

**REQUEST FOR QUOTATION
(FOR ESTIMATION PURPOSE ONLY)**

FOR

**DESIGN, MANUFACTURE, SUPPLY, INSTALLATION, ERECTION,
TESTING AND COMMISSIONING & FIVE YEAR OPERATION
AND MAINTENANCE CONTRACT OF SIX LEVEL OVER-GROUND
ELECTRO-MECHANICAL TYPE CAR PARKING SYSTEM FOR
HUBBALLI-DHARWAD SMART CITY LTD.**

JANUARY 2019

SPECIAL CONDITIONS OF THE PROPOSED WORK

1. Rates:

- 1.1 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (excluding GST), duties and levies, octroi and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning, Operation & Maintenance etc. at site i/c temporary constructional storage, risks, overhead charges general liabilities/obligations and clearance from local authorities.
- 1.2 The CONTRACTOR has to carry out routine & preventive maintenance for 12 months from the date of handing over. Nothing extra shall be paid.

2. Period of Completion

The completion period of 9 Months indicated in the tender documents is for the entire work of planning, designing, supplying, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

3. Performance Guarantee:

- 3.1 The tenderer shall guarantee among other things, the following
 - (a) Quality, strength and performance of the materials used.
 - (b) Safe mechanical and electrical stress on all parts under all specified conditions of Operation.
 - (c) Satisfactory operation during the maintenance period.
- 3.2 The successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within 15 days of issue of letter of intent. This guarantee shall be in the form of demand draft/ FDR or bank guarantee of any scheduled bank in the specified format. The performance guarantee shall be initially valid up to the stipulated date of completion plus 30 days beyond. This bank guarantee shall be kept valid till the recording of completion certificate for the work by the Competent Authority.
- 3.3 The successful tenderer shall submit performance guarantee of 5% of the tendered amount of 5 years comprehensive Maintenance Contract (CMC) in addition to other deposits mentioned elsewhere in the contract for his proper performance of the maintenance contract agreement within 15 days of issue of letter of intent for maintenance agreement. This guarantee shall be in the form of demand draft/ FDR or bank guarantee of any scheduled bank in the specified format. The performance guarantee shall be initially valid up to the stipulated date of completion of maintenance period plus 60 days beyond.

4. Warranty

All equipments shall be of warranty for a period of 60 months from the date of taking over by the department against unsatisfactory performance and /or break down due to defective design, workmanship of material. The equipment's of components, or any part thereof, so found defective during guarantee period shall be forth with repaired or replaced free of cost, to the satisfaction of the Engineer-in-charge. In case it is felt by the department that

undue delay is being caused by the CONTRACTOR in doing this, the same will be got done by the department at the risk and cost of the CONTRACTOR. The decision of the Engineer-in-charge in this regard shall be final.

5. Power Supply

Electrical cables for Installation of Temporary & Permanent power supply with required earthing for commissioning and running of the systems as per approved car parking plans shall be provide by the contractor. No payment shall be given for such works.

6. Water Supply

Water supply shall be arranged by contractor only. All necessary arrangements for water shall be done or borne by contractor only. No Payment should be given for such work.

7. Extent of work

7.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department. The terms complete installation shall not only mean major items of the electro mechanical car parking and equipment's covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charges whether or not those have been mentioned in details in the tender document in connection with this contract.

7.2 Maintenance (Routine & Preventive) for one year from date of completion and handing over as guarantee period and 4 years Maintenance after expiry of 1st year of guarantee period.

8. Inspection and testing:

8.1 Copies of all documents of routine and type test certificates of the equipment, carried out at the manufacturers premises shall be furnished to the Engineer-in-charge and consignee.

8.2 After completion of the work in all respect the CONTRACTOR shall Provide all purchase bill including certificates testimonials or reports.

9. Validity

Tenders shall be valid for acceptance for a period of 120 days from the date of opening of price bid.

