

PUDUCHERRY SMART CITY DEVELOPMENT LIMITED



REQUEST FOR PROPOSAL

**DESIGN, DEVELOP, IMPLEMENT, OPERATE,
MAINTAIN AND TRANSFER MULTI-LEVEL FOUR-
WHEELER MECHANIZED PARKING AT OLD JAIL
COMPLEX IN JN STREET & OLD PORT COMPLEX IN
PUDUCHERRY (3rd CALL)**

Tender ID: 018/PSCDL/2021-22

CHIEF EXECUTIVE OFFICER

PUDUCHERRY SMART CITY DEVELOPMENT LIMITED

No.2. Bussy street, Old court building, Puducherry- 605 001

Phone : 0413-2224433, 2224434

E-Mail : pondysmartcity@gmail.com

CONTENT OF BIDDING DOCUMENTS

The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 9:

SECTION 1 : Notice inviting Bid

SECTION 2 : Instruction to Bidders

SECTION 3 : Technical Specifications

SECTION 4 : Bill of quantities (schedule –A)

SECTION 5 : Forms of Bid

SECTION 6 : Drawings and Annexure

SECTION 7 : General condition of Agreement

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SECTION 1
NOTICE INVITING TENDER

PUDUCHERRY SMART CITY DEVELOPMENT LIMITED

No.2, Old Court Building, Bussy street, Puducherry-605001.

Email:pondysmartcity@gmail.com. Phone-+91-413-2224431

No.1040/PSCDL/MLCP/2020-21/

Puducherry, dt.

NOTICE INVITING TENDER

Puducherry Smart City Development Limited Invites Online tenders from eligible contractors having relevant experience to Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking in Puducherry.

Sl. No.	Description	Cost of Tender Form	Completion Period
1	Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry (3rd call)	Rs. 1500/-+ GST 5%	9 Months for Construction + 3 Years for (O&M)

Key Dates:

Sl. No.	Description	Date and Time
1	Date of Publication of Tender (Online)	16.12.2021 at 09.00 am
2	Pre bid Meeting	23.12.2021 at 11.00 am
3	Submission of tender (Online) start date	28.12.2021 at 11.00 am
4	Closing of tender (Online)	11.01.2022 at 10.00 am
5	Technical bid opening (Online)	11.01.2022 at 11.00 am
6	Financial bid	will be intimated later

Note:

1. The complete bid document can be viewed / downloaded from official portal of <http://pondicherrysmartcity.in> and e-procurement portal of Govt. of Puducherry <https://pudutenders.gov.in> But the Tenders can be submitted online through <https://pudutenders.gov.in> Only.
2. For other details please refer the RFPs/NIT uploaded in the above websites.
3. Bid Fee shall be paid online through the payment Gateway provided at <https://pudutenders.gov.in> at the time of submission of bid.
4. Subsequent corrigendum/addendum if any shall be available only in web site indicated above.
5. The authority reserves the right to reject for any or all bids without assigning any reason.

**CHIEF EXECUTIVE OFFICER
PSCDL**

DISCLAIMER

The information contained in this Request for Proposal document ("RFP") or subsequently provided to Bidders, whether orally or in documentary or any other form by or on behalf of the Puducherry Smart City Development Limited or any of its employees or advisers, is provided to Bidders on the terms & conditions set out in this RFP such other terms conditions subject to which such information is provided.

This RFP is not an agreement is neither an offer nor invitation by the Puducherry Smart City Development Limited, (hereafter it will be referred as "PSCDL") to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their Proposals pursuant to this RFP.

This RFP includes statements, which reflects the intentions of the Puducherry Smart City Development Ltd. in relation to the Selection of Bidder to Design, Develop, Implement, Operate, Maintain and Transfer Smart Multi-Level parking (Vertical Rotary / Puzzle / Robotic / Shuttle) for PSCDL.

The Puducherry Smart City Development Limited, its employees advisers make no representation or warranty shall have no liability to any person including any Bidder under any law, statute, rules or regulations or part, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything and contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

The Puducherry Smart City Development Limited also accepts no liability of any nature whether resulting from negligence or otherwise however caused arising from reliance of any Bidder upon the statements contained in this RFP.

