JABALPUR SMART CITY LIMITED (JSCL), JABALPUR, MADHYA PRADESH

TENDER DOCUMENT

For Percentage Rate only

Office of the		***:-***	***JABALPUR SMART CITY LIMITED***
NIT Number		***:-***	***JSCL/2018/658/ADM/134***
Date of NIT		***:-***	***23/07/2018***
Agreement Number and Date		***:-***	_____
Name of Work		***:-***	***Design and Development of MR-4 Road and Damoh Naka to ITI Chowk, Jabalpur***
Name of the Contractor		***:-***	_____
Probable Amount of Contract	***In Words***	***:-***	***Nineteen Crore Ninety Eight lakh forty Thousandfour Hundred twenty six.***
	In figure	***:-***	***199840426.00***
Amount of Contract	***In Words***	***:-***	_____
	In figure	***:-***	_____
Stipulated Period of Completion		***:-***	***12 Months (including Rainy Season)***

TABLE OF CONTENT

Contents

TABLE OF CONTENT 2
Notice Inviting e-Tenders 5
Notice Inviting Tenders 6
Jabalpur Smart City Limited 6
Office of the Executive Director, Jabalpur Smart City Limited 6
Newspaper Cutting & Signed NIT 8
INSTRUCTIONS TO BIDDERS (ITB) 10
1. GENERAL 10
2. SCOPE OF BID 10
3. GENERAL QUALITY OF WORK: 19
4. PROCEDURE FOR PARTICIPATION IN E- TENDERING: 19
5. ONE BID PER BIDDER 19
6. COST OF BIDDING: 19
7. SITE VISIT AND EXAMINATION OF WORKS: 19
B. BID DOCUMENTS 19
8. CONTENT OF BID DOCUMENTS: 19
9. INFORMATION 20
10. PRE-BID MEETING (WHERE APPLICABLE) 20
11. AMENDMENT OF BID DOCUMENTS 20
C. PREPARATION OF BID 20
12. BID PREPARATION. 20
13. DOCUMENTS COMPRISING THE BID: 21
14. LANGUAGE: 21
15. TECHNICAL PROPOSAL: 21
16. FINANCIAL BID: 21
17. PERIOD OF VALIDITY OF BIDS: 22
18. EARNEST MONEY DEPOSIT (EMD) 22
D. SUBMISSION OF BID 22
19. BID SUBMISSION 22
E. OPENING AND EVALUATION OF BID 22
20. PROCEDURE: 22
21. CONFIDENTIALITY: 23
F. AWARD OF CONTRACT 23
22. AWARD OF CONTRACT: 23
23. PERFORMANCE SECURITY 23
24. SIGNING OF CONTRACT AGREEMENT: 23
25. CORRUPT PRACTICES: 23
BID DATA SHEET 25

ANNEXURE – A 27
KEY DATES 27
ANNEXURE – B 28
|| AFFIDAVIT || 28
ANNEXURE—C 29
PRE- QUALIFICATIONS CRITERIA 29
ANNEXURE —D 30
SPECIAL ELIGIBILITY CRITERIA 30
ANNEXURE- E 31
SPECIFICATIONS 31
ANNEXURE-F 31
PROCEDURE FOR PARTICIPATION IN E-TENDERING 46
ANNEXURE — G 48
JOINT VENTURE (J.V.) 48
ANNEXURE-H 50
ORGANIZATIONAL DETAILS 50
ANNEXURE —I 52
Envelope — B, Technical Proposal 52
ANNEXURE - I (Format: I-1) 53
FINANCIAL & PHYSICAL EXPERIENCE DETAILS 53
ANNEXURE-I(Format: I-2) 54
ANNUAL TURN OVER 54
ANNEXURE - I (Format : I-3) 55
List of Technical Personnel for the Key Positions (to be referred for civil works) 55
ANNEXURE - I (Format : I- 4) 56
List of Key Equipment's / Machines for Quality Control Labs 56
ANNEXURE - I (Format : I-5) 62
List of Key Equipment's/ Machines for Construction Work (Only for civil works) 62
ANNEXURE — J 64
FINANCIAL BID 64
ANNEXURE — K 65
MATERIALS TO BE ISSUED BY THE DEPARTMENT 65
ANNEXURE—L 66
LETTER OF ACCEPTANCE (LOA) 66
ANNEXURE — M 67
PERFORMANCE SECURITY 67
Conditions of Contract 68
ANNEXURE—N 87
Drawings 87
ANNEXURE—O 88

Details of Milestones....88
ANNEXURE—P....89
Compensation for Delay....89
ANNEXURE – Q....90
List of Equipment for Quality Control Lab....90
ANNEXURE - R....91
ANNEXURE - S....92
ANNEXURE - T....93
ANNEXURE - U....94
Physical Completion Certificate....94
ANNEXURE-V95
Final Completion Certificate....95
ANNEXURE - W....96
Salient Features of Some Major Labour Laws Applicable....96
BILL OF QUANTITIES (BOQ)....119
AGREEMENT FORM....120
ANNEXURE 1 A....121

SECTION 1

Notice Inviting e-Tenders
Jabalpur Smart City Limited

NIT NO. ***JSCL/2018/658/ADM/134*** **Dated. 23.07.2018**

Online percentage rate bids for the following works are invited from registered contractors and firms of repute fulfilling registration criteria:

S.No.	*Work*	*District(s)*	*Probable Amount (Rs.)*	*Completion Period (months)*
1	***Design and Development of MR-4 Road and Damoh Naka to ITI Chowk, Jabalpur***	***Jabalpur***	***Rs. 199840426.00***	***12 Months***

1. Interested bidders can view the NIT on website ***http://www.mpeproc.gov.in***
2. The Bid Document can be purchased only online from ***24/07/2018 to 16/08/201805:30 PM***
3. ***Pre Bid Meeting*** is schedule on ***02/08/2018at JSCL office ManasBhawan, Jabalpur.***
4. Amendments to NIT, if any, would be publish on website only, and not in Newspaper.

Chief Executive Officer
Jabalpur Smart City Limited

Notice Inviting Tenders
Jabalpur Smart City Limited
Office of the Executive Director, Jabalpur Smart City Limited

NIT NO. ***JSCL/2018/658/ADM/134*** **Dated. 23.07.2018**

Online percentage rate bids for the following works are invited from registered contractors and firms of repute fulfilling registration criteria:

S.no.	Name of Work	District	Probable Amount of Contract (Rs.	Earnest Money Deposit (EMD) (in Rupees)	Cost of Bid Document (in Rupees)	Category of Contractor	Period of completion (in Months)
1	***Design and Development of MR-4 Road and Damoh Naka to ITI Chowk, Jabalpur***	*Jabalpur*	*Rs. 199840426.00*	*1000000.00*	*30000.00*	*Appropriate class*	*12 Months*

1. All details relating to the Bid Document(s) can be viewed and downloaded free of cost on the website.
2. Bid Document can be purchased after making online payment of portal fees through Credit/Debit/Cash Card/ internet banking.
3. At the time of submission of the bid the eligible bidder shall be required to :
4. ***Pay the cost of bid document.***
5. ***Deposit the Earnest Money***
6. ***Submit a check list and***
7. ***Submit an affidavit.***
8. ***Further, Details can be seen in the Bid Data Sheet.***
9. **Eligibility for bidders :**
10. At the time of submission of the bid the bidder should have valid registration with the Government of Madhya Pradesh, PWD in appropriate Class. However, such bidders who are not registered with the Government of Madhya Pradesh and eligible for registration can also submit their bids after having applied for registration with appropriate authority. The bidder would be required to have valid registration at the time of signing of the Contract.
11. ''A'' Class Valid Electrical Licence or at the time of submission of the bid the bidder should have valid registration with the Government of Madhya Pradesh Electrical inspectorate in appropriate Class. However, such bidders who are not registered with the Government of Madhya Pradesh and eligible for registration can also submit their bids after having applied for registration with appropriate authority. The bidder would be required to have valid registration at the time of signing of the Contract.
12. Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.
13. ***Pre-qualification –*** Prequalification conditions, wherever applicable, are given in the Bid Data Sheet.
14. ***Special Eligibility-*** Special Eligibility Conditions, if any, are given in the Bid data sheet.
15. The Bid Document can be purchase only online from ***24/07/2018 to 16/08/2018 05:30 PM.*** Other key dates may be seen in bid data sheet.
16. ***Pre Bid meeting*** is schedule on ***3:00 PM 02/08/2018*** at ***JSCL Office ManasBhawan, Jabalpur.***

17. ***SOR applied is UADD Schedule of Rates 2012 Volume I, II, III& IV, MPPWDSOR 2014, CPWDSOR, MPKVVVSOR, amendments upto the date***till submission of tender ***and Market Rates***
18. Amendments to NIT, if any, would be publish on website only, and not in newspaper.

Chief Executive Officer
Jabalpur Smart City Limited

Newspaper Cutting & Signed NIT

दैनिक भास्कर 24/07/2018

JABALPUR SMART CITY LIMITED

CIN-U75100MP2016SGC035536

JSCL/2018/658 /ADM/134 Dated 23.07.18

NOTICE INVITING TENDER

Jabalpur Smart City Limited invites online Proposals for "Design and Development of MR-4 Road & Damoh Naka to I.T.I. Chowk". Interested bidders may obtain details RFP document from www.mpeproc.gov.in. & www.jscljabalpur.org.

Contact No. : 7611136800

Chief Executive Officer
Jabalpur Smart City Limited

पत्रिका

Jabalpur Smart City Limited

CIN-U75100MP2016SGC035536

Ref No.JSCL/2018/658/ADM/134 Date: 23/07/2018

Notice Inviting Tender

Jabalpur Smart City Limited invites online Proposals For **"Design and Development of MR-4 Road & Damoh Naka to I.T.I. Chowk"** Interested bidders may obtain details RFP document from www.jscljabalpur.org & www.mpeproc.gov.in.

Contact- 7611136800

Chief Executive Officer
Jabalpur Smart City Limited

Jabalpur Smart City Limited

BALPUR

CL 2018 658/ADM/134 Date 23/07/2018

Notice Inviting Tender

balpur Smart City Limited invites online Proposals for "Design and evelopment of MR-4 Road & Damoh Naka to I.T.I Chowk". terested bidders may obtain details RFP document from ww.mpeproc.gov.in, & www.jsefjabalpur.org.

ontact: - 7611136800

Chief Executive Officer
Jabalpur Smart City Limited

SECTION 2

INSTRUCTIONS TO BIDDERS (ITB)

1. GENERAL

PROJECT OBJECTIVE AND KEY COMPONENTS

Transforming roads as conceptualized by the Smart City Mission and by JSCL, to create 21st century public realm infrastructure for all strata of the society. This entails comprehensive upgrading of the public Right of Way (ROW) of the streets which includes (but is not limited to) – refurbishment of existing carriageway, laying of new footpaths and cycle tracks, shifting , external development works for landscape, hardscape, street furniture, lighting etc.

Roads include **Four Broad Objectives,** namely:

- **ROAD DIET & SAFE STREETS:** Also known as lane-width reduction or road re-channelization is a technique in transportation planning whereby the effective width of the carriageway is reduced in order to achieve systemic improvements. Roads with clearly demarcated spaces for vehicles, pedestrians, cyclists and dedicated on-street parking to minimize conflicts between vehicular and pedestrian traffic. Safe streets with shaded walkways promoting walking as a daily activity – encouraging healthy lifestyles.
- **RESILIENT STREETS:** Streets with defined utility corridor including undergrounding & overhead utilities where upgraded utilities can withstand severe natural and man-made disasters. Streets that provide infrastructure allowing safe walking experience in night through pedestrian lighting and clean public space through dustbins at regular intervals.
- **INCLUSIVE STREETS:** Streets that allow and provide multiple mobility options to its citizens including walking, cycling, driving private vehicles and commuting through public transport. Universal accessible design that allow safe walking experience to all citizens especially elderly and people with special needs.
- **STREETS AS PUBLIC SPACES:** Streets that provide spaces outside our homes for social, cultural or intellectual interactions, to walk or to just breathe fresh air. Streets that reduces congestion through replacement of encroachments on streets to its designated areas and achieving low carbon emission.

2. SCOPE OF BID

The roads are to be constructed as per the street design guidelines such as IRC , UTTIPEC street design guidelines, etc. issued by MoUDGoI. The attached road design considers the following three levels of transport (i) Pedestrian (ii) Cycle track (iii) Public transport users and lastly the motorized vehicles. It should include the necessary infrastructures/amenities like landscaping, water supply, storm water drainage, underground utility duct etc.

Existing roads are bituminous roads and it is proposed to have carriageway of bituminous with provision of widening with overlay on existing surface without scarifying the existing B.T. surface (as per attached road sections).

- Cycle tracks on both side of carriageway will be of bituminous material which is to be highlighted with road markings as per the street guidelines.
- Pedestrian path on both side of cycle track which will be constructed with flag stone.
- Landscaping with 3 seat chairs, tree guards, dustbins etc. There is also provision of Water ATMs along some roads.
- Median is proposed on the road.

- Underground utilities such as pipe line, sewer pipeline, OFC cables, Electrical cables, rainwater drain etc. The cost of sewer pipeline and water supply is not included in this project, as they are either being executed on other project or will be executed in different projects.

1. Contractors are requested to visit the site prior to fill/submit the tender and check all the necessary attributes/matters related for completion of this project.

2. All the activities required to be carried out for successful and timely completion of this project shall be carried out by the successful contractor.

The works under Contract comprises the construction of Improvement of Roads consisting of Up gradation and Augmentation and other Miscellaneous works along with Operation and Maintenance of Tendered works for Period of Five Years on Design, Build, Operate Basis in Jabalpur.

The detailed scope of work, hereinafter referred to as ***"Work"*** is "Survey and all kind of Investigations, Design, making feasibility report, Construction of Traffic Junctionand its beautification i/c Maintenance for a period of 05 years after completion of construction work. The initial period of 05 years after completion shall be treated as Defect Liability Period (DLP). A brief description of projectis as given below.

The Traffic Junction are to be Design &constructed as per the street design guidelines such as IRC , UTTIPEC street design guidelines, etc. issued by MoUD, GoI. It should include the necessary infrastructures/amenities like landscaping, storm water drainage,required shelter to avoid the rain as well as sunlight,required furniture for sitting purpose, traffic signs, street name/direction and all other allied worksetc as per approved / directed by JSCL.

Note-Details given in document are for information purpose only and successful bidder shall undertake confirmatory surveys for accuracy and completeness of data. It is in scope of successful Bidder to undertake all Site surveys, Geotechnical investigations/Engineering Surveys, hydrological investigations Underground Utility Surveying of the roads for shifting and creating new, obtaining all required approvals from the relevant authorities, Carry out Design and Drawings for all the components of the work as per Employers requirement and submit the same to client for review and approval. Prepare Good for Construction Drawings, submit maintenance manual to client for approval before start of post construction period.

The successful bidder shall have to prepare and submit both 'Good for Construction Drawings' before execution and 'As Built Drawings' after execution depicting the exact construction carried out on site, in soft and hard copy format.

PRE-CONSTRUCTION PHASE (DESIGN & GOOD FOR CONSTRUCTION DRAWINGS)

This phase starts from the date of signing of the Agreement to the date of approval of GFC. The total timeline for this phase is 01 months w.e.f. from the date of signing of Agreement. Applying the design principles, objective and expected outcomes illustrated in the document as well as attached drawings/documents provided by the employer, the contractor must develop the concept, and create a good for construction (GFC) drawings package, which on approval, shall be followed by on-site implementation.

During this process, the contractor shall prepare the concepts design and planning for betterments or improvements of Junctions which may be incorporated to better achieve the Employer's goals and objectives. These betterments, if any, shall be submitted by the contractor to the Client representative/PMC for review and for the approval before the closure of the Good for construction drawings stage.

KEY TASKS/ DELIVERABLES BY THE CONTRACTOR DURING GOOD FOR CONSTRUCTION STAGE WILL INCLUDE:

- This contract involves the design (wherever required, including submission and obtaining of all necessary approvals from the relevant authorities). The contractor shall prepare GFC for the works included in the RFP in accordance with the concept design developed by Employer.
- The contractor should submit a complete timeline for scope of work to be carried out.
- The Client Representative/PMC will supervise and monitor the progress of this phase and contractor shall provide necessary coordination.
- Contractor shall conduct all investigations required for design and execution of project like traffic studies and road investigations , Inventory of roads, Geo-tech investigations minimum 3 m below the hard rock or as per the BIS standards and for its structural stability and propose any new pavement, junction improvements , if required.
- Based on the revised cross section, traffic and other relevant parameters, contractor will have to design the geometry of road and pavement etc. and get it vetted and approved by 'Engineer in Charge'.
- Preparation and Submission of Complete Bill of Materials (BoM) along with detailed technical specifications, manufacturer's details and delivery schedule at the sites. Shall also provide the codification for all the items delivered.
- Preparation and submission of the details of the man power deployment for the project.
- Dispatch of materials as per the implementation accepted timelines / implementation schedule and phasing of the project by the employer.
- Preparation and submission of periodical progress report for all the stages.
- Employer will provide all the available information pertaining to these roads to the successful bidder. However contractor has to validate the information provided by carrying of field/site surveys/other relevant surveys as deemed necessary independently. The contractor shall conduct site survey and investigation of the roads where design has to be implemented and prepare survey report highlighting the site feasibility, GFC drawings, and site specific requirements / dependencies for successful implementation.
- Contractor has to prepare the documentation for showcasing the daily and weekly progress and the quantification of work done, Its mandatory to submit the progress report with Photos and Video every month and also before and after present conditions. At the end of the project a movie with 15 minutes, showcasing the project at different stages shall be submitted by the contractor.

CONSTRUCTION PHASE

- This phase starts from the date of approved good for construction drawings (GFC). The total timeline for this phase is 11 months w.e.f the date of approved GFC byclient/PMC.
- This contract involves the design (wherever required, including submission andobtaining of all necessary approvals from the relevant authorities), construction andcompletion of the following based on the design developed by the Employer andContractor's good for construction drawings and handing over of the same in fullaccordance with the Employer's requirements. Key tasks include:
  i. Site clearance, demolition works, earthworks, temporary works, Trafficdiversion, Barricading the construction site, Utility shifting and allancillary works as shown on the Drawings and deemed necessary for the carryingout of temporary and permanent construction works;
  ii. Narrowing/re-cambering/raising/milling down and overlaying ofexisting carriageways, flexible/rigid pavement at at-grade roadintersections and accesses to adjoining developments;
  iii. Contractor has to ensure the safety and security of existing buildings adjacent toroads.
  iv. Trees cutting (if any) as indicated in the Drawings;

v. Excavation of trenches; relocating of median, removal of existing poles /transformers, etc.. and other road related facilities as per standards / drawings
vi. Construction of Utility ducts, cross drains shall be proposed by contractor basedon the site suitability and the should be approved by Engineers per the drawing;
vii. Construction of footpath, cycle track, kerbs, vehicular impact guardrails,and other road-related facilities as per drawings;
viii. Supply and installation of new Electric poles and light fittings as shown in theDrawings;
ix. Temporary and permanent diversion and restoration of footpath, drains,roads and street furniture including the supply and painting of road/lane markingsfor all temporary and permanent carriageway in accordance with theEmployer's requirements and to the satisfaction of the Engineer;
    - The contractor should submit a complete implementation timeline
    - The Client Representative/PMC will supervise and monitor the progress of theimplementation and contractor shall provide necessary coordination.

POST CONSTRUCTION

x. Post construction activities shall include Defect Liability (works specified under thisRFP) and also maintenance of roads, landscape and also the utilities laid by the contractorin the traffic Junctions. Any faults, repair and general maintenance, watering of landscapeetc..shall start from the date of practical completion for a period of 12 months andcontractor shall undertake all responsibility for defects of the equipment and landscapematerials during this period.
xi. General scope provided in the section below, applies to all the phases i.e. preconstructionconstruction and post construction.

Electrical Scope of work

Supply, Installation and Commissioning of Special Lighting Fixtures and Electrification work.

I. General

The Contractor shall ensure that the work is carried out as per the Tender / GAD Drawings and specifications given in the Tender. The installation of special lights / fixtures at site shall be done by the Contractor including other necessary accessories at his own cost as per the Tender. If in the opinion of the Engineer the quality / standard of material is not up to the mark, Engineer may instruct replacement of such material. No claim in the sub-standard material, etc. shall be entertained by the Engineer.

II. Lighting Colour:

The colour of the luminaries and the conduits shall be as per Tender Drawings and Specifications and as per the direction and approval of Engineer.

III. Electric Connection:

The contractor shall be responsible for laying of cable through underground conduit from fixtures to lightning points.

IV. Standards to be followed:

All work shall be done strictly as per applicable Indian Standards and relevant IS Codes. The wiring and installation of fixtures should be done as per IS732.

V. Standards to be followed:

All work shall be carried out strictly as per following / relevant IS Codes.

1. IS: 732 - 1989 Code of practice for electrical wiring installations.
2. IS:8061 - 1976 Code of practice for design, installation and maintenance of service lines up to and including 650V
3. IS: 11353- 1985 Guide for uniform system of marking and identification of conductors and apparatus terminals
4. IS: 3646(Part-1)-1966 Code of practice for interior illumination: Principles for good lighting and aspects of design.
5. IS: 3646(Part-2)-1966 Code of practice for interior illumination: Schedule of illumination and glare index.
6. IS: 3043 - 1987 Code of practice for earthing.
7. IS: 5216(Part-1)-1982 Guide for safety procedures and practices in electrical work: General.
8. IS: 3480 - 1966 Flexible steel conduits for electrical wiring.
9. IS: 2667 - 1988 Fittings for rigid steel conduits for electrical wiring.
10. IS: 3854 - 1988 Switches for domestic and similar purposes.

VI. Interface:

The Contractor shall supply a template for installation and fixing accessories as per requirement / drawings to avoid any discrepancy found during installation of fixtures at site. Any modification during installation if required shall be rectified by the Contractor at no extra cost.

VII. Time Allowed

The Contractor will complete the works within the timeframe mentioned in the Tender Document. Failure to comply with the time schedule will invite the penalty described in the agreement for execution of the project.

VIII. Defect Liability Period

The Contractor will also be responsible for rectification of any defect, arising out of poor Installation/ poor material as mentioned in Section VIB SCC of the tender document.

IX. Safety and Security Measures

The Contractor shall be solely responsible for the safety of installing fixtures at site and should take adequate precaution to prevent any accident or harm to material & people during installation. The Contractor shall bear the cost of the damages done to the building and surroundings.

X. Alteration

The Contractor will be allowed to carry out minor alterations, if required, due to site specific conditions only after prior written approval from the Engineer. If necessary Engineer reserves the right to review and suggest changes before providing consent for the alterations.

XI. Specifications

The works are to be carried out with the details given under items in BoQ, complemented with the details available in the Standard Specifications (Electrical Works) published by UADD SOR (Madhya Pradesh). In case specifications are not available, specification prepared by any other Government

Department (including CPWD) will be followed. In case of further requirement, specifications available in the latest edition of published codes of Bureau of Indian Standards will be followed.

XII. Indicative Program

No indicative program is attached herewith. The contractor is to submit his own programme for completion of works as per Conditions of Contract.

XIII. Site Investigation Reports

No Site Investigation Reports are attached herewith and the Contractor may carry out his own site investigation, as he requires.

XIV. Commissioning, Quality Assurance & Quality Control

Testing and commissioning of all materials and works as mentioned in the UADD SOR (Madhya Pradesh) publications or stipulated in the codes or as directed by the Engineer shall be carried out by the Contractor and test reports shall be submitted regularly to the Engineer for his perusal. The Contractor is to notify the Engineer the program of such tests well in advance, so that such tests, either conducted in his own laboratory, laboratory established at the site or any accredited laboratory or at Manufacturer's place can be witnessed by him / his representative or Third Party, if appointed by the Procuring Entity.

The Contractor is to abide by the stipulations/ clauses appearing in the QA & QC Manual published by the UADD SOR (Madhya Pradesh).

XV. **GENERAL REQUIREMENTS**

The installation shall generally be carried out in conforming with the requirements of the Indian Electricity Act, l9l0 as amended up to date and the Indian Electricity Rules, l956 framed there under, the relevant regulations of the Electric Supply Authority concerned, and also with the specifications laid down in the Indian Standard I.S. 732 - l963 Code of Practice (revised) for Electrical Wiring Installations (system voltage not exceeding 650 volts) and I.S. 2309-1969 Code of Practice for the protection of Buildings and Allied Structure against Lighting and IS 3043 - Indian code of Practice for Earthing. The wiring shall also be according to the I.S specifications, NEC, Local Government Body.

XVI. **MATERIALS**

All materials, fittings, appliances, used in electrical insulations shall confirm to Indian Standard Specifications wherever these exist. A list of approved materials is attached afterwards. Materials not included in the list shall be got approved by the Engineer-in- Charge / Owner prior to actual use.

XVII. **MAIN BREAKER**

Iron clad switch fuse and isolator units should confirm to relevant I.S. Standard. The quick make and break mechanism shall be self interlocked with the cover. In "Off" position there must be two breaks per pole.Main switch shall be properly earthed.

XVIII. DISTRIBUTION BOARDS

These totally enclosed metal clad type Distribution Boards with hinged lids shall be in accordance with I.S. 2147 - 1952 and 2675 - l966 and B.S. 2l4 and shall be of welded construction and fabricated from rust proofed sheet steel and finished with anticorrosive stove enamel paint and have provision for fixing on wall and have earthing terminals/terminals.
Power Distribution Boards shall be constructed from 14 SWG sheet steel (CRCA Approved)

The MCB shall be mounted on Din rails supports of proper dielectric & mechanical strength. If fuses/fuse banks are used these shall be mounted on moulded DMC/SMC or ebonite supports of proper dielectric and mechanical strength.

Cables shall be connected to a terminal by crimped lugs.

All power distribution boards shall be properly earthed as per relevant I.E. rules and provided with suitable Danger Board.

XIX. CABLES AND CONDUCTORS

All cables shall conform to I.S-692, IS-7098, IS-1554 (Part-I) 1964 and IS 694-1990 or latest. Conductors of all cables except for flexible cables shall be of aluminium, unless specified otherwise.

XX. FLEXIBLE CABLES

Conductors of flexible cables shall be of copper. The minimum size of core acceptable is 1.50 sq.mm.

XXI. INSTALLATION OF MAIN SWITCH BOARD, BDB'S MAINS, SUBMAINS, DISTRIBUTION WIRING TO INDIVIDUAL POINTS

The exact positions of all main switch board, BDB's and all runs of mains and sub mains, and distribution wirings to individual points including the exact position of all light fittings and switch boards shall be first marked on the surface / wall and shall be approved by the Engineer-in-Charge before actual commencement of the work.

XXII. INSTALLATION OF SWITCH BOARDS

These shall be installed at a height of l.3 mtrs (4'-3") or above the floor level as per site requirement and IS Standard.

XXIII. ELECTRICAL PANELS

a) Before fabrication, drawings of electrical panels will have to be got approved by the Engineer in-charge.

b) Panels will be inspected at works and approved by the Engineer in-charge prior to dispatch.

c) Panel fabricator should be ISO certified or having test certificates from CPRI for panels built in their works where, the panel values exceed Rs. 2 Lacks.

d) Panels should be tested for insulation resistance test. Factory test certificates should be provided.

XXIV. **TESTING OF INSTALLATION**

Before a completed installation or an addition to an existing installation is put into service, the following tests shall be carried out by the contractor in presence of the Engineer-in-Charge.

a) Polarity of switches / Lighting Fixtures

It must be ensured by test that all switches/ MCB and Lighting Fixtures shall have been fitted on the live side of the circuits they control.

b) Insulation Test :

i) By applying a 500 volt megger between earth and the whole system of conductors or any section thereof, with all fuses in place and all switches closed, all lamps in position or both poles of installation otherwise electrically connected together :- The result in meghom shall not be less than 50 divided by the number of points on the circuit, and should not be less than 1 meghom.

ii) Between all conductors connected to one phase and all such conductors connected to the neutral or to the other phase conductors of the supply after removing all metalic connections between the two poles of the installation and switching on all switches. The insulation resistance shall be as in (i) above.

c) Earth continuity Test

The earth continuity conductor including metal conduits, and metal sheaths of cables in all cases shall be tested for electrical continuity. Electrical resistance of the above along with the earthing lead but excluding any resistance of earth leakage circuit breaker, measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

d) Earth Resistance Test

To ensure effectiveness of installation earth, the value of earth resistance shall be within 5 ohm for installation capacity upto 5 KW and one ohm for installation of higher capacity.

XXV. The completed work will be taken over only if the results obtained in above tests are within the limits mentioned above, and in accordance with I.E. Rules.

On completion of the installation work, a certificate shall be furnished by the contractor, countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in a prescribed form as required by the local Electric Supply Authority. The installation shall not be considered as complete unless the installation is got inspected and passed by the Engineer in-charger, of the local State Govt / Authority. The contractor shall have to take all initiatives and follow up the matter at his own cost for early approval of the installation for permanent energisation of the installation from the Engineer in-charger, of the local State Govt / Authority.

XXVI. **SPECIAL SPECIFICATIONS**

a) Before fixing all switches, fittings etc. these should be produced before Engineer-in- Charge and get approved.

b) All metal switch boards and switch/regulator boxes to be used in work shall be painted with two coats of anti rust primer (red oxide paint) prior to erection. After erection these shall be again painted with two coats of enamel paint of approved quality and shade.

c) Before execution of any portion of conduit work for wiring a neat proper layout should be made out by the contractor and got approved from the Engineer-in- Charge. For this purpose contractor is advised to get acquainted with the layout drawings of the Consultant / Interior Decoration Contractor.

d) While laying the conduits for concealed wiring in the ceilings/beams/columns/walls/ partitions/modular furniture etc, the contractor must ensure that all the inlets and both ends of the conduits are plugged to stop entry of foreign materials so that no difficulty arises during drawing of wires later .

e) Damage to any fitting during erection and before handing over the installation by contractor shall be set right or replaced by the contractor at his own cost.

f) Caution Board of proper size wherever required, shall be provided, as per I.E.E. regulations for which no extra payment will be admissible.

g) Any repairs done to wall / Platform / road etc. should match with the surrounding surface otherwise same will be got done through Building Contractor at the cost of the Electrical Contractor.

h) Earthing Installation shall be done in the presence of Engineer-in-Charge or his representative.

i) The installations should not be energized without adequate earthing.

j) Distribution Fuse Boards shall be provided with neat lettering in block letters with paint and for the points connected to each fuse way of the D.B's for which no extra payment will be admissible.

k) Completion Drawings

The contractor shall be required to submit along with Final bill, the undernoted drawings in the form CD, along with three copies of print each.

1. Plan (as per structural drawing) of each section (not less than l : l00 metric scale) showing:-

i) Location of Main Switch Board, Distribution boards (with the circuit numbers controlled by them).

ii) The runs of mains and sub mains.

iii) Location of lights fixtures, Junction box, other power consuming devices together with type of fittings and fixtures including circuit numbers.

iv) Position of Lightning Conductors and route of running conductor.

v) Position of Earthing Stations for light and power and Lightning Conductor Installation.

vi) Following information are to be given on all the drawings:

a) Name of work with job no. Accepted Tender No.
b) Date of completion
c) Name of Place
d) Name and Signature of Contractor
e) Scale of Drawings.

2 Schematic lines layout diagram of each section showing
(i) Layout and connections of Main and Sub-board, B.D.B. having descriptions of the size, capacity, type and their numbers, the system and the source of supply,
(ii) Location, Size, Type, length of main and sub main cables
(iii) Loading of each B.D.B. indication of phases, Departmental mark on each B.D.B and MCB.

The drawings shall be very neatly drawn and submitted properly without folding them.

3. Cable route should be marked on site plan with measurements from permanent structures.

3. GENERAL QUALITY OF WORK:

The work shall have to be executed in accordance with the technical specifications specified in the Bid Data sheet/ Contract Data, and shall have to meet high standards of workmanship, safety and security of workmen and works.

4. PROCEDURE FOR PARTICIPATION IN E- TENDERING:

The procedure for participation in e-tendering is given in the Bid Data Sheet.

5. ONE BID PER BIDDER

5.1 The bidder can be an individual entity or a joint venture (if permitted as per Bid Data Sheet). In case the J.V. is permitted, the requirement of joint venture shall be as per the Bid Data Sheet.