10. Compliance with regulations and Indian standards

10.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

- (i) Factories Act.
- (ii) Indian Electricity Rules.
- (iii) BIS and other relevant standards as applicable.
- (iv) Workmen's compensation Act.
- (v) Statutory norms prescribed by local bodies.

10.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the car parking with all accessories in accordance with currently applicable statutory regulations and safety codes.

10.3 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs. 500/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

11. Indemnity

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the department shall not be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipment and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer due to the above.

12. Erection Tools

No tools and tackles either for unloading or for shifting the equipment's for erections purposes would be made available by the department. The successful tenderer shall make their own arrangement for all these facilities.

13. Cooperation with other agencies

The successful tenderer shall co-ordinate with other CONTRACTOR's and agencies engaged in the construction of building, if any, exchange freely all technical information so as to make the execution of this works contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the successful tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the successful tenderer himself.

14. Mobilization Advance

No mobilization advance shall be paid for this work.

15. Insurance and Storage

All consignments are to be duly insured the cost of the supplier. The insurance covers shall be valid till the work is handed over duly installed, tested and commissioned.

16. Verification of correctness of Equipment at Destination

The CONTRACTOR shall have to produce all the relevant records to certify that the genuine equipment from the manufactures has been supplied and erected.

17. Training

The scope of works includes on job technical training of two persons at site. Nothing extra shall be payable on this account.

18. Maintenance

18.1 Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of one year from the handing over of the installation.

18.2 The maintenance, routine as well as preventive for one year from the date of taking over the installation as per manufacturer's recommendation shall be carried out and the record of the same shall have to be maintained.

19. Interpreting Specifications

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

- (a) Bill of quantities.
- (b) Technical specifications.
- (c) Drawing (if any).
- (d) General Specifications.
- (e) Relevant IS or other international code in case IS code is not available.

GENERAL SPECIFICATIONS

1. Scope of work

- 1.1 The work under this contract pertains to Design, manufacture, Supply, Installation, and Erection, Testing and Commissioning with necessary civil foundation and standby power back up & Five Year Operation and Maintenance Contract of Six Level Over-Ground Electro-Mechanical Type technology as per specification described in the tender document which is the minimum tender condition. No other technology will be entertained.
- 1.2 The tender shall be inclusive of cost of labour and material including wastage, tools and plants, setting equipment and transport, hoisting, setting, fitting and fixing in position complete in all respect, preparation of drawings etc., for the full execution and completion of work. It will also include working under all conditions at site, moisture, water, weather etc. and shall also be inclusive of all taxes (except GST) such as turn-over tax, income tax, octroi, toll tax, royalties, levies to local tax etc. Wherever applicable shall be paid by the Contractor to the respective authority and no claim whatsoever will be entertained by the department excluding GST as applicable will be extra. The three levels Over-ground Puzzle Parking system should have an independent motor operated vertical and horizontal movement of the platforms / pallets with wire rope, chain and geared motors as per site requirements. No other technology will be accepted.
- 1.3 Design, Manufacture, Supply, Installation, and Erection, Testing and Commissioning & Five Year Operation and maintenance contract of Six Level Multi Grid over-ground Puzzle Parking System with Electro Mechanical technology to accommodate 37 car module Car with suitable steel structure frame work, Independent motorized pallet having up/down movement with electro-mechanical technology. Capacity complete with PLC and electrical installation etc. as per specification and direction of Owner/Architect. The system shall be designed to accommodate cars of Minimum size 5000 mm length and 2000 mm height (SUV) in ground floor & Cars of dimensions 5000 mm length and 1700 mm height in 1st floor to above floors, with average retrieval/parking time not more than 300 seconds. All the structural work shall be finished and grand polycoat make Epoxy paint coating, DFT range 90-110 micron as per suitability and requirement. The parking structure will have to be constructed 6 levels above the ground with the electro mechanical technology. The maximum permissible height of the parking structure above the floor level on the ground shall not be more than 11.95 Meter without canopy.
- 1.4 The scope includes the work Erection, Testing and commissioning of the parking system including painting. Maintenance services for the electro mechanical car parking shall be provided by the CONTRACTOR during the defects liability period of 12 Months.
- 1.5 Civil foundations and necessary Power back up, Finished Flooring, Canopy over the system, Electrical Cabling including Main Car Parking Panel with ELCB, Earthing as per approved plans will be in the scope of Contractor.
- 1.6 Shifting or re-routing of any services underground & over ground if any shall be done/provided by Department/HUBBALLI-DHARWAD SMART CITY LIMITED, HUBBALLI- at their own cost including cost of any consumable like Power Consumption during operation