The Puducherry Smart City Development Limited may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP.

The issue of this RFP does not imply that the Puducherry Smart City Development Limited is bound to award the Licensee or to appoint the Selected Licensee, as the case may be, for the award of license for installation/ erection of Smart Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) Systems on the identified locations. Puducherry Smart City Development Limited reserves the right to reject all or any of the Proposals without assigning any reasons whatsoever.

The Bidders shall bear all its costs associated with or relating to the preparation submission of its Proposal including but not limited to preparation, copying, postage, delivery fees, expenses associated in connection with or relating to its Proposal. All such costs expenses will remain with the Bidders the Puducherry Smart City Development Ltd. shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation for submission of the Proposal, regardless of the conduct or outcome of the Selection Process.

SECTION 2

INSTRUCTION TO BIDDERS

1. SCOPE OF WORK

1.1. The Objective:

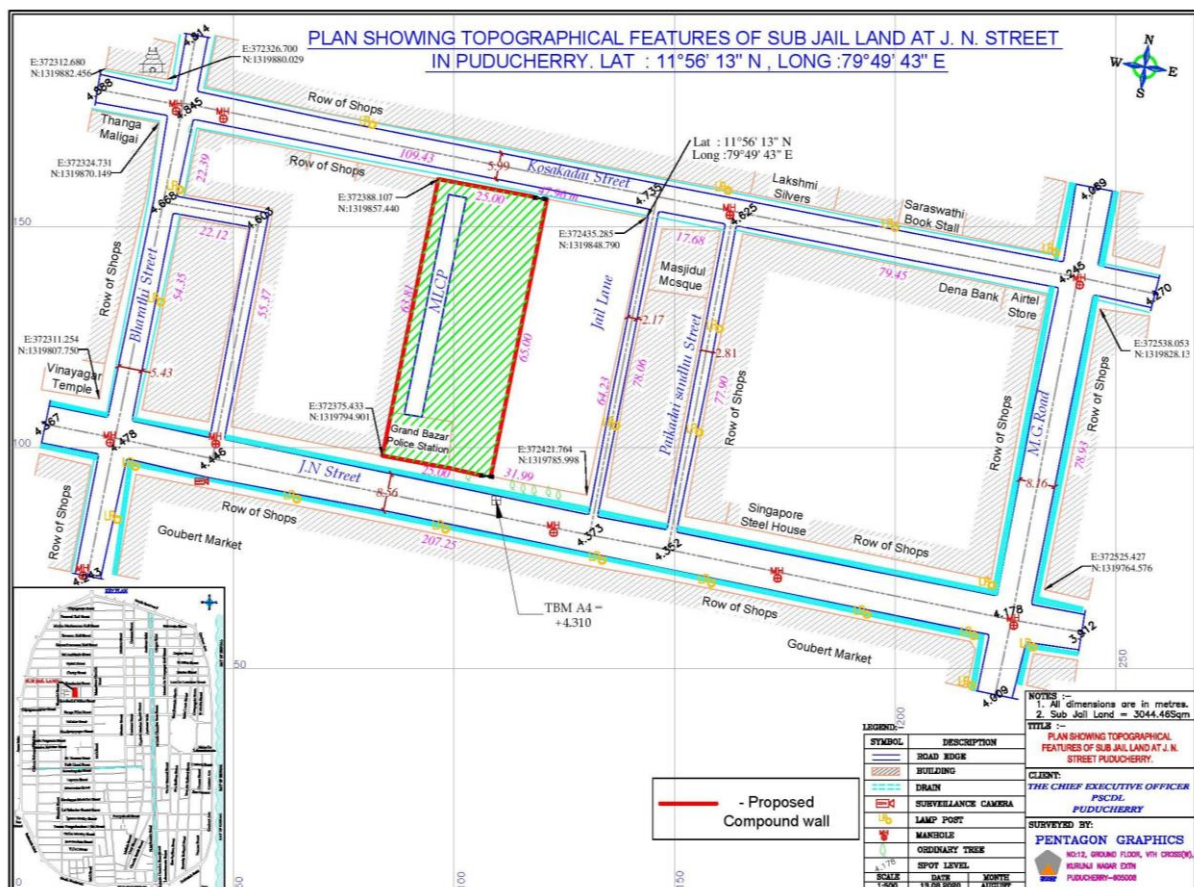
The objective of the project is:

To reduce the impact of the car on the townscape by restricting on- street parking and to encourage pedestrian friendly roads by provision of dedicated multi-level car parking facility. Further this project aims to satisfy the increase in demand in car parking space of the Puducherry Smart city.