5.2 No bidder shall be entitled to submit more than one bid whether jointly or severally. If he does so, all bids wherein the bidder has participated shall stand disqualified

6. COST OF BIDDING:

The bidder shall bear all costs associated with the preparation and submission of his bid, and no claim whatsoever for the same shall lie on the Government/JMC/ JSCL or the Authority

7. SITE VISIT AND EXAMINATION OF WORKS:

The bidder is advised to visit and inspect the site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the work. All costs in this respect shall have to be borne by the bidder.

B.BID DOCUMENTS

8. CONTENT OF BID DOCUMENTS:

The Bid Document comprises of the following documents:

1. NIT with all amendments.

2. Instructions to Bidders, Bid Data Sheet with all ANNEXURE
3. Conditions of Contract :
    I. Part I General Conditions of contract and the Contract Data with all ANNEXURE, and
    II. Part II Special Condition of Contract.
4. Specifications
5. Drawings
6. Priced bill of quantities
7. Technical and Financial bid
8. Letter of Acceptance
9. Agreement, and
10. Any other document(s), as specified

9. INFORMATION

The bidder is expected to examine carefully all instructions, conditions of contract, the ***Contract data,*** forms, terms and specifications, bill of quantities, forms and drawings in the bid document, Bidder shall be solely responsible for his failure to do so.

10. PRE-BID MEETING (WHERE APPLICABLE)

Wherever the Bid Data Sheet provides for pre-bid meeting:

10.1 Details of venue, date and time would be mentioned in the Bid Data Sheet. Any change in the schedule of pre-bid-meeting would be communicated on the website only, and intimation to bidders would not be given separately.

10.2 Any prospective bidder may raise his queries and/or seek clarifications in writing before or during the pre-bid meeting. The purpose of such meeting is to clarify issues and answer questions on any matter that may be raised at that stage. The Employer may, at his option, give such clarifications as are felt necessary.

10.3 Minutes of the pre-bid meeting including the gist of the questions raised and the responses given together with any response prepared after the meeting will be hosted on the website.

10.4 Pursuant to the pre-bid meeting, if the employer deems it necessary to amend the bid Documents, it shall be done by issuing amendment to the online NIT.

11. AMENDMENT OF BID DOCUMENTS

10.1 Before the deadline for submission of bids, the Employer may amend or modify the bid document by publication of the same on the website.

10.2 All amendments shall form part of the Bid Document.

10.3 The Employer may, at its discretion, extend the last date for submission of bids by publication of the same on the website.

C. PREPARATION OF BID

12. BID PREPARATION.

The bidders have to prepare their bids online, encrypt their Bid Data in the Bid Forms and submit Bid Seals (Hashes) of all the envelopes and documents related to the bid required to be uploaded as per the time schedule mentioned in the key dates of the Notice Inviting e-tenders after signing of the same by the Digital Signature of their authorized representative.

13. DOCUMENTS COMPRISING THE BID:

The bid submitted online by the bidder shall be in the following parts:

Part1- This shall be known as online Envelop A and would apply for all bids. Online envelop A shall contain the following as per details given in the bid data sheet:

i) Registration number or proof of application for registration and organizational details in the format given in the bid data sheet.
ii) Payment of the cost of Bid Document.
iii) Earnest Money : and
iv) An Affidavit Duly Notarized.
v)

Part 2 – This shall be known as Online Envelope B and required to be submitted only in work where pre-qualification conditions and / or special eligibility conditions are stipulated in the Bid Data Sheet. Online Envelope B shall contain a self-certified sheet duly supported by documents to demonstrate fulfillment of pre-qualification conditions.

Part 3- This shall be known as online Envelope C and would apply to all bids. Envelop C shall contain financial offer in the prescribed format enclosed with the Bid Data Sheet and shall only be submitted online.

14. LANGUAGE:

The bid as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer shall be in English or Hindi. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English. In such case, for the purposes of interpretation of the bid, such translation shall govern.

15. TECHNICAL PROPOSAL:

15.1 Only, in case of bids with pre-qualification conditions defined in the Bid Data Sheet, the Technical Proposal shall comprise of formats and requirements given in the Bid Data Sheet.

15.2 All the documents/ information enclosed with the Technical Proposal should be self-attested and certified by the bidder. The Bidder shall be liable for forfeiture of his earnest money deposit, if any document/information is found false/fake/untrue before acceptance of bid. If it is found after acceptance of the bid, the bid sanctioning authority may at his discretion forfeit his performance security / guarantee, security deposit, enlistment deposit and take any other suitable action.

16. FINANCIAL BID:

16.1 The bidder shall have to quote rates in format referred in Bid Data Sheet, in overall percentage, and not item wise, if the bid is in absolute amount, overall percentage would be arrived at in relation to the probable amount of contract given in NIT. The overall percentage rate would apply for all items of work.

16.2 Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found, lower of the two shall be taken as valid and correct.

16.3 The bidder shall have to quote rates inclusive of all duties, royalties, levies and taxes except Goods and Services Tax (GST). The amount of applicable GST will be paid separately to the Contractor with each bill at the time of payment. The employer shall not be liable for any duties, taxes (except GST) royalties and levies.

16.4 The material along with the units and rates, which shall be issued, if any, by the department to the contractor, is mentioned in the Bid Data Sheet.

17. PERIOD OF VALIDITY OF BIDS:

The bids shall remain valid for a period specified in the Bid Data Sheet after the date of "close for biding" as prescribed by the Employer. The validity of the bid can be extended by mutual consent in writing.

18. EARNEST MONEY DEPOSIT (EMD)

18.1 The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), in the amount specified in the Bid Data Sheet.

18.2 .The EMD shall be in the form of Fixed Deposit Receipt of a scheduled Nationalised/commercial bank, issued in favors of the name given in the Bid Data Sheet. The Fixed Deposit Receipt shall be valid for six months or more after the last date of receipt of bids. However form(s) of EMD may be allowed by the employer by mentioning it in the Bid Data Sheet.

18.3 Bid not accompanied by EMD shall be liable for rejection as non-responsive.

18.4 EMD of bidders whose bids are not accepted will be returned within ten working days of the decision on the bid.

18.5 EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement after furnishing the required Performance security.

18.6 Failure to sign the contract by the selected bidder, within the specified period, for whatsoever reason, shall result in forfeiture of the earnest money.

D. SUBMISSION OF BID

19. BID SUBMISSION

The bidder is required to submit online bid duly signed digitally, and envelop "A" in physical form also at the place prescribed in the Bid Data Sheet.

E. OPENING AND EVALUATION OF BID

20. PROCEDURE:

20.1 ***Envelope "A"*** shall be opened first online at the time and date notified and its contents shall be checked. In cases where ***Envelope "A"*** does not contain all requisite documents, such bid shall be treated as non-responsive , and envelop B and / or C of such bid shall not be opened.

20.2 Wherever ***Envelope 'B'(Technical Bid)*** is required to be submitted, the same shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the ***Envelope 'B' Envelope 'C'(financial bid)*** of bidders who are not qualified ***in Technical Bid (Envelop 'B')*** shall not be opened.

20.3 ***Envelope 'C' (Financial Bid)*** shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the ***Envelope 'C'***

20.4 After opening ***Envelope 'C'*** all responsive bids shall be compared to determine the lowest evaluated bid.

20.5 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all the bids at any time prior to contract award, without incurring any liability. In all such cases reasons shall be recorded.

20.6 The employer reserves the right of accepting the bid for the whole work or for a distinct part of it.

21. CONFIDENTIALITY:

21.1 Information relating to examination, evaluation, comparison and recommendation of contract award shall not be disclosed to bidders or any other person not officially concerned with such process until final decision on the bid.

21.2 Any Attempt by a bidder to influence the employer in the evaluation of the bids or contract award decisions may result in the rejection of his bid.

F. AWARD OF CONTRACT

22. AWARD OF CONTRACT:

The Employer shall notify the successful bidder by issuing a 'Letter of Acceptance' (LOA) that his bid has been accepted.

23. PERFORMANCE SECURITY

23.1 Prior to singing of the contract the bidder to whom LOA has been issued shall have to furnish performance security of the amount in the form and for the duration, etc. as specified in the Bid Data Sheet.

23.2 Additional performance security, if applicable, is mentioned in the Bid data sheet and shall be in the form and for the duration, etc. similar to Performance Security.

24. SIGNING OF CONTRACT AGREEMENT:

24.1 The successful bidder shall have to furnish Performance Security and Additional Performance Security, if any, and sign the contract agreement within 15 days of issue of LOA

24.2 The signing of contract agreement shall be reckoned as intimation to commencement of work. No separate work order shall be issued by the employer to the contractor for commencement of work.

24.3 In the event of failure of the successful bidder to submit Performance Security and Additional Performance Security, if any or sign the Contract Agreement, his EMD shall stand forfeited without prejudice to the right of the employer for taking any other action against the bidder.

25. CORRUPT PRACTICES:

The Employer requires that bidders observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, the employer.

i. May reject the bid for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract ; and

ii. May debar the bidder declaring ineligible, either indefinitely or for a stated period of time, to participate in bids, if it at any time determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing , a contract.

For the purposes of this provision, the terms set forth above are defined as follows:

a. ***'Corrupt Practice'*** means the offering, giving, receiving or soliciting directly or indirectly, anything of value to influence improperly the actions of another party ;

b. ***'Fraudulent Practice'*** means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a fanatical or other benefit or to avoid an obligation:

c. ***'Coercive Practice'*** means impairing of harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party,

d. ***'Collusive practice'*** means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

(END OF ITB)

BID DATA SHEET

GENERAL			
SR.NO.	**PARTICULARS**	**DATA**	
1	Office inviting tender	***JABALPUR SMART CITY LIMITED***	
2	NIT No.	**NIT NO. JSCL/2018/658/ADM/134**	
3	Date of NIT	***23/07/2018***	
4	Bid document download available from date & time	***24/07/2018***	
5	Website link	***www.mpeproc.gov.in***	
SECTION 1 – NIT			
CLAUSE REFERENCE	**PARTICULARS**	**DATA**	
1.	Portal fees	***As notified in e-tendering website***	
	Cost of bid document	***Rs. 30000.00***	
	Cost of bid document payable at	***As notified in e-tendering website***	
	Cost of bid document in favor of	***As notified in e-tendering website***	
2.	Affidavit format	***As per ANNEXURE B***	
	Pre-Qualifications required	***Yes***	-
	If yes, details	***As per ANNEXURE C***	
3.	Special Eligibility	***No***	
4.	If Yes, details	***As per ANNEXURE D***	
5.	Key dates	***As per ANNEXURE A***	
SECTION 2 – IT B			
CLAUSE REFERENCE	**PARTICULARS**	***DATA***	
1.	Name of 'work'	***CONSTRUCTION OF SMART ROAD & UNDERGROUND ELECTRIFICATION WORK UNDER PHASE- II.***	
2.	Specifications	***As per ANNEXURE –E***	
3.	Procedure for participation in e-tendering	***As per ANNEXURE –F***	
4.	Whether joint venture is allowed	***NO***	
	If yes, requirement for joint venture	***As per ANNEXURE – G***	
5.	Pre bid meeting to be held		***Yes***
	If Yes, Date, Time & Place	***Date : 02/08/2018*** ***Time form: 15.00 hrs*** ***Place: JSCL Office ManasBhawan Jabalpur M.P***	

BID DATA SHEET

CLAUSE REFERENCE	PARTICULARS	DATA
6.	Envelopment A containing : Registration number or proof of application for registration and organizational details as per ANNEXURE H	***AT THE OFFICE OF THE JABALPUR SMART CITY LIMITED, MANASBHAVAN, JABALPUR***
	• Cost of Bid Document • EMD • An affidavit duly notarized • Should reach in physical form	***Rs. 30,000.00*** ***Rs 10,00,000/-*** ***as per ANNEXURE – B*** ***On or Before 21/08/2018***
7.	Envelope-B Technical Proposal	***ANNEXURE – I and ANNEXURE –I (Format I-1 to I-5)***
8.	Envelope-C Financial Bid	***ANNEXURE – J (SHOULD BE SUBMITTED ONLINE)***
9.	Materials to be issued by the department	***ANNEXURE – K***
10.	Period of Validity of Bid	***120 Days***
11.	Earnest Money Deposit	***Rs.10,00,000/-***
	Forms of Earnest Money deposit	***i. FDR/e-FDR*** ***ii. Demand draft of scheduled commercial bank*** ***iii. Interest bearing securities of post office.***
	EMD valid for a period of	***365 Days***
	FDR must be drawn in favor of	***Executive Director, JSCL***
12.	Letter of Acceptance (LoA)	***ANNEXURE L***
13.	Amount of Performance Security	***5% of contract amount***
	Additional Performance Security, if any	***As per rule***
	Performance security in the format	***ANNEXURE M***
	Performance security in favour of	***Executive Director, JSCL***
	Performance security valid up to	***Valid contract DLPperiod plus 3 (Three) months***

ANNEXURE – A

(See clause 1, 7 of Section 1-NIT)

KEY DATES

S.No	*WORKS DEPARTMENT STAGE*	*BIDDERS STAGE*	*START*		*EXPIRY*		*ENVELOPES*
			Date	*Time*	*Date*	*Time*	
1.		**Purchase of Tender – Online**	**24/07/2018**		**16/08/18**	**05:30 PM**	
2.		**Bid Submission – Online**	**24/07/18**		**17/08/18**	**05:30 PM**	
3.		**Physical submission**			**21/08/18**	**05:30PM**	
4.	**Mandatory submission Open-online (Envelope-A)**				**20/08/18**		**Envelope A**
5.	**Technical Proposal open-online (PQ Envelope-B)**				**20/08/18**		**Envelope B**
6.	**Financial Bid open-online (Envelope-C)**				**23/08/18**		**Envelope C**

Original term deposit receipt of earnest money deposit, demand draft for the cost of bid document and affidavit shall be submitted by the bidder so as to reach the office as prescribed in bid data sheet, at least one calendar day before specified start time and date in key dates for opening of technical proposal as per key dates in Bid Data Sheet.

ANNEXURE – B

(See clause 3 of Section 1-NIT)

|| AFFIDAVIT ||

(To be contained in *Envelope A*)

(On Non Judicial stamp of Rs. 100)

I/We _____ who is / are _____ (status in the firm / company) and competent for submission of the affidavit on behalf of M/S _____ (contractor) do solemnly affirm an oath and state that :

I/We am / are fully satisfied for the correctness of the certificates/ records submitted in support of the following information in bid documents which are being submitted in response to notice inviting e-tender No._____ for _____ (name of work) dated _____ issued by the _____ (name of the Department).

I/We am/ are fully responsible for the correctness of following self- certified information / documents and certificates.

1. That the self – certified information given in the bid document is fully true and authentic.
2. That :
    1. Term deposit receipt deposited as earnest money, demand draft for cost of bid document and other relevant documents provided by the Bank are authentic.
    2. Information regarding financial qualification and annual turnover is correct.
    3. Information regarding various technical qualifications is correct.
3. No. close relative of the undersigned and our firm/company is working in the department.

    Or

    Following close relatives are working in the department:

    Name _____- Post _____ present Posting _____

    Signature with seal of the Deponent (bidder)

    I/We, _____ above deponent do hereby certify that the facts mentioned in above paras 1 to 4 are correct to the best of my knowledge and belief.

    Verified today _____ (dated) at _____ (place).

Signature with seal of the Deponent (bidder)

Note: Affidavit duly notarized in original shall reach at least one calendar day before opening of the bid.

ANNEXURE—C

(Sec clause 5 of Section 1-NIT)

PRE- QUALIFICATIONS CRITERIA

The bidder should have:

A. Financial

i. Experience of having successfully executed: -

a) ***Three similar works***, each costing not less than the ***amount equal to 20%*** of the probable amount of contract during the ***last 3 financial years***; or

b) ***Two similar works***, each costing not less than the ***amount equal to 30%*** of the probable amount of contract during the ***last 3 financial years***; or

c) ***One similar work*** of aggregate cost not less than the amount equal to ***50% of the probable amount*** of contract in any one financial year during ***the last 3 financial years;***

ii. ***Average Annual Construction Turnover*** on the construction works ***shall not be less than 50%*** of the probable amount of contract during ***the last 3 financial years.***

iii. Executed similar items of work in any one financial year during the last 3 financial years, which should not be less than the minimum, physical requirement, if any, fixed for the work.

iv. ***Bid Capacity —***ANNEXURE-I(Format: I-2)

B. Physical

Physical qualifications for the work shall be as below

S.No.	Particulars	Quantity	Period
	Physical qualification required	Yes	
1	Execution of Urban Road projects	Min. 2 successful completion of similar project	In last 3 years

(The Employer shall specify all physical qualifications requited).

Note: Above criteria is indicative, subject to suitable stipulations by the Departments and specific Bid.

ANNEXURE —D

(See clause 6 of Section 1-NIT)

SPECIAL ELIGIBILITY CRITERIA

Not Applicable

ANNEXURE- E

(See clause 2 of Section 2 —ITB& clause 10 of GCC)

SPECIFICATIONS

For civil works following SPECIFICATIONS shall be referred;

1. MP UADD Specification
2. MP PWD Department Specifications,
3. IRC Specifications
4. UTIPEC Road Design Specifications
5. CPWD Specifications

For Electrical works following SPECIFICATIONS shall be referred;

TECHNICAL SPECIFICATION FOR ELECTRICAL WIRING / PANELS / SWITCHGEAR

1.0 GENERAL REQUIREMENTS

The installation shall generally be carried out in conforming with the requirements of the Indian Electricity Act, 1910 as amended up to date and the Indian Electricity Rules, 1956 framed there under, the relevant regulations of the Electric Supply Authority concerned, and also with the specifications laid down in the Indian Standard I.S. 732 - 1963 Code of Practice (revised) for Electrical Wiring Installations (system voltage not exceeding 650 volts) and I.S. 2309-1969 Code of Practice for the protection of Buildings and Allied Structure against Lighting and IS 3043 - Indian code of Practice for Earthing. The wiring shall also be according to the I.S specifications, NEC, Local Government Body.

Only the contractor having valid Electrical Contractor Licence of the State shall be eligible to execute the same. The contractor shall be responsible for renewal of the same at the appropriate time.

2.0 MATERIALS

All materials, fittings, appliances, used in electrical installations, shall confirm to Indian Standard Specifications wherever these exist. A list of approved materials is attached afterwards. Materials not included in the list shall be got approved by the Engineer in-charge.

3.0 MAIN SWITCH BOARD

Iron clad switch fuse and isolator units should conform to relevant I.S. Standard. The quick make and break mechanism shall be self interlocked with the cover. In "Off" position there must be two breaks per pole. Main switch gear shall be properly earthed with two numbers conductors if M.V and one number of L.V.

4.0 BUSBAR CHAMBER (B.B.C)

This shall be totally enclosed, metal clad type fabricated from rust proofed 16 SWG sheet steel on angle iron frame and provided with sheet steel or cast iron detachable front cover and undrilled detachable end plates, suitable for mounting on wall or angle iron floor stand and painted with high quality enamel paint. G.I. bolts and nuts shall be used for assembly with suitable packing materials to ensure dust proof finish. Meters shall be provided on suitable sheet steel boxes. Switch shall be provided with cable end boxes as required.

The depth of B.B.C. shall be 250 mm (minimum). Minimum clearance of phase bars to earth shall be 26 mm and between bus bars shall be minimum 32 mm.

H.C. (High conductivity) copper bus bars properly tinned are to be rated at 1000 Amps. per sq. in and Aluminum bus bars (wrought aluminum alloy strip) conforming to relevant I.S. specification at 800 Amps per sq. in.

Neutral Bus bars are to be rated to carry 100% of phase current up to 200A and 60% for higher. These shall be mounted on DMC/SMC supports of proper dielectric and mechanical strength and

shall be appropriately colour coded for identification of Phase with PVC sleeves of 1.1 KV grade throughout the length.

Lettering shall be done for identification of switches as directed. The contractor shall submit fully dimensioned drawing of the board with the physical position of the switches and other components to the Owner for their approval before the same is fabricated.

There shall be two nos. of Earth Terminals. Suitable Danger Board shall be provided.

5.0 INTERCONNECTION IN B.B.C, SWITCH FUSE, METERS

For ratings above 150 Amps these shall consist of insulated copper strips of adequate section considering current density as specified in Clause 4 above. For rating below 150 Amps PVC copper cable tails of appropriate size, terminating in tinned copper sockets may be used considering 1 . 5 Amp/sq.mm for copper & 1.0 Amp/sq.mm for aluminum. The above are to be enclosed either in sheet metal trunking or conduits so that no part is exposed.

6.0 DISTRIBUTION BOARDS

These totally enclosed metal clad type Distribution Boards with hinged lids shall be in accordance with I.S. 2147 - 1952 and 2675 - l966 and B.S. 214 and shall be of welded construction and fabricated from rust proofed sheet steel and finished with anticorrosive stove enamel paint and have provision for fixing on wall and have earthing terminals / terminals.

Power Distribution Boards (415 volts TPN) shall be constructed from 16 SWG sheet steel and Branch Distribution Boards (230 volts SPN from 18 SWG sheet steel).

The MCB shall be mounted on Din rails supports of proper dielectric & mechanical strength. If fuses/fuse banks are used these shall be mounted on moulded DMC/SMC or ebonite supports of proper dielectric and mechanical strength. TPN units should have phase separation barriers.

Cables shall be connected to a terminal by crimped lugs.

Where two or more B.D.B's feeding low voltage circuits are fed from different phases of a medium voltage supply, these B.D.B's shall be installed at least two meters apart or otherwise in a different direction to prevent access to the both DBs at a time.

All three phase power distribution boards shall be properly earthed as per relevant I.E. rules and provided with suitable Danger Board. All SPN B.D.B's shall be properly earthed with one number 10 SWG galvanized iron wire each or with insulated copper PVC wire of adequate ratings in case of concealed wiring as per the specifications.

7.0 SWITCHES

All switches for lights, fans and plug points shall be piano type switches, unless specified otherwise.

8.0 CABLES AND CONDUCTORS

All cables shall conform to I.S-692, IS-7098, IS-1554 (Part-I) 1964 and IS 694-1990 or latest. Conductors of all cables except for flexible cables shall be of aluminium, unless specified otherwise.

9.0 FLEXIBLE CABLES

Conductors of flexible cables shall be of copper. The minimum size of core acceptable is 1.5 sq.mm.

10.0 INSTALLATION OF MAIN SWITCH BOARD, BDB'S MAINS, SUBMAINS, DISTRIBUTION WIRING TO INDIVIDUAL POINTS

The exact positions of all main switch board, BDB's and all runs of mains and sub mains, and distribution wirings to individual points including the exact position of all light fittings and switch boards shall be first marked on the buildings and shall be approved by the Engineer-in-Charge before actual commencement of the work.

The D.Bs shall generally be installed at a height of approx. 1.00 mtrs (3’.28” ft) from floor level.

11.0 INSTALLATION OF SWITCH BOARDS

These shall be installed at a height of 1.3 mtrs (4'-3") and above the floor level.

12.0 INSTALLATION OF LIGHT FIXTURES:

As per the Drawing different type of Lighting fixtures need to install as per IS code. The Street poles & accessories shall be painted with approved paint without involving extra cost.

13.0 INSTALLATION OF SOCKET OUTLETS

No socket outlet shall be provided in the Rest / bath room at the height less than 130 cms (4'-3") from the floor. No switches shall be provided inside the bath rooms, unless approved by the Engineer-in- Charge. Socket outlet at locations other than Rest / bath rooms shall be either 25 cms (l0") or 130 cms (4'-3") from the floor.

14.0 ELECTRICAL PANELS

a) Before fabrication, drawings of electrical panels will have to be got approved by the Employer / Architects.

b) Panels will be inspected at works and approved by the Employer / Architect's prior to dispatch.

c) Panel fabricator should be ISO certified or having test certificates from CPRI for panels built in their works where

d) Panels should be tested for insulation resistance and HV withstand test. Factory test certificates should be provided.

15.0 TESTING OF INSTALLATION

Before a completed installation or an addition to an existing installation is put into service, the following tests shall be carried out by the contractor in presence of the Engineer-in-Charge / Owner's / Architect's representative.

a) Polarity of switches

It must be ensured by test that all single pole switches have been fitted on the live side of the circuits they control.

b) Insulation Test:

i) By applying a 500 volt megger between earth and the whole system of conductors or any section thereof, with all fuses in place and all switches closed, all lamps in position or both poles of installation otherwise electrically connected together: The result in mega-ohm shall not be less than 50 divided by the number of points on the circuit, and should not be less than 1 mega-ohm.

ii) Between all conductors connected to one phase and all such conductors connected to the neutral or to the other phase conductors of the supply after removing all metallic connections between the two poles of the installation and switching on all switches. The insulation resistance shall be as in section (i) above.

c) Earth continuity Test

The earth continuity conductor including metal conduits and metal sheaths of cables in all cases shall be tested for electrical continuity. Electrical resistance of the above along with the earthing lead but excluding any resistance of earth leakage circuit breaker, measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

d) Earth Resistance Test

To ensure effectiveness of installation earth, the value of earth resistance shall be within 5 ohm for installation capacity up to 5 KW and one ohm for installation of higher capacity.

16.0 The completed work will be taken over only if the results obtained in above tests are within the limits mentioned above, and in accordance with I.E. Rules.

On completion of the installation work, a certificate shall be furnished by the contractor, countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in a prescribed form as required by the local Electric Supply Authority. The installation shall not be considered as complete unless the installation is got inspected and passed by the Electrical Safety, of the local State Govt. /Authority. The contractor shall have to take all initiatives and follow up the matter at his own cost for early approval of the installation for permanent energisation of the installation from the Electrical Safety, of the local State Govt. / Authority. No extra amount will be paid on this account. However statutory fees, if any, will be reimbursed to the contractor on production of documentary evidences / official money receipts.

17.0 SPECIAL SPECIFICATIONS

a) Before fixing all switches, fittings etc. these should be produced before Engineer and get approved.
b) All metal switch boards and switch / regulator boxes to be used in work shall be painted with two coats of anti rust primer (red oxide paint) prior to erection. After erection these shall be again painted with two coats of enamel paint of approved quality and shade.
c) Before execution of any portion of conduit work for wiring a neat proper layout should be made out by the contractor and got approved from the Engineer. For this purpose contractor is advised to get acquainted with the layout drawings of the Consultant / Interior Decoration Contractor.
d) While laying the conduits for concealed wiring in the ceilings / beams / columns / walls / partitions / modular furniture etc, the contractor must ensure that all the inlets and both ends of the conduits are plugged to stop entry of foreign materials so that no difficulty arises during drawing of wires later.
e) Damage to any fitting during erection and before handing over the installation by contractor shall be set right or replaced by the contractor at his own cost.
f) Caution Board of proper size wherever required, shall be provided, as per I.E.E. regulations for which no extra payment will be admissible.
g) Any repairs done to wall etc. should match with the surrounding surface otherwise same will be got done through Building Contractor at the cost of the Electrical Contractor.
h) Earthing Installation shall be done in the presence of Engineer or his representative.
i) The installations should not be energized without adequate earthing.
j) Distribution Fuse Boards shall be provided with neat lettering in block letters with paint and for the points connected to each fuse way of the D.B's for which no extra payment will be admissible.
k) Completion Drawings

The contractor shall be required to submit the under noted drawings in the form CD, along with three copies of Ammonia print each.

1. Plan (as per drawing) of each Location/ Area (not less than 1:100 metric scales) showing:-
   i) Location of Main Switch Board, Distribution boards (with the circuit numbers controlled by them).
   ii) The runs of mains and sub mains.
   iii) Location of lights, wall sockets, other power consuming devices together with type of fittings and fixtures including circuit numbers.
   iv) Position of Lightning Conductors and route of running conductor.
   v) Position of Earthing Stations for light and power and Lightning Conductor Installation.
   vi) Following information is to be given on all the drawings:
      a) Name of work with job no. Accepted Tender No.
      b) Date of completion
      c) Name of Place
      d) Name and Signature of Contractor
      e) Scale of Drawings.
2 Schematic lines layout diagram of each floor showing;
   (i) Layout and connections of Main and Sub-board, B.D.B. having descriptions of the size, capacity, type and their numbers, the system and the source of supply,
   (ii) Location, Size, Type, length of main and sub main cables
   (iii) Loading of each B.D.B. indication of phases, Departmental mark on each B.D.B and switchgear. The drawings shall be very neatly drawn and submitted properly without folding them.
3. Cable route should be marked on site plan with measurements from permanent structures.

TECHNICAL SPECIFICATION FOR NON METALLIC CONDUIT WIRING SYSTEM

1.0 SCOPE

This specification covers the detailed requirements for wiring work in non-metallic conduits. This specification covers both surface and recessed types of wiring work.

1.1 APPLICATION

1.1.1 Recessed conduit work is generally suitable for all applications. Surface conduit work may be adopted in places like workshops etc and where recessed work may not be possible to be done. The type of work shall be as specified in individual works.

1.1.2 Flexible non-metallic conduits shall be used only at terminations, wherever specified.

1.1.3 Special Precautions

i) If the pipes are liable to mechanical damages, they should be adequately protected.

ii) Non-metallic conduit shall not be used for the following applications:

a) In concealed / inaccessible places of combustible construction where ambient temperature exceeds 60 degrees C.

b) In places where ambient temperature is less than 5 degrees C.

c) For suspension of fluorescent fittings and other fixtures.

d) In areas exposed to sunlight.

1.2 MATERIALS

1.2.1 Conduits

i) All non-metallic conduit pipes and accessories shall be of suitable material complying with IS: 2509-1973 and IS: 3419-1989 for rigid conduits and IS: 9537 (Part 5) 2000 for flexible conduits. The interior of the conduits shall be free from obstructions. The rigid conduit pipes shall be ISI marked.

ii) The conduits shall be circular in cross-section. The conduits shall be designated by their nominal outside diameter. The dimensional details of rigid non-metallic conduits are given in Table-II.

iii) No non-metallic conduit less than 20 mm in diameter shall be used.

iv) Wiring capacity

Maximum capacity of conduits for drawing in of PVC insulated cables shall be as follows:

650/1100V PVC copper wire	In 20 mm dia conduit	In 25 mm dia conduit	In 32 mm dia conduit
1.5 sq.mm	4 Nos	8 Nos	12 Nos
2.5 sq.mm	3 Nos	6 Nos	10 Nos
4.0 sq.mm	2 Nos	6 Nos	8 Nos
6.0 sq.mm	-	5 Nos	7 Nos
10.0 sq.mm	-	3 Nos	5 Nos

Maximum number of PVC insulated 650/1100V grade aluminium /copper conductor cable are as per UADD SOR (Madhya Pradesh) / CPWD General Specification of Electrical Works or UADD SOR (Madhya Pradesh).

1.2.2 Conduit Accessories

i) The conduit wiring system shall be complete in all respect including accessories.

ii) Rigid conduit accessories shall be normally of grip type.

iii) Flexible conduit accessories shall be of threaded type.

iv) Bends, couplers etc shall be solid type in recessed type of works, and may be solid or inspection type as required, in surface type of works.

v) Saddles for fixing conduits shall be heavy gauge non-metallic type with base.

vi) The minimum width and the thickness of the ordinary clips or girder clips shall be as per Table-III.

vii) For all sizes of conduit, the size of clamping rod shall be 4.5 mm (7 SWG) diameter.

TABLE-I

Maximum number of PVC insulated 650/1100V grade aluminium /copper conductor cable conforming to IS 694-1990

Nominal Cross Sectional Area of Conductor in sq.mm	20 mm		25 mm		32 mm		38 mm		51 mm		64 mm	
	S	**B**	**S**	**B**	**S**	**B**	**S**	**B**	**S**	**B**	**S**	**B**
1.50	5	4	10	8	18	12	-	-	-	-	-	
2.50	5	3	8	6	12	10	-	-	-	-	-	
4	3	2	6	5	10	8	-	-	-	-	-	
6	2	-	5	4	8	7	-	-	-	-	-	
10	2	-	4	3	6	5	8	6	-	-	-	
16	-	-	2	2	3	3	6	5	10	7	12	8
25	-	-	-	-	3	2	5	3	8	6	9	7
35	-	-	-	-	-	-	3	2	6	5	8	6
50	-	-	-	-	-	-	-	-	5	3	6	5
70	-	-	-	-	-	-	-	-	4	3	5	4

Note :
1. The above tables show the maximum capacity of conduits for a simultaneous drawing in of cables.
2. The columns headed 'S' apply to runs of conduits which have distance not exceeding 4.25 m between draw in boxes and which do not deflect from the straight by an angle of more than 15 degrees. The columns headed 'B' apply to runs of conduit which deflect from the straight by an angle of more than 15 degrees.
3. Conduit sizes are the nominal external diameters.