period.

1.7 Clearing of site after completion of work done by contractor.

1.8 The CONTRACTOR will also be required to operate for 5 years and maintain the parking system for 4 years after defect liability period of 12 months from the date of successful commissioning of the system. No payment shall be made to the CONTRACTOR on this account beyond the agreed amount. CONTRACTOR needs to quote separate price bid for AMC for 5 years of operations and 4 years of maintenance. The CONTRACTOR has to submit a separate proposal for the same along with the filled BOQ sheet attached in the Tender Documents.

2. Exclusions in Contractors Scope

The following works associated with the supply, installation, erection, testing and commissioning of Six Level over-ground puzzle type electro mechanical car parking shall be done by the department:

Associated Works: Electrical

- i) Providing, laying and fixing of wiring cables, cables etc. from Transformer to Car Parking Control Panel.
- ii) Providing and fixing of electrical transformer and its panel if required.

3. Equipment:

3.1 All labours, materials, tools plants, machinery, equipment and any other things required for execution for work shall be arranged by the CONTRACTOR at his own cost.

3.2 All arrangements for establishment, watch & ward of stores and security of sites, appropriate vehicles for transportation etc. shall have to be made by the CONTRACTOR at his own cost and nothing extra on this account shall be paid.

3.3 Testing and Commissioning shall include furnishing all labor, materials, instruments etc. and incidentals necessary for complete testing of each component as per the specifications and manufacturer's recommendations. Operation and maintenance services for the electro mechanical car parking shall be provided by the CONTRACTOR during the defects liability period.

4. On the completion of the work, the CONTRACTOR shall clear away and remove from the site all construction plants, temporary works, surplus material and rubbish of every kind and leave the site and works clean to the satisfaction of the Engineer-in-charge.

5. **MAINTENANCE:** The successful bidder/ CONTRACTOR will be required to undertake maintenance of the Puzzle Parking System as per the following terms:

- a) The CONTRACTOR shall at all times maintain, keep in good operating condition, repair and renew, replace and upgrade to the extent reasonably necessary, the equipment, systems, and facilities. All maintenance and repair works shall be carried out in such a way as to minimize inconvenience to users of the Parking Systems.

- b) Initially the contract will be for duration of 5 years including defect liability period of 12 months from the date of successful operation of the system and nothing extra shall be paid during this period beyond AMC Agreement. The contract shall be renewed after the expiry of 5 years every year on mutual agreed terms, subject to the satisfactory completion in the preceding period up to maximum of 10 years from the date of first AMC.
- c) All the electric usage charges incurred on operation of the parking system will be borne by the Contractor.
- d) The CONTRACTOR shall maintain a complaint register, duly paged, at site and shall make it available to the users of the parking to note down the complaints. "HUBBAALLI-DHARWAD SMART CITY LIMITED, HUBBAALLI-DHARWAD, will have the right to check the complaint book as and when required. The complaint register will be kept properly and it shall be mentioned on the signboard about its availability.

