUL BIDDERS SHALL HAVE TO SPECIFY LEVEL, SIZES AND HEIGHTS**

**4. EQUIVALENCY OF STANDARDS AND CODES**

Wherever reference is made in the contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed and tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise stated in the contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards and codes specified will be acceptable subject to the Engineer's prior-view and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the contractor and submitted to the Engineer at least 28 days prior to the date when the contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure equal or higher quality, the contractor shall comply with the standards specified in the documents.

**5. SIGN BOARD & BARRICADING**

The contractor shall provide a sign board at the site of the Works of approved size and design which provides (i) the name of the Project, (ii) the names and address of the Employer, the contractor and the consultant, (iii) the name and short description of the project, (iv) the amount of the contract price, and (v) the starting and completion dates subject to the approval of the Employer.

All sites shall be well barricaded with metallic sheets strongly supported and with reflectors, red lightings etc. during execution of work.

**6. PROTECTION OF UTILITIES**

The contractor is required to carefully examine the location of the Works and their alignments and to make special enquiries with all authorities concerning all utility lines such as water, sewers, gas pipe, telephone (underground and/or overhead) lines electric cable (underground and/or overhead) lines, etc. ; and to determine and verify to his own satisfaction the character, sizes, position and lengths of such utilities from authentic records. The contractor shall be wholly responsible for the protection and/ or facilitating relocation of such utilities as may be required, and shall not make any claim for extra work or extra time that may be required to protect or facilitate relocating such utilities. If any major shifting or realignment of water, sewers, gas pipes, electric and telephone lines is necessary due to their interference with the proposed Works, the same may be done by the Employer. The cost of such relocation will be borne by the employer when such interferences are examined and recorded by the Engineer and approved by the Employer.

In case the alignment of the pipeline crosses high tension electrical transmission lines belonging to the ASEB or other authorities, the contractor shall take all precautions necessary to see that the work is carried out with care and safety, without disturbing such transmission lines. The contractor will be responsible to carry out all construction activities in such reaches

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in consultation with the owners of such facilities. However, satisfactory completion of the entire work will be responsibility of the contractor.

**7. EARTH WORK**

**7.1 GENERAL:**

The earth work excavation for laying of pipe shall be carried out. The contractor shall make all excavations required for laying and joining of the pipeline and construction of pertinent structures as required by the project. Except where otherwise required by the project or instructed by the Engineer, all excavation shall be open cut to the specified widths and depth. The contractor is advised to satisfy himself with to the likely conditions that may be met with the execution of the Works, with regard to the underground obstructions or conditions, necessary dewatering requirements etc., before quoting the rates.

**7.2 CLASSIFICATION OF EXCAVATION**

All materials involved in excavation shall be classified in three categories as follows:

**7.3 ORDINARY SOIL**

This includes excavation in all types of soil including soil containing gravels, moorums, loose boulders, viz. ordinary gravelly soil, hard gravelly soil, wet soil, stiff slushy soil, chettu soil and alacritous strata, but exclusive of disintegrated rock, soft rock/shale.

**7.4 SOIL CONTAINING DISINTEGRATED ROCK, SOFT ROCK AND SOFT SHALE**

This category includes excavation in soil containing disintegrated rock, soft rock or soft shale which can be cut by shovel and no hand or mechanical chiseling is required.

**7.5 Medium Hard Rock**

This category includes excavation in time stone, sand stone, hard shale and schist fissured rock, without resorting to blasting

**7.6 HARD ROCK**

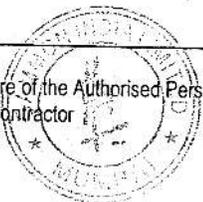
This category includes excavation in hard rock requiring hand or mechanical chiseling or blasting. In case of difference in opinion between the classification of rock requiring blasting and that requiring chiseling, wedging, the decision of the Engineer shall be final and binding on the contractor.

**7.7 LIMITS OF EXCAVATION**

The trench for laying D.I. pipes of all sizes shall have minimum width as per standards stipulated or as directed by the Engineer – in charge wherever joints are to be made, an additional excavation for pits of size 0.3 m wide X 0.3 m deep or to provide sufficient working space shall be in the bottom of the trench along the width, to facilitate jointing. A minimum cover of 1.0 m shall be maintained above the pipe top, unless otherwise specified or shown in the alignment drawings. Any extra excavation required for providing suitable bedding for the pipeling or for maintaining the grade of the pipeline, shall be paid extra at actual, based on the quoted rates.

The contractor shall be responsible to ensure that the widths and depths of the trenches do not exceed the limits shown in the construction drawings. Should the excavation occur beyond the dimensions specified therein, because of the negligence of the contractor, the contractor shall fill the excess space with granular material or concrete as directed by the Engineer. Nothing extra shall be paid to the contractor on account of this.

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**7.8 TRIAL PITS**

Trial pits may be dug by the contractor, without being directed to do so, along the lines of the trenches as shown on the drawings in advance of the excavations for the purpose of satisfying himself as to the location of under ground obstructions or soil conditions.

**7.9 SLIPS AND SLIDES**

The contractor is responsible for proper protection of excavations made by him from any slips and slides. All slides and caving shall be handled, removed or corrected by the contractor without any extra compensation at whatever time and under whatever circumstances they may occur. The excavations shall be made good and brought to necessary depth, width and levels without any extra cost.

**7.10 STACKING OF EXCAVATED MATERIAL**

The excavated material shall be stacked at least 600 mm away from the sides of the trench.

**8. SAFETY MEASURES**

The contractor shall provide adequate safety measures during excavation. They shall include:

1. Barricading all sides of the open trenches.
2. Red lights/ reflectors as can be easily visible from night to dawn. There are to be placed at an interval of 20 m and at all the road crossings or at suitable interval directed by the Engineer.
3. Traffic and display boards giving direction for diversion of traffic at the appropriate places as may be directed by the Engineer.
4. Adequate safe wooden plank/ board or steel plate over the trenches are to be placed to facilitate crossing by the public residing on either side of the trench.
5. Round the clock watch and ward maintaining all safety regulations at the site of work and protecting the site from unauthorized intrusion shall be provided by the Contractor at his cost.

**9. EXCAVATION IN ROCK**

Excavation in rock shall be carried out to a depth, 150 mm more than the bottom level of pipe and to a width equal to the diameter of the pipe plus minimum working space on either side as given in drawing. Unless otherwise directed by the Engineer, rock excavation shall be progressed at by 20m in advance o the pipe length proposed to be laid.

**10. BLASTING OF ROCK**

Excavation of rock by blasting may be carried out if permitted by the Engineer depending upon the location and circumstances. Contractor shall submit a detailed plan and methodology for such blasting operation to the Engineer for approval. The reasonability of the contractor with respect to the use of explosives in blasting includes compliance with all laws, rules and regulations or other Municipalities governing the storage, use, manufacture, sales, handling, transportation or other disposition of explosives. All operations involving the handling, storage and use of explosives, shall be conducted with very precaution by trained and reliable men under experienced supervisors. Blasting shall not be undertaken until all persons in the vicinity have had ample notice and have reached positions out of danger thereform. The contractor shall take special precautions for blasting at and near the top of trench as well as for the proper use of explosives in the trench to prevent damage to surface, structures, water supply mains,



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