TABLE-II

Dimensional details of rigid non-metallic conduits (All dimensions in mm)

S.No.	Nominal outside diameter (in mm)	Maximum outside diameter (in mm)	Minimum inside diameter (in mm)	Maximum permissible eccentricity (in mm)	Maximum permissible ovality (in mm)
1	20	$20^{+0.3}$	17.2	0.2	0.5
2	25	$25^{+0.3}$	21.6	0.2	0.5
3	32	$32^{+0.3}$	28.2	0.2	0.5
4	40	$40^{+0.3}$	35.8	0.2	0.5
5	50	$50^{+0.3}$	45.0	0.4	0.6

TABLE-III

Ordinary clips or girder clips

Sr. No.	Size of Conduit	Width	Thickness
1)	20 mm & 25 mm	19 mm	20 SWG (0.9144 mm)
2)	32 mm & above	25 mm	18 SWG (1.219 mm)

2.0 FISH WIRE

18 S.W.G. G.I. wire shall be used and it shall protrude the conduit ends by 9 inches.

3.0 CONDUCTOR BOXES, DRAW-IN-BOXES: JUNCTION BOXES:

These shall be constructed from 16 SWG M.S. sheet and have M.S. cover. Minimum size for connector boxes is 6" x 4" and for Draw-in-Boxes 4" x 4".

4.0 PAINTING

Outside of wall switch boards, connector boxes & draw-in-boxes and other C.I. / M.S. accessories shall be painted with two coats of anti-trust paint in addition to other painting instruction given elsewhere.

TECHNICAL SPECIFICATION FOR CABLE INSTALLATIONS

1.0 GENERAL

All Medium Voltage and Low Voltage PVC insulated and armoured / unarmoured cables shall conform to IS 1554 Part-I-1964 and of 1,100 volt grade.

Old and used cables must not be used for installation. Only one make of cable shall be used. All cables brought to site must be tested and got approved by the Engineer-in- Charge before these can be laid. The cables shall be dispatched to site on wooden drums with ends sealed. Exact lengths shall be determined by the Contractor after measurement at site.

The underground installation of cables shall be generally conforming to I.S. 1255-1967, Code of Practice for installation and maintenance of underground cables (upto including 33 KV).

2.0 LAYING OF CABLES

a) Inside Building Cables shall be laid on walls/ceiling/structure, unless specified otherwise, with M.S. brackets and suitable clamps or over claw type aluminium cleats fixed on M.S. brackets, spaced not more than 450 mm apart. G.I Bolts of suitable sizes are to be grouted on the wall properly for fixing the brackets.

b) Minimum bending radius permissible is 12D for MV Cables and 20D for HV cables. At joints and terminations, the individual core of multi core cables should never be bent so that the radius is less than 15 times the diameter over the insulation.

Note: No cable jointing is allowed between two terminal points.

3.0 CABLE JOINTING

All cable joints shall be carried out by experienced and Licenced jointers under strict supervision. Electro plated brass cable glands, aluminium / tinned copper cable sockets and approved jointing materials must be used. The price for cable jointing and finishing the ends of the cable shall include all materials and shall also provide for tools and plants for the work. The cable armouring is to be properly terminated. All cable accessories and other associated materials shall confirm to Indian Standard Specification where applicable. Proper earthing of cable glands and armouring shall be included in the job.

4.0 TESTING OF CABLES

All cables shall be tested for insulation resistance with megger - 5,000V constant pressure megger insulation tester for HT Cables and 1,000 V constant pressure megger for MV Cables, before installation.

After installation and end termination, the cables shall be again subjected to the above test. Insulation value for HT Cables shall not be less than 100 mega ohms and for MV Cables 1.0 mega ohm.

After laying and jointing, the HV Cables shall be subjected to high voltage pressure test before commissioning, the test voltage being as specified in I.S.1255-1967 or latest.

5.0 TESTING OF INSTALLATION

Before the completed installation is put into service or handed over to Owner, the installation is to be subjected to the above tests to the satisfaction of the Engineer. The completed work will be taken over only if the results are acceptable to the Owner / Architects / Consultant.

TECHNICAL SPECIFICATION FOR EARTHING INSTALLATION

The installation shall generally conform to IS 3043 - Indian Standard Code of Practice for Earthing, as amended upto date.

1.0 EARTHING

a) Plate / Pipe Electrode

Where plate electrode for earthing is to be employed, the size of the plate shall not be less than 0.6 m x 0.6 m x 6 mm thickness for G.I plate and 0.6 m x 0.6 m x 3mm thickness in case of copper plate.

The plate shall be buried vertically with the top at a minimum of 4.0 M below the ground level for sandy soil and 2.0 M below the ground level for normal soil. In order to place the same at the prescribed depth, the dimension of pit to be excavated shall be 0.9 m x 0.9 m x 3 M deep. The plate shall be placed in position by the contractor only after the inspection of excavated pit and approval is obtained from the Engineer.One no. 50 mm x 6 mm G.I flat (for electrical installation) or one no. 25 mm x 6 mm GI flat (for Lighting conductor) should be connected to the plate at two points by means of 65 mm long 12 mm dia galvanized bolts, nuts and galvanized washers. In case of copper plate copper flat of not less than 32 mm x 6.0 mm shall be used as the earth lead. Brass bolts, nuts and washers shall be used for fixing. All other details shall be in accordance with IS 3043-1987. No joint on the earth lead conductor is permitted. Every care is taken to ensure that the ends of the wire/flats have been securely clamped by the bolt on cleaned surface of the plate and established a good electrical contact.After placing the plate the earth lead conductor shall be protected by means of a continuous length of G.I pipe (Class-B) having 50 mm dia bore or depending upon the size of the lead, right from the plate upto a height of 0.60 mtrs (2 ft) above ground level. The whole length of pipe shall be filled with bituminous compound of approved make and brand. The molten compound shall be poured from the top end the pipe and topped upto overflowing.The plate electrode shall have a 50 mm galvanized iron water pipe buried vertically and adjacent to the electrode and reaching upto the center of the plate. The upper end of the pipe shall be atleast 5cm above the bottom of the inspection pit and with wire mesh, funnel, etc as per IS specification.

2.0 MASONRY INSPECTION PIT

The inspection pit for the earth station shall be approx 0.56 M x 0.56 M (1'-10"x1'-10") outside dimensions and approx 0.45 M (l'-6") deep when completed, having 5" thick cement brick work with 1st class bricks in cement mortar (6: l) both inside and outside plastered 19 mm (3/4") thick and neatly cemented l.60 mm (l/16") thick, both inside, outside and top. The opening on top shall be provided with a C.I. ring with lockable cover fixed flush with ground surface. All the excavations shall be duly back filled, dressed and rammed.

3.0 LOCATION FOR EARTH ELECTRODES

Electrodes shall be buried at least 2 M (6'-6") away from the building pole or object to be earthed. However, earthing electrodes for L.C. Installations should be as close to the down conductors as possible. Electrodes, when installed in parallel, shall not be placed less than 2 M (6'-6") apart and preferably placed at distances greater than twice their lengths.

4.0 EARTH BUSBAR

a) Galvanized M.S. Flat

The busbar shall be of suitable size and length, as specified in the Schedule of Items, heavily galvanized and having adequate number of drilled and tapped holes 30 mm apart, complete with G.I. bolts, nuts, washers for securely connecting the earth leads and earth continuity conductors. The busbar shall be fixed on wall, having clearance of 6 mm from wall with spacing insulators with at least 13 mm (l/2") G.I. rag bolts spaced about 0.46 M (l'-6") apart.

b) Copper Flats:

To be used as specified in the Schedule of Items (UADD SOR M..P), where earthing requirements are more stringent. Brass bolts, nuts washers shall be used for connections.

5.0 VALUE OF EARTH RESISTANCE

In case of installations where the load does not exceed 5 K.W. the resistance to earth shall on no account exceed 05 ohms. Where the load exceeds 5 KW & resistance shall not exceed 01 ohm. For sub-stations, the value is 01 ohm.

General Technical Specification:

1.0 Conformity to IE Act, IE Rules, and Standards:

i) All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 1910 and Indian Electricity Rules, 1956 amended up to date.

ii) The works shall also conform to relevant Indian Standard Codes of Practice (COP) for the type of work involved.

iii) In all electrical installation works, relevant safety codes of practice shall be followed.

iv) Unless otherwise specified, the work shall be carried out as per UADD SOR (Madhya Pradesh) / CPWD General Specifications for Electrical Works (Internal & external) as applicable as per the instruction of the Engineer-in-Charge or his authorized representative.

2.0 Workmanship:

i) Good workmanship is an essential requirement to be complied with. The entire work of manufacture / fabrication, assembly and installation shall conform to sound engineering practice involving highly skilled workers.

ii) The work shall be carried out under the direct supervision of a highly experienced licensed SUPERVISOR, i.e. a person holding a certificate of competency issued by the State Govt. for the type of work involved, employed by the contractor, who shall rectify the defects pointed out by the Engineer- in-charge during the progress of work.

3.0 General requirements and components: -

i) Quality of Materials:

a) All the materials and equipments supplied by the contractor shall be new. They shall be of such design, size and materials as to satisfactorily function under the rated condition of operation and to withstand the environmental conditions at site.

b) All the components shall conform to relevant IS specification wherever existing. Materials with ISI certification marked shall be preferred if not otherwise mentioned the tender.

c) For items of materials for which makes are approved by the Dept., only such approve makes shall be permitted in the work in accordance to the preference of the Engineer of the employer.

d) Commissioning on completion: Before the workman leaves the work finally, the contractor must be sure that the installation is ready for commissioning after due testing.

4.0 Completion plan and completion certificate

i) For all the works, completion certificate after completion of work as given in 'Appendix-A' shall be submitted to the Engineer.

ii) 'As built' drawing to be submitted along-with Test / completion certificate which is an essential part for consideration of final bill.

5.0 Testing & Installation:

On completion of installation, the following tests shall be carried out:

i) Insulation Resistance Test by appropriate class of Megger

ii) Earth continuity test

iii) Earth resistant test by earth Megger.

Testing shall be carried out for the completed installation in presence of the Engineer or his authorized representative to their satisfaction. All test result shall be recorded and submitted to the Engineer. All necessary test instruments for the test shall be arranged by the Contractor if so required by the Engineer. Calibration certificates may require to be produced on demand by the Engineer

6.0 Testing of Earth Continuity Path

The earth continuity conductor, including metal conduits and metallic enclosures of cables in all cases, shall be tested for electric continuity. The electrical resistance of the same along-with the earthing lead, but excluding any added resistance, or earth leakage circuit breaker, measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

TECHNICAL SPECIFICATION FOR MOTOR

1.0 GENERAL INSTRUCTIONS TO BIDDER

1.1 Motor shall conform to Engineering Standard ES: 8102 and Specification Sheet enclosed.

1.2 The motor shall be energy efficient type having efficiency class of 'eff 1' as per IS: 12615 and high power factor type.

1.3 **Starting Current**

1.3.1 The starting current i.e. breakaway current of 415V Motors shall not exceed the values indicated in IS 12615. Also there shall be no further positive tolerance on the values of breakaway current.

1.3.2 The starting current of 3.3kV motors shall not exceed 550% (including positive tolerance) of rated current.

1.3.3 The starting current of 11kV motors shall not exceed 600% (including positive tolerance) of rated current.

1.4 Type test certificate of similar motor for use in specified hazardous area (if applicable) shall be furnished.

1.5 Filled in Specification Sheet and Technical Particulars for each type and rating of motors shall be furnished.

1.6 The rating of the motor shall be as per the sizes in the ISS. The margin between the installed power and absorbed power shall not be less than the following:

Motor Rating	Margin above Driven M/C Absorbed Power
Less than 22 KW	25%
22 KW to 55 KW	15%
75 KW and above	10%

1.7 The duty cycle of the motor shall meet the process and driven machine requirement.

1.8 Voltage rating for the motors of different KW ratings shall be as below:

Below 160 KW	:	220 - 415 V, 3-phase, 50 Hz AC
160 KW - 999 KW	:	3.3 KV, 3-phase, 50 Hz AC
1000 KW and above	:	11 KV, 3-phase, 50 Hz AC

1.9 In case of 11 KV & 3.3 KV motor, the terminal box shall be suitably designed for proper termination of XLPE insulated cables through heat shrink termination kit.

1.10 Explosion proof motors with type of protection 'e' (increased safety) or 'n' (non-sparking) shall be provided with arrangement for pre-start ventilation as per stipulation of respective Indian Standards/IEC. Also suitable control unit for pre-start ventilation shall be in bidder's scope.

1.11 Drawings and documents as per clause no. 13.0 and Annexure-I of ES: 8102 shall be supplied.

1.12 Motor shall be of either of the following makes or Equivalent:

Sl. No.	L. T. Motor	H. T. Motor
1	ABB LTD., INDIA	BHEL LTD.
2	BHARAT BIJLEE LTD., INDIA	CROMPTON GREAVES LTD.
3	CROMPTON GREAVES LTD., INDIA	KIRLOSKAR ELECTRIC COMPANY LTD.

4	SIEMENS, INDIA	FUJI ELECTRIC INTERNATIONAL CORPORATION
5	ALSTHOM LIMITED, INDIA (AREVA T & D)	MITSUBISHI CORPORATION
6	KIRLOSKAR ELECTRIC COMPANY LTD., INDIA	TOSHIBA CORPORATION
7	ANSALDO ROBICON, ITALY	ANSALDO ROBICON
8	SIEMENS AG, GERMANY	SIEMENS AG, GERMANY (EARLIER SIEMENS DEMAG DE LAVAL)
9	BHEL LTD., INDIA	A.E.G., TELEFUKEN
10	FUJI ELECTRIC INTERNATIONAL CORPORATION, JAPAN	PEEBLES ELECTRICAL MACHINES
11	MITSUBISHI CORPORATION, JAPAN	BRUSH ELECTRICAL M/c LTD.
12	TOSHIBA COPORATION, JAPAN	ALSTHOM ALLANTIQUE
13	ASEA BROWN BOVERI, SWEDEN	JEUMONT SCHNEIDER
14	ALSTHOM ALLANTIQUE, FRANCE	G.E.C., U.S.A
15	A.E.G. TELEFUNCUN, GERMANY	WESTINGHOUSE ELECTRIC CORPORATION, U.S.A
16	BRUSH ELECTRICALS M/C. LTD., U.K.	
17	PEEBLES ELECTRICAL M/C., U.K.	
18	WESTINGHOUSE ELECTRIC CORP., U.S.A	
19	JEUMOUT INDUSTRIES FRANCE	
20	LAXMI HYDRAULICS PVT. LTD , INDIA	

2. Name Plates

2.1 The name plates shall be of stainless steel with letters embossed on them.

2.2 The name plate shall contain all the relevant details as per IS: 325 and in addition shall indicate the following:

i) The description and code no. of motor
ii) Degree of protection of enclosure
iii) Temperature rise of windings under running condition
iv) Designation of bearings
v) Recommended type of lubricant and interval of lubrication
vi) Direction of rotation
vii) Mounting Arrangement

2.3 Flameproof motors shall have additional name plate containing relevant particulars as per IS: 2148.

2.4 Increased safety motors shall have additional name plate containing relevant particulars as per IS: 6381.

2.5 Motors with type of protection “n” shall have additional name plate containing relevant particulars as per IS: 9628.

3. VIBRATIONS

The motor vibrations measured at the bearings must not exceed the limits specified in IS: 12075, unless otherwise stipulated in the specification sheet.

4. NOISE LEVEL

The motor noise level shall not exceed 85 dB measured at a distance of 1 meter from the motor.

5. PAINTING

Enclosures of the motor and its accessories shall be painted with two coats of anti-rust paint and two coats of anti-corrosive paint after suitable pre-treatment Epoxy paint, wherever specified, shall be used. Unless otherwise specified, the finishing shade shall be light grey having shade No. 631 as per IS: 5.

ANNEXURE - I

DOCUMENTATION FOR INDUCTION MOTORS

Sl. No.	Document Description	Documents Required (Y / N)		
		With Bid	For Approval	Final
1.	Specification Sheet and Technical Particulars completely filled-in	Y	Y	Y
2.	Dimensional Drawings	Y	Y	Y
3.	Drawings and data for air / water heat exchangers, if necessary	N	Y	Y
4.	Drawings and data for oil system, if necessary	N	Y	Y
5.	Characteristic curves			
	a) Thermal withstand curve b)	N	Y	Y
	Load Vs FL current	N	Y	Y
	c) Load Vs Efficiency	N	Y	Y
	d) Load Vs Power factor e)	N	Y	Y
	Load Vs Speed	N	Y	Y
	f) Voltage Vs Thermal Withstand time	N	Y	Y
	g) Starting current Vs Time	N	Y	Y
6.	Connection diagram for RTDs, thermometer etc.	N	Y	Y
7.	Terminal Box drawings	Y	Y	Y
8.	Illustrative and Descriptive catalogues	Y	N	Y
9.	Catalogues of bought out accessories Spare	N	N	Y
10.	parts list	Y	N	Y
11.	Installation, Operation and Maintenance manual	N	N	Y
12.	Test certificates a) Routine	N	N	Y
	b) Type	N	N	Y
	c) For enclosure	Y	N	Y
13.	Guarantee Certificates	N	N	Y

6. TESTS AND INSPECTION

All motors shall be routine tested as per relevant standards. Additional tests, wherever specified, shall be carried out on one motor of each rating. For high voltage motors of each rating, polarization index test shall also be carried out. All the above mentioned tests shall be carried out in the presence of purchaser's representative. In addition, the motor shall be subject to stage inspection at works and inspection at site for final acceptance. These inspections shall, however, not absolve the vendor from their responsibility for making good any defects which may be noticed subsequently.

7. DRAWINGS AND DOCUMENTS

7.1 Drawings and documents as per Annexure-I shall be supplied, unless otherwise specified.

7.2 All drawings and documents shall have the following descriptions written boldly:

i) Name of client

ii) Name of consultant

iii) Enquiry / order number with plant / project name

iv) Motor Code No. and Description

8. SPARES

8.1 Spares for operation and maintenance

Item wise unit prices of spare parts with recommended quantity shall be quoted along with the motors as listed in the specification sheet.

8.2 Commissioning Spares

Commissioning spares, as required, shall be supplied with the main equipment. Item wise list of recommended commissioning spares shall be furnished for approval.

8.3 Any other spare parts not specified, but required, shall also be quoted along with the offer.

8.4 All spare parts shall be identical to the parts used in the motors.

9. DEVIATIONS

9.1 Deviations, if any, from this standard shall be clearly indicated in the offer with reasoning.

9.2 Deviations, if any, from the data furnished in specification sheet shall be indicated therein beside the data by encircling it.

ANNEXURE-F

(See clause 3 of section 2-ITB)

PROCEDURE FOR PARTICIPATION IN E-TENDERING

1. REGISTRATION OF BIDDERS ON E-TENDERING SYSTEM:

All the PWD registered bidders are already registered on the new e-procurement portal https://www.mpeproc.gov.in. The user id will be the contractor ID provided to them from MP Online. The password for the new portal has been sent to the bidders registered email ID. for more details may contact M/s. _Tata Consultancy Services Corporate Block, 5th floor, DB City BHOPAL-462011 email id: eproc_helpdesk©mpsdc.gov.in. Helpdesk phone numbers are available on.website.

2. DIGITAL CERTIFICATE:

The bids submitted online should be signed electronically with a Class Ill Digital Certificate to establish the identity of the bidder submitting the bid online. The bidders may obtain Class Ill Digital Certificate issued by an approved Certifying Authority authorized by the Controller of Certifying Authorities, Government of India. A Class Ill Digital Certificate is issued upon receipt of mandatory identity proofs along with an application. Only upon the receipt of the required documents, a Digital Certificate can be issued. For details please visit cca.gov.in.

NOTE:

I. It may take upto 7 working days for issuance of Class Ill Digital Certificate; hence the bidders are advised to obtain the Certificate at the earliest. Those bidders who already have valid Class Ill Digital Certificate need not obtain another Digital Certificate for the same. The bidders may obtain more information and the Application From required to be submitted for the issuance of Digital Certificate from **cca.gov.in**

II. Bids can be submitted till bid submission end date. Bidder will require digital signature while bid submission.

The digital certificate issued to the Authorized User of a Partnership firm / Private Limited Company / Public Limited Company and used for online biding will be considered as equivalent to a no-objection certificate / power of attorney to that user.

In case of Partnership firm, majority of the partners have to authorize a specific individual through Authority Letter signed by majority of the partners of the firm

In case of Private Limited Company, Public Limited Company, the Managing Director has to authorize a specific individual through Authority Letter. Unless the certificate is revoked, it will be assumed to represent adequate authority of the specific individual to bid on behalf of the organization for online bids as per information Technology Act 2000. This Authorized User will .be required to obtain a Digital Certificate. The Digital Signature executed through the use of Digital Certificate of this Authorized User will be binding on the firm. It shall be the responsibility of Management / Partners of the concerned firm to inform the Certifying Authority, if the Authorized User changes, and apply for a fresh Digital Certificate for the new Authorized User.

3. SET UP OF BIDDER'S COMPUTER SYSTEM:

In order for a bidder to operate on the e-tendering System, the Computer System of the bidder is required to be set up for Operating System, Internet Connectivity, Utilities, Fonts, etc. The details are available at https://www.mpeproc.gov.in

4. KEY DATES:

The bidders are strictly advised to follow the time schedule (Key Dates) of the bid on their side for tasks and responsibilities to participate in the bid, as all the stages of each bid are locked before the start time and date and after the end time and date for the relevant stage of the bid as set by the Department.

5. PREPARATION AND SUBMISSION OF BIDS

The bidders have to prepare their bids online, encrypt their bid Data in the Bid forms end submit Bid of all the envelopes and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the Notice inviting e-Tenders after signing of the same by the Digital Signature of their authorized representative.

6. PURCHASE OF BID DOCUMENT

For purchasing of the bid document bidders have to pay Service Charge online ONLY which is Rs. [as per Bid Date Sheet]. Cost of bid document is separately mentioned in the Detailed NIT. The Bid Document shall be available for purchase to concerned eligible bidders immediately after online release of the bids and upto scheduled time and date as set in the key dates. The payment for the cost of bid document shall be made. online through Debit/Credit card Net banking or NeFTChallan through the payment gateway provided on the portal.

7 WITHDRAWAL, SUBSTITUTION AND MODIFICATION OF BIDS

Bidder can withdraw and modify the bid till Bid submission end date

ANNEXURE — G

(See clause 4 of Section 2 -ITB)

JOINT VENTURE (J.V.)

~~If J.V. is allowed following conditions and requirements must be fulfilled -~~

1. ~~Number of partners in a Joint Venture shall not exceed 3 (three). The partners shall comply with the following requirements:~~

   a. ~~one of the partners shall be nominated as being Lead Partner, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;~~

   b. ~~the bid and, in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all partners;~~

   c. ~~the partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the contract, including payment, shall be done exclusively with the partner in charge;~~

   d. ~~all partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under[c] of above, as well as in the bid and in the Agreement tin case of a successful bid];~~

   e. ~~The joint venture agreement should indicate precisely the role of all members of IV in respect of planning, design, construction equipment key personnel, work execution, and financing of the project. All members of JV should have active participation in execution during the currency of the contract. This should not be varied/modified subsequently without prior approval of the employer;~~

   f. ~~The joint venture agreement should be registered, so as to be legally valid and binding on all partners and~~

   g. ~~a copy of the joint Venture Agreement entered into by the partners shall be submitted with the bid.~~

2. ~~The figures for each of the partners of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria required for the bid. All the partners collectively must meet the criteria specified in full. Failure to comply with this requirement will result in rejection of the joint venture's bid.~~

3. ~~The performance security of a joint venture shall be in the name of the partner Lead Partner/joint venture.~~

4. ~~Attach the power of attorney of the partners authorizing the Bid signatory(ies) On behalf of the joint venture~~

5. ~~Attach the agreement among all partners of the joint venture [and which is legally binding on all partners], which shows the requirements as indicted in the Instructions to Bidders'.~~

6. ~~Furnish details of participation proposed in the joint venture as below:~~

DETAILS OF PARTICIPATION IN THE IOINT VENTURE

PARTICIPATION DETAILS	. FIRM 'A' (Lead Partner)	FIRM 'B'	FIRM 'C'
Financial			
Name of the Banker(s)			
Planning			
construction Equipment			
Key Personnel			
Execution of Work (Give details on contribution of each)			

7. The partners of J.V. should satisfy the qualification criteria as below,

a. The Lead Partner must meet at least 50% requirement of Technical and Financial eligibility criteria required for the bid.

b. The other partner(s) must meet at least 25% requirement of Technical and financial eligibility criteria required for the bid.

c. The lead partner and the other partners should together meet 100% of all the eligibility criteria required for the bid.

8. For the meeting the minimum qualification criteria of experience of similar nature work. Every partner can have experience of different works as defined in similar nature works and together should have the experience of all type of works described in similar nature works.

ANNEXURE-H

(See clause 12 of Section 2 —ITB& clause 4 of GCC)

ORGANIZATIONAL DETAILS

(To be contained in Envelope- A)

S.No.	Particulars	Details
1	Registration number issued by Centralized Registration System of Govt. of M.P. or Proof of application for registration.	'(If applicable, scanned copy of proof of application for registration to be uploaded)
2	Valid Registration of bidder in appropriate class through Centralized Registration of Govt. of MP	Registration No. ____Date_____ (Scanned copy of Registration to be uploaded)
3	Name of Organization/ Individual/ Proprietary Firm/Partnership Firm	
4	Entity of Organization Individual/ Proprietary Firm/ Partnership Firm (Registered under Partnership Act)/Limited Company (Registered under the Companies Act—1956)/ Corporation / Joint Venture	
5	Address of Communication	
6	Telephone Number with STD Code	
7	Fax Number with STD Code	
8	Mobile Number	
9	E-mail Address for all communications	
	Details of Authorized Representative	
10	Name	
11	Designation	
12	Postal Address	

13	Telephone Number with STD Code	
14	Fax Number with STD Code	
15	Mobile Number	
16	E-mail Address	

Note: In case of partnership firm and limited company certified copy of partnership deed/ Articles of Association and Memorandum of Association along with registration certificate of the company shall have to be enclosed.

Signature of Bidder with Seal

Date: _____

ANNEXURE —I

See clause 14 of Section 2 -ITB)

Envelope — B, Technical Proposal

Technical Proposal shall comprise the following documents:

S. No.	Particulars	Details to be submitted
1	Experience — Financial & Physical	ANNEXURE - I (Format: I-1)
2	Annual Turnover	ANNEXURE - I (Format: I-2)
3	List of technical personnel for the key positions	ANNEXURE - I (Format: I-3)
4	List of Key equipment/ machines for quality control labs	ANNEXURE - I (Format: I-4)
5	List of Key equipment/ machines for construction work	ANNEXURE - I (Format: I-5)

Note:

1. *Technical Proposal should be uploaded duly page numbered and indexed.*
2. *Technical Proposal uploaded otherwise will not be considered.*

ANNEXURE - I (Format: I-1)

(See clause 14 of Section 2 -ITB)

FINANCIAL & PHYSICAL EXPERIENCE DETAILS

A. Financial Requirement:

The bidder should have completed either of the below:

a) ***three similar works*** each costing not less than the amount ***equal to 20% of the probable amount*** of contract during the ***last 3 financial years; or***

b) ***two similar works*** each costing not less than the amount ***equal to 30% of probable amount*** of contract during the last ***3 financial years; or***

c) ***one similar work*** of aggregate cost not less than the amount ***equal to 50% of the probable amount*** of contract in any one financial year during ***the last 3 financial years;***

To be filled in by the contractor:

I. Details of successfully completed similar works shall be furnished in the following format

ii. Certificate duly signed by the employer shall also be enclosed for each completed similar work.

Agreement Number & Year	Name of Work	Date of Work Order	Date of Completion	Amount of Contract	Employer's Name and Address

Existing commitments— (Value of 'C' for Bid Capacity formula)

Agreement Number & Year	Name of Work	Date of Work Order	Date of Completion	Amount of Contract	Amount of balance work	Employer's Name and Address

B. Physical Requirement:

Execution of similar items of work in any one financial year during the last 3 financial years should not be less than the minimum physical. Requirement fixed for the work.

S.No.	**Particulars**	**Actual Quantity Executed (To be filled in by the contractor)**		
		Year - 1	**Year – 2**	**Year - 3**
	Physical qualification required	**Yes**		
1	**Execution of Urban Road projects**			

Note:

1. 1 Certificate duly signed by the employer shall be enclosed for the actual quantity executed in any one year during the last 3 financial years,
2. Similar works: The similarity shall be based on the physical size, complexity, methods technology or other characteristics of main items of work viz, earth work, cement concrete, Reinforced cement concrete, brick masonry, stone masonry etc.

ANNEXURE-I(Format: I-2)

(See douse 14 of Section 2 -ITB)

ANNUAL TURN OVER

Requirement:

Average annual construction turnover on the construction works ***shall not be less than 50%*** of ***the probable amount*** of contract during the ***last 3 financial years;***

To be filled in by the contractor:

Financial Year	***Payments received for contracts in progress or completed***
1. 2016-2017	
2. 2015-2016	
3. 2014-2015	

Note:

i ***Annual turnover from construction should be certified by the Chartered Accountant.***

ii. ***Audited Balance sheet including all related notes, and income statements for the above financial years to be enclosed.***

Bid Capacity

Applicants who meet the minimum qualifying criteria in the evaluation as stated above are to be evaluated further for bid capacity as under:

Bid Capacity = (1.5A X B) - C

Where

A. = Maximum value of civil engineering works executed in any one year during the last five year (10% weightage per year shall be given to bring the value of work executed at present price level)

B = Proposed contract period in years.

C = Amount of work in hand at present.

Note:-Bid Capacity evaluated from the above mentioned formula shall be equal or higher than the probable cost of the project put for the Tender to qualify the tender process.

ANNEXURE - I (Format : I-3)

(See clause 14 of Section 2-ITB& Clause 6 of GCC)

List of Technical Personnel for the Key Positions [1](to be referred for civil works)

S. No	**Key Positions**	**Qualifications**	**Age**	**Similar Work Experience**	**Total Work Experience**	**Name of Personnel**	**Key Position**	**Qualification**	**Similar Work Experience**	**Total Work Experience**
1.	**Project Manager - 1 No.**	**B.E. Civil**	**below 65 years**	**10 Years**	**15 Years**					
2.	**Site Engineer – 3 Nos**	**B.E. Civil**	**below 65 years**	**5 years**	**10 years**					
3.	**Architect – 1 No**	**B. Arch**	**below 65 years**	**5 years**	**10 years**					
4.	**Quality Assurance Engineer- – 1 No**	**B.E. Civil *with experience in QA/QC***	**below 65 years**	**5 years**	**10 years**					
5.	**Plant Engineer – 1 No**	**B.E. Mech/ Diploma in Mech**	**below 65 years**	**5 years**	**10 years**					
6.	**Quantity Surveyor – 01 Nos**	**B.E. Civil / Diploma Civil**	**below 65 years**	**5 years**	**10 years**					
7.	**Soil & Material Engineer – 01 Nos**	**B.E. Civil / Diploma Civil**	**below 65 years**	**5 years**	**10 years**					
9	**9Nos**									

Note:

1. Aforesaid personnel shall be deployed within the period starting from the date of award of contract as stipulated in the contract.