HUMAN RESOURCE PLANNING FOR OPERATION OF SIX LEVEL OVER-GROUND ELECTRO-MECHANICAL TYPE CAR PARKING SYSTEM

Sr. No.	Particulars	Total Personnel
1	No. of Operators	06 (3 each for 8 hour Shift)
2	Technician	02
3	Cleaner	01
4	Security	04 (2 each for 12 hour Shift)

- 6. Transfer of facility to "HUBBAALLI-DHARWAD SMART CITY LIMITED, HUBBAALLI-DHARWAD". The CONTRACTOR shall transfer the parking facility to "HUBBAALLI-DHARWAD SMART CITY LIMITED, HUBBAALLI-DHARWAD, free and clear of any encumbrances on completion of or termination of contract, whichever is earlier.
- 7. The CONTRACTOR shall to the extent possible assign to Engineer In Charge "HUBBAALLI-DHARWAD SMART CITY LIMITED, HUBBAALLI-DHARWAD" at the time of transfer all un-expired guarantees and warranties by CONTRACTOR's and suppliers and all live insurance policies.
- 8. During the two months period prior to anticipate transfer of the Facility the CONTRACTOR shall provide such training services to the representatives and employees of Engineer in Charge "HUBBAALLI-DHARWAD SMART CITY LIMITED, HUBBAALLI-DHARWAD" or its nominated agency to operate and maintain the Facilities efficiently and safely following such transfer.

TECHNICAL SPECIFICATIONS

1. CONTRACTOR shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural drawings.
2. The CONTRACTOR shall give performance test of the entire installation(s) as per the standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the CONTRACTOR for the test,
3. The work shall be carried out in accordance with the Architectural drawings and structural drawings. Before commencement of any item of work, the CONTRACTOR shall correlate all the relevant architectural and structural drawing issued for the work, nomenclature of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supersede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-charge for immediate decision before execution of the work. The CONTRACTOR alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and or incomplete information and no claim, whatsoever shall be entertained on this account.
4. The CONTRACTOR should submit the shop drawing for approval of Engineer-in-charge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.
5. The CONTRACTOR shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other CONTRACTOR`s) or by the Engineer-in-charge and shall as far as possible arrange his work and shall place and dispose of the materials being used or removed so as not to interfere with the operations of other CONTRACTOR or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.
6. The rates of different items of work shall apply to all heights & depths unless otherwise specified.
7. Site Electricians / Other Electrical Personnel: The CONTRACTOR shall engage qualified and competent electricians and other electrical personnel while working for safe execution of contract. The electricians and other electrical personnel must possess requisite certificate issued from competent authority. Using exposed naked loose joints, inserting of bare wire into socket, improper grounding for appliances, exposed circuits on work place etc. shall not be permitted. Rating of fuses and circuit breakers used for protection of circuit should be coordinated. Flexible cords with the conductor cross sectional area smaller than 1.5 mm should not be used. Socket outlets, plugs and cable coupler should be of the water splash proof type, so minimum IP44 panel boards are required in construction sites. Overhead cabling should provide for a minimum ground clearance of at least 3.0 meters. The CONTRACTOR shall employ qualified, full time Electricians / Electrical Supervisors to

maintain his temporary electrical installation. Use approved perimeter markings to isolate restricted areas from designated work areas and entryways. Erect them before work begins and maintain them for the duration of work. Approved perimeter marking must be Install red barrier tape printed with the words 'DANGER-HIGH VOLTAGE' approximately 1 to 1.5 meter above the floor or work surface or Install a barrier of yellow or orange synthetic rope 1 to 1.5 meter from the floor with standard danger signs. Any steps suggested by Engineer-in-charge should be- complied with by the CONTRACTOR.

8. Welding and Cutting Gas cylinders in use should be kept upright on a custom-built stand or trolley fitted with a bracket to accommodate the hoses and equipment or otherwise secured. The metal cap should be kept in place to protect the valve when the cylinder is not connected for use. Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch Domestic LPG cylinders shall not be used for Gas welding and cutting purpose. DCP or CO2 type Fire Extinguisher not less than 5 kg shall be fixed at or near to welding process zone in an easily accessible location. Fire Extinguisher should confirm to IS 2190: 1992. Welding grounds and returns should be securely attached to the work by cable lugs, by clamps in the case of stranded conductors, or by bolts for strip conductors. The ground cable will not be attached to equipment or existing installations or apparatus.