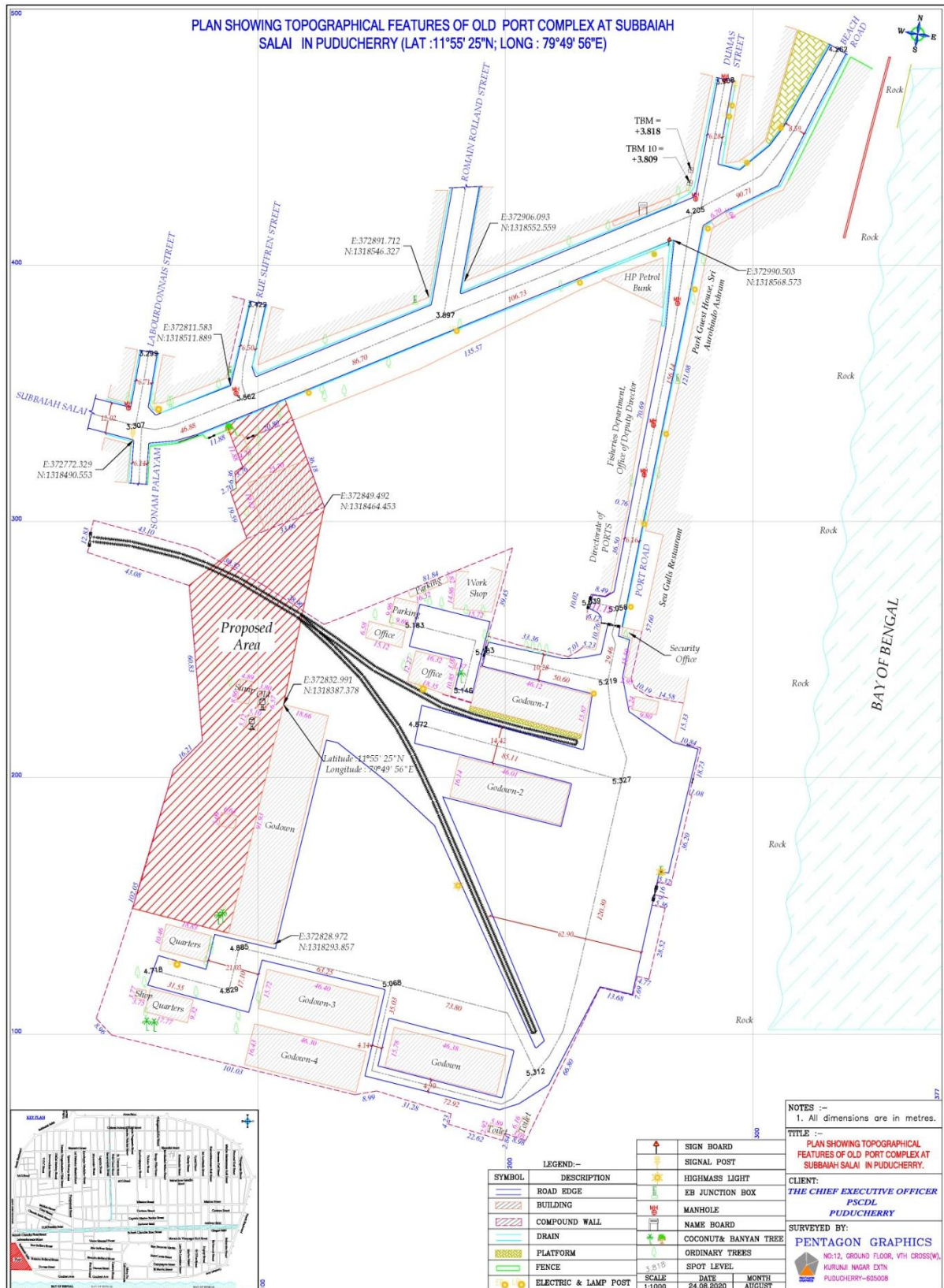
1.2. Project Information:

1. The spatial distribution of commercial land clearly indicates the concentration of this activity in the centre of the city and also at nodal points of transportation network. The share of commercial land in the city has shown a sudden jump during the last few years due to conversion of other uses to special shopping complexes, shopping malls and tourist attraction.
2. PSCDL identified sites for multi-level car parking. The project strives to cater to the expected parking demand on the mentioned locations.

Site I – Old Sub Jail campus at Nehru Street



Site II – Old Port Complex at Subbaiah Salai in Puducherry



3. Geotechnical investigation reports of the mentioned sites are as per *annexure-I*.

4. There is a potential scope for demand for parking within the said location since the locations exists in major commercial / tourist areas and all the major transportation nodes are in a walkable distance.
5. All this functionalities / project site location / nearby land uses create a significant commercial potential for its operator. Thus, this project can result in a “win-win” situation for the citizens, government, and businesses.
6. The successful applicant shall be solely and exclusively responsible to design, Engineer, Construct, Operate, Maintain & Transfer the proposed project on a DBOT model and to provide the services which would be defined in the RFP.
7. The maintenance period will be of 3 years after the construction and commission of the project.
8. **No CHINA make** / product will be allowed in this project.
9. The successful applicant shall have right to use the specified area (which will be specified in the RFP document) in Puducherry Municipal (PM) area to create infrastructure such as multi-level car parking in an optimum manner.
10. Land free of encumbrance shall be provided to the Developer for developing the Project components.

2. SCOPE OF BID

1. Supply, installation, erection, testing & commissioning & two Year Comprehensive Operation and maintenance contract of Parking System with Electro Mechanical technology to accommodate minimum 100 Nos. of four-wheeler with suitable steel structure frame work, Independent motorized pallet having up/down movement with electro-mechanical technology complete with PLC and electrical installation etc. as per specification and direction of Puducherry Smart City Development Ltd. The system shall be designed to **accommodate 30% SUV's Four-Wheeler size 5000 mm length, 1900 mm breadth and 2000 mm height and 70% Sedan cars size 5000 mm length. 1800 mm breadth and 1550 mm height (The size mentioned are only indicative, ultimately it is responsibility of the successful bidder to design for accommodating all type of SUVs and SEDANs on road)** with average retrieval/parking time not more than 180 seconds. The maximum permissible height of the parking structure above the floor level on the ground shall be 20 metres and shall also abide by the recent norms of Town and Country planning department, Puducherry.
2. Provide required electrical, mechanical and automation for MLCP.
3. Provide all software and hardware required for automation and commissioning of the MLCP.
4. Other amenities Civil work, Civil foundations and Finished Flooring with suitable roofing over the system, necessary Power back up (diesel generator set with alternator and AMC panel board of suitable capacity), Firefighting System as per NBC norms, Electrical Cabling including Main, four-Wheeler Parking Panel with ELCB, Earthing, Lighting arrester including adequate capacity of compact substation and LT Panel board as per approved plans will be in the scope of bidder.