2. Approval of the superintending engineer about suitability of personnel shall be obtained before deployment.

ANNEXURE - I (Format : I- 4)

(See clause 14 of Section 2-ITB& Clause 6 of GCC)

List of Key Equipment's / Machines for Quality Control Labs

Minimum requirement						
S.No.	Name of Equipment/ Machinery	Quantity for works costing			Quantity Available with the Bidder	Remarks
		UptoRs 5 Cr	From Rs 5 Cr to 20 Cr	Above Rs 20 Cr		
A)	GENERAL					
1)	Weigh Balances					
	a) 5-20 kg capacity Electronic type – Accuracy 1 gm	Nil	Nil	1 No.		
	b) 500 gm capacity-Electronic Type Accuracy 0.01 gm	1 No.	1 No.	1 No.		
	c) Electronic 5 kg capacity Accuracy 0.5 gm	1 No.	1 No.	1 No.		
	e) Chemical Balance 100 gm capacity-accuracy 0.001 gm	Nil	Nil	1 No		
2)	Oven-electrically operated, thermostatically controlled (including thermometer), stainless steel interior (From 0ºC to 220ºC Sensitivity 1ºC)	1 No	1 No	1 No		
3)	Sieves : as per IS:460-1962					
	a) I.S. sieves 450 mm internal dia of sieve sets as per BIS of required sieve sizes complete with lid and pan	1 set	1set	3 set		
	b) IS sieve 200 mm internal dia (brass frame and steel/or brass wire cloth mesh) consisting of sieve sets of required sieve sizes complete with lid	2 sets	2 sets	3 sets		
4)	Sieve shaker capable of sacking 200 mm and 450 mm dia sieves-electrically operated with time switch (for work costing more than 15 crore only)	Nil	1 No	3 No		
5)	200 tonnes compression testing	1 No	1 No	2 No		

	machine					
6)	Stop watches 1/5 sec. accuracy	1 No	1 No	3 No		
7)	Glassware comprising beakers, pipettes, dishes, measuring cylinders (100 to 1000 cc capacity) glass roads and funnels, glass thermometers range 0ºC to 100ºC and metallic thermometers range up to 300ºC.	2 No. each	2 No. each	2 No. each		
8)	Hot plates 200 mm dia (1500 watt.)		1 No	2 No		
9)	Enamel trays					
	a) 600 mm x 450 mm x 50 mm	1 Nos	1 Nos	2 Nos		
	b) 450 mm x 300 mm x 40 mm	1 Nos	1 Nos	2 Nos		
	c) 300 mm x 250 mm x 40 mm	1 Nos	1 Nos	2 Nos		
	d) Circular plates of 250 mm dia	1 Nos	1 Nos	2 Nos		
10)	Water Testing Kit	Nil	Nil	1 No		
B)	FOR SOILS					
1)	Water Tank	1 No	1 No	3 No		
2)	Liquid limit device with ASTM grooving tools as per IS:2720	Nil	1 No	1 No		
3)	Sampling pipettes fitted with pressure and suction inlets, 10 ml. Capacity	Nil	1 set	1 set		
4)	Compaction apparatus (Proctor) as per IS:2720 (Part 7) complete with collar, base plate and hammer and all other accessories	Nil	1 No	1 No		
5)	Modified AASHTO Compaction apparatus as per IS:2720 (Part 8) 1974 or Heavy Compaction Apparatus as per IS complete with collar, base plate hammer and all other accessories(for work costing more than 15 crore only)	Nil	1 No	1 No		
6)	Sand pouring cylinder with conical funnel and tap and complete as per IS:2720 (Part 28) 1974 including	1 Nos	2 Nos	2 Nos		

	modern equipment.					
7)	**Ennore Standard Sand**	**As required**	**As required**	**As required**		
8)	**Sampling tins with lids 100 mm dia x 75 mm ht. ½kg capacity and miscellaneous items like moisture tins with lid 50 grams etc.**	**Nil**	**Nil**	**4 Nos**		
9)	**Lab CBR testing equipment for conducting CBR testing, load frame with 5 Tonne capacity, electrically operated with speed control as per IS:2720 (Part 16) and consisting of following: (for work costing more than 15 crore only)**	**Nil**	**1 Set**	**1 Set**		
	a) CBR moulds 150 mm dia – 175 ht.	**Nil**	**6 No**	**6 No**		
	b) Tripod stands for holding dial gauge holder	**Nil**	**4 Nos**	**4 Nos**		
	c) CBR plunger with settlement dial gauge holder	**Nil**	**1 No**	**1 No**		
	d) Surcharge weight 147 mm dia 2.5 kg wt.	**Nil**	**6 Nos**	**6 Nos**		
	e) Spacers disc 148 mm dia 47.7 mm ht. With handle	**Nil**	**2 Nos**	**2 Nos**		
	f) Perforated plate (Brass)	**Nil**	**2 Nos**	**2 Nos**		
	g) Soaking tank for accommodating 6 CBR moulds	**Nil**	**2 Nos**	**2 Nos**		
	h) Proving rings of 1000 kg, 2500 kg capacity	**Nil**	**1 No each**	**1 No each**		
	i) Dial gauges 25 mm travel-0.01 mm/division	**Nil**	**2 No**	**2 No**		
10)	**Standard penetration test equipment**	**Nil**	**Nil**	**1 No**		
11)	**Nuclear moisture Density meter or equivalent(for work costing more than 15 crore only)**	**Nil**	**Nil**	**1 No**		
12)	**Speedy moisture meter complete with chemicals**	**I No**	**1 No**	**3 No**		

13)	Unconfined Compression Test Apparatus (for work costing more than 15 crore only)	Nil	Nil	1 No		
D)	FOR CEMENT, CEMENT CONCRETE AND MATERIALS					
1)	Water Tank	1 No	1 No	1 No		
2)	Vicat needle apparatus for setting time with plungers as per IS:269-1967	1 No	1 No	1 No		
3)	Moulds					
	a) 150 mm x 300 mm ht. Cylinder with capping component along with the capping set and compound as per IS	Nil	Nil	As Required		
	b) Cube 150 mm, and 100 mm (each size)	6 Nos	12 Nos	24 Nos		
4)	Concrete permeability apparatus	Nil	Nil	1 No		
5)	High frequency mortar cube vibrator for cement testing	Nil	Nil	1 No		
6)	Concrete mixer power driven, 1 cu.ft. capacity	Nil	Nil	1 No		
7)	Variable frequency and amplitude vibrating table size 1 m x 1 m as per the relevant British Standard	Nil	Nil	1 No		
8)	Flakiness index test apparatus	1 No	1 No	1 No		
9)	Aggregate impact test apparatus as per IS:2386 (Part 4) 1963	Nil	Nil	1 No		
10)	Los-Angeles abrasion test apparatus as per IS:2386 (Part 4) 1963	Nil	Nil	1 No		
11)	Flow table as per IS:712-1973	Nil	Nil	1 No		
12)	Equipment for slump test	1 No	1 No	2 No		
13)	Equipment for determination of specific gravity or fine and coarse aggregate as per IS:2386 (Part 3) 1963	1 No	1 No	2 No		
14	Compression and Flexural strength testing machine of 200 T capacity with additional dial for flexural testing	1 No	1 No	2 No		

15	Core cutting machine with 10/15 cm dia diamond cutting edge	1 No	1 No	2 No		
16)	Needle vibrator	1 No	1 No	2 No		
17)	Air entrainment meter	Nil	Nil	1 No		
18)	0.5 Cft, 1 Cft cylinder for checking bulk density of aggregate with tamping rod	Nil	1 No	2 No		
19)	Soundness testing apparatus for cement (Lee Chattlier)	Nil	Nil	1 No		
E)	FOR CONTROL OF PROFILE AND SURFACE EVENNESS					
1)	Total Station	Nil	1 No	1 No		
2)	Precision automatic level with micrometer attachment	1 set	1 set	1 set		
3)	Distomat or equivalent	Nil	Nil	1 Set		
4)	Theodolite – Electronically operated with computerised output attachment	Nil	Nil	1 No		
5)	Precision staff	2 sets	4 sets	8 sets		
6)	3 meter straight edge and measuring wedge	1 sets	2 sets	8 sets		
7)	Camber template 2 Lane					
	a) Crown type cross – section	1sets	1 sets	4 sets		
	b) Straight run cross – section	1sets	1sets	4sets		
8)	Steel tape					
	a) 5 m long	2 Nos	4 Nos	8 Nos		
	b) 10 m long	2 Nos	4 Nos	8Nos		
	c) 20 m long	2 Nos	4 Nos	8Nos		
	d) 30 m long	2 Nos	4 Nos	8 Nos		
	e) 50 m long	1 No	4 No	8 No		
9)	Roughometer (Bump Integrator)	1 No. (when required)	1 No. (when required	1 No. (when required		

			)	)		

Note: Intention to procure/lease the equipment should be accompanied by documents to the effect. The nature of documents could be any one of the under:

i) Order to the manufacturer of the plant and equipment's.
ii) Confirmation from the manufacturer.
iii) Proof of payments in full or part.
iv) Agreement to lease the equipment.

ANNEXURE - I (Format : I-5)

(See clause 14 of Section 2-ITB)

List of Key Equipment's/ Machines for Construction Work (Only for civil works)

					Minimum requirement	
S. No.	Name of Equipment/ Machinery	Quantity Required with the bidder for works costing			Quantity Available with the bidder	Remarks
		UptoRs 5 Cr	From Rs 5 Cr to 20 Cr	Above Rs 20 Cr		
1.	a) Hot mix plant (40-60 TPH), fully computerized with four bin feeder lime/dust feeder as per IRC specification	1 No.	1 No.	1 No.		
	b) Hot mix plant (40-60 TPH), fully computerized with four bin feeder lime/dust feeder as per IRC specification	Nil	Nil	1 No.		
2.	Loaders	1 No.	1 No.	2 No.		
3.	Tippers	2 Nos.	5 Nos.	10 Nos.		
4.	Tandem Road Roller 8-10 ton	1 No.	2 No.	4 No.		
5.	Vibratory Road Roller	1 Nos.	1 Nos.	2 Nos.		
6.	Bitumen Sprayers and emulsion sprayer	1 Nos.	1Nos.	2 Nos.		
7.	Blower of suitable capacity	1 No	2 No	2 No		
8.	Sensor Paver finisher filled with vibratory screed	1No.	1No.	2 No.	-	
9.	for Concrete pavements					
	i) Concrete Mechanical Mixer with arrangement for mixing ingredients by weight	1 Cum capacity	1 Cum capacity	1 Cum capacity		
	ii) Plate Vibrators	1 Nos.	1 Nos.	2 Nos.		
	iii) Pin Vibrators	1 Nos.	1 Nos.	2 Nos.		
	iv) Concrete sensor paver	1 No	1 No	1 No		

10	**Pneumatic tire Roller/Rubber wheeled roller of 12 to 15 tonne weight with tyre pressure of at least 0.56 Mpa**			**1 No**		
11	**Hydrostatic sensor paver finisher with dual application and electronic control for paving width of 7.00 Mtrs**			**1 No**		

Note: Intention to procure/lease the plants and machinery should be accompanied by documents to the effect. The nature of documents could be any one of the under:

- ***i) Order to the manufacturer of the plant and equipment's.***
- ***ii) Confirmation from the manufacturer.***
- ***iii) Proof of payments in full or part.***
- ***iv) Agreement to lease the equipment.***

ANNEXURE — J

(See clause 14 of Section 2 -ITB)

FINANCIAL BID

(To Be Contained in Envelope-C)

Submitted Online only

NAME OF WORK_____

I/We hereby bid for the execution of the above work within the time specified at the rate (in figures) _____(in words) _____percent below/ above or at par based on the Bill of Quantities and item wise rates given therein in all respects and in accordance with the specifications, designs, drawings and instructions in writing in all respects in accordance with such conditions so far as applicable. I/We have visited the site of work and am/are fully aware of all the difficulties and conditions likely to affect carrying out the work. I/We have fully acquainted myself/ourselves about the conditions in regard to accessibility of site and quarries/kilns, nature and the extent of ground, working conditions including stacking. of materials, installation of tools and plant conditions effecting accommodation and movement of labour etc. required for the satisfactory execution of contract.

Should this bid be accepted, I/We hereby agree to abide by and fulfill all the terms and provisions of the said conditions of contract annexed- hereto so far as applicable, or in default thereof to forfeit and pay to the Jabalpur Smart City Limited or his successors in office the sums of money mentioned in the said conditions.

Note:

i. Only one rate of percentage above or below or at par based on the Bill of Quantities and item wise rates .given therein shall be quoted.

ii. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found lower of the two shall be taken as valid and correct rate. If the bidder is not ready to accept such valid and correct rate and declines to furnish performance -security and sign the agreement his earnest money deposit shall be forfeited.

iv. In case .the percentage “above” or “below” is not given by a bidder, his bid shall be treated as non-responsive.

v. All duties, royalties. levies and taxes except Goods and Services Tax (GST) are included inthe rates (in case of percentage rate bids)/lump-sum offer (in case of lump-sum bids)quoted by the bidder.

Signature of Bidder
Name of Bidder

The above bid is hereby accepted by me on behalf of the Jabalpur Smart City Limited dated the _____ day of _____ 20_____

Signature of Officer
by whom accepted

ANNEXURE — K

(See clause 15 of Section 2 -ITB)

MATERIALS TO BE ISSUED BY THE DEPARTMENT

N/A

ANNEXURE—L

(See clause 21 of Section 2 -ITB)

LETTER OF ACCEPTANCE (LOA)

No. _____ Dated:_____

To,

M/s._____

(Name and address of the contractor)

Subject: _____

(Name of the work as appearing in the bid for the. work)

Dear Sir(s),

Your bid for the work mentioned above has been accepted on behalf of the Jabalpur Smart City Limited at your bided percentage _____ below/ above or at par the Bill of Quantities and item wise rates given therein.

You are requested to submit within 15 (Fifteen) days from the date of issue of this letter:

a. The performance security/ performance guarantee of Rs _____(in-figures) (Rupees _____ in words only). The performance security shall be in the shape of term deposit receipt / bank guarantee of any nationalized / schedule commercial bank valid up to three months after the expiry of defects liability period.

b. Sign the contract agreement.

Please note that the time allowed for carrying-out the work as entered in the bid is _____ months including/ excluding rainy season, shall be reckoned from the date of signing the-contract agreement.

Signing the contract agreement shall be reckoned as intimation to commencement of work and no separate letter for commencement of work is required. Therefore, after signing of the agreement, you are directed to contact the Engineer-in-charge for taking the possession of site and necessary instructions to start the work.

Yours Faithfully

CEO (JSCL)

ANNEXURE — M

(See clause 22 of Section 2 -ITB)

PERFORMANCE SECURITY

To

_____[name of Employer]
_____[address of Employer

WHEREAS _____[name and address of Contractor) (Hereinafter called 'the Contractor") has undertaken, in pursuance of letter of Acceptance No-_____ dated to execute _____[name of Contract and brief description of Works] (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, Up to a total of _____ [amount of guarantee]* _____ _(in words), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and Without cavil or argument, an sum or sums within the limits of _____[amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the term of the Contract of the Works to be performed there under or of any of the Contract documents which maybe made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 3 (three) months from the date of expiry of the Defect Liability Period.

Signature, Name and Seal of the guarantor _____
Name of Bank_____
Address_____
Phone No, Fax No., E-mail Address, of Signing Authority _____
Date _____

*****An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

SECTION 3

Conditions of Contract

Part - I General Conditions of Contract [GCC]

Table of Clauses of GCC

Clause No.	Particulars	Clause No.	Particulars
A. General		21	Payments for Variations and / or Extra Quantities
1	Definitions	22	No compensation for alterations in or restriction of work to be carried out.
2	Interpretations and Documents	23	No Interest Payable
3	Language and Law	24	Recovery from Contractors
4	Communications	25	Tax
5	Subcontracting	26	Check Measurements
6	Personnel	27	Termination by Engineer in Charge
7	Force Majeure	28	Payment upon Termination
8	Contractor's Risks	29	Performance Security
9	Liability For Accidents To Person	30	Security Deposit
10	Contractor to Construct the Works	31	Price Adjustment
11	Discoveries	32	Mobilization and Construction Machinery Advance
12	Dispute Resolution System	33	Secured Advance
B Time Control		34	Payments Certificates
13	Programme	**E. Finishing the Contract**	
14	Extension of Time	35	Completion Certificate
15	Compensation for Delay	36	final Account
16	Contractor's quoted percentage	**F. Other Conditions of Contract :**	
C. Quality Control		37	Currencies
17	Tests	38	Labour
18	Correction of Defects noticed during the Defect Liability Period	39	Compliance with Labour Regulations
D. Cost Control		40	Audit and Technical Examination . —
19	variations.- Change in original Specifications, Designs, Drawings etc.	41	Death or Permanent Invalidity of Contractor
20	Extra Items .	42	.Jurisdiction

A. General

1. DEFINITIONS

1.1. **Bill of Quantities:** means the priced and completed Bill of Quantities forming part of the Bid.

1.2. **Chief Engineer:** means Chief Engineer of the zone/ basin concerned:

13. **Completion:** means completion of the work as certified by the Engineer-in-Charge, in accordance with provisions of agreement.

1.4. **Contract:** means the Contract between the Employer and the Contractor to execute, complete and/or maintain the work. Agreement is synonym of Contract and carries the same meaning wherever used.

1.5. **Contract Data:** means the documents and other information, which comprise of the Contract.

1.6. **Contractor:** means a person or legal entity whose bid to carry out the work has been accepted by the Employer.

1.7. **Contractor's bid:** means the completed bid document submitted by the Contractor to the Employer.

1.8. **Contract amount:** means the amount of contract worked out on the basis of accepted bid.

1.9. **Completion of work:** means completion of the entire contracted work; Exhaustion of quantity of any particular item mentioned in the bid document shall not imply completion of work or any component thereof.

1.10. **Day:** means the calendar day.

1.11. **Defect:** means any part of the work not completed in accordance with the specifications included in the contract.

1.12. **Department:** means Department of the, State Government viz. Water Resources Department, Public Works Department, Public Health Engineering Department Rural Engineering Service and any other organization which adopts this document.

1.13. **Drawings:** means drawings including calculations and other information provided or approved by the Engineer-in-Charge.

1.14. **Employer:** means the party as defined in the Contract Data, who employs the Contractor to carry out the work. The Employer may delegate any or all functions to a person or body nominated by him for specified functions. The word Employer / Government / Department wherever used denote the Employer.

1.15. **Engineer:** means the person named in the Contract Data.

1.16. **Engineer in charge:** means the person named in the Contract Data.

1.17. **Equipment:** means the Contractor's machinery and vehicles brought temporarily to the Site far execution of work.

1.18. **Government:** means Government of Madhya Pradesh.

1.19. **In Writing:** means communicated in written form and delivered against receipt.

1.20. **Material:** means all supplies, including consumables, used by the Contractor for incorporation in the work.

1.21. **Superintending Engineer:** means Superintending Engineer-in-Charge of the Circle concerned.

1.22. **Stipulated period of completion:** means the period in which the Contractor is required to complete the work. The stipulated period is specified in the Contract Data.

1.23. **Specification:** means the specification of the work included in the Contract and any modification or addition made or approved by the Engineer-in-Charge.

1.24. **Start Date:** means the date of signing of agreement for the work.

1.25. **Sub-Contractor**: means a person or corporate body who has a Contract with the Contractor, duly authorized to carry out a part of the construction work under the Contract.

1.26. **Temporary Work:** means work designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the work.

1.27. **Tender/Bid, Tendered/Bidder**: are the synonyms and carry the same meaning where ever used. -

1,28. **Variation:** means any change in the work which is instructed or approved as variation under this contract.

1.29. **Work:** The expression "work' or "works" where used in these conditions shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the work by virtue of contract, contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional,

2. INTERPRETATIONS AND DOCUMENTS

2.1 **Interpretations**

In the contract, except where the context requires otherwise:

a. words indicating one gender include all genders;

b. Wards indicating the singular also include the plural and vice versa.

c. provisions including the word "agree", "agreed" or "agreement' require the agreement to be recorded in writing;

d. written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

2.2 Documents Forming Part of Contract:

1. NIT with all amendments.
2. Instructions to Bidders (ITB, Bid Data Sheet with all Annexure's)
3. Conditions of Contract:
   I. Part I General Conditions of Contract and the Contract Data; with all Annexures
   II. Part II Special Conditions of Contract.
4. Specifications
5. Drawings
6 Bill of Quantities
7. Technical and Financial Bid
8. Agreement, and
9. Any other document(s), as specified.

3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data

4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent to the address or contact details given by the Contractor in [ANNEXURE H of ITB]. The address and contact details for communication with the Employer/Engineer shall be as per the details given in the Contract Data. Communication between parties that are referred to in the conditions

shall be in writing. The notice sent by facsimile (fax) or other electronic means (email) shall also be effective on confirmation of the transmission. The notice sent by registered post or speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service. In case of any change in address for communication, the same shall be immediately notified to Engineer-in-Charge.

5. Subcontracting

Subcontracting shall be permitted for contracts of value more than amount specified in the Contract Data with following conditions.

a. The Contractor may subcontract up to 25 percent of the contract price with the approval of the Employer in writing, but will not assign the Contract. Subcontracting shall not alter the Contractors obligations.

b. Following shall not form part of subcontracting:
   I. Hiring of labour through a labour contractor.
   II. The purchase of Materials to be incorporated in the works.
   III. Hiring of plant & machinery.

c. The sub-contractor will have to be registered in the appropriate category in the centralized registration system for contractors of the G0MP.

6. Personnel

6.1 The Contractor shall employ for the construction work and routine maintenance the technical personnel as provided in the ANNEXURE I-3 of Bid Data Sheet if applicable. If the Contractor fails to deploy required number of technical staff, recovery as specified in the Contract Data will be made from the Contractor.

6.2 If the Engineer asks the Contractor to remove a person who is a member of the contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within three days and has no further connection with the Works in the Contract.

7. Force Majeure

7.1 The term "Force Majeure" means an exceptional event or circumstance:

(a) Which is beyond a Party's control,

(b) Which such Party could not reasonably have provided against before entering into the Contract

(c) Which, having arisen, such Party could not reasonably have avoided or overcome, and

(d) This is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

i. War, hostilities (whether war be declared or not), invasion, act of foreign enemies,

ii. Rebellion, terrorism, sabotage by persons other than the contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,

iii. Riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,

iv. Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and

v. Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

7.2. In the event of either party being rendered unable by force majeure to perform any duty or discharge any responsibility arising out of the contract, the relative obligation of the party affected by such force majeure shall upon notification to the other party be suspended for the period during which force majeure event lasts. The cost and loss sustained by either party shall be borne by respective parties.

7.3 For the period of extension granted to the Contractor due to Force Majeure the price adjustment clause shall apply but the penalty clause shall not apply. It is clarified that this sub clause shall not give eligibility for price adjustment to contracts which are otherwise not subject to the benefit of price adjustment clause.

7.4 The time for performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such cause lasts. Should the delay caused by force majeure exceed twelve months, the parties to the contract shall be at liberty to foreclose the contact after holding mutual discussions.

8. Contractor's Risks -

8.1 All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor.

8.2 All risks and consequences arising from the inaccuracies or falseness of the documents, drawing, designs, other documents and/or information submitted by the contractor shall be the responsibility of the Contractor alone, notwithstanding the fact that the design/ drawings or other documents have been approved by the department.

9. Liability for Accidents to Person

The contractor shall be deemed to have indemnified and saved harmless the Corporation against all action, suits, claims, demands, costs etc. arising in connection with injuries suffered by any persons employed by the contractor or his subcontractor for the works whether under the General law or under workman's compensation Act or any other statute in force at the time of dealing with the question of the liability of employees for the injuries suffered by employees and to have taken steps properly to ensure against any claim there under.

10. Contractor to Construct the Works

10.1 The Contractor shall construct install and maintain the Works in accordance with the Specifications and Drawings as specified in the Contract Data.

10.2 In the case of any class of work for which there is no such specification as is mentioned in Contract Data, such work shall be carried out in accordance with the instructions and requirement of the Engineer-in-charge.

10.3 The contractor shall supply and take upon himself the entire responsibility of the sufficiency of the scaffolding, timbering, machinery, tools and implements, and generally of all means used for the fulfillment of this contract whether such means may or may not be approved or recommended by the Engineer.

11. Discoveries

Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

12. Dispute Resolution System

12.1 No dispute can be raised except before the Competent Authority as defined in Contract Data in writing giving full description and grounds of dispute. It is clarified that merely recording protest while accepting measurement and/or payment shall not be taken as raising a dispute.

12.2 No dispute can be raised after 45 days of its first occurrence. Any dispute raised after expiry of 45 days of its first occurrence shall not be entertained and the Employer shall not be liable for claims arising out of such dispute.

12.3 The Competent Authority shall decide the matter within 45 days.

12.4 Appeal against the order of the Competent Authority can be preferred within 30 days to the Appellate Authority as defined in the Contract Data. The Appellate Authority shall decide the dispute within 45 days.

12.5 Appeal against the order of the Appellate Authority can be preferred before the Madhya Pradesh Arbitration Tribunal constituted under Madhya Pradesh *MadhyasthamAdhikaranAdhiniyam, 1983.*

12.6 The Contractor shall have to continue execution of the Works with due diligence notwithstanding pendency of a dispute before any authority or forum.

B. Time Control

13. **Programme**

13.1 Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods arrangements, order and timing for all the activities for the construction of works.

13.2 **The program shall be supported with all the details regarding key personnel, equipment and machinery proposed to be deployed on the works for its execution.** The contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/equipment being placed in field laboratory and the location of field laboratory along with the Programme.

13.3 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

13.4 The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

13.5 The Engineer's approval of the Programme shall not alter the Contractor's obligations.

14. Extension of Time

14.1. If the Contractor desires an extension of time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-charge, on account of which he desires such extension. Engineer-in-Charge shall forward the aforesaid application to the Competent Authority as prescribed.

14.2 The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause 15 of this agreement.

14.3 In case the work is already in progress, the Contractor shall proceed with the execution of the works, including maintenance thereof, pending receipt of the decision of the competent authority as aforesaid with all due diligence.

15. Compensation for delay

15.1 The. Time allowed for carrying out the work, as entered in the agreement, shall be strictly observed by the Contractor.

15.2 The time allowed for execution of the contract shall commence from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.

15.3 In the event milestones are laid down in the Contract Data for execution of the works, the contractor shall have to ensure strict adherence to the same.

15.4 Failure of the Contractor to adhere to the timelines and/or milestones shall attract such liquidated damages as is laid down in the Contract Data.

15.5 In the event of delay in execution of the Works as per the time lines mentioned in the Contract Data the Engineer-in-charge shall retain from the bills of the Contractor amount equal to the liquidated damages leviable until the Contractor makes such delays good. However, the Engineer-in-charge shall accept bankable security in lieu of retaining such amount.

15.6 If the Contractor is given extension .of time after liquidated damages have been paid, the Engineer in Charge shall correct any over payment of liquidated damages by the Contractor in the next payment certificate.

15.7 In the event the Contractor fails to make good the delay until completion of the stipulated contract period (including extension of time) the sum so retained shall be adjusted against the liquidated damages levied.

16. Contractor's quoted percentage

The Contractor's quoted percentage rate referred to in the "Bid for works' will be deducted added from/to the net amount of the bill after deducting the cost of material supplied by the department.

C. Quality Control

17. Tests

17.1 The Contractor shall be responsible for:

a. Carrying out the tests prescribed in specifications, and

b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.

17.2 The contractor shall have to establish field laboratory within the time specified and having such equipments as are specified in the Contract Data.

17.3 Failure of the Contractor to establish laboratory shall attract such penalty as is specified in the Contract Data.

17.4 Ten percent of the mandatory test prescribed under the specification shall be got carried out through laboratories accredited by national Accreditation Board of laboratories (NABL) By the Engineer-in-charge and the cost of such testing shall be deducted from the payments due to contractor.

18. Correction of Defects noticed during the Defect Liability Period

18.1 The Defect Liability Period of work in the contract shall be as per the Contract Data.

18.2 The Contractor shall promptly rectify all defects pointed out by the Engineer well before the end of the Defect Liability Period. The Defect Liability Period shall automatically stand extended until the defect is rectified.

18.3 If the Contractor has not corrected a Defect pertaining to the Defect Liability Period to the satisfaction of the Engineer, within the time specified by the Engineer, the Engineer will assess the cost of haying the Defect corrected, and the cost of correction of the Defect shall be recovered from the Performance Security or any amount due or that may become due to the contractor and other available securities.

D. COST CONTROL

19. Variations - Change in original Specifications, Designs, and Drawings etc.

19.1 The Engineer-in-charge shall have power to make any alterations, omissions or additions to or substitutions in the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-charge, and such alterations, omission, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work, which the contractor may be directed to do in the manner above specified, as part of the work, shall be carried out by the contractor on the same conditions in all respects on which he agrees to do the main work.

19.2 The time for the completion of the work shall be adjusted in the proportion that the altered, additional or substituted work bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportion.

20. Extra items

20.1 All such items which are not included in the priced BOQ shall be treated as extra items.

21. Payments for Variations and / or Extra Quantities

21.1 The rates for such additional (Extra quantity), altered or substituted work / extra items under this clause shall be worked out in accordance with the following provisions in the irrespective order:

a. The contractor is bound to carry out the additional (Extra quantity), work at the same rates as are specified in the contract for the work.

b. If the item is not in the priced BOQ and is. included in the SOR of the department, the rate shall be arrived at by applying the quoted tender percentage on the SOR rate.

c. If the rates for the altered or substituted work are not provided in applicable SOR - such rates will be derived from the rates for a similar class (type) of work as is provided in the contract (priced BOQ) for the work.

d. If the rates for the altered, substituted work cannot be determined in the manner specified in the sub clause (c) above - then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates minus/plus the percentage quoted by the contractor.

e. If the rates for a particular part or parts of the item is not in the Schedule of Rates and the rates for the altered, or substituted work item cannot be determined in he manner specified in sub clause (b) to (d) above, the rate for such part or parts will be determined by the Competent Authority, as defined in the Contract Data on the basis of the rate analysis derived out of prevailing market rates when the work was done.

f. But under no circumstances, the contractor shall suspend the work on the plea of non-acceptability of rates on items falling under sub clause (a) to (d). In case the contractor does not accept the rate approved by the Engineer in Charge for a particular item, the contractor shall continue to carry out the item at the rates determined by the Competent Authority. The decision on the final rates payable shall be arrived at through the dispute settlement procedure.

22. No compensation for alterations in or restriction of work to be carried out.

22.1. If at any time after the commencement of the work, the Engineer-in-charge for any reason whatsoever, not require the whole or any part of the work as specified in the bid to be carried out the Engineer-in-charge shall give notice in writing of the fact to the Contractor and withdraw that whole or any part of the work.

22.2 The Contractor shall have no claim to any payments or compensation whatsoever, on account of any profit or advantage which he might have derived from the execution of work in full or on account of any loss incurred for idle men and machinery due to any alteration or restriction of work for whatsoever reason.

22.3 The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work, without prejudice to his rights.

23. 'No Interest Payable

No interest shall be payable to the Contractor on any payment due or awarded by any authority.

24. Recovery from Contractors

Whenever any claim against the Contractor for the payment arises under the contract, the Department may be entitled to recover such sum by:

(a) Appropriating, in part or whole of the Performance Security and Additional Performance Security, if any; and/or Security Deposit and / or any sums payable under the contract to the contractor.

(b) If the amount recovered in accordance with (a) above is not sufficient, the balance sum may be recovered from any payment due to the contractor -under any other contract of the department, including the securities which become due for release.

(c) The department shall, further have an additional right to effect recoveries as arrears of land revenue under the M.P. Land-Revenue Code.

Tax -

25.1 The rates (in case of percentage rate bids)/ lump-sum offer (in case of lump-sum bids) quoted by the Contractor shall be deemed to be inclusive of all duties, royalties, levies and taxes except Goods and Services Tax (GST) The amount of applicable GST will be paid separately to the Contractor with each bill at the time of payment.

25.2 The liability, if any, on account of quarry fees duties taxes (except GST), royalties and levies in respect of material consumed or services rendered on public work shall be borne by the Contractor.

25.3 Any changes in the taxes due to change in legislation or for any other reason shall not be payable to the contractor.

26. Check Measurements

26.1 The department reserves to itself the right to prescribe a scale of check measurement of work in general or specific scale for specific works or by other special orders.

26.2 Checking of measurement by superior officer shall supersede measurements by subordinate officer(s), and the former will become the basis of the payment.

26.3 Any over/excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion of the defect liability period specified in this contract, shall be recoverable from the Contractor, as per clause 24 above.