9. Steel

- 9.1 All finished steel shall be well and cleanly rolled to the dimensions and weight specified by BIS subject to permissible to tolerances as per IS: 1852. The finished materials shall be reasonable free from cracks, surface flaws laminations, rough and imperfect edges and all other harmful defects.
- 9.2 Steel Sections, shall be free from excessive rust, scaling and pitting and shall be well protected. The decision of the Engineer-in-Charge regarding rejecting any steel section on account of any of the above defects shall be final and binding.

10. Fabrication

- 10.1 Fabrication shall generally be done as specified in IS: 800.
- 10.2 In major works or where so specified, shop drawings giving complete information for the fabrication of the component parts of the structure including the location, type, size, length and details or fivers, bolts or welds, shall be prepared in advance of the actual fabrication and approved by the Engineer-in-Charge. The drawings shall indicate the shop and field rivets, bolts and welds. The steel members shall be distinctly marked or stenciled with paint with the identification marks as given in the shop drawings.
- 10.3 Great accuracy shall be observed in the fabrication of various members, so that these can be assembled without being unduly packed, strained or forced into position and when built up, shall be true and free from twist, kinks, buckles or open joints.
- 10.4 Wooden or metal sheet templates shall be made to correspond to each member, and position of rivet holes shall be marked accurately on them and holes drilled. The templates shall then be laid on the steel members, and holes for riveting and bolting marked on them the ends of the steel members shall also be marked for cutting as per required dimensions. The base of steel columns and the positions of anchor bolts shall be carefully set out at the

required location.

11. Erection

Steel work shall be hoisted and erected in position carefully, without any damage to itself other structures and equipment and injury to workmen. The method of hoisting and erection proposed to be adopted by the CONTRACTOR shall be got approved from the Engineer-in-charge in advance. The CONTRACTOR however shall be fully responsible for the work being carried out in a safe and proper manner without unduly stressing the various members and proper equipment such as derricks, lifting tackles, winches, ropes etc. shall be used.

12. Overall Design Parameters

12.1 The codes and standards applicable for the design of the Project / Project facilities are given below:

Building Works and Electrical System	Road / Pedestrian Path Works
I. Central public works (CPWD)	I. Indian Road Congress (IRC) codes and standards
II. Bureau of Indian Standards (BIS)	II. Relevant Building Byelaws (on Parking Space)
III. National Building Codes (NBC); and	
iv. KPWD Standards	

12.2 Electrical system shall be provided as per the following applicable codes:

No.	Code No.	Application Details
1.	IS-10118 (Part I), 1982	Code of practice for selection, installation and maintenance of switch gear & control gear.
2.	IS-732, 1989 Rev.3	Electrical wiring system
3.	IS-3043, 1987	Code of practice for earthing
4.	IS-13032, 1992(Rev.2)	MCB distribution boards for voltage up to and including 1000V AC
5.	IS-12640, 1988	Residual current operated circuit breakers
6.	IS-649, 1990 (Rev.-3)	PVC insulated cabled for working voltage upto and including 1100 V AC
7.	IS- 9537 (Part-I), 1980	Conduits for electrical installations general requirements
8.	IS-13118, 1991	Circuit breakers- general requirements
9.	IS-13947 (Part-III), 1950	Air break switches for voltage not exceeding 1000V AC or 1200 V DC
10.	IS-1248 (All parts), 1983, 1984, 1950	Electrical direct acting instruments
11.	IS-2147, 1962	Degree of protection provided by enclosures for LV switches gear and control gear.
12.	National Electrical Code Part-4 Appendix	Recommended values of illumination and limiting values of glare index-Industrial Building (parking space Indoor and outdoor)

Where the aforesaid are silent on any aspect, the following standards in order of preference shall be adopted in consultation with the independent Engineer, unless otherwise specified in this schedule:

- i) Euro norm standards En: 14010: 2003 for parking structure safety.
 - ii) American National Standard Institute (ANSI)
 - iii) International standards organization (ISO)
 - iv) British Standards (BS)
 - v) National Fire Protection Association of America (NFPAA)
 - vi) Safety code of mechanized parking garage equipment of America (ASA.A113.1)
 - vii) American Society of testing materials (ASTM)
 - viii) International Society for Measurement and Control (ISA)
 - ix) ISO 9000
 - x) KIS & JIS Standards
 - xi) Americans with Disability Act Accessibility Guidelines
 - xii) American Association of State Highway and Transport officials (AASHTO)
 - xiii) American Society of Mechanical Engineers code on storage retrieval (S/R) machines and associated Equipment (ASME B30.13)
 - xiv) National Mechanical code of America (NMC)
1. Any other standard proposed by the concessionaire and approved by the Owner /Architect.
 2. The CONTRACTOR shall provide illuminated signage in accordance with NBC/ IRC/ Norms at suitable locations within the parking facility. The scheme for signage shall be finalized in consultation with the independent Engineer.
 3. The concessionaire shall provide the fire safety arrangement as per National Building Codes/ DIS codes or any widely accepted international codes.
 4. The above mentioned specification / codes are indicative only; any other code / specification required for development for parking facility will be applicable even though not mentioned above.

13.1 System Specifications of Six Level Seven Grid Over ground Puzzle Parking System with Electro Mechanical Technology

Sr. No.	Item	Description
1.	Model Proposed	Over Ground Puzzle Parking
2.	No. of Levels	6 Level
3.	No. of Grids	7 Grids
4.	No. of Modules	1
5.	No. of Car Spaces Per Module	37
6.	Total Number of Car Spaces	37
7.	Clear Length of the System	6750 mm
8.	Clear Width of the System	As Per Design
9.	Allowable Car Dimensions on Ground Floor (Length X Height X Width)	5000 mm X 2000 mm X 2100 mm
10.	Allowable Car Dimensions on First Floor & above Floor (Length X Height X Width)	5000 mm X 1700 mm X 2100 mm
11.	Total Allowable Clear Height of the System	11.95 Meter
12.	Usable Pallet Width	2100 mm
13.	Usable Pallet Length	3795 mm
14.	Type of System	Electromechanical System
15.	No. of Front Columns	As Per Design
16.	No. of Rear Columns	As Per Design
17.	Load on each Front Column	As Per Design
18.	Load on each Rear Column	As Per Design
19.	Power rating of the Lifting Motor	1.5 Kw
20.	Power rating of Ground Floor Motor for Horizontal movement	0.2 Kw
21.	Power rating of First Floor Motor for Horizontal movement	0.4 Kw
22.	Type of Motor	Induction Geared Motor with inbuilt Brake system
23.	Type of Pallet	Galvanized Corrugated sheet
24.	Type of System	Chain & Rope System
25.	Wheel Stopper	Mandatory
26.	Type of Operation	Key Switch Push Button
27.	Safety Devices	
	(a) Photo sensors	Mandatory
	(b) Antenna Type Limit Switch	Mandatory
	(c) Cam limit Switch	Mandatory
	(d) Geared Motor With Brake	Mandatory
	(e) Emergency Stop	Mandatory
28.	Average Retrieval Time per operation	Approx 300 Sec
29.	Operating Panel	Standard
30.	Control Panel	Standard
31.	CONTROL	PLC Based

NOTE: - The above technical specifications described are minimum tender conditions. No deviation will be accepted below the specified specification

13.2 Specifications for work/equipments other than Three level over ground puzzle parking system with electro mechanical technology

Sr. No.	Item	Description
1	Canopy	Covered by GI/GL profile sheets from Top, back and sides
2	DG set	125 KVA
3	External Lighting	At all entry exit points and throughout the driveway
4	Car Parking Management System	
	Access Control system	Mandatory for entry and exit
	Fee System	Mandatory
	Management Software	Mandatory
5	Electrical Panel	As per load
6	Signage's	Entry, Exit, Directions, Speed Limit, Module No., Pallets No., Safety Instructions, Car Dimensions on aluminum sheet
7	No. of CCTV	As per design