5. Facade development work for MLCP shall be in the scope of the contractor. The design / drawing of the facade development shall be approved by the engineer-in-charge.
6. Digital display signage boards and CCTV surveillance has to be provided at site.
7. The bidder shall install brand new equipment and the same shall be free from all defects and faults in material, workmanship, and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The Contractor shall be responsible for execution of work without any defects that may develop under the conditions provided by the Contractor and under use, arising from faulty materials, design or workmanship such as corrosion of the equipment, inadequate contact protection, deficiencies in circuit design and or otherwise and shall rectify if any defects occur at his own cost when called upon to do so by the PSCDL.
8. The entire project will be financed by PSCDL. Further PSCDL reserves the right to collect the revenue from MLCP during operations & maintenance period.
9. The bidder shall get their structural design (MLCP & Civil structure foundation) vetted by any Indian Institute of Technology (IIT) nearby their vicinity. Necessary certificate towards this must be submitted by the bidder. The successful bidder shall also submit structural stability certificate for 10 years for all the components of MLCP from IIT Madras, after erection of MLCP.
10. Third party inspection: The PSCDL may appoint any approved Government agency/Authority or any person for third party inspection of the work. The cost towards the same will be borne by PSCDL.
11. All labor, materials, tools plants, machinery, equipment, and any other things required for execution for work shall be arranged by the CONTRACTOR at his own cost.
12. 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.
13. Testing and Commissioning shall include furnishing all labor, materials, instruments etc. and incidentals necessary for complete testing of each component as per the IS / NBC specifications and manufacturer's recommendations.
14. 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.
15. In view of the site location and their prevailing condition, it is mandatory on the Contractor to visit the site and make himself thoroughly familiar with the site conditions, access and account for all possible difficulties and other requirements mentioned elsewhere in his bid prior to submission. When a contractor submits his bid for this work, it will be considered that he has quoted for this work with full and complete knowledge of the site and prevailing conditions, and no claim for additional compensation shall be entertained on this account.

16. It is clarified that bidder should read carefully understand design features as mentioned in “Design Feature” in the para below so that the Bidder is familiarized with the scope of work while submitting a Bid.
17. All necessary statutory clearances / permissions such as approval from Puducherry Planning authority, Puducherry Municipality, Electricity services connection, Puducherry Coastal Zone Management Authority, Fire service Department etc., has to be obtained by bidder. However, the actual fees incurred will be paid by PSCDL. Further, the successful bidder shall commence the work at site after furnishing all the documents related to seeking necessary statutory approvals with the respective authorities.
18. The contractor shall submit the as built drawing, other specifications & additional maintenance, and Operation standard other than mentioned in the RFP.
19. **Comprehensive Operation and Maintenance:** The successful bidder/ CONTRACTOR will be required to undertake Operation & maintenance of the 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) Maintenance shall generally be allowed at nonpeak hours only.
 - c) The complete Mechanized system shall have the provision of emergency evacuation of vehicles manually also.
 - d) Contractor should maintain all the necessary INVENTORY of electro-mechanical parts of the system during Comprehensive Operation and maintenance period and also provide a list parts prone to wear and tear during regular operation to PSCDL authorities at the time of handing over after two-year Comprehensive Operation and maintenance.
 - e) During the Operation and Maintenance period, the successful bidder shall replace the damaged/defective/worn out parts at his own cost to ensure smooth functioning of MLCP.
 - f) 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. “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED 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 display signboard about its availability.
 - g) Transfer of facility to “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED. The CONTRACTOR shall transfer the parking facility to “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, free and clear of any encumbrances on completion of or termination of contract, whichever is earlier.
 - h) During the Comprehensive Operation and maintenance period prior to anticipate transfer of the Facility the CONTRACTOR shall provide such training services to the representatives and employees of Engineer in Charge “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, or its nominated agency to operate and maintain the Facilities efficiently and safely following such transfer.

20. The successful bidder will be expected to complete the works in **9 months** from the date of signing of the agreement.
21. Detailed description of work is given in General Technical Specifications.

3. ELIGIBILITY AND QUALIFICATION OF BIDDERS

Technical Eligibility

- a) The Bidders have to be reputed firms / companies or contractor registered in Central / State Government Departments / Government undertakings having experience for a minimum period of seven (7 years) and should have completed at least one similar work (MLCP) with minimum **160 cars Electro-Mechanical** automatic staking facility (Vertical Rotary / Puzzle / Robotic / Shuttle) **(or)** two similar work (MLCP) with minimum **120 cars Electro-Mechanical** automatic staking facility (Vertical Rotary / Puzzle / Robotic / Shuttle) **(or)** three similar work (MLCP) with minimum **80 cars Electro-Mechanical** automatic staking facility (Vertical Rotary / Puzzle / Robotic / Shuttle). This similar work shall have been executed for Govt. Department / Municipal Corporation / Smart Cities / Public sector undertakings / private organization.
- b) The completion certificate issued by competent authority towards proof for having satisfactorily completed similar project given by the client should be enclosed by the bidders.
- c) Consortium / joint venture is not applicable for participating in the bid.