27. Termination by Engineer in charge

27.1 If the Contractor fails to carry out any obligation under the Contract, the Engineer in Charge may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

27.2 The Engineer in Charge, shall be entitled to terminate the Contract if the Contractor

a) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;
b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;
c) without reasonable excuse falls to comply with the notice to correct a particular defect within a reasonable period of time;
d) the Contractor does not maintain a valid instrument of financial security as prescribed;
e) the Contractor has delayed the completion of the Works by such duration for which the maximum amount of liquidated damages is recoverable;
f) If the Contractor fails to deploy machinery and equipment or personnel or set up a field laboratory as specified in the Contract Data;
g) If the contractor, in the judgment of the Engineer in chargé has engaged in corrupt or fraudulent practices in competing for or in executing the contract;
h) Any other fundamental breaches as specified in the Contract Data.

27.3 In any of these events or circumstances, the Engineer in Charge may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site, However, in the case of sub-paragraph (b) or (g) of clause 27.2, the Engineer in Charge may terminate the Contract immediately.

27.4 Notwithstanding the above, the Engineer-in-Charge may terminate the Contract for convenience by giving notice to the Contractor.

28. Payment upon Termination

28.1 If the contract is terminated under clause 27.3, the Engineer shall issue a certificate for value of the work accepted on final measurements, less Advance Payments and Penalty as indicated in the Contract Data. The amount so arrived at shall be determined by the Engineer-in-Charge and shall be final and binding on both the parties.

28.2 Payment on termination under clause 27.4 above -

If the Contract is terminated under clause 27.4 above, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation, of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

28.3 If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered as per clause 24 above.

29. Performance Security

The Contractor shall have to submit, performance security and additional performance security, if any, as specified in the Bid Data Sheet at the time of signing of the contract. The contractor shall have to ensure that such performance security and additional performance security, if any remains valid for the period 'as specified in the Contract Data.

30. Security Deposit-

30.1 Security Deposit shall be deducted from each running bill at the rate as specified in the Contract Data. The total amount of Security Deposit so deducted shall not exceed the percentage of Contract Price specified in the Contract Data.

30.2 The security deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt assigned to the Employer, with validity up to 3 (three) months beyond the completion of Defect Liability Period/ extended Delectability Period.

30.3 The Security Deposit shall be refunded on completion of' Defect Liability Period plus 3(three) Months.

31. Price Adjustment(NOT APPLICABLE)

~~**31.1 Applicability**~~

~~1. Price adjustment shall be applicable only if provided for in the Contract Data.~~

~~2. The price adjustment clause shall apply only for the works executed from the date of signing of the agreement until the end of the initial intended completion date or extensions granted for reasons attributed to the Employer by the Engineer.~~

~~3. The Contractor shall not be entitled to any benefit arising from the price adjustment clause for extension in the contract period for reasons attributed to the Contractor.~~

~~4. In the Force Majeure event the price escalation clause shall apply.~~

~~**31.2 Procedure**~~

1. Contract price shall be adjusted for increase or decrease in rates and price of labor, materials, fuels and lubricants in accordance with following principles and procedures and as per formula given in the contract data.
2. The price adjustable shall be determined during each quarter from the formula given in the contract data.
3. Following expression and meaning are assigned to the work done during each quarter:

   R = Total value of work during the quarter. It would include the amount of secured advance granted, if any, during the quarter, less the amount of secured advance recovered, if any during the quarter, less value of material issued by the department, if any, during the quarter.
4. Weightages of various components of the work shall be as per the Contract Data.

31.3 To the extent that full compensation for any rise or fail in costs to the contractor is not covered by the provisions of this or other clauses in the contract the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

31.4 The index relevant to any quarter, for which such compensation is paid, shall be the arithmetical average of the indices relevant of the calendar month.

31.5 For the purpose of clarity it is pointed out that the price adjustment may be either positive or negative, i.e. if the price adjustment is in favour of the Employer, the same shall be recovered from the sums payable to the Contractor.

32. Mobilization and Construction Machinery Advance

32.1 Payment of advances shall be applicable if provided in the Contract Data.

32.2 If applicable, the Engineer in Charge shall make interest bearing advance payment to the contractor of the amounts stated in the Contract Data, against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled banks, in the name as stated in the Contract Data in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the contractor.

32.3 The rate of interest chargeable shall be as per Contract Data.

32.4 The construction machinery advance, if applicable, shall be limited to 80% of the cost of construction machinery and admissible only for new construction machinery.

32.5 The advance payment shall be recovered as stated in the Contract Data by deducing proportionate amounts from payment otherwise due to the Contractor. No account shall be taken of the advance payment or its recovery in assessing valuations of work done, variations, price adjustments, compensation events, or liquidated damages.

33. Secured Advance

33.1 Payment of Secured Advance shall be applicable if provided in the Contract Data.

33.2 If applicable, the Engineer shall make advance payment against materials intended for but not yet incorporated in the Works and against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled bank, in the name as stated in the Contract Data, in amounts equal to the advance payment. The guarantee shall remain effective until the advance

payment has been adjusted, but the amount of the guarantee shall be progressively reduced by the amounts adjusted by the contractor.

33.3 The amount of secured advance and conditions to be fulfilled shall be as stipulated in the Contract Data.

3.4 The Secured Advance paid shall be recovered as stated in the Contract Data.

34. Payment Certificates

The payment to the contractor will be as follows for construction work:

(a) The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously, supported with detailed measurement of the items of work executed.

(b) The Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

(c) The value of work executed shall be determined, based on the measurements approved by the Engineer/ Engineer-in-charge.

(d) The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed:

(e) The value of work executed shall also include the valuation of Variations and Compensation Events.

(f) All payments shall be adjusted for deductions for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law.

(g) The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

(h) Payment of intermediate certificate shall be regarded as payments by way of advance, against the final payment and not as payments for work actually done and completed.

(i) Intermediate payment shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or be considered as an admission of the due performance of the contractor any part thereof, in any respect or the occurring of any claim.

(j) The payment of final bill shall be governed by the provisions of clause 36 of GCC.

E. Finishing the Contract

35. Completion Certificate

35.1 A Completion Certificate in the prescribed format in Contract Data shall be issued by the Engineer-in-Charge after physical completion of the Work.

35.2 After final payment to the Contractor a Final Completion Certificate in the prescribed format in the Contract Data shall be issued by the Engineer-in Charge.

36. Final Account

36.1 The Contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable for works under the Contract within 21 days of issue of certificate of physical completion of works. The Engineer shall issue a Defects Liability Certificate and certify any payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If the account is not correct or complete, the Engineer shall issue within 45 days a schedule that states the scope of the corrections or

additions that are necessary. If the Account is still unsatisfactory after it has been resubmitted, the matter shall be referred to the Competent Authority as defined in the Contract Data, who shall decide on the amount payable to the Contractor after hearing the Contractor and the Engineer in Charge.

36.2 In case the account is not received within 21 days of issue of Certificate of Completion as provided in clause 32.1 above, the Engineer shall proceed to finalize the account and issue a payment certificate within 28 days.

F. Other Conditions of Contract

37. Currencies

All payments will be made in Indian Rupees.

38. Labour

38.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

38.2 The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labourfrom time to time employed by the Contractor on the Site and such other information as the Engineer may require.

39. Compliance with Labor Regulations

39.1 During continuance of the Contract, the Contractor and his Sub Contractors shall abide at all times by all existing labor enactments and rules made there under, regulations, notifications and bye laws of the, State or Central Government or local authority and any other labor law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labor law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that, are applicable to construction industry are given in the Contract Data. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made their under, regulations or notifications including amendments, If the Employer is caused to pay or reimburse, such amounts as may .be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/ byelaws/ Acts/Rules / regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct from any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub Contractor in no case shall be treated as the employees of the Employer at any point of time.

40. Audit and Technical Examination

Government shall have the right to cause an audit and technical examination of the works and the final bill of the contract including all supporting vouchers abstract etc to be made after payment of the final bill and if as a result of such audit and technical examination any sun is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done

under the contract and found not to; have been executed, the Contractor shall be liable to refund the amount of overpayment and it shall be lawful for Government to recover the same from him in the manner prescribed in clause 24 above and if it is found that the Contractor was paid less than what was due to him, under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the Contractor.

41. Death or Permanent Invalidity of Contractor

If the Contractor is an individual or a proprietary concern, partnership concern, dies during the currency of the contract or becomes permanently incapacitated, where the surviving partners are only minors, the contract shall be closed without levying any damages/compensation as provided for in clause 28.2 of the contract agreement However, if the competent authority is satisfied about the competence of the survivors, then the competent authority shall enter into a fresh agreement for the remaining work strictly on the same terms and conditions under which the contract was awarded.

42. Jurisdiction

This contract has been entered into the State of Madhya Pradesh and its validity, construction, interpretation and legal effect shall be subjected to the courts at the place where this agreement is entered into. No other jurisdiction shall be applicable.

[End of GCC]

Contract Data

S.No	*Clause reference*	*Particulars*	*Data*
1.	1.14	Employer	***EXECUTIVE DIRECTOR, JSCL, JABALPUR***
2.	1.15	Engineer	***Executive Engineer***
3.	1.16	Engineer in Charge	***Executive Engineer***
4.	1.12	Stipulated period of completion	***12 months (including Rainy season)***
5.	3	Language & Law of Contract	***Indian Contract Act 1872***
6.	4	Address & contact details of the Contractor	***As per ANNEXURE H***
		Address & contact details of the Employer/ Engineer- phone, Fax, email.	***Executive Director, JSCL***
7.	5	Subcontracting permitted for the Contract Value	***Upto 10% by approval of employer***
8.	6	Technical Personnel to be provided the contractor—requirement, &	***As per ANNEXURE - I (Format I-3)***
		Penalty, if required Technical Personnel not employed	***As per rule***
9.	10	Specifications	***As per ANNEXURE E***
		Drawings	***As per ANNEXURE N***
10.	12	Competent Authority for deciding dispute under Dispute Resolution System	***As per rule***
		Appellate Authority for deciding dispute under Dispute Resolution System	***Executive Director, JSCL***
11.	13	Period for submission of updated construction program	***7 days***
		Amount to be withheld for hot submitting construction program in prescribed period	***As per rule***
12.	14	Competent Authority for granting Time Extension.	***As per rule***
13.	15	Milestones laid down for the contract	***YES***
		If Yes, details of Milestones	***As per ANNEXURE – O***
		Liquidated damage	***As per ANNEXURE – P***
14.	17	List of equipment for lab	***As per ANNEXURE - Q***
		Time to establish lab	***As per rule***
		Penalty for not establishing field Laboratory	***As per rule***
15.	18	Defect Liability Period	***60 months (5 years) after physical completion of work***
16.	21	Competent Authority for determining the rate	***As per rule***
17.	27	Any other condition for breach of contract	***_____***

18.	28	Penalty	***Penalty Shall include (a) Security deposit as per clause 30 of General Conditions of Contract and (b Liquidated Damages imposed as per clause 15 or Performance Security (Guarantee) including Additional Performance Security (Guarantee), if any, as per clause 29 of General Conditions of Contract, whichever is higher***
19.	29	Performance guarantee (Security) shall be valid up to	***Till issue of physical Completion Certificate as per Clause 35.1***
20.	30	Security Deposit to be deducted from each running bill	***At the rate of 5%.***
		Maximum limit of deduction of Security Deposit	***Up to 5% of Final Contract Amount.***
21.	31	Price Adjustment formula and procedure to calculate	***N.A.***
22.	31.1 (1)	Price adjustment shall be applicable	***Price Adjustment shall be applicable only in case where the amount in NIT is more than Rs. 10 (Ten) Crores. This clause shall not have any bearing with the Contract Amount.***
23.	32	32:1 Mobilization and Construction Machinery Advance Applicable	***No Mobilization and Construction Machinery Advance shall be payable.***
		32.2 If yes, Unconditional Bank Guarantee	***In the format prescribed in ANNEXURE - S***
		32.3 If yes, Rate of interest chargeable on advances	***10% annual simple interest***
		32.4 If yes, Type & Amount of Advance payment that can be paid	***1. Mobilization advance - Not more than ... % of contract amount 2. Construction Machinery Advance — Not more than ... % of contract amount***
		32.5 If yes, Recovery of advance payment	***Recovery of Mobilization and/or Construction Machinery advance shall commence when 10% of the Contract Amount is executed and recovery of total advance shall be done on pro-rata basis and shall be completed by the time work equivalent to 80% of the Contract Amount is executed. In addition to the recovery of principal amount, recovery of interest shall be carried out as calculated on the outstanding amount of principal at the close of***

			each month. The interest shall be accrue from the day of payment of advance and the recovery of interest shall commence when 10% of the Contract Amount is executed and shall be completed by the time work equivalent to 80% of the Contract Amount is executed.
24.	33	33.1 secured Advance Applicable	***No Secured Advance payable.***
		33.2 if yes, Unconditional Bank Guarantee	***In the format prescribed in ANNEXURE —T***
		33.2 if yes, Amount of Secured Advance :	***75% of value of material as determined by the Engineer in Charge***
		33.3 if yes, Conditions for secured advance .	***a) The materials are in-accordance with the specification for Works;*** ***b) Such materials have been delivered to site, and are properly stored and protected against damage, or deterioration to the satisfaction of the Engineer. The contractor shall store the bulk material in measurable stacks.;*** ***c) The Contractor's records of the requirements, orders, receipt and use of materials are kept in a form approved by the Engineer and such records shall be available for inspection by the Engineer;*** ***d) The contractor has submitted with his monthly statement the estimated value of the materials on site together with such documents as may be required by the Engineer for the purpose of valuation of the materials and providing evidence of ownership and payment thereof;*** ***e) Ownership of such materials shall be deemed to vest in the Employer for which the Contractor has submitted an Indemnity Bond in an acceptable format; and*** ***f) The quantity of materials are not excessive and shall be used within a reasonable time as determined by the Engineer.***
		33.4 if yes, Recovery of Secured advance	***The advance shall be repaid from each succeeding monthly payments to the extent materials [for which advance was previously paid) have been incorporated into the Works.***

25.	35	Completion certificate - after physical completion of the Work	***As per ANNEXURE - U***
		Final Completion Certificate — after final payment on completion of the Work	***As per ANNEXURE-V***
26.	36	Competent Authority	***Executive Director, JSCL***
27.	37	Salient features of some of the major labour laws that are applicable	***As per ANNEXURE – W***

ANNEXURE—N

(See clause 10 of Section 3— GCC)

Drawings

ANNEXURE—O

(See clause 15 of Section 3 -GCC)

Details of Milestones

ANNEXURE—P

(See clause 15 of Section 3-GCC)

Compensation for Delay

If the contractor fails to achieve the milestones, and the delay in execution of work is attributable to the contractor, the Employer shall retain an amount from the sums payable and due to the contractor as per following scale -

i. Slippage up to 25% in financial target during the milestone under consideration 2.5% of the work remained unexecuted in the related time span.
ii. Slippage exceeding 25% but Up to 50% in financial target during the milestone under consideration - 5% of the work remained unexecuted in the related time span.
iii. Slippage exceeding 50% but Up to 75% in financial target during the milestone under consideration -7.5% of the work remained unexecuted in the related time span,.
iv. Slippage exceeding 75% in financial target during the milestone under consideration-10% of the work remained unexecuted in the related time span.

Note: *For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the Contractor shall be considered. The slippage on any milestone is if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions which are granted to the Contractor for either Employer's default or Force Majeure, the compensation shall be levied on the contractor at the rate of 0.05% per day of delay limited to a maximum of 10% of contract price. The decision of Superintending Engineer shall be final and binding upon both the parties.*

ANNEXURE – Q

(See clause 17 of Section 3 GCC)

List of Equipment for Quality Control Lab

ANNEXURE - R

(See clause 31 of Section 3 -GCC)

Price Adjustment

(NOT APPLICABLE)

ANNEXURE - S

(See clause 32 of Section 3-GCC)

Bank Guarantee Form for Mobilization and Construction Machinery Advance

To

_____[name of Employer)
_____[address of Employer]
_____[name of Contractor)

In accordance with the provisions of the General Conditions of Contract, clause 31 ("Mobilization and Construction Machinery Advance") of the above-mentioned Contract _____[name and address of Contractor] (hereinafter called "the Contractor")' shall deposit with _____ [name of Employer) a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____[amount of Guarantee]* _____[in words].

We, the _____(bank of financial institution], as instructed by the Contractor., agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to _____(name of Employer] on his first demand without whatsoever right of obligation on our part and without his first claim to the Contractor, in the amount not exceeding '[amount of guarantee]* _____[in words].

We further agree that no change or addition to or other modification of the terms of the Contractor or Works to be performed thereunder or of any of the Contract documents which may be made between _____[name of Employer] and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the contract until _____ [name of Employer] receives full repayment of the same amount from the Contractor.

Yours truly,
Signature and Seal:_____
Name of Bank/Financial Institution: _____
Address: _____
Date: _____

* An amount shall be inserted by the Bank or Financial Institution representing the amount of the Advance Payment and denominated in Indian Rupees.

ANNEXURE - T

(See clause 33 of Section 3 -GCC)

Bank Guarantee Form for Secured Advance

(NOT APPLICABLE)

ANNEXURE - U

(See clause 35 of Section 3 -GCC)

Physical Completion Certificate

Name of Work:

.....

.....

.....

Agreement No .....Date .....

Amount of Contract Rs .....

Name of Agency .....

Used MB No. .....

Last measurement recorded

a. Page No. & MB No. _____

b. Date _____

Certified that the above mentioned work was physically completed on .....(date) and taken over on .....(date) and that I have satisfied myself to best of my ability that the work has been done properly.

Date of issue

Chief Executive Officer

.....

.....

ANNEXURE-V

(See clause 35 of Section 3-GCC)

Final Completion Certificate

Name of Work:

.....

.....

.....

Agreement no .....Date .....

Name of Agency: .....

Used MB No. .....

Last measurement recorded

a: Page No. & MB No. _____

b. Date _____

Certified that the above mentioned work was physically completed on .....(date) and taken over on .....(date).

Agreemented amount Rs .....

Final Amount paid to contractor Rs. .....

Incumbency of officers for the work

I have satisfied myself to best of my ability that the work has been done properly.

Date of issue

Chief Executive Officer

.....

.....

ANNEXURE - W

(See clause 39 of Section 3 -GCC)

Salient Features of Some Major Labour Laws Applicable

a) **Workmen Compensation Act 1923** The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

b) **Payment of Gratuity Act 1972**:- Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days'(say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.

c) **Employees P.F. and Miscellaneous Provision Act 1952:** The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%), The benefits payable under the Act are:

   i. Pension or family pension on retirement or death as the case may be.
   ii. Deposit linked insurance on the death in harness of the worker.
   iii. Payment of P.F. accumulation on retirement/death etc.

d) **Maternity Benefit Act 1951**: - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

e) **Contract Labour (Regulation & Abolition) Act 1970**: - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the contractor fails to provide, the same are required to be provided, by the Principal Employer by Law.. The principal Employer is required to take certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.

f) **'Minimum Wages Act 1948**; - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways is scheduled employment.

g) **Payment of Wages Act 1936**: - It lays down as to by what date the wages are to be paid when it will be paid and what deductions can be made from the wages of the workers.

h) **Equal Remuneration Act 1979**: - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.

I) **Payment of Bonus Act 1965**: - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.

j) **Industrial Disputes Act 1947:** - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) **Industrial Employment (Standing Orders) Act 1946**: - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets these certified by the designated Authority.

l) **Trade Unions Act 1926**: - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have, 'been given certain immunities from civil and criminal liabilities.

m) **Child Labour (Prohibition & Regulation) Act 1986**: - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.

n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act 1979**: - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Traveling expenses from home up to the establishment and back etc.

o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996 - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

p) **Factories Act 1948**: - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power, or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

SECTION 3

Conditions of Contract

Part — II Special Conditions of Contract [SCC]

NOTE: These are to apply as additional specifications and conditions, unless otherwise already provided for contradictorily else-where in this contract.

CONTRACTOR TO INFORM HIMSELF FULLY:

The Contractor shall be deemed to have carefully examined the work and site conditions including labour, the general and the special conditions, specifications, schedules have visited the site of the work and to have fully informed himself regarding the local conditions and carried out his own investigations to arrive at rates quoted in the tender. In this regard, he will be given necessary information to the best of knowledge of Department but without any guarantee about it. If he shall have any doubt as to the meaning of any portions of these general conditions or the special conditions, or the scope of work or the specifications and drawings or any other matter concerning the contract, he shall in good time, before submitting his tender, set forth the particulars thereof and submit them to the Project Engineer, JSCL , Jabalpur -482002 in writing in order that such doubts may be clarified authoritatively JSCL

Contractor No. of Corrections Project Engineer before tendering. Once a tender is submitted, the matter will be decided according to tender conditions in the absence of such authentic prequalification.

ERRORS, OMISSION AND DISCREPANCIES:

a) In case of errors, omissions and /or disagreements between written and scaled dimensions on the drawing or between drawing and specifications etc. the following order of preference shall apply.

(i) Between actual scaled and written dimensions or descriptions on a drawing the latter shall be adopted.

(ii) Between the written or shown description of dimensions in the drawing and corresponding one in the specifications, the latter shall apply.

(iii) Between the quantities shown in schedule of quantities and those arrived at from the drawings, the latter shall apply.

(iv) Between the written description of the item in the schedule of quantities and the detailed description in the specifications of the same items, the latter shall apply.

b) In case of difference between the rates written in figures and words, the rate adopted by the contractor for working out the total amount of the item will be taken as correct. In order cases correct rates would be that, which is lower. In all cases of omissions and / or doubts or discrepancies in the dimensions or descriptions of any item or specifications, a reference shall be made to the Project Engineer, JSCL whose elucidation, elaboration or decision shall be considered as authentic. The contractor shall be held responsible for any errors that may occur in the work through lack of such reference and precaution.

CHANGE OF CEMENT CONTENT ETC DELETED WORKING METHODS AND PROGRESS SCHEDULES:

(a) Contractor shall submit within times stipulated by the Engineer, in writing the details of

actual methods that would be adopted by the contractor for the execution of any items asrequired by Engineerat each of the location, supported by necessary detailed drawings and sketches including those of the Plant and Machinery that would be used ,their locations, arrangement for conveying and handling materials etc. and obtain prior approval of the Engineer-in-charge well in advance of starting of suchitem of work. The Engineer-in-charge reserves the right to suggest modifications or make complete changes in the method proposed by the contractor, whether accepted previously or not, at any stage of work, to obtain the desired accuracy, quantity and progress of the work which shall be binding on the contractor, and no claim on account of such change in method of execution will be entertained by corporation so long as specifications of the item remain unaltered.

PROGRESS SCHEDULE;

(b) The Contractor shall furnish within the period stipulated in writing by the Engineer-incharge,of the order to start the work, a progress schedule in quadruplicate indicating the date of actual start, the monthly progress expected to be achieved and the anticipated completion date of each major item of work to be done by him, also indicating dates of procurement and setting up the materials, plant and machinery. The Schedule is to be such as is practicable of achievement towards the completion of the whole work in the time limit, the particular items, if any on the due dates specified in the contract and shall have the approval of the Engineer-in-Charge. No revised schedule shall be operative without such acceptance in writing. The Engineer is further empowered to ask for more detailed schedule or schedules say; week by week for any item or items, in case of urgency of work as will be directed by him and the contractor shall supply the same as and when asked for.

(c) The contractor shall furnish sufficient plant, equipment and labour as may be necessary to maintain the progress of schedule. The working and shift hours restricted to one shift a day for operations to be done under the corporation supervision shall be such as may be approved by the Engineer-in-charge. They shall not be varied without the prior approval of the Engineer. Night work which requires supervision shall not be permitted except when specifically allowed by Engineer each time, if requested by the contractor. The contractor shall provide necessary lighting arrangements etc. for night work as directed by Engineers without extra cost.

(d) Further, the contractor shall submit the progress report of work in prescribed forms charts etc. at periodical intervals ,as may be specified by the Engineer-in-charge .Schedule shall be in forms of progress charts, forms, progress statement and /or reports as may be approved by the Engineer.

(e) The contractor shall maintain Performa, charts; details regarding machinery equipment, labour, materials, and personnel etc. as may be specified by the Engineer and submit periodical returns thereof as may be specified by the Engineer-in-charge.

TREASURE – TROVE

In the event of discovery by the contractor or his employees, during the progress of the work of any treasure, fossils, minerals or any other articles of value or interest, the contractor shall give immediate intimation thereof to the Engineer and forthwith hand over to the Engineer such treasure or things which shall be property of Corporation.

AGENT AND WORK ORDER BOOK

The Contractor shall himself manage the work or engage an authorized all time agent on the work capable of managing and guiding the work and understanding the specifications and contract condition. A qualified and experienced, Engineer shall be provided by the contractor as his agent for technical matters in case the Engineer-in-charge considers this as essential for the work and so directs contracts. He will take orders as will be given by the Project Engineer or his representatives and shall be responsible for carrying them out. This agent shall not be changed without prior intimation to the Project Engineer and his representatives on the work site. The contractor shall supply to the Engineer the details of all supervisory and other staff employed by the contractor and notify changes when made, and satisfy the unquestionable right to ask for change in the quality and numbers of contractor's supervisory staff and to order removal from work of any of such staff. The contractor shall comply with such orders and effect replacements to the satisfaction of the Engineer.

A work order book shall be maintained on site and it shall be the property of corporation and the Contractor shall promptly sign orders given therein by Project Engineer or his representative and his superior offices, and comply with them. The compliance shall be reported by the contractor to the Engineer in good time so that it can be checked. The blank work order book with machine numbered pages will be provided by the corporation free of charge for this purpose. The contractor will be allowed to copy out instructions therein from time to time.

INITIAL MEASUREMENTS FOR RECORD:

Where, for proper measurement of the work, it is necessary to have an initial set of levels or other measurement taken, the same as recorded in the authorized field book or measurement book of corporation by the Engineer or his authorized representative will be signed by the contractor who will be entitled to have a true copy of the same made at his cost. Any failure on the part of the contractor to get such levels etc. recorded before starting the work will render him liable to accept the decision of the Engineer as to the basis of taking measurement. Like-wise the contractor will not cover any work which will render its subsequent measurements difficult or impossible without first getting the same jointly measured by himself and the authorized representative of the Project Engineer. The record of such measurements on the corporation side will be signed by the contractor and he will be entitled to have a true copy of the same made at his cost.

HANDLING OVER THE WORK

All the work and materials before finally taken over by Corporation will be entire liability of the Contractor for guarding, maintaining and making good any damages of any magnitude. Interim payments made for such work will not alter this position. The handling over by the contractor and taking over by the Project Engineer or his authorized representative will be always in writing, copies of which will go to the Project Engineer or his authorized representative and the contractor. It is, however understood that before taking over such work, Corporation will not put it into regular use as distinct from causal or incidental one, except as specifically mentioned elsewhere in this contract, or as mutually agreed to.

ASSISTANCE IN PROCURING PRIORITIES, PERMITS ETC

The Engineer, on a written request by the contractor, will if in his opinion, the request is reasonable and in the interest of work and its progress, assist the contractor in securing, the priorities for deliveries ,transport permits for controlled materials etc. where such are needed. The Corporation, will not, however be responsible for the non-availability of such facilities or delay in this behalf and no claims on account of such failures or delays shall be allowed by the Corporation. The Contractor shall have to make his own arrangement for machinery required for the work. However, such machinery conveniently available with the Corporation may be spared as the ruled in force on recovery of necessary Security Deposit and rent agreement in the prescribed form. Such an agreement shall be independent of this contract and the supply of machinery shall not form a ground for any claim or extension of time limit for this work.

SAMPLES AND TESTING OF MATERIALS

(i) All materials to be used on work shall be got approved in advance from the Engineer-in-charge and shall pass the test and or analysis required by him, Contractor No. of Corrections Project Engineer which will be (a) as specified in the specification for the item concerned and or as specified by the Indian Road Congress Standard Specification(b) Code of Practice for Road and Bridges or (c) I.S.I. Specifications (Whichever and wherever applicable) or (d) such recognized Specifications accepted to Engineer-in-Charge as equivalent thereto or in absence of such recognized Specifications (e) such requirement test and or analysis as may be specified by the Engineer-in-Charge in order of precedence given above.

(ii) The contractor shall at his risk and cost make all arrangements and /or shall provide for all such facilities as the Engineer-in-charge may require for collecting preparing required number of samples for tests or for analysis at such item and to such places may be directed by the Engineer and bear all charges and cost of testing. Such samples shall also be deposited with the Engineer-in-Charge.

(iii) The contractor shall if and when required submit at his cost the samples of materials to be tested or analysis and if, so directed, shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and the materials , finally accepted by the Engineer-in-charge.

(iv) The contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of the materials.

(v) The contractor or his authorized representative will be allowed to remain present in the departmental laboratory while testing samples furnished by him. However, the results of all tests carried out in the departmental laboratory in the presence or absence of the contractor or his authorized representative will be binding on the contractor.

(vi) Cost of routine day to day quality control testing charges for tests required as per specifications will be borne by contractor by sending the same to the concerned laboratories or by establishing laboratory at site. However the cost of testing of materials as directed by Engineer-in-Charge for approving a particular material as laid down in Para 1.10(i) to (vi) will have to be borne by the contractor.

CO-ORDINATION :

When several agencies for different sub work of the Project are to work simultaneously on the timely completion of the whole Project smoothly, the scheduled dated for completion specified in each contract shall therefore be strictly adhered to. Each contractor may make his independent arrangement for water, power, housing etc. if they so desired. On the other hand the contractor is at liberty to mutual agreement in this behalf and makes joint arrangements with the approval of the Engineer. No single contractor shall take or cause to be taken any steps or action that may cause disruption discontent, or disturbance of work labour or arrangement etc. of other contractor in the Project localities. Any action by any contractor which the Engineer in his unquestioned discretion may consider as infringement of the above code would be considered as a breach of the contract conditions and shall be dealt with as such.

In case of any dispute, disagreement between the contractor, the Engineer's decision regarding the co- ordination, co-operation and facilities to be provided by any of the contractors shall be final and binding on the contractors concerned and such a decision or decisions shall not vitiate any contract nor absolve the contractor(s) of his/their obligations under the contract nor consider for the grant for any claim or compensation.

PAYMENT :

The Contractor must understand that the rates quoted are for completed work and include all costs due to labour, scaffolding, machinery, power, royalties, octopi, taxes etc except GST and should also include all expenses to cover the of night work if and when required and no claim for additional payment beyond the prices or rates quoted will be entertained. The mode of measurements has been indicated in the specifications, if there is any ambiguity or doubt in this respect the decision of Project Engineer will be final.

PATENTED DEVICE

Whenever the contractor desires to use any designed devices, materials or process covered by the letter of patent or copy right, the right for such use shall be secured by suitable legal arrangement and agreement with patent owner and the copy of their agreement shall be filled with the Engineer-in- charge if so desired by the letter.

TEMPORARY QUARTERS:

(i) The contractor shall at his own expense maintain sufficient experienced supervisory staff etc. required for the work and shall make his own arrangement, provide housing for them with all necessary arrangements, including fire preventive measures etc. as directed by the Engineer-in-charge.

(ii) The contractor shall provide, furnish, maintain and remove on completion of the work, a suitable office on the work site for the use of Project Engineer‟s representative. The covered area exclusive of verandah should not be less than 400 Sqft. It may have bamboo mating walls and asbestos or corrugated iron roof, paved floor should be 18"" above ground level. He should provide a basket type latrine, urinals and keep them clean daily. This will be supposed to be included in his rate.

SAFETY MEASURES AND AMENITIES:

SAFETY MEASURES :

The contractor shall take all necessary precautions for the safety of the workers and preserving their health while working in such job as require special protection and precautions. The following are some of the requirements listed, though not exhaustive. The contractor shall also comply with the directions issued by the Engineer in this behalf from time to time and at all times.

(1) Providing protective foot wear to workers, in situations like mixing and placing of mortar of concrete in quarries and places where the work is under too much of wet conditions as also for movements over surfaces infected with oyster growth etc.

(2) Providing protective head wear to workers, working in quarries etc. to protect them against accidental fall of materials from above. To provide Reflective Jackets, Helments to site staff.

(3) Taking such normal precautions like providing hand rails at the edges of the floating platform or barges, not allowing nails or metal parts or useless timber to spread around etc.