List of Approved Manufacturers/Make

Sr. No	Description	Specification	Manufactures
1.	Parallel flange beams (h / i beams)	As per design	Jindal / Essar / Sail / Equivalent
2.	Geared Motors With Brake	ISO 9000 Certified manufacturers only	LHP / Hindustan Motors / Equivalent
3.	Steel Plates	Various thick nesses as required	Jindal / Ispat / SAIL / rolling mill / Equivalent
6.	Sheet	Upto 1.5 mm	ESSAR / Ispat / Jindal / Posco/ Equivalent
7.	Chains		T.I. Diamond / Albros / Renold (Rolon) / Equivalent
8.	C' Channels, Square Tubes & Pipes	Various sizes as required	TATA / SAIL vizag / Primary rolling mill / Equivalent
9.	Welding Rods		Advani / Manglam / Equivalent
10.	P. L. C (control panel)		LS Korea / Omron / Equivalent
11.	Wires & Cables		RR Kabel / National / Gloster/ Equivalent
12.	Contactors		L&T / Merlin Gerin / telemechanique / Equivalent
13.	Paints		Asian paints / Berger / ICI / Nerolac/ Equivalent
14.	Wire Ropes		Usha martin/ Equivalent
15.	Cam Limit Switch		Avon / Imported korean make / Equivalent
16.	Antenna Type Limit Switch		Aeon / Honeywell/ Equivalent
17.	Photo Sensor		Autotonics / Omeron / Sick/ Equivalent
18.	Profile (GI/GL) sheet	Thickness = 0.5 mm, Wt. = 120 grams per sqm coating, Cladding length 12ft to 20 ft	TATA / Jindal / ESSAR / SAIL / Equivalent
19.	DG Set		Cummins / KOEL / Ashok Leyland / Mahindra and Equivalent
20.	Car Parking Management System		FAAC / Godrej / Equivalent
21.	External Lights		WIPRO / RR Electrical / Schneider / Philips / Syska / Equivalent
22.	CCTV	Outdoor Camera with Night Vision and High Defination Resolution	Pelco / Hikvision / Honeywell / Equivalent

* Raw material source to be approved by the Engineer-in-charge.

Note:-In case of shortage or scarcity or non-availability of material from above mentioned manufacturers, Engineer-in-charge may approve the fresh / new manufacturers after the testing of material.

Responsibility Matrix:

Sr. No.	Description	Vendor	HDSCl
1.	SUPPLY & INSTALLATION OF GEARED MOTOR	◆	
2.	SUPPLY & INSTALLATION OF GEARED MOTOR WIRE ROPE & CHAIN	◆	
3.	SUPPLY & INSTALLATION OF GALVANIZED PALLET	◆	
4.	SUPPLY & INSTALLATION OF STEEL STRUCTURE	◆	
5.	SUPPLY & INSTALLATION OF FOUNDATION BOLTS	◆	
6.	SUPPLY & INSTALLATION OF PALLET GUIDE + PALLET ASSEMBLY	◆	
7.	SUPPLY & INSTALLATION OF CONTROL PANEL	◆	
8.	SUPPLY & INSTALLATION OF PHOTO SENSOR	◆	
9.	SUPPLY & INSTALLATION OF CAM LIMIT SWITCH	◆	
10.	SUPPLY & INSTALLATION OF OPERATING PANEL	◆	
11.	SUPPLY & INSTALLATION OF PAINTED SYSTEM	◆	
12.	SUPPLY & INSTALLATION OF ELECTRICAL CABLE & POWER SUPPLY TO EACH CONTROL PANEL OF CAR PARKING SYSTEM INCLUDING MAIN PANEL WITH ELCB + MCB +EARTHING AS PER APPROVED DRAWINGS	◆	
13.	LIGHTING ON THE SYSTEM & DRIVEWAY	◆	
14.	FOUNDATION (CIVIL) + FINISHED FLOORING (ZERO ZERO LEVEL)	◆	
15.	CANOPY OF THE SYSTEM	◆	
16.	SUPPLY & INSTALLATION OF ELECTRICAL TRANSFORMER OF REQUIRED CAPACITY		◆
17.	SUPPLY & INSTALLATION OF DG SET OF REQUIRED CAPACITY	◆	
18.	SUPPLY & INSTALLATION OF CCTV	◆	
19.	SUPPLY & INSTALLATION OF CAR PARKING MANAGEMENT SYSTEM	◆	
20.	SUPPLY & INSTALLATION OF SIGNAGES	◆	
21.	SHIFTING OF EXISTING UNDERGROUND & OVERGROUND SERVICES		◆
22.	ALL STATUTORY APPROVALS	◆	
23.	POWER SUPPLY FREE OF COST DURING INSTALLATION & MAINTENANCE PERIOD		◆
24.	CUTTING/REMOVAL OF TREES AND PLANTS IF ANY		◆
25.	OPERATION OF CAR PARKING SYSTEM	◆	
26.	WATCH & WARD DURING INSTALLATION & DURING O&M		◆