Financial Eligibility

- a) Average annual turnover during last 3 years ending 31st March of the previous financial year (2020) should be at least 30% of the tentative estimated cost i.e., Rs.16 Crore.
- b) The Bidders shall produce audited balance sheets and profit & loss Account Statement for the last three years shall be submitted.
- c) The Bidders should enclose the latest GST, ESI, EPF and Group insurance registration certificates.

Bid Capacity: Available bid capacity:

The bidder should possess the bidding capacity as calculated by the specified formula. The formula generally used is:

Available bid capacity = A x M x N – B, where

- | | | |
|---|---|---|
| A | = | Maximum value of MLCP works executed in any one year during the last five years (updated at the current price level), taking into account the completed as well as works in progress. |
| M | = | Multiplier factor (usually 1.5) |
| N | = | Number of years prescribed for completion of the work in question i.e One year. |
| B | = | Value (updated at the current price level) of the existing commitments and ongoing works to be completed in the next 'N' years i.e one year. |

A bidder shall fulfill a bid capacity of tentative estimated cost Rs.16 Crore.

Other condition

- a) Price Bid (cover – C) will be opened after satisfying the eligible criteria given in the technical bid (Cover – B) in the presence of eligible bidders.
- b) All bidders shall furnish the attested copies of Income Tax returns, GST return during the last 3 years.
- c) All bidders shall provide details required as per Form in Section 4, Forms of Bid and Qualification Information.
- d) All bidders shall provide a declaration stating that they become ineligible if they are found corrupt and fraudulent for their malpractices as defined by Government in accordance with **ITB 20**.
- e) All bidders shall provide copies of original documents duly attested, defining the constitution or legal status, place of registration, principal place of business and written power of attorney.
- f) All bidders shall submit documents relating to qualifications and experience of key personnel for site management and technical personnel proposed for the Contract.
- g) The technical manpower requirement for the project to be provided at the work site by the bidder is given as follows.

Sl	Details	Required nos.
1.	Project Engineer- Degree in Civil/Mechanical Engineering having minimum 5 years of relevant experience.	One
2.	Site Engineer- Degree/Diploma in Civil Engineering having minimum 3 years of relevant experience.	One
3.	Electrical Engineer- Degree/Diploma in Electrical Engineering having minimum 5 Years of relevant experience	One
4.	Mechanical Engineer- Degree/Diploma in Mechanical Engineering having minimum 5 Years of relevant experience	One

- h) **The bidders shall provide the proposed methodology and program of construction work** including Environmental Management Plan backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.
- i) Before opening of financial bid, the PSCDL shall have rights to sought for any clarification regarding documents produced by the bidder.
- j) The CEO has power to make any alternation in, omission from, addition to, substitution to or original specification, drawing, design and instruction. The CEO is empowered to give necessary instruction to successful bidder and the successful bidder in bound to carry out the work in accordance with such instructions.

4. ONE BID PER BIDDER

Each bidder shall submit only one bid for one contract.

5. COST OF BIDDING

The bidder shall bear all costs associated with the preparation and submission of his Bid and the PSCDL will in no case be responsible and liable for those costs.

6. SITE VISIT

The Bidder, at the Bidder's own responsibility, is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

The number of copies of each section supplied to the prospective Bidder and the number of copies to be completed and returned with the Bid is specified in the Bid Data Sheet.

7. CLARIFICATION OF BIDDING DOCUMENTS

A prospective bidder requiring any clarification of the bidding documents may notify the PSCDL, through e-mail ID pondysmartcity@gmail.com, before the happening of Pre-bid meeting.

8. PRE-BID MEETING

The bidder or his official representative is invited to attend a pre-bid meeting which will take place at the office of PSCDL, at **11.00 hours on .**

The purpose of the meeting will be to clarify issues and to answer questions on any matter related to the Contract work that may be raised at that stage.

Any modification of the bidding documents which may become necessary as a result of the pre-bid meeting shall be made by the PSCDL exclusively through the issue of an Addendum