(4) Supporting workman with proper belts, ropes etc. when working on any masters, cranes, grabs, hoist, dredgers etc.

(5) Taking necessary steps towards training the workers concerned in the use of machinery before, they are allowed to handle it independently and taking all necessary precautions in and around the areas where machines, hoists, and similar units are working.

(6) Providing adequate number of boats (of at all required for plying water) to prevent overload and over-crowing.

(7) Providing life belts to all men working in such situation from where they may accidentally fell into the water equipping the boats with adequate number of life belts etc.

(8) Avoiding bare lives-wires etc. as would electrocute workers.

(9) Making all platforms, staging and temporary structures sufficiently strong so as not to cause inconvenience and risk to the workmen and supervisory staff.

(10) Providing sufficient first aid trained staff and equipment to be available quickly at the work site to render immediate first aid treatment in case of accidents due to suffocation, drowning and other injuries.

(11) Take all necessary precautions with regard to use of divers.

12) Providing full length gum boots , leather hand gloves with fire proof apron to cover the chest and back reaching upto knees and protective goggles for the labourers working with hot asphalt handling vibrator in cement concrete and also where use of any or all these items is beneficial in the interest of the health and well being of the labourers in the opinion of the Engineer .

13) Where the workers are required to work near machine and are liable to accident they should not be allowed to wear loose cloths like dhoti, zabba, etc.

DAMAGE BY FLOODS OR ACCIDENTS:

The contractor shall take all precautions against damage by floods or like or from accident etc.no compensation will be allowed to the contractor on this account or for correcting and repairing ant such damage to the work during construction. The contractor shall be liable to make good at his cost

any plant or material belonging to the Corporation, lost or damaged by floods or from any other cause which is in his charge.

RELATION WITH PUBLIC AUTHORITIES:

The Contractor shall comply with all rules, regulations, bye-laws and direction given from time to time also by any local public authority in connection with this work and shall himself pay fees or charges which are leviable on him without any extra cost to the Department.

POLICE PROTECTION:

For the Special Protection of camp the contractor's works, the Department will help the contractor as far as possible to arrange for such protections with the concerned authorities if so required by the Contractor in writing. The full cost of such protection shall be borne by the Contractor.

INDEMNITY:

The Contractor shall indemnify the corporation against all actions, suits, claims and demands brought or made against him in respect of anything done or committed to be done by the Contractor on execution of or in connection with this contract and against any loss or damage to the corporation in consequence of any action or suit being brought against the Contractor for anything done or committed to be done in the execution of this contract.

MEDICAL AND SANITARY ARRANGEMENTS TO BE PROVIDED FOR LABOUR

EMPLOYED IN THE CONSTRUCTION BY THE CONTRACTOR:

(a) The Contractor shall provide an adequate supply of potable water for use of labourers on work and in Camps.
(b) The contractor shall construct trench or semi-permanent latrines for the use of the labourers. Separate latrines shall be provided for men and women.
(c) The Contractor shall build sufficient number of huts on a suitable plot of land for use of the labourers according to the following specifications.

1) Huts of bamboo and tin sheets may be constructed.
2) A good site not liable to submergence shall be selected on high ground remote from jungle but well provided with trees, shall be chosen wherever it is available. The neighbourhood of tank, jungle, grass or woods should be particularly avoided. Camps should not be established close to large cuttings of earthwork.
3) The lines of huts shall have open spaces of at least ten meters between rows. When a good natural site cannot be procured, particular attention should be given to the drainage.
4) There should be no overcrowding. Floor space at the rate of 30 sq.ft.per head shall be provided. Care should be taken to see that the huts are kept clean and in good order.
5) The contractor must find his own land and if he wants Corporation Land, he should apply for it and pay assessment for it , if made available by Corporation.
6) The Contractor shall construct a sufficient number of bathing places. Washing places should also be provided for the purpose of washing clothes.

7) The Contractor shall make sufficient arrangements for draining away the surface and sullage water as well as water from the bathing and washing places and shall dispose off the wastewater in such a way as not to cause any nuisance.

d) The Contractor shall engage a medical officer with a traveling dispensary for a camp containing 500 or more persons if there is no government or other private dispensary situated within 8kms from the camp. In case of emergency the contractor shall arrange at his cost for transport for quick medical help to his sick worker.

e) The Contractor shall provide the necessary staff for effecting a satisfactory drainage system and cleanliness of the camp to the satisfaction of the Engineer. At least one sweeper per 200 persons should be engaged.

f) The Assistant Director of Public Health shall be consulted before opening a labour camp and his instruction on matters such as water supply, sanitary conveniences, the camp site accommodation and food supply shall be followed the Contractor.

g) The Contractor shall make arrangements for all anti-malaria measures to be provided for the labour employed on the work. The anti-malaria measure shall be provided as directed by the Assistant Director of Public Health.

3. QUARRIES:

The quarrying operations if required and permitted by the Engineer-in-charge shall be carried out by the contractor with proper equipment such as Compressors, jack hammers, Drill bits, Explosives etc. and sufficient number of workmen shall be employed so as to get the required out-turn.

The Contractor shall carry out the works in quarries conformity with all the rules and regulations already laid down or may be laid down from time to time by Corporation due to non-compliance of any rules or regulations or due to damages by the contractor shall be the responsibility of the contractor. The Engineer-in-charge or his representative shall be given full facilities by the contractor for inspection at all times of the working of the quarry, records maintained, the stocks of the explosives and detonators etc, so as to enable him to check that the working records and storage are all in accordance with the relevant rule. The Engineer-in-charge or his representative shall at any time be allowed to inspect the works, buildings and equipment at the quarters.

The Contractor shall maintain at his own cost, the books, registers etc, required to be maintained under the relevant rules and regulations and as directed by the Engineer-incharge. These books shall be open for inspection at times by the Engineer-in-charge or his representative and the contractor shall furnish the copies or extracts of books or register as and when required.

All quarrying operations shall be carried out by the contractor in organized and expeditious manner, Systematically and with proper planning. The contractor shall engage licensed blaster and adopt electric blasting and/or any other approved method which would ensure complete safety to all men engaged in the quarry and its surroundings. The contractor shall himself provide suitable magazines and arrange to procure and store explosives, etc as required under the rules at his own cost the designs and the locations of the magazine shall be got approved in advance from the Chief Inspector of Explosives and the rules and regulations in this connection as laid down by the Chief Inspector of Explosives from time to time shall be strictly adhered to by the Contractor. It is generally experienced that it takes time to obtain the necessary license for blasting storage of material from

the concerned authorities. The contractor must therefore take timely advance action for procuring all such licenses so that the work progress may not be hampered.

The approaches to the quarrying place from the existing public roads shall have to be arranged by

the contractor at his own cost, and the approaches shall be maintained by the contractor at his own cost till the work is over.

The quarrying operations shall be carried out by the contractor to the entire satisfaction of the

Engineer-in-charge and the development of the quarry shall be made efficiently so as to avoid wastage of stones. Only such stones as are of the required quality shall be used on the work. Any store which is in the opinion of the Engineer-in-Charge, not in accordance with the specifications or of required quality will be rejected at any time , at the quarry or at the site of work. The rejected stones shall not be used on the work and such rejected materials shall be removed to the place shown at the contractor's cost.

Since all stones quarried from Government quarry (if made available) by the contractor includingthe excavated overburden are the property of the government, no stones or earth shall be supplied by the contractor to any other agencies or works , and are not allowed to be taken away for any other works all such surplus quarried materials not required for work under this contract shall be the property of the Government and shall be handed over by the contractor to Government free of cost at quarry siteduly heaped at the spots indicated by the engineer-in-charge. The contractor will be entitled to the refund of the royalty if any paid by him for such quantity handed over to Government for which necessary certificate will be issued by Project Engineer as per usual procedure. If however, the Government does not require such surplus material, the contractor may be allowed to dispose off or use material elsewhere with prior written permission of Engineer-in-Charge. Leaving off a quarry face or opening of a new quarry face shall be done only on the approval of the Engineer-in-charge.

Quarrying permission will have to directly obtained by the contractor, from the Collector of thedistrict concerned for which purpose the Corporation will render necessary assistance. All quarry fees, Royalty charges, octroi duties, ground rent for staking material, etc. if any two be paid, shall be paid directly by the contractor as per rules in force. The contractor will however be Entitled to a refund of part of such charges as are admissible under rules as mentioned elsewhere in this contract , after obtaining a certificate from the Engineer-incharge that the material where required for use on government works .

The contractor will be permitted to erect at his own risk and cost at the quarry site if suitable vacantspace in government area is available for the purpose, his own structures for stores, offices, etc at place approved by the Engineer-in-charge. On completion of the work, the contractor shall remove all the structures erected by him and restore the site top its original condition.

The contractor shall not use any land in the quarry either for cultivation or for any other purpose except that required for breaking or stacking or transporting stones.

TRAFFIC REGULATION

Unless separately provided for in the contract, the contractor shall have to make all necessary

arrangement for regulating traffic, day to night during the period of construction to the entire satisfaction of the Engineer. This includes the construction and maintenance of diversions if necessary. The contractor shall have to provide necessary caution boards, barricades, flags, lights and watchmen etc so as to comply with the latest Motor Vehicles rules and regulations and for traffic safety and he shall be responsible for all claims from accidents which may arise due to his

negligence whether in regulating the traffic or in stacking material on the roads or due to any other reasons.

It is to be clearly understood that whatever work carried by the contractor for construction of

diversion road including earthwork, W.B.M, bituminous surface dressing, R.C.C. pipe drains etc will be paid for only once. If due to the flow of traffic, due to floods or due to any other cause, this diversion road and/or the R.C.C drain gets damaged, it shall be repaired and maintained by the contractor in good condition till completion of the whole work at his expenses.

The contractors have to make own arrangement for temporary acquisition of land if required for diversion.

6.0 LEVELLING INSTRUMENTS:

If measurements of items of the work are based on volumetric measurements calculated from levels taken before and after construction of the item, a large number of leveling staves, tapes etc will have to

be kept available by the contractor at the site of work for this purpose. Lack of such leveling staves, tapes, etc in required numbers may cause delay in measurements and the work. The contractor will have therefore to keep sufficient number of these readily available at site.

7COLLECTIONS OF MATERIALS:

(i) Where suitable and approved PW Department's quarries exist, the contractor or piece worker will be allowed if otherwise there is no objection to obtain the materials to the extent required for the work from the quarry. Her will be however liable to pay compensation, if any damage is caused to the quarry either deliberately or through negligence or for wastage of material by himself or his staff or refund according to rules, if admissible and shall submit detailed accounts of materials from quarries as directed.

(ii) Where no suitable PW Department's quarries exist or when the quality of material required cannot be obtained from PW Department quarry, the contractor or piece worker shall make his worn arrangements to obtain the material from existing or new quarry in Government waste land, private land or land belonging to other states or talukas, etc. After opening the quarry, but before starting collection, the quarry shall be got approved by the Engineer-in-charge or his representatives. The Contractor or piece worker shall pay all royalty charges, compensation etc. No claims or responsibility on account of any obstruction caused to execution of the work by difficulties arising out of private owners of land will be entertained.

(iii) The rates in the tender include all incidental charges such as opening of a new quarry, opening out a new portion in an existing quarry, removing top soil and the suitable material, dewatering a quarry, cost of blasting powder and fuse, lift, lead, repairs to existing cart tracks, making new cart tracks, control charges, Central or State Governments or Municipal Taxes, Local Board Cess etc

(iv) The rates in the tender are for the delivery of the approved material on road site, properly stacked at the places specified by the Engineer-in-charge and are inclusive of conveyance charges in respect of the leads and lifts. No claims on account of changes in leads will be entertained.

(v) No material shall be removed from the land within the road boundary or from the land touching it without the written permission of the Engineer- in- charge or his authorized agent. If any material is unauthorized obtained from such places, the Contractor or piece worker shall have to make good the damages and pay such compensation, in addition as may be decided by the Project Engineer and will have to stop further collection.

(vi) Any material that falls on any PWD road from the cart etc during conveyance shall be immediately picked up and removed by the contractor or piece worker, failing which, it will be got removed departmentally at his cost. No heap shall be left prior to stacking even temporarily on the road surface or in any way so as to cause any obstruction or danger to the traffic. The Contractor or the piece worker shall be liable to pay for any claims or compensation etc arising out of any accident, etc. Any such materials causing obstruction or danger etc will be got removed departmentally at his cost and no claims for any loss or damage to the material, this removed will be entertained. The Contractor shall also be responsible for the damage or accident etc arising out of any material that falls on the road or track, not in charge of the Department and shall attend to any complaints which may be received.

(vii) The materials shall not be stacked in place where it is liable to be damaged or lost due to traffic passing over it to be washed away by rains or floods, to be buried under the landslide etc or the slip down an embankment or hill side etc. No claims for any loss due to these and similar causes will be entertained.

(viii) Before stacking, the materials shall be free from all earth, rubbish vegetable matter and other extraneous substances and in the case of metal, screened to gauge. If so directed when ready, it shall be stacked entirely clear of the roadway, on ground which has been cleaned of vegetation and leveled. On high banks, ghat roads etc, where it may be practicable to stack it entirely clear of the roadway, it may be stacked with the permission of the Engineer-in-charge on terms in such as way as to cause minimum danger and obstruction to the traffic or as may be directed by him.

(ix) The size of the stacks or materials other than rubble shall be 3.00 X 1.50 X 0.60 m of such other size as may be directed by the Engineer-in-charge and all but one stack in furlong shall be of the same uniform size and shall be uniformly distributed over whole lengths. One stack (at the end0 in each furlong may be of length different in order to adjust total quantity to be required, but its width and height will be the same as those of the rest.

(x) The Additional Engineer shall supply the Contractor with statement showing furlong wise quantities that will be required and the order in which the collection is to be done. No materials in excess of requirement in that furlong shall be stacked. Any excess quantity shall be removed at the expense of the Contractor or piece worker to where it is required before the material in that furlong is finally measured.

(xi) In stacking materials, deposition shall commence at the end of the mile farthest from the quarry and be carried continuously to the other end (unless otherwise directed by the Project Engineer). Stacking in one furlong shall be completed before it is started in another unless directed otherwise in writing by the Project Engineer. Measurements of the materials stacked in a furlong will not be recorded until the full quantity required has been stacked unless otherwise authorized by Engineer in writing. Collecting and spreading shall not be carried out at the same time in one and the same mile or in two adjoining miles except with

the written permission of the Project Engineer.

(xii) Unless otherwise directed, the material shall be collected in the following order according to the availability of space: (1) Rubble (if included in tender), (2) Metal (3)Soft murrum and (4) Hard murrum. Hard murrum shall be stacked on the site opposite to that on which soft murrum has been stacked. Similarly, metal collected for petty repairs shall be stacked on the side opposite to metal for new layer. Where metal for two layers has to be stacked, as in the case of new roads, the metal for each layer shall be stacked on the opposite sides of the road.

(xiii) All road material shall be examined and measured before it is spread. The labour for measurements (and check measurements wherever carried out) shall be supplied by the Contractor or piece worker. Immediately after the measurement are recorded, the stack shall be marked by the Contractor or the piece worker by white wash or otherwise may be directed by the Project Engineer to prevent from any possibility of the same material being measured and recorded over again and to, prevent any unauthorized tampering with the stacks. If the Contractor or the piece worker fails toattend the measurements of materials after receiving the notice from the Additional Engineer, or his subordinate, stating date and time of the intention to measure the work, shall be measured nevertheless and no complaint in this respect will be entertained later on. If the Contractor or piece worker fails to supply sufficient labour or the materials required at the Time of measurements or check measurements after due notice has been given to him, the expenses incurred on account of employing Departmental labour or material etc shall be charged against his account.

(xiv) No deduction will made for voids.

MISCELLANEOUS

- Rate shall be inclusive of all type of taxes and exclusive of GST.
- For providing electric wiring or water lines etc recesses shall be provided if necessary through walls, slabs, beams etc and later on refilled up with bricks or stone chippings, cement mortar without any extra cost.
- In case it becomes necessary for the due fulfilment of Contract for the Contractor to occupy land outside the Department limits, the Contractor will have to make his own arrangement with the land owners and to pay such rents if any are payable as mutually agreed between them. The Department will afford the Contractor all the reasonable assistance to enable him to obtain Corporation landfor such purpose on usual terms and conditions as per the rules of the Corporation.
- Special provision in detailed specifications or wording of any item shall gain precedence over corresponding contradictory provision (if any) in the Standard Specifications or PWD Hand Book, where reference to such specifications is given without reproducing the details in Contract.
- Suitable separating barricades and enclosures shall be provided to separate material brought by the Contractor and material issued by Government to the Contractor under Schedule “A”. Same applies for the material obtained from different sources of supply.
- It is presumed that the Contractor has gone carefully through the Standard Specifications of PWD Hand Books and the Schedule of Rate of the Division and studied the site conditions before arriving at rates quoted by him. Decision of the Engineer-in-

charge shall be final as regards interpretation of specifications.

- The stacking and storage of construction material at site shall be in such a manner as to prevent deterioration or intrusion of foreign matter and to ensure the preservation of their quality, properties and fitness for the work. Suitable precautions shall be taken by the Contractor to protect the material against atmospheric action, fire and other hazards. The materials likely to be carried away by wind shall be stored in suitable stores or with suitable barricades and where there is likelihood of subsidence of soil, such heavy material shall be stored on approved platforms.
- For Roads and Bridge works, the Contractor shall in addition to the Specifications cited here, comply with the requirements of relevant IRC Code Practice, latest edition of MORTH Specifications.
- The Contractor shall be responsible for making good the damages done to the existing Property during construction by his men.
- If it is found necessary from safety point of view to test any part of the structure, the test shall be carried out by the Contractor with the help of the Department at this worn cost.
- The Contractor shall provide, maintain, furnish and remove on completion temporary shed for office on work site for the use of Project Engineer'srepresentative.Defective work is liable to be rejected at any stage. The Contractor, on no account can refuse to rectify the defects merely on reasons that further work has been carried out. No extra payment shall be made for rectification.
- In the Schedule B, the work has been divided into sections but not withstanding this, every part of it shall be deemed supplementary to and complimentary of every other part.
- General directions or detailed description of work, materials and items coverage of rates given in the specification are not necessarily repeated in the Bill of Quantities. Reference is, however, drawn to the appropriate section clause (s) of the General Specifications in accordance with which the work isto be carried out.
- In the absence of specific directions to the contrary, the rates and prices inserted in the items are to be considered as the full inclusive rates and prices for the finished work described there under and are to cover all labour, materials, wastage, temporary work, plant overhead charges and profits, aswell as the general liabilities, obligations and risk arising out of the General Conditions of the Contract.
- The quantities set down against the items in the Schedule B are only estimated quantities of each kind of work included in the Contract and are not to be taken as a guarantee that the quantities scheduled will be carried out or required or that they will not be exceeded.
- All measurements will be made in accordance with the methods indicated in the specifications and read in conjunction with the General Conditions of Contract.

The details shown on drawings and all other information pertaining to the work shall be treated as indicative and provisional only and are liable to variation as found necessary while preparing working drawing which will be supplied by the Government during execution. The Contractor shall not, on account of such variation be entitled to any increase over the ones quoted in the tender which are on quantity basis.

The recoveries if any from the Contractor will be affected as arrears of land revenue through the Collector of the District.

Clause 101 to 107 of Specifications of Road and Bridge Works adhered herewith will be applicable toworks as per Schedule B unless specified otherwise in the detailed specifications of the relevant items. 10.21 All materials used in the construction shall confirm to the requirement of Specification Clause under Section – 1000 "Materials for Structures" of Specifications of Road and Bridge Works, MORTH New Delhi, attached to the tender.

10.22 Protection of underground telephone cables and aerial telephone wires and poles, transmission towers, electrical cables, and water supplying lines. During the execution of work, it is likely that the Contractor may meet with telephone cable, electrical cables, supply lines, etc. It will therefore be the responsibility of the Contractor to protect them carefully. All such cases should be brought to the notice of the Engineer-in-charge by the Contractor and also the concerned Department. Any damage whatsoever done to these cables and pipelines by the Contractor shall be made good by him at his cost.

11.0 LINING OUT:

The Contractor shall provide free of charge all labour and material required for lining out, surveying, inspection decided by the Engineer as considered necessary for the proper and systematic execution of work. The Department will only show the changed points on the alignment of the road and it will be the responsibility of the Contractor to correctly align the road straight between points including setting out curves, though the Department will render necessary assistance. Likewise, only one Bench Mark with definite value of R.L. will be shown to Contractor who shall have to provide for network of temporary Bench Mark all along the road and near C D Works for executing the work. The Contractor shall be responsible for the provision, accuracy and the maintenance of such temporary Bench Mark. He shall be responsible for the correctness of the position, levels dimensions and alignment of all parts of the works and provision of necessary instruments and labour in connection with it, suitable pointed bamboos or wooden stakes shall be provided at his cost and firmly fixed at every 50 m on both sides of embankment to indicated final as well as intermediate heights of the embankments. Any errors in position, levels, dimensions and alignment shall be rectified by Contractor at his expenses.

If such error is due to incorrect data supplied in writing by the Engineer or his authorized representative, the cost of rectification shall be borne by Corporation. The checking or inspection of any setting out of any line or level or works by Engineer or his representative shall not in any way relive the Contractor of his responsibility or correctness thereof. The Contractor shall carefully protect and preserve all Bench Marks, Site Rails, Pegs and stones etc used in setting out the work. Marking out the centerlines of C D Works, necessary approaches, etc shall be done by the Contractor at his own cost as directed by the Engineer.

ADDITIONAL SPECIAL CONDITIONS

1 Applicants should make available the equipmentsn& machinery whenever required and should attach register hire lease document or indemnity bond from either party on Rs 100/- stamp paper duly notarised as an documentary proof and attach the same.

2 The Contractor shall submit the Request for Inspection (RFI) to the Engineer-in- Charge andConsultants three days in advance before starting of any Hot mix related work. In no case shall the Hot mix work be started without submitting the RFIthree day before the activity and

without the prior approval of Engineer-in-Charge and Consultants. The Contractor shall submit the previous day's Progress on the following day by 11.00 am positively in the standard prescribed format approved by Engineer-in-Charge.

3 The road roughness for all the project roads shall be measured in accordance to IRC SP 16 – 2004. The Contractor shall arrange for and bear the cost of roughness testing of the completed roads. The minimum roughness allowable for the various surfaces measured in accordance to the above specifications is as follows.

- PQC (Concrete Pavement) Surface – less than 2200 mm/ KmThe Contractor shall arrange for necessary testing equipment and conduct the testing in consultation with Project Management Consultant and JSCL Engineers before commencement of work and after completion of wearing course. If it is found that the Roughness Index of the BT/ PQC surface is outsidethe permissible limits then deduction in the BT/ PQC payment shall be enforced as per the directives ofCEO,JSCL , Roads. At least 10% tests for the work must be performed in Third Party Laboratory approved by JSCL and the cost such tests shall be borne by Contractor.

9 In case of non-conformance to the quality control checks in accordance to the quality assurance plan for Concrete related works, no payment shall be made to Contractor for non-conformance of work.

10 It is evident that there shall be live utilities under the road. The contractor shall repair and restore damaged utility lines viz. telephone, electricity, OFC, water line, drainage line etc if damaged during the execution of work. No separate payment shall be made to the contractor for utility repair. Every Bidder must have well equipped laboratory set up as described in NIT at plant site and mobile lab at every work site.

11 The source of material viz. the quarries shall be approved by JSCL or consultant appointed by JSCL.

12 The works shall be primarily carried out in day time only. Except the prior permission of development engineer (Road) to carry out the same at night time.

13 The longitudinal and cross sectional of work be taken along with the photographs before starting and after satisfactory completion of the work along with identification of all the main hole covers of existing services and steel / cement concrete grating storm water drains etc.

14 The original invoice of bitumen of manufactures shall be submitted to the department along with the test certificate of the manufactures and the bitumen be tested at plant site before it is put in to use.

15 It will be sole responsibility of bidder to provide for sufficient traffic wardens and barricades during the entire project duration and make sure that there is sufficient space for safe movement ofpedestrians and vehicles during the construction operations.

16 Contractor must carry out survey of road using Total Station before commencing the first layer of resurfacing work in presence of JSCL engineer. The levels should be taken at longitudinal interval of 10 m cross sectional interval (depending on the road width 2.00m to 5.00 m) submit the detail cross section to department for cross check. This same procedure of levels will be applied after each layer of bitumen mix. Cores will have to be taken for each layer at the rate of one core per 250 Sqm in presence of JSCL Engineer / Consultant / Third Party Quality Assurance Agency.

17 The contractor shall also provide complete video/photographing of the road before work commencement and during submission of each RA Bill along with change wise coloured

video/photographs in Hard Copy and Soft copy.

GENERAL TECHNICAL SPECIFICATIONS

1. The General Technical Specifications comprise the "Specification for Road and Bridge Works" (FifthRevision) issued by the Ministry of Road Transport and Highways (MORT&H), Government of India and published by the Indian Road Congress, New Delhi and for items not covered by these specification Standard Specifications of UADD deemed to be bound into this document, unless and otherwise specifically relaxed wholly or partly through a special clause in the contract document. & relevant BIS codes of practice.

Abbreviations Used

a) LM / Lm / RMT/Rgm = Linear Meter / Running Meter
b) Cum. = Cubic Meter
c) Sqm. = Square Meter
d) Cum /cc = Cubic Centimeter
e) No. = Numbers
f) MT / Tonne = Metric Tonne
g) Hr = Hours
h) Ha = Hector
i) MoRT&H = Ministry of Road Transport & Highways j) IRC = Indian Roads Congress
j) BIS = Indian Standards.

2. MISCELLANEOUS:

Rate shall be inclusive of all type of taxes and exclusive of GST.

- The special provision in detailed specifications or wording of any item shall gain precedence over corresponding contradictory provision (if any) in the standard specifications or P.W.D. Hand Book where reference to such specifications is given without re-producing the details in contract.
- It is presumed that the Contractor has gone carefully through MORTH Specification &P.W.D. Hand Book and the Schedule of Rates of the Division and studied the site conditions before arriving at rates quoted by him. Decision of the Engineer-in-charge shall be final as regards interpretation of specifications.
- Stacking and storage of construction material at site shall be in such a manner as to prevent deterioration or intrusion of foreign matter and to ensure the preservation of their quality, properties and fitness for the work. Suitable precautions shall be taken by the Contractor to protect the material against atmospheric actions, fire and other hazards. The materials likely to be carried away by wind shall be stored in suitable stores or with suitable barricades and where there is likely-hood of subsidence of soil, such heavy materials shall be stored on approved platforms.
- For road and grade separator works the contractor shall in addition to the specifications cited here, comply with requirements of relevant I.R.C. Code Practice. Latest edition of MORTH specification and BIS codes shall be applicable for this work.
- The contractor shall be responsible for making good the damages done to the existing property during construction by his men.
- If it is found necessary from safety point of view to test any part of the structure, the test

shall be carried out by the contractor with the help of the Department at his own cost.

- The contractor shall provide, maintain, furnish and remove on completion, temporary shed for office on work site for the use of Project Engineer's representative.
- Defective work is liable to be rejected at any stage. The contractor on no account can refuse to rectify the defects merely on reasons that further work has been carried out. No payment shall be made for rectification.
- General directions or detailed description of work, materials and all coverage of rates given in the specification are not necessary repeated in the Bill of Quantities. Reference is however, drawn to appropriate section clause(s) of the General specifications accordance with which the work is to be carried out.
- In the absence of specific directions to the contrary, the rates and prices inserted in the terms are to be considered as the full inclusive rates and prices for the finished work described there-under and are cover all labour, materials, wastage, temporary work, plant overhead charges and profiles, as well as the general liabilities, obligations and risks arising out of the General Conditions of Contract.
- The quantities set down against the item in the BoQare only estimated quantities of each kind of work included in the Contract and are not to be taken as a guarantee that the quantities schedule will be carried out or required or that they will not be exceeded.
- All measurements will be made in accordance with the methods indicated in the specification and read in conjunction with the General Conditions of Contract.
- The details shown on drawings and all other information pertaining to the work shall be treated as indicative and provisional only and are liable to variation as found necessary while preparing working drawing which will be supplied by the JSCL during execution. The contractor shall not, on account of such variation be entitled to any increase over the ones quoted in the tender which are onquantity basis. The contractor has to make his own investigation before quoting for the work.
- The recoveries if any from contractor will be affected as arrears of land revenue through the Collector of the District.
- Clause 101 to 107 of Specifications of Road and Bridge works adhered herewith will be applicable to works as per Schedule „B" unless specified otherwise in the detailed specifications of the relevant items.
- All materials used in the construction shall conform to the requirement of Specification Clause under Section-100 "Materials for Structures" of Specification of Road and Bridge Works MORTH New Delhi.
- Protection of underground telephone cable and aerial telephone wires and poles, transmission towers, electrical cables and water supplying lines. During the execution of work, it is likely that the contractor may meet with telephone cable, electrical cables, water supply lines etc. it will therefore be the responsibility of the Contractor to protect them carefully. All such cases should be brought to the notice of the Engineer-in-charge by the contractor and also to the concerned department. Any damage whatsoever done to these cables and pipe lines by the contractor shall be made good by him at his cost.

3. Order of precedence, clarifications and interpretations:

When various specifications and codes referred to in presiding portion are at variance with each other following order of precedence will generally be accepted.

i) Special conditions of contract, Item wise specifications, revised specifications if provided and execution drawing notes etc.
ii) MoRT&H Specifications (Specifications for Roads & Bridge work)
iii) I.S. Codes of practice.
iv) MPPWD.

In case of items for which specifications are not available in the above mentioned specifications good sound engineering practice shall be followed and in such case specifications given by the employer consultants shall be final & binding on the contractor.

4. Specifications for materials:

All material to be used in work shall satisfy provision of relevant specifications of Road and Bridge.

5. Method of MEASUREMENT:

The method of measurement and payment shall be as described under various items and bill of quantity where specific definitions are not given, the method described in MoRT&H Specification will be followed.

6. All works shall be carried out in line & level as shown on execution drawing and as directed by Engineer.

7. Clearance of SITE:

The work of site clearance before & after completion of work shall be as per Section 200 of MoRT&H specifications. Contractor shall visit the site before submitting his offer and assess the quantum of work for clearing the site before execution, during execution & after completion of work.

8. Excavation for ROAD:

As per the respective BOQ items & their specifications mentioned. Contractor shall note that the water table may be at higher level which will necessitate the dewatering. Dewatering and removal of water is incidental to item of work. No separate payment for dewatering etc. will be made by JSCL.

Setting Out :

After site is cleared and leveled, alignment & location shall be mark and excavation limit shall be set out true to lines and section as shown on working drawings. The contractor shall provide all labour, survey instrument i.e. Total station and materials required for setting out.

Disposal of excavated material :

All excavated material shall be used in work as directed. Usable surplus material shall be stacked properly as directly. Unusable excavated material shall be disposed of by the contractor as specified & directed by the Engineer.

Measurement :

Excavation work shall be measured for depth below existing road / ground level. Measurement shall generally confirm to MoRT&H Specification Section –300 Clause 304.40. Each change of strata shall be got certified by the Engineer in charge. Measurement for excavation shall be as required for the exact width length and depth as shown on the drawing or as directed by the Engineer.

No excess excavation will be considered for payment and extra work occasioned shall be done at contractor risk & cost.

The following specifications shall be followed for material and execution of work.

1. UADD Specifications
2. PWD
3. CPWD
4. Applicable IS
   SPECIFICATION SHALL BE ADOPTED FOR ITEM WORK

9. TRAFFIC MANAGEMENT DURING CONSTRUCTION

1 The Contractor shall at all times carry out work on the road in a manner creating least interference to the flow of traffic while consistent with the satisfactory execution of the same. For all works involving improvements to the existing highway, the Contractor shall, in accordance with the directives of the Engineer, provide and maintain, during execution of the work, a passage for traffic either along a part of the existing carriageway under improvement, or along a temporary diversion constructed close to the highway. The contractor shall take prior approval of the Engineer regarding traffic arrangements during construction.