FORMAT FOR SENDING QUOTATION

Schedule - I

No	Description of Item	Qty.	Unit	Amount in Rs.
1.	Design, Manufacture, Supply, Installation, Erection, Testing And Commissioning of 1 Module of Sex Level Seven Grid over-ground Puzzle Parking System with Electro Mechanical technology to accommodate maximum 37 cars Six Level Multi Grid over-ground Puzzle Parking System with Electro Mechanical technology with car Carrying Capacity of 2000 kg each in ground floor & 1800 kg in 1 st level to 2 nd level and Car Dimensions of 5000 mm length x 2100 mm height (SUV) in ground floor, 5000 mm length x 1700 mm height in 1st level to 2nd level with average retrieval/parking time not more than 300 seconds. The Lifting speed should be @ 3 Meter/Minutes having Motor of 1.5 Kw for 1st floor & above Floor pallets with lateral movement speed of 7 M/Min having Motor of 0.2 KW & 0.4 KW and having safety features as outlined in specifications and as under including cost of maintenance for one year during the Defect Liability period as mentioned in tender documents inclusive all taxes and levis except GST. GST shall be paid extra by the department at actual. (a) Brakes : DC magnetic (b) Emergency stop switch (c) Photo sensors (d) Final Limit Switch (e) Pallet Stopper	1	No.	
	Total (Rs.)			

Amount in words:

Seal & Signature of the Vendor

BILL OF QUANTITIES

Schedule - II

Sr. No	Description of Item	Qty.
1.	Operation & Comprehensive Annual Maintenance of the 1 Module of Six Level Seven Grid over-ground Puzzle Parking System for (1st year only operation cost & operation and maintenance cost for 4 years) after expiry of 1 st year of defect liability period as per the scope of the work and specifications given in the tender. The Item includes cost of deployment of required no. of experienced manpower, tools, tackles, parts, spares, equipment, consumables and all such material required for smooth and uninterrupted working of the complete parking system. The payment shall be made on quarterly basis as per the terms of payment mentioned in the Tender Documents inclusive all taxes and levis except GST. GST shall be paid extra by the department at actual.	1
(i)	1 st Year (only Operation cost)	
(ii)	2 nd Year (Operation & Maintenance)	
(iii)	3 rd Year (Operation & Maintenance)	
(iv)	4 th Year (Operation & Maintenance)	
(v)	5 th Year (Operation & Maintenance)	
	Total (Rs.)	

Amount in words:

Seal & Signature of the Vendor

SUMMARY OF PRICES

Sr. no.	Description	Amount (Rs.)
1.	Schedule – I	
2.	Schedule – II	
	Total (Rs.)	

Amount in words:

Seal & Signature of the Vendor