2 Signs, lights, barriers and other traffic control devices shall be provided and maintained in a satisfactory condition till such time they are required as directed by the Engineer, so as to ensure smooth and safe traffic on the road throughout the length. Necessary traffic arrangement at temporary diversions by signs, lights, barriers etc. is also included in the scope

3 The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades, including signs, markings, flags, lights and flagmen as may be required by the Engineer for information and protection of traffic approaching or passing through the section of the highway under improvement. Before taking up any construction, an agreed phased programme for the diversion of traffic on the highway shall be drawn up in consultation with the Engineer. The barricades erected on either side of the carriageway/portion of the carriagewayclosed to traffic, shall be of strong design to resist violation, and painted with alternate black and white stripes, Red lanterns or warning lights of similar type shall be mounted on the barricades at night and kept lit throughout from sunset to sunrise. At the points where traffic is to deviate from its normal path (whether on temporary diversion or part width of the carriageway) the channel for traffic shall beclearly marked with the aid of pavement markings, painted drums or a similar device to the directions of the Engineer. At night, the passage shall be delineated with lanterns of other suitable light source.

One-way traffic operation shall be established whenever the traffic is to be passed over part of the carriageway inadequate for two-lane traffic. This shall be done with the help of temporary traffic signals or flagmen kept positioned on opposite sides during all hours. For regulation of traffic, the flagmen shall be equipped with red and green flags and lanterns/lights. On both sides, suitable regulatory/warning signs as approved by the Engineer shall be installed for the guidance of road users. On each approach, at least two signs shall be put up, one close to the point where transition of carriageway begins and the other 120 m away. The signs shall be of approved design and of refectory type, if so directed by the Engineer. 4 Signs, lights, barriers and other traffic control devices, as well as the riding surface of diversions shall be maintained in a satisfactory condition till such time they are required as directed by the Engineer. The temporary travelled way shall be kept free of dust by frequent applications of water, if necessary.

TRAFFIC SAFETY MEASURES DURING CONSTRUCTION

This includes providing traffic safety arrangement required for traffic control near the stretch of road where widening or resurfacing work is being taken up, before actual start of widening/ resurfacing work of road and during the actual work. The contractor will have to provide the traffic safety arrangement as per the detailed drawing. The traffic safety arrangements will have to be got approved from the Engineer by the contractor before taking any construction activities for widening or resurfacing of road. It will be sole responsibility of bidder to provide for sufficient traffic wardens and barricades along the road edge. The Engineer shall get himself satisfied about the traffic safety arrangement provided on the work site before allowing contractor to commence the widening activity and a certificate to that effect shall be recorded in the Measurement Book. The following traffic signs shall be provided by the contractor.

A) The sign No. 1 ***"SPEED LIMIT (20)"*** shall be placed at a distance of 120 m. away from point where the transition of carriageway begins. The sign board shall be in size 60 cm. dia. having white background and red border and the numerals shall be in black colour as per IRC: 67-1977. Distance between sign No. 1 and sign No. 2 shall be minimum 20 m.

B) The sign No. 2 cautionary boards indicating ***"NARROW ROAD AHEAD"*** shall be placed at aDistance of 80 m. away from the point of transition of carriageway. The signboard shall be of an equilateral triangle of size 90 cm. having white colour background. Retro-reflective border in red colour and non-reflective symbol in black colour as per IRC: 67-1977.

C) The sign No. 3 signboard indicating ***"MEN AT WORK / ROAD WORK AHEAD"*** shall be placed at adistance of 40 m. away from the point of transition of carriageway. The signboard shall be of an equilateral triangle of size 90 cm. having white colour background. Retro-reflective border in red colour and non-reflective symbol in black colour as per IRC: 67-1977.

D) The sign No. 4 the board displaying the message ***"GO SLOW- WORK IN PROGRESS– SORRYFOR INCONVENIENCE"*** shall be placed at the point of transition of carriageway. The size of signboard shall be 1.0 m x 1.0 m. having red background and retro- reflective messages in white colour.

BARRICADING FOR WORK:

The proper barricading of the construction zone for road widening or resurfacing shall be done by contractor by using the following devices and providing adequate number of persons with Flags / Whistles and reflective jackets for traffic control. Sand filled plastic cones mounted with Retro-reflective Arrow Hazard Marker sign shall be placed as indicated in the drawing. Plastic cone shall be 73 cm. in height having 39 cm. square/hexagonal bases. Sand filled plastic cones shall be placed along the work is in progress as shown in the drawing. Cones shall be fluorescent orange and shall be made of a material that can be struck without damaging vehicles on impact. For night time use, cones shall be retro reflective or equipped with lighting devices for maximum visibility. Retro reflection shall be provided by a white band 150 mm wide, no more than 100 mm from the top of the cone, and an additional 100 mm white band a minimum of 50 mm below the 150 mm top band. The reflective sheeting used for bands shall be of Class B sheeting as per IRC-67:2011. Retro-reflective Strong Inviolable Stand Type Barrier shall be placed at either ends of the widening area up to the edge of the Road. The barricades shall not be removed unless the permission is given by the responsible officer of the rank not less than Deputy Engineer. The Barricade shall have two plates of size 1.30m x 0.20 m. painted black and shall have white Retro-reflective Strips of Class B sheeting as per IRC- 67:2011.and mounted on Angle Iron Stand of 1.0 m. height. Minimum height of barricade

shall be 1.50m. alternatively; the barricading with continuous Tin sheets fixed on posts at distance of not more than 2 m and height not less than 1.5 m shall be used. The tin sheets shall be painted inAlternate Black and Yellow paint and maintained in god condition during the widening work. All the excavated portions of road / CD work/ RCC chambers etc shall be covered on all sides with painted Tin Sheet barricading. Yellow light flasher shall be kept lit from sunset to sunrise, 2 Nos. along transition line of traffic and 3 Nos. at barriers on both sides.

Information sign board indicating Name of work, Contractor, Consultant, Amount of contract, completion period, Defect Liability period, and Telephone No., name of Junior Engineer, Consultant and Contractor Engineer with Telephone No. shallbe provided at the starting point, end point of the stretch of road proposed for widening as per the scope of the agreement. The signs, lights, barricades and other traffic control devices shall be well maintained, till such time that the traffic is commissioned on the widened road. The size, shape and colour of all the sign and caution boards shall be as mentioned above as per detailed drawings in accordance with the relevant IRC Specifications and as per Ministry of Road Transport & Highway (MORT&H) Specifications. The sign shall be erected when the maintenance or minor construction activity extends over longer period of time and is of a more stationary nature. It may also be used at intermediate locations on long construction areas to set apart certain road sections having a higher degree of construction activities than observed in other intersections.

(NOTE; NO separate payment will be made for required barricading by JSCL)

SECTION 4

BILL OF QUANTITIES (BOQ)

Detail BoQ is attached as Annexure – 1A

SECTION 5

AGREEMENT FORM

AGREEMENT

This agreement, made on the _____ day of _____ between: _____ (name and address of Employer) (hereinafter called "the Employer) and_____ (name and address of contractor) hereinafter called "the Contractor' of the other part.

Whereas the Employer is desirous that the Contractor execute _____(name and identification number of Contract) (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a cost of Rs.....

NOW THIS AGREEMENT WITNESSED as follows:

1. In this Agreement, words and expression shall have the same meaning as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein Contract Price or such other Sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
    i. Letter of Acceptance
    ii. Contractor's Bid
    iii. Condition of Contract: General and Special -
    iv. Contract Data
    v. - Bid Data
    vi. Drawings
    vii. Bill of Quantities and
    viii. Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____ was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____ in the presence of:

Binding Signature of Employer _____

Binding Signature of Contractor _____

ANNEXURE 1 A

S.No.	DESCRIPTION	AMOUNT	REDUCED AMOUNT
1	4 Km FLEXIBLE PAVEMENT	₹ 12,12,57,448.00	**₹ 10,91,31,703.20**
2	SWD ON BOTH SIDES OF ROAD	₹ 2,45,25,400.80	**₹ 2,20,72,860.72**
3	PEDASTRIAN PATH & LANDSCAPING	₹ 2,79,58,415.00	**₹ 2,51,62,573.50**
4	SIGNAGE & PLANTS	₹ 90,78,820.00	**₹ 81,70,938.00**
5	SURVEY & INVESTIGATION	₹ 42,424.00	**₹ 38,181.60**
6	TOILET	₹ 56,24,059.64	**₹ 50,61,653.68**
	AMOUNT (Civil)		**₹ 16,45,76,257.02**
	Estimate for Electrical work		**₹ 1,38,52,694.40**
	TOTAL AMOUNT		**₹ 17,84,28,951.42**
	GST @12%		**₹ 2,14,11,474.17**
	Grand Total		**₹ 19,98,40,425.59**

	WIDEDNNING OF FLEXIBLE PAVEMENT						
ESTIMATE FOR WIDENNING EXISTING ROAD 6Meter on both sides with repair of existing road							
S.No.	**UADD SOR Vol II & III, ITEM NO**	**Descriptions of Item**	**Quantity**	**Rate**	**Reduced rate**	**Unit**	**Reduced Amount**
1		**Dismantling**					
1.1	**2.3, (i) Vol III**	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead 1000 meter.					
		Taking 20% of total length					
	(i)	**Concrete**					
	I	By Manual Means					
		Cement Concrete Grade M-15 & M-20	**2000.00**	**234.00**	**210.60**	**cum**	**₹ 4,21,200.00**
1.2	**vol III 2.4**	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 meter, stacking serviceable and unserviceable materials separately and as per relevant clauses of section-200.					
		Taking 30% of length					
	a)	Bituminous courses	**840.00**	**358.00**	**322.20**	**cum**	**₹ 2,70,648.00**
1.3	**vol III 2.5**	Dismantling of cement concrete pavement i/c breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a lead up to 1000 meter, stacking serviceable and unserviceable materials separately and as per relevant clauses of section-200.					
		Taking 20% of total length					
		Total quantity	**600.00**	**716.00**	**644.40**	**cum**	**₹ 3,86,640.00**
1.4	**2.7 vol III**	Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead up to 1000 meter and as per relevant clauses of section-200.					
		Taking 50% of total length					
		Total quantity	**4000.00**	**6.00**	**5.40**	**m**	**₹ 21,600.00**
1.5	**2.12 vol III**	Removal of telephone / Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and up to a lead of 1000 meter and stacking the serviceable and unserviceable material separately.					
		At each 20meter interval in the length of road.					
		Total quantity	**400.00**	**90.00**	**81.00**	**each**	**₹ 32,400.00**
2		**Excavation for Extended width of the Road**					
	3.1, Vol III	Excavation for roadway in soil including loading in truck for carrying of cut earth to embankment site with all lifts and lead upto1000 metres and as per relevant clauses of section-300					
		6.0 m. on both sides of existing road	**21600.00**				
		Total quantity	**21600.00**	**98.00**	**88.20**	**cum**	**₹ 19,05,120.00**
		DISPOSAL OF DISMENTAL AND EXCCAVTED EARTH					
2.1		Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip)					
	1.10	**Transportation of metal**					
	v)	**For a lead upto 5 Km.**		**102.00**		**Cum**	
	d)	Loose moorum/sand/earth/surkhi.(Same as metal)	3440.00	102	**91.80**	**Cum**	**₹ 3,15,792.00**
	e)	Excavated Earth(25% above)	12960	127.5	**114.75**	**Cum**	**₹ 14,87,160.00**
3		**Earthwork**					

S.No.	UADD SOR Vol II & III, ITEM NO	Descriptions of Item	Quantity	Rate	Reduced rate	Unit	Reduced Amount
	3.11, Vol III	Construction of Embankment/Sub grade/ earth shoulders, as per clause 305 & its sub-clauses, Where required but with approved materials/soil like morrum CBR value not less then 7% i/c all lead & lifts i/c excavation, cost of watering, impaction and maintenance of surface during construction to ensure shedding & preventing ponding of water (clause 305.3.6) shaping & dressing (clause 305.3.7), finishing etc. complete but excluding scarifying existing granular/bituminous road surface vide clause 305.6.					
		6.0 m. on both sides of existing road	**21600.00**	**272.00**	**244.80**	**cum**	**₹ 52,87,680.00**
4	**4.8(a) I Vol III**	**Crusher Run Macadam(C.R.M)**					
		Crusher Run Macadam Base (Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 410 to form a layer of sub-base/Base)					
		For 53 mm maximum size					
		6.0 m. on both sides of existing road	**9600.00**				
		Total quantity	**9600.00**	**833.00**	**749.70**	**cum**	**₹ 71,97,120.00**
8	**4.5 Vol III**	**W.M.M**					
		Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub - base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density and as per relevant clauses of section - 400.					
		6.0 m. on both sides of existing road	**9600.00**				
		Total quantity	**9600.00**	**951.00**	**855.90**	**cum**	**₹ 82,16,640.00**
5	**5.6 (i) Vol III**	**Dense Bituminous Macadam(DBM)**					
		Providing and laying dense bituminous macadam (in two layers of 50mm thickness each or as per the instruction of engineer in charge) with hot mix plant batch using crushed aggregates of specified grading, premixed with bituminous binder, transporting the hot mix to work site, laying with mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction complete in all respects and as per relevant clauses of section-507. (Only cement will be used as filler)					
	ii)	For Grading II(50-75mm thickness)					
		6.0 m. on both sides of existing road	**2400.00**				
		6.0 m. on both sides of existing road	**1680.00**				
			4080.00				
		Add 20% for camber correction	**816.00**				
		Total quantity	**4896.00**	**7178.00**	**6460.20**	**cum**	**₹ 3,16,29,139.20**
6		**Bituminous Concrete (BC)**					
	5.8 (iv) Vol III	Providing and laying bituminous concrete with hot mix plant using crushed aggregates of specified grading, premixed with bituminous binder, transporting the hot mix to work site, laying with a mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects and as per relevant clauses of section-509.(Only cement will be used as filler). i) for Grading I(50-65 mm thickness) with 60/70 bitumen					
	5.8 i	for Grading I (50-65 mm thickness) with 60/70 bitumen					
		On full width of Road	**4800.00**				
		Dismantle portion of existing road	**840.00**				
		Total quantity	**5640.00**	**8223.00**	**7400.70**	**cum**	**₹ 4,17,39,948.00**
7		**Mastic asphalt**					

S.No.	UADD SOR Vol II & III, ITEM NO	Descriptions of Item	Quantity	Rate	Reduced rate	Unit	Reduced Amount
	Vol iii 15.5	Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm centre to centre in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515 and 2702 of specifications..					
			96000.00				
		Taking 20% area of road for mastic asphalt in place of BC	**19200.00**	**258**	**232.20**	**Sqm**	**₹ 44,58,240.00**
8		**Primer Coat**					
	5.1 Vol III	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.75 kg/sqm using mechanical / Manual means and as per relevant clauses of section 502.					
		On full width of Road	**48000.00**				
		Dismantle portion of existing road	**16800.00**				
		Total quantity	**64800.00**	**26.00**	**23.40**	**Sqm**	**₹ 15,16,320.00**
9		**Tack Coat**					
	5.2 (ii) Vol III	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor on the prepared bituminous / granular surface cleaned with mechanical broom and as per relevant clauses of section 503.					
		@0.25 kg per sqm (normal bituminous surfaces)					
		for by 50mm	**48000.00**				
		Dismantle portion of existing road	**16800.00**				
			64800.00	**9.00**	**8.10**	**sqm**	**₹ 5,24,880.00**
		@0.30 kg per sqm (dry & hungry bituminous surfaces/granular surfaces treated with primer)					
		On Widening Portion of Road	**48000.00**				
		Dismantle portion of existing road	**16800.00**				
		Total quantity	**64800.00**	**11.00**	**9.90**	**sqm**	**₹ 6,41,520.00**
10	**5.1 Vol iii**	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom and as per relevant clauses of section-503.					
	iv)	@0.35 kg per sqm (Non-bituminous surfaces) cement concrete pavement					
		On OLD CC Road @ 0.35 Kg / sqm					
		On Widening Portion of Road	**48000.00**				
		Dismantle portion of existing road	**16800.00**				
		Total quantity	**64800.00**	**13.00**	**11.70**	**sqm**	**₹ 7,58,160.00**
		Erection of Poles for wires					
11	**MPPWD Electrical SOR 2014 42.14 P-96 to 114**	Erection of RS Joist pole / 'H' Beam / steel tubular / steel rail pole of length 7 metres but not exceeding 10 metres in cement concrete 1:3:6 (1 cement : 3 core sand: 6 graded stone aggregate 40mm nominal size) base, foundation, muffing including excavation and back refilling etc. as required.					
		At each 20meter interval in the length of road.	**200.00**	**3316.00**	**2984.40**	**Each**	**₹ 5,96,880.00**
		Erection of street light pole					

S.No.	UADD SOR Vol II & III, ITEM NO	Descriptions of Item	Quantity	Rate	Reduced rate	Unit	Reduced Amount
12	**MPPWD Electrical SOR 2014 42.16 P-96 to 114**	Erection of metallic street light pole length upto 2 metres in cement concrete M-10 (1cement:3coarse sand:6 graded stone aggregate 40mm nominal size) foundation with cement concrete collar of size 0.4 metres dia x 0.3 metres height to accommodate the looping type cable end box including excavation and refilling etc. as required.					
		At each 10 m interval of length	**400.00**	**1027.00**	**924.30**	**Each**	**₹ 3,69,720.00**
		Clamp plate 200x200x6mm					
13	**MPPWD Electrical SOR 2014 42. P-96 to 114**	Supplying and erection of stay set complete (Galvanized) with 16mm dia x1.8 metre long stay anchor plate of size 200mm x 200mm x 6.0mm, thimble, stay clamps, turn buckle 19mmx600mm, 7/3.15mm dia G.I. stay wire etc. in cement concrete M-10 (1 Cement : 3 Coarse and : 6 grinded stone aggregate 40mm nominal size) foundation including excavation and refilling etc. as required.					
		At each 10 m interval of length	**400.00**	**3130.00**	**2817.00**	**Each**	**₹ 11,26,800.00**
		PAINTING ON DEVIDER					
14	**Vol.iii 8.6/P-70**	on new plastered concrete surfaces and as per relevant clauses of section-800 & I.R.C.-67 including cost of paint etc. complete."					
		Approximate	**5760.00**	**44.00**	**39.60**	**Sq m**	**₹ 2,28,096.00**
		Total					**₹ 10,91,31,703.20**

ESTIMATE OF STORM WATER DRAIN							
S No.	**UADD SOR**	**Descriptions of Item**	**Quantity**	**Rate**	**Reduced Rate**	**Unit**	**Reduced Amount**
1	**3.13 Vol iii**	Excavation in all kinds of soil for drainage work by mechanical means(Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
		Total quantity	**5670.00**	**99.00**	**89.10**	**cum**	**₹ 5,05,197.00**
2	**2.27.1 Vol II**	Supplying and filling in plinth under floors including, watering, ramming consolidating and dressing complete. **Crusher Stone Dust**					
		Total quantity	**567.00**	**628.00**	**565.20**	**cum**	**₹ 3,20,468.40**
		PCC					
3	**6.10 Vol iii**	Providing and laying Cement Concrete grade **M-10** Nominal mix with **20 mm** graded crushed stone aggregate, laid with a fixed form / slip form paver with spreading the concrete by shovels mixing shall be in mechanical mixer, compacting by use of pin plate and screed vibrators including form work by strong steel girders fixed by spikes.					
		Total quantity	**577.80**	**3046.00**	**2741.40**	**cum**	**₹ 15,83,980.92**
4	**5.1 Vol ii**	Providing and laying in position specified grade of reinforcedcement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					
	5.1.1	Cement concrete grade M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate.					
		Total quantity	**1518.00**	**4728.00**	**4255.20**	**cum**	**₹ 64,59,393.60**
5	**5.10 Vol ii**	Providing, hoisting and fixing up to floor two level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like including the cost of required centering, shuttering, finishing smooth with 6 mm thick cement plaster 1:3 (1 cement : 3 fine sand) on exposed surfaces complete but excluding cost of reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate)					
		Total quantity	**528.00**	**6524.00**	**5871.60**	**cum**	**₹ 31,00,204.80**
6	**.20.6 Vol**	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					
	5.20.6	Thermo-Mechanically Treated bars					
		Steel is taking as @70Kg per m of concrete					
			143220.00	**60.00**	**54.00**	**Kg**	**₹ 77,33,880.00**
7	**20.1.1 Vol II**	**Form work for Drain walls**					
	20.1	Centering and shuttering including strutting, propping etc.and removal of form for :					
	20.1.1	Foundations, footings, bases of columns, etc. For mass concrete.					
		Total quantity	**19080**	**138.00**	**124.20**	**Sqm**	**₹ 23,69,736.00**
							₹ 2,20,72,860.72

ESTIMATE OF PEDESTRIAN PATH

S No.	UADD SOR ITEM NO	Descriptions of Item	Quantity	Rate	Reduced Rate	Unit	Amount	Amount
1	3.1, Vol III	**Excavation**						
		Excavation for roadway in soil including loading in truck for carrying of cut earth to embankment site with all lifts and lead upto1000 metres and as per relevant clauses of section-300						
		Total	9337.50	98.00	88.20	cum	₹ 9,15,075.00	₹ 8,23,567.50
2	3.11, Vol III	**Earthwork**						
		Construction of Embankment/Sub grade/ earth shoulders, as per clause 305 & its sub-clauses, Where required but with approved materials/soil like morrum CBR value not less then 7% i/c all lead & lifts i/c excavation, cost of watering, mpaction and maintenance of surface during construction to ensure shedding & preventing ponding of water (clause 305.3.6) shaping & dressing (clause 305.3.7), finishing etc. complete but excluding scarifying existing granular/bituminous road surface vide clause 305.6.						
		Total	6000.00	272.00	244.80	cum	₹ 16,32,000.00	₹ 14,68,800.00
		Hume Pipe in foot path						
	Vol I 13.3	Providing and Laying non-pressure (NP3) RCC socket & spigot pipes with rubber gasket joint including testing of joints. [Conforming to IS ; 458-1988, ISI marked laying as per IS 783:1985)						
	a)	**150 mm dia**	500.00	376.00	338.40	Meter	₹ 1,88,000.00	₹ 1,69,200.00
	b)	**225 mm dia**	350.00	484.00	435.60	Meter	₹ 1,69,400.00	₹ 1,52,460.00
3	4.1.5 Vol II	**Cement Concrete M - 10**						
		Providing and laying in position cement concrete in foundation Up to plinth level. Cement concrete grade M-10 (Nominal Mix) with 40 mm maximum size of stone aggregate						
			3112.50	3528.00	3175.20	Sqm	₹ 1,09,80,900.00	₹ 98,82,810.00
	Vol ii 11.11	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete M-15 (Nominal Mix with 12.5mm maximum size of stone aggregate) and top layer 12mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7mm to 10mm nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume including cement slurry etc. complete :						
		Medium shade pigment with 50% white cement and 50%	1600.00	535.00	481.50	Sqm	₹ 8,56,000.00	₹ 7,70,400.00
	Vol ii 11.13	11.13 Providing and fixing glass strips in joints of terrazo/cement concrete floors.						
		11.13.1 40 mm wide and 4 mm thick. meter 22.00	1600.00	22.00	19.80	meter	₹ 35,200.00	₹ 31,680.00
4		**Chequerred precast cement concrete tiles**						
	Vol ii 11.20	Chequerred precast cement concrete tiles 18-20mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20 mm thickbed of cement mortar 1:4 (1 cement: 4 coarse sand).						
	11.20.3	Dark shade using ordinary cement.	4800.00	616.00	554.40	Sqm	₹ 29,56,800.00	₹ 26,61,120.00
		Mosaic Flooring						
	MPPWD 11.8 P-197	40 mm thick marble chips floorin g rubbed and polished tpo Granolithic finish,under layer 31mm thick cement concerete 1:2:4 12.5 mm nominal size and top layer 9mm thick with white ,black,chocholate ,grey yellow or green marblke chips of size 4mm to 7mm laid in 1:3 ratio of cement marble powder by weightin proportion of 4:7 including cement slurry etc complete.Area of panel not excveed 2.0 Sq m.						
	11.8.3	Medium shade pignmm,ment with 50% white cement and 50% of ordinary cement	3200.00	566.00	509.40	Sqm	₹ 18,11,200.00	₹ 16,30,080.00
	Vol ii 11.26	Kota stone slab 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4 (minimum size of kota stone 0.25 sqm)						
			400.00	819.00	737.10	Sqm	₹ 3,27,600.00	₹ 2,94,840.00

S No.	UADD SOR ITEM NO	Descriptions of Item	Quantity	Rate	Reduced Rate	Unit	Amount	Amount
	Vol ii 11.29	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone. (minimum size of kota stone 0.25 sqm)						
	11.29.1	**Red sand stone**	**400.00**	**477.00**	**429.30**	**Sqm**	**₹ 1,90,800.00**	**₹ 1,71,720.00**
	Vol ii 11.30	40 mm thick rubbed local Flag stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement :5 coarse sand) with joints 3mm thick, side buttered with cement mortar 1:2 (1 cement : 2 stone dust) admixed with pigment to match the shade of stone and pointing with same mortar (minimum size of kota stone 0.25 sqm)						
	11.30.2	**White sand stone**	**800.00**	**532.00**	**478.80**	**Sqm**	**₹ 4,25,600.00**	**₹ 3,83,040.00**
		Tactics Tiles for vision impaired persion						
	MP PWD 2014 11.64	Providing and laying Tactic Tiles for vision imopaired person as per standard of size 300X 300X9.8mm having water absorption less than and confirming to IS 15622 of approoved make in all colours for footpath laid on 20mm thock base of cement mortar 1:4 in all shapes and pattern and grouting the joints with white cement moixed with matching pigments complete as per direction of Engineer in charge.						
			1600.00	**1307.00**	**1176.30**	**Sqm**	**₹ 20,91,200.00**	**₹ 18,82,080.00**
		RCC						
4	**5.1. Vol II**	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :						
		Cement concrete grade M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate.						
			400.00	**4728.00**	**4255.20**	**Cum**	**₹ 18,91,200.00**	**₹ 17,02,080.00**
5		Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.						
		Thermo-Mechanically Treated bars						
		steel consumption @60Kg per cum of concrete	**24000.00**	**60**	**54.00**	**Kg**	**₹ 14,40,000.00**	**₹ 12,96,000.00**
	4.3 Vol ii	Providing and laying cement concrete in kerbs, steps and the like at or near ground level excluding the cost of centering, shuttering and finishing.						
	4.3.1	Cement concrete grade M-15 (Nominal Mix) with 20 mm maximum size of stone aggregate						
		Cast in situ PCC in KERBs(250X200X200)	**360.00**	**4154**	**3738.60**	**Cum**	**₹ 14,95,440.00**	**₹ 13,45,896.00**
		Form work /Shuttering						
	20.1 Vol ii	Centering and shuttering including strutting, propping etc.and removal of form for :						
	20.1.1	Foundations, footings, bases of columns, etc. For mass concrete.						
		Form work forRCC work ,SOR item no 5.1(Only one side of concrete)	**2400.00**					
		For Concrete work only ,SOR item no 4.3(Only one side of concrete)	**1600.00**					
			4000.00	**138**	**124.20**	**Sqm**	**₹ 5,52,000.00**	**₹ 4,96,800.00**
		Benches						
	Non SOR item Market Rate	Providing and fixing Wooden and metal VIP garden bench for three person with three year warranty (For all weather out door use) Design and make as per Engineer in charge						
		Approximately	**50.00**	**22000.00**	**19800.00**	**Each**	**₹ 11,00,000.00**	**₹ 9,90,000.00**
		LANDSCAPING						
	MP PWD 23.10	Total Cast of Selection-one Grass (Carpet Grass)including Leveling shaping compaction work soil treatment, grass fixing charges cost of irrigation deweeding ,Hoeing & maintenance up to 90 Days						
			8000.00	**3174.00**	**2856.60**	**PER100 Sqm**	**₹ 2,53,920.00**	**₹ 2,28,52,800.00**

S No.	UADD SOR ITEM NO	Descriptions of Item	Quantity	Rate	Reduced Rate	Unit	Amount	Amount
	DSR 2016 ,Hotriculture 9.4/P-385 (S1)	Supply and stacking of Bougainvillea (Variety Butiana, Lady Mary Baring,Mahara,Mohan,Scarlet Queen, Varigata, Glabra Formosa, Peruviana Odissi, Partha,Subhra,Thimma, Spectabilis L.N Birla, Refulgens) plant of height 30 cm. to 45 cm. with 2-3branches in 20 cm size of Earthen pots / Plastic pots & as per direction of the officer-incharge. .	250	**35**	**31.50**	**Each**	**₹ 8,750.00**	**₹ 7,875.00**
	10411 P-49 (S2)	Supply and stacking of plant Tecoma gaudichaudi of height 60-75 cm.with 5-6 branches in p.bag of size 25 cmTecoma guadichaudi/Yellow bells	600	**50**	**45.00**	**Each**	**₹ 30,000.00**	**₹ 27,000.00**
	10389 P-58 (S3)	Supply and stacking of plant Murraya exotica of height 45-60 cm. inpoly bags of size 15 cmMurraya exotica/Jasmine, Kamini	500	**15**	**13.50**	**Each**	**₹ 7,500.00**	**₹ 6,750.00**
	DSR 2016 ,Hotriculture 5.19/p149 (S4)	Providing and Displaying Euphorbia milli hybrid variety plant with multi branch, full bloom, with fresh and healthy well developed having 30 to 45 cm ht. in 35 cm Cement Pots as per direction of the officer-in-charge.Euphorbia milii/Crown of Thorns	350	**615**	**553.50**	**Each**	**₹ 2,15,250.00**	**₹ 1,93,725.00**
	DSR 2016 ,Hotriculture 8.28/P-371 (S5)	Supply and stacking of plant Gardenia jasminoides of height 45-60 cm. with 3-4 branches in earthen pots of size 20 cm as per direction of the officer-in-charge.Gardenia jasminods/Cape Jasmine	250	**50**	**45.00**	**Each**	**₹ 12,500.00**	**₹ 11,250.00**
	DSR 2016 ,Hotriculture 8.30/P-371 (S6)	Supply and stacking of plant Hamelia patens of height 60-75 cm. with 6-8 branches in poly bags of size 25 cm as per direction of the officer-in-charge. Ixora coccinea	600	**50**	**45.00**	**Each**	**₹ 30,000.00**	**₹ 27,000.00**
	DSR 2016 ,Hotriculture 8.36/P-372 (S7)	Supply and stacking of plant Hibiscus variegated of height 45-60 cm. with 3-4 branches and healthy variegated foliage in earthen pots of size 20 cm as per direction of the officer-incharge.Canna indica variegated	200	**40**	**36.00**	**Each**	**₹ 8,000.00**	**₹ 7,200.00**
	DSR 2016 ,Hotriculture 5.2/P-319 (S8)	Providing and Displaying Acalypha green well developed, fresh & healthy with good foliage, multi branch 30 to 45 cm ht. in 20 cm size Earthen Pot/ Plastic Pot bushy plant as per direction of the officer-in-charge. Acalypha green	150	**31**	**27.90**	**Each**	**₹ 4,650.00**	**₹ 4,185.00**
	DSR 2016 ,Hotriculture 8.67/P-380 (S10)	Supply and stacking of plant Tecoma gaudichaudi of height 90-105 cm.,bushy in big size HDPE bag as per direction of the officer-in-charge.Tecoma capensis/Cape Honeysuckle	100	**110**	**99.00**	**Each**	**₹ 11,000.00**	**₹ 9,900.00**
	DSR 2016 ,Hotriculture 10079/P-19 (S11)	Providing of Raphis palm plant, having ht. 75 cm to 90 cm with 12 to 15 equal suckers, well developed, full of fresh & healthy leaves from bottom to top in 25 cm size Earthen pot / Plastic pot.Raphis excelsa/Raphis Palm	60	**450**	**405.00**	**Each**	**₹ 27,000.00**	**₹ 24,300.00**
	DSR 2016 ,Hotriculture 10396/P-59 (S12)	Supply and stacking of plant Nerium oleander variegated of heigh t60-75 cm., multibranched in earthen pots of size 25 cm	80	**60**	**54.00**	**Each**	**₹ 4,800.00**	**₹ 4,320.00**
	DSR 2016 ,Hotriculture 10391/P-59 (S13)	Supply and stacking of plant Mussaenda erythrophylla (Rosea) ofheight 60-75 cm. multi branched in earthen pots of size 25 cmMussaenda	50	**100**	**90.00**	**Each**	**₹ 5,000.00**	**₹ 4,500.00**
	DSR 2016 ,Hotriculture 10397/P-59 (S14)	Supply and stacking of plant Nyctanthes arbor-tristis (Hasingar) of ht. 90-105 cm in Earthen pots of size 20 cmNyctanthes arbor-tristis/Harshingar	60	**40**	**36.00**	**Each**	**₹ 2,400.00**	**₹ 2,160.00**
	DSR 2016 ,Hotriculture 8.23/P-370 (S15)	Supply and stacking of plant Ficus reginold well branched, bushy of height 60-75 cm. inearthen pots of size 25 cm. Hymenocallis littoralis/Spider Lily	300	**100**	**90.00**	**Each**	**₹ 30,000.00**	**₹ 27,000.00**
	DSR 2016 ,Hotriculture 3.75/P-125 (S3)	Providing and displaying of Sanchezia nobilis plant, having ht. 30 cm & above, well developed with fresh & healthy foliage in 20 cm size of Earthen pot / Plastic pot & as per direction of the officer-in-charge.	300	**35.9**	**32.31**	**Each**	**₹ 10,770.00**	**₹ 9,693.00**
	DSR 2016 ,Hotriculture 3.81/P-125 (S9)	3.81 Providing and displaying of Syngonium Variegated plant, mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot & as per direction of the officer-in-charge.	300	**184.5**	**166.05**	**Each**	**₹ 55,350.00**	**₹ 49,815.00**
	DSR 2016 ,Hotriculture 5.9/P-147 (S9)	Providing and Displaying Bamboo Buddha Valley with fresh & healthy 5 to 6 suckers 1.80 m to 2.10m ht umbrella type plant well developed in 50 cm Cement Pot as per direction of the officer-in-charge.	50	**1435**	**1291.50**	**Each**	**₹ 71,750.00**	**₹ 64,575.00**
		LIST OF CLIMBER						

S No.	UADD SOR ITEM NO	Descriptions of Item	Quantity	Rate	Reduced Rate	Unit	Amount	Amount
	DSR 2016 ,Hotriculture 6.7/P-334 (C1)	Providing and Displaying of Clerodendron inerme plant of ht. 30 cm to 40 cm multi branched in 25 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge. Clerodendron splendens	100	21	18.45	each	₹ 2,050.00	₹ 1,845.00
	DSR 2016 ,Hotriculture 6.30/P-340 (C2)	Providing and Displaying of Wadelia trilobata plant,full of leaves in 15 cm size of Poly bags & as per direction of the officer-in-charge.Wedelia trilobata	500	15	13.86	each	₹ 7,700.00	₹ 6,930.00
	DSR 2016 ,Hotriculture 9.12/P-387 (C3)	Supply and stacking of Quisqualis indica plant of height 30 cm to 45 cm. in 20 cm size of(.Quisqualis indica)	50	25	22.50	each	₹ 1,250.00	₹ 1,125.00
		SEASONAL						
	DSR 2016 ,Hotriculture 10.1.25 / P-395	PETUNIA @ 300mm c/c	5000	6	5.40	Each	₹ 30,000.00	₹ 27,000.00
	DSR 2016 ,Hotriculture 10.1.20 / P-394	Marigold French Hybrid dwarf (Marigold)Marigold inca hybrid@300mmc/c,	5000	4	3.60	Each	₹ 20,000.00	₹ 18,000.00
	DSR 2016 ,Hotriculture 10172 / P-31	Providing Plant Sunflower single well developed 8 to 10 half bloom buds multi branched in fresh & healthy full stacked with green painted bamboo stick stacking in 25 cm Earthen Pot/Plastic Pot.(area=250m2,@900mmc/c;in 1m2 no of plant =2no,;total plant 500	500	60	54.00	Each	₹ 30,000.00	₹ 27,000.00
	DSR 2016 ,Hotriculture 10180 / P-31	Providing Plant Standard Rose (H.T. variety) 3 to 4 healthy branch 90 cm and above ht. well developed with one and above flowers in 25 cm Earthen Pot ,Rose(area for rose 400m2 plantation @300mmc/c;16 plant in 1m2;total plant 64000	1000	140	126.00	Each	₹ 1,40,000.00	₹ 1,26,000.00
		GROUND COVER/SPACING						
	DSR 2016 ,Hotriculture 6.11/P-335 (G1)	Providing and Displaying of Dianella variegated plant, with 3 to 4 variegated leaves in 20 cmsize of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge. /(150mm c/c)for the area 326m2	5000	31	27.68	Each	₹ 1,53,750.00	₹ 1,38,375.00
	DSR 2016 ,Hotriculture 6.16/P-337 (G2)	Providing and Displaying of Iresine herbstii plant, of height 20-30 cm. full of branches well developed in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.Iresine herbstii/(150mm c/c) for the area 207m2	8000	15	13.86	Each	₹ 1,23,200.00	₹ 1,10,880.00
	DSR ,Hotriculture 10.1.11/P-392 (G4)	Cineraria dwarf hybrid; for the area of 812 m2 ,per meter square no of plants are 45 ;hence no of plant=812x45=36540	15000	7	6.30	Each	₹ 1,05,000.00	₹ 94,500.00
	,Hotriculture 10.1.31/P-396 (G4)	Verbena hybrid verbena/(150mm c/c)for the area 592m2 in one m2 plant covered by 45 plants in 1m2	15000	4	3.60	Each	₹ 60,000.00	₹ 54,000.00
	DSR 2016 ,Hotriculture 6.8/P-335 (G5)	Providing and Displaying of of Chlorophytum (Green) plant, full of leafy suckers in 20 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.eranthemum red/(150mm c/c)for area 375m2	7000	21	18.45	Each	₹ 1,43,500.00	₹ 1,29,150.00
	DSR 2016 ,Hotriculture 6.9/P-335 (G6)	Providing and Displaying of of Chlorophytum-variegated plant, full of leafy suckers in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.eranthemum green/(150mm c/c)for the area 375m2,25no in 1m2	10000	21	18.45	Each	₹ 2,05,000.00	₹ 1,84,500.00
	DSR 2016 ,Hotriculture 6.19/P-337 (G7)	Providing and Displaying of Ophiopogon plant, Green/Black full of leaves in 20 cm size of Earthen Pot / Plastic Pot Ophiopogon planiscapus/(300mm c/c)for area 745m2 25no in 1m2	7500	21	18.45	Each	₹ 1,53,750.00	₹ 1,38,375.00
	DSR 2016 ,Hotriculture 6.4/P-334 (G8)	Providing and Displaying of Asparagus sprengeri plant of height 30 cm to 45 cm, full of leafy branches in 20 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.. asparagus sprengeri/(200mm c/c)for the area of 1100m2, 25no in 1m2	8000	21	18.45	Each	₹ 1,64,000.00	₹ 1,47,600.00
	DSR 2016 ,Hotriculture 6.31/P-159 (G16)	6.31 Providing and Displaying of Zebrina Trades cantia plant having in 20 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	10000	20.5	18.45	Each	₹ 2,05,000.00	₹ 1,84,500.00
						TOTAL	**₹ 2,79,58,415.00**	**₹ 2,51,62,573.50**

ESTIMATE OF ROAD MARKING, STREET FURNITURES & PLANTATION									
S No.	**UADD SOR ITEM NO**	**Descriptions of Item**			**Rate**		**Unit**	**Amount**	**Reduced Amount**
			No.	**Quantity**					
1		**Road Marking**							
		Solid Lines in Different Colour							
	Item 8.10 Vol III	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes and as per relevant clauses of section-800.							
		Solid Lines in **White Colour**	2	**800.00**					
		Brocken Lines in **White Colour**	2	**400.00**					
		Stop Lines in **White Colour**	2	**160.00**					
		Applying **Zebra Crossing**	4	**400.00**					
		Solid lines in **Yellow** lines	5	**400.00**					
		Total Quantity		**2160.00**	**900.00**	**810.00**	**Sqm**	**₹ 19,44,000.00**	**₹ 17,49,600.00**
		SIGNAGES							
4	**8.12 Vol III**	Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming toIRC-79 and the drawings as per relevant clauses of section-800 of specifications.							
			100	**100.00**	**292.00**	**262.80**	**Each**	**₹ 29,200.00**	**₹ 26,280.00**
	8.20 Vol III	Road Markers/Road Stud with Lense Reflector (Providing and fixing of road stud 100x 100 mm, dia cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973)							
			100	**100.00**	**292.00**	**262.80**	**Each**	**₹ 29,200.00**	**₹ 26,280.00**
		Cautionary,mandatory and informatory sign							
	Vol iii 8.3	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm (height from crown level of the road and bottom of the sign board shall not be less than 1.5 m.) firmly fixed to theground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including painting of vertical post as per specification.							
	i)	**90 cm equilateral triangle**	50	**70.00**	**3715.00**	**3343.50**	**Each**	**₹ 2,60,050.00**	**₹ 2,34,045.00**
	iii)	**60 cm circular**	100	**120.00**	**3291.00**	**2961.90**	**Each**	**₹ 3,94,920.00**	**₹ 3,55,428.00**
	iv)	**80 cm x 60 cm rectangular**	50	**50.00**	**4537.00**	**4083.30**	**Each**	**₹ 2,26,850.00**	**₹ 2,04,165.00**
	v)	**60 cm x 45 cm rectangular**	100	**100.00**	**3209.00**	**2888.10**	**Each**	**₹ 3,20,900.00**	**₹ 2,88,810.00**
	vi)	**60 cm x 60 cm square**	100	**100.00**	**3778.00**	**3400.20**	**Each**	**₹ 3,77,800.00**	**₹ 3,40,020.00**
	vii)	**90 cm high octagon**	50	**50.00**	**5752.00**	**5176.80**	**Each**	**₹ 2,87,600.00**	**₹ 2,58,840.00**
	Vol iii 8.4	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75x75x6 mm (height from crown level of the road and bottom of the sign board shall not be less than 1.5 m.) firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing including painting of vertical post as per specification.							
		Approximately		**200.00**	**7983.00**	**7184.70**	**Sqm**	**₹ 15,96,600.00**	**₹ 14,36,940.00**

S No.	UADD SOR ITEM NO	Descriptions of Item			Rate		Unit	Amount	Reduced Amount
			No.	Quantity					
	Vol iii 8.8	Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per relevant clauses of section-800 & I.R.C.-67 including cost of paint etc. complete.							
	i)	Over 10 cm in width	6	**2400.00**	**70.00**	**63.00**	**Sqm**	**₹ 1,68,000.00**	**₹ 1,51,200.00**
		Marking with Hot Applied Thermoplastic Compound							
	Vol iii 8.10	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes and as per relevant clauses of section-800.							
		Approximately		**300.00**	**900.00**	**810.00**	**Sqm**	**₹ 2,70,000.00**	**₹ 2,43,000.00**
		Plantation							
5	**11.1 Vol III**	Planting Permanent Hedges including Digging of Trenches (Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 meters and supplying and planting hedge plants at 30 cm apart)	2	**4800.00**	**230.00**	**207.00**	**Meter**	**₹ 11,04,000.00**	**₹ 9,93,600.00**
6	**11.2 Vol III**	Planting of Trees and their Maintenance for one Year (Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge mannure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year)							
		at each 10 m interval on both sides	600	**600.00**	**488.00**	**439.20**	**Each**	**₹ 2,92,800.00**	**₹ 2,63,520.00**
7	**23.15 MP PWD SOR**	Providing and planting different variety of plants of approved quality and sizes as mentioned including making pits of required size at site, refilled with B.C. Soil mixture mannuring and pesticide etc complete (to be paid separately) including watering and 90 days maintenance from the date of final bill as per direction of engineer in charge complete in all respect (B.C Mixture paid separately).							
	23.15.1	Any of one from Plameriya alba, fycus benjameena. Malkikeya champa. Begnonia plumaric pudoca Plants (1.8 mtrs to 2.10 mtrs height.	600	**600.00**	**645**	**580.50**	**Each**	**₹ 3,87,000.00**	**₹ 3,48,300.00**
	23.15.2	Any of one from Lantana VAR Red, Lantana Blue White, Hemelia Mini. lantana varicated, ticoma Redicens, Spi Oala, Golden Dunanta.(height 0.3 m to 0.45m)	2500	**2500.00**	**33**	**29.70**	**each**	**₹ 82,500.00**	**₹ 74,250.00**
8	**11.5 vol iii**	Tree Guard with MS Angle Iron and Steel Wire (Providing and fixing tree guard 0.60 square meter, 2.00 meter high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire 3 mm dia welded and fabricated as per design in two halves bolted together)	**600**	**600**	**2179**	**1961.10**	**Each**	**₹ 13,07,400.00**	**₹ 11,76,660.00**
		TOTAL						**₹ 90,78,820.00**	**₹ 81,70,938.00**

		DETAILED ESTIMATE					
		CIVIL WORK for Toilet n Septic tank					
Seriol NO	Reff.	Description of item	Qty	Unit	RATE	Reduced Rate	AMOUNT
		EARTH WORK					
		EXCAVATION					
1	**Vol ii 2.8 P-16**	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, **including getting out the excavated soil and disposal of surplus**					
	2.8.1	**All kinds of soil**					
			177.61	**Cu m**	**129**	**116.1**	**₹ 20,620.52**
		POSITION CEMENT CONCRETE WORK					
2	**Vol ii 4.1 P-34**	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering all work upto plinth					
	4.1.4	Cement concrete grade M-10 (Nominal Mix) with 20 mm maximum size of stone aggregate					
			12.08	Cu m	**3595**	**3235.5**	**₹ 39,071.90**
		REINFORCED CONCRETE WORK					
3	**UADD SOR 5.3/P-46**	Reinforced cement concrete work in floors balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor two level excluding the cost of centring, shuttering, finishing and20 mm maximum size of stone aggregate)					
		RCC UPTO PLINTH					
	5.1.1	Cement concrete grade M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate.RCC upto plinth					
		Septic tank cover slabs	**3.128**	**Cu m**	**4728**	**4255.2**	**₹ 13,310.27**
5	**UADD SOR 5.3 P-46**	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor two level excluding the cost of cantering, shuttering, finishing and Reinforcement with Cement concrete grade M-20 (Nominal Mix with20 mm maximum size of stone aggregate).					
	5.3	**RCC in BEAMS, LINTEL and SLABS**					
			18.50	Cu m	**5120**	**4608**	**₹ 85,261.82**
		RE-INFORCEMENT					
6	**UADD SOR 5.2 P-49**	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding including cost of binding wireupto floor two level including all wastage etc. complete					
	5.20.6	**Thermo-Mechanically Treated bars.**					
	5.20.6	TOTAL	**2703.88**	**Kg**	**60**	**54**	**₹ 1,46,009.25**
		BRICKS WORK					
	UADD SOR 6.35 P-61	Brick work with mechanized autoclaved fly ash lime bricks conforming to IS: 12894 :2002 of class designation 100 mm in superstructure upto floor two level					
	6.35.1	**Bricks work using ,Cement mortar 1:4 (1 cement :4 coarse sand)**					
		Total brick work	**95.00**	Cum	**3234**	**2910.6**	**₹ 2,76,501.18**
		DAMP.PROOF.COATING (DPC)					

	UADD SOR 4.1 P-36	Providing and laying damp-proof course 50mm thick with cement Cement concrete grade M-15 (Nominal Mix) with 20 mm maximum size of stone aggregate					
			12.48	**Sq m**	**282**	**253.8**	**₹ 3,167.42**
		PLASTER					
	UADD SOR-13.2/p-156	15mm cement plaster on the rough side of single or half brick wall of mix1:4					
	13.3.1	**20 mm cement plaster of mix :**					
	13.3.1	TOTAL PLASTER	**523.23**	**Sq m**	**156**	**140.4**	**₹ 73,461.49**
	UADD SOR,2012, SNO-13.26 p-164	Providing and applying 1.5 mm thick (in two coat) white cement based wall putty of best quality, over plastered surface to prepare the surface even and smooth complete.					
	13.26.1	**PUTTY**					
		SAME QUANTITY AS ITEM NO 13.3.1	**523.23**	**Sq m**	**82**	**73.8**	**₹ 38,614.37**
		DISTEMPERING					
	UADD SOR-13.48 P-161	Finishing walls with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specification, Two or more coats applied @ 1.25 litre/10 sqm. over and including one coat of Special primer applied @ 0.75 litre/10 sqm.					
	13.48.1	**SAME QUANTITY AS ITEM NO 13.26.1**	**523.23**	**Sq m**	**75**	**67.5**	**₹ 35,318.03**
		TILES WORK IN BATHROOM					
	UADD SOR,2012, SNO-11.38 p-135	Providing and laying rectified Glazed Ceramic floor tiles 300x300 mm or more (8mm to 10mm thick) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement :4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.					
		TOTAL	**126.96**	**Sq m**	**1003**	**902.7**	**₹ 1,14,606.79**
		WOOD WORK IN DOORS FRAMES					
	UADD SOR,2012, SNO-9.1 P-85	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position :					
			1.595	Cum	**83137**	**74823.3**	**₹ 1,19,305.75**
		WOOD WORK IN DOORS					
	UADD SOR,2012, SNO-9.5 P-90	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows including ISI marked black enamelled M.S butt hinges with necessary screws excluding,.					
	9.5.1.1	Second class teak wood ,35 mm thick shutters					
			38.43	**Sq m**	**2290**	**2061**	**₹ 79,204.23**
	UADD SOR,2012, SNO-9.9 P-86	Providing and fixing glazed shutters for doors, windows and clerestory windows using 4 mm thick float glass panes including black enamelled ISI marked M.S butt hinges with necessary screws.					
	9.9.1	Second class teak wood@Rs 2799/ sqm					
	9.9.1	**TOTAL GLAZED SHUTTER**	**17.10**	Sqm	**2799**	**2519.1**	**₹ 43,076.61**
		PLUMBING IN TOILOET/WASHROOM					
	25.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests(MALE)	**6**	**EACH**	**2698**	**2428.2**	**₹ 14,569.20**
	25.3.1	W.C. pan with ISI marked white solid plastic seat and lid(FEMALE)	**4**	**EACH**	**3823**	**3440.7**	**₹ 13,762.80**

	25.4.3	Range of three urinal basins with 10 litre white	**2**	**EACH**	**4396**	**3956.4**	**₹ 7,912.80**
	25.7.1	White Vitreous China Wash basin size 630x450 mm with a pair of 15mm C.P brass pillar taps	**6**	**EACH**	**1564**	**1407.6**	**₹ 8,445.60**
	25.28.2	Flexible pipe					
	25.28.2.2	40mm dia	**12**	**EACH**	**57**	**51.3**	**₹ 615.60**
	25.32.3	Oval shape 450x350mm (outer dimensions)MIRROI	**8**	**EACH**	**778**	**700.2**	**₹ 5,601.60**
	UADD SOR,2012, SNO-23.1 P-226	Providing and fixing medium grade G.I. pipes medium class (ISI mark)complete with G.I. fittings (ISI mark) and clamps, including cutting and making good the walls etc.					
	23.10.1	15 mm nominal bore	**100**	**Meter**	**139**	**125.1**	**₹ 12,510.00**
	23.10.3	25mm nominal bore	**50**	**Meter**	**232**	**208.8**	**₹ 10,440.00**
	23.17	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
	23.17.1	15 mm nominal bore each	**2**	**EACH**	**135**	**121.5**	**₹ 243.00**
	23.17.2	25 mm nominal bore	**4**	**EACH**	**245**	**220.5**	**₹ 882.00**
	23.23	Painting G.I. pipes and fittings with synthetic enamel white paint ready mixed coat					
	23.23.1	15 mm nominal bore each	**100**	**Meter**	**6**	**5.4**	**₹ 540.00**
	23.23.3	25 mm nominal bore	**50**	**Meter**	**9**	**8.1**	**₹ 405.00**
	UADD SOR 23.9 P-225	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement ,trenching ,refilling & testing of joints complete. As per direction of Engineer in charge					
	23.9.9	100mm nominal inner dia .pipes(5 m length for 5places)	**50**	**Meter**	**2435**	**2191.5**	**₹ 1,09,575.00**
	UADD SOR 23.28 /P-229	: Providing and placing on at all floor levels high design HDPE(polyethylene) water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	**10000**	**liter**	**7**	**6.3**	**₹ 63,000.00**
	23.39	BRASS soap container with all specification as per	**8**	**no**	**587**	**528.3**	**₹ 4,226.40**
	UADD SOR 23.51 P-22	Constructing one brick masonry chamber 60x60x75 cm inside, with 25class designation modular brick work in cement mortar 1:4 (1 cement : 4coarse sand) for sluice valve, with C.I. surface box 100 mm. top diameter,160 mm bottom diameter and 180 mm deep (inside) with chained lid. RCC top slab of Cement concrete grade M-20 (Nominal Mix with 20mm maximum size of stone aggregate) along with necessary excavation, 100mm thick foundation concrete grade M-7.5 (Nominal Mix with 40mm maximum size of stone aggregate) & inside	**2**	**EACH**	**5565**	**5008.5**	**₹ 10,017.00**
	UADD SOR 7.23/P-69	Stone work (machine cut edges) for wall lining etc. (veneer work) backing filled with a grout of 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade(GAZEBO ROOFING)					
	7.23.2	Red sand stone - Exposed face machine cut and table rubbed with rough backing					
	7.23.2.5	30mm thick(triangular shape area=2.25m2	**18.00**	**sq m**	**1634**	**1470.6**	**₹ 26,470.80**

	UADD SOR 12.8/P-144	Providing non-asbestos high impact Polypropylene reinforced cement 6 mm thick corrugated sheets (as per IS: 14871) roofing up to any pitch and fixing with polymer coated J, or L hooks, bolts and nuts 6mm dia. G.I. plain and bitumen washers or with self-drilling fastener and EPDM washers etc. complete excluding the cost of purlins, rafters and trusses: corrugated sheets and including cutting to size and shape wherever required.(ROOFING AT VENDING KIOSK)					
			155.52	**Sq m**	**305**	**274.5**	**₹ 42,690.24**
	UADD SOR 9.37/P-92	Providing and fixing plywood 4 mm thick one side decorative veneer conforming to IS: 1328 (type-1) for plain lining / cladding with necessary screws, priming coat on unexposed surface with:(VENDING KIOSK) 4X4X6					
		No of column for cladding 4no x,no of sides 4 no	**180.00**	**Sq m**			
	9.37.1	**Decorative veneer facings of approved manufacture**	**86.40**	**Sq m**	**708**	**637.2**	**₹ 55,054.08**
	UADD SOR 11.3/P-133	40 mm thick rubbed local Flag stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement :5 coarse sand) with joints 3mm thick, side buttered with cement mortar 1:2 (1 cement : 2 stone dust)admixed with pigment to match the shade of stone and pointing with same mortar (minimum size of kota stone 0.25 sqm)					
	11.3.1	Red sand stone	7000.00	**Sqm**	**513**	**461.7**	**₹ 32,31,900.00**
	UADD SOR 11.29/P-133	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone. (minimum size of kota stone 0.25 sqm)					
	11.29.1	**Red sand stone(Step pathway)**					
		TOTAL	**827.54**	**Sqm**	**477**	**429.3**	**₹ 3,55,262.92**
		TOTAL COST					**50,61,653.68**

ESTIMATE OF ROAD Survey & investigation									
S No.	**UADD SOR ITEM NO**	**Descriptions of Item**	**Measurement**		**Rate**		**Unit**	**Amount**	**Amount**
			No.	**Quantity**					
1	**Vol iii 12.1**	Survey and investigation and preparation of DPR for road work with chain and compass, auto level, theodolite or total station i/c fixing of permanent benchmark and also fixing of bench mark on all the permanent structures, along the alignment, like boundary wall, electrical poles etc. Also marking of locations of boundary wall, electric poles, telephone poles trees etc. in the road boundary, collection and submission of existing inventory of the road all along the alignment conducting survey@20 meter interval for L-section and for single lane X-section interval will be @ 0.75, 1.25, 1.875, 2.60, 3.75, 4.50, 5.50 and 6.50 meter on both side of centre line for two lane four lane interval for x-section shall be as specified in MORT&H Specifications.							
		Data collected as specified above are required to be submitted in both hard and soft copies, L-section, X-section and plan is required to be submitted in the shape of drawing sheets drawn with the help of auto plotter.							
		Soil samples @ every 500 meter or wherever soil appears to change its properties are required to be collected and soil investigation for LL, PL, swelling index and CBR are to be conducted and result too be submitted along with the project report.							
		Job also includes collection of data for traffic census fixing of RTL getting it approved from Engineer-in-Charge and accordingly submission of pavement design in accordance with relevant clauses of IRC. Preparation of estimate complete and submission of same in eight copies duly spiral binded.							
	iii)	iii) For four lane road	1	**4.00**	**10606.00**	**9545.40**	**Km**	**₹ 42,424.00**	**₹ 38,181.60**
		Total Quantity						**₹ 42,424.00**	**₹ 38,181.60**

Electrical Estimation for Development of Foot Path (04 Kilometers,

Sr. No.	Code	Description	Quantity	Unit	Rate	Reduced Rate	Amount
1	4.3	CIRCUIT WIRING IN EXISTING CONDUIT / PVC CASING CAPPING: Supplying and drawing single core PVC insulated cable FR with copper multi strand conductor ISI marked in existing rigid conduit in surface or concealed as per specification					
2	4.3.1	1.5 Sq mm cable					
3	1	1 X 1.5 sq mm	7,200.00	Mtrs	24.00	21.60	1,55,520.00
4	4.3.2	2.5 Sq mm cable				0.00	
5	1	1 X 2.5 sq mm	4,000.00	Mtrs	32.00	28.80	1,15,200.00
6	4.3.3	4.00 Sq mm cable				0.00	
7	1	1 X 4.00 sq mm	4,000.00	Mtrs	44.00	39.60	1,58,400.00
8	4.3.4	6.00 Sq mm cable				0.00	
9	1	1 X 6.00 sq mm	4,000.00	Mtrs	58.00	52.20	2,08,800.00
10	8.5 (B)	Supply of approved make powder coated sheet steel encloser SPN MCB DB inclusive of Busbar, Neutral bar, Earth bar & two earth terminals etc. complete as per IS:13032(exclusive of MCB & isolator)-					
11	1	4 way single door	8.00	No.	480.00	432.00	3,456.00

12	8.12	Supplying and installing of RCBOs (Residual current circuit breaker with overload and short circuit protection) ISI marked complete as per I.S. standard confirming to IEC:61009-2-1 & IS:12640-2:2001, 240 / 415V 50 Hz with 10 kA short circuit withstand capacity for earth leakage, overload & short circuit protection including connection in existing enclosure in approved manner as per specification.					
13	8.12.1	DP (4 module)					
14	2	2 pole 32 Amps, 30 mA sensitivity	8.00	No.	2,283.00	2,054.70	16,437.60
15	8.13	FIXING OF SFUs, DBs,BUSBAR,MCCBs,MCBs, ISOLATORs & RCBOs, Fixing of metal clad enclosure on 25 X 5 mm flat iron clamps including supplying and fixing of clamps as required duly embedded in masonary including cable connection and other required material as per specification :-					
16	2	32 Amps DP switch /SPN DB up to 8 way /16 AmpTPN DB up to 3 way per pole or 16 Amps TP or TPN switch / 16 Amps 415 V Isolator	8.00	No.	87.00	78.30	626.40
17	8.18	Labour charges for fixing sheet steel enclosures, MCB DB surface mounting type, as per accepted practice on 25x25x 5 mm angle iron clamp, including supplying and fixing of clamps duly embedded in wall, cable connection etc. complete :-	8.00	No.	170.00	153.00	1,224.00

18	8.19	Labour charges for fixing sheet steel enclosures, MCB DB flush mounting type, as per accepted practice, duly embedded and end plate completely flushed in wall, cable connection etc.complete :-	8.00	No.	167.00	150.30	1,202.40
19	10.21	Labour rate for point wiring a Light / Fan / Twin control light / Socket out let on seperate board / Call bell Point in (open) surface rigid steel conduit system.	1,600.00	Nos.	90.00	81.00	1,29,600.00
20	11.40	Supplying and erecting earth pit of minmum bore dia 150 mm size, approved make safe earthing electrode consiting pipe in pipe tecnologie as per IS 3043-1987 made of corriosion free GI pipes having outer pipe dia of 50 mm having 80-200 micron galvanising, inner pipe dia of 25 mm having 20-250 micron galavinsing, connection teriminal dia of 12 mm with constent OHMIC value sourrounded by highly conductive compund with high charge disipation sutible for effective and maintence free earthing					
21	2	with 3 mtr. Pipe in normal soil with 50 kg (two bag) back filling compound	8.00	No.	10,800.00	9,720.00	77,760.00
22	11.12	Providing and laying earth connections from earth electrode with 4.00 mm dia G.I. wire in 15mm dia G.I. Pipe (B class) from earth electrode as required.	80.00	Mtrs	99.00	89.10	7,128.00
23	14.6.1	Supplying and fixing heavy duty cable gland for P.V.C. insulated armoured cable with brass washer, Rubber ring complete erected with cable and lead connection etc. as per specification complete.					

24	3	Gland size 28mm for 3, 4 x 16 Sq.mm	16.00		66.00	59.40	950.40
25	17.4	Supplying and installing Double wall corrugated pipes (DWC) of HDPE (IS 14930 Part II -marked) for cable laid under ground with necessary connecting sockets / couplings,tees of same material and at required depth upto 90cm. below road / ground surface,including excavation, back filling with excavated material with ramming and making the surface good.					
26	1	50.00mm outside dia.	6,000.00	Mtrs	207.00	186.30	11,17,800.00
27	19.36	75 mm X 75 mm X 50 mm PVC box (100 Nos)	8.00	Lot	907.00	816.30	6,530.40
28	289	Excavation including refilling as required	200.00	CUM	165.00	148.50	29,700.00
29	290	Cement concrete 1:2:4 (1 cement:2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	120.00	CUM	2,129.00	1,916.10	2,29,932.00
30	Non SOR	IP65 protected **Decorative Pole** 4 Meters with Foundation Bolts Single Arm Hanging Light **40W-4000 Lumens Post top LED Light** with Smart time based dimming features I/P Voltage - 80 - 300V @50Hz Inbuilt Surge protection of 20KV (Exclusive of all Tax, Transportation etc)	64.00	Nos.	23,000.00	23,000.00	14,72,000.00

31	Non SOR	IP65 protected **Decorative Pole 4 Meters** with Foundation Bolts Single Arm Hanging Light **40W - 4000 Lumens Post top LED Light** with Smart time based dimming features & **Power backup** with advance Lithium Ferro Phosphate Battery (Life > 2000 Cycles) of capacity 80Wh I/P Voltage - 80 - 300V @50Hz Inbuilt Surge protection of 20KV (Exclusive of all Tax, Transportation etc)	64.00	Nos.	25,500.00	25,500.00	16,32,000.00
32	Non SOR	IP54 protected Recessed **Step Light -** 5W -550 Lumens I/P Voltage - 80 - 300V @50Hz PF> 0.9, CCT 3000/5000/6000 K CRI>80, Surge Protection upto 4KV (Exclusive of all Tax, Transportation etc)	240.00	Nos.	2,000.00	2,000.00	4,80,000.00
33	Non SOR	**LED Bollard** IP65 protected, Omni directional illumination Length - 750 mm Ground Mounting I/P Voltage - 80 - 300V @50Hz PF> 0.9, CCT 3000/5000/6000 K CRI>80, Surge Protection upto 4KV (Exclusive of all Tax, Transportation etc)	80.00	Nos.	3,500.00	3,500.00	2,80,000.00
34	Non SOR	**Spike light** IP66 protected 15W Tree Highlighter Light I/P Voltage - 80 - 300V @50Hz PF> 0.9, Color - W/WW/R/G/B(Fixed Color) CRI>70, Surge Protection upto 4KV (Exclusive of all Tax, Transportation etc)	200.00	Nos.	3,200.00	3,200.00	6,40,000.00

35	Non SOR	Fountain (Gyser type-1 Mtrs water spray, include: 3Nos set nozzels, include plumbing work, motor, DOL Starter for Motor, Electrical works and RGB lights)	8.00	No.	1,00,000.00	1,00,000.00	8,00,000.00
		Grand Total (Exclusive of GST)					**69,26,347.20**
		For Both Side					**1,38,52,694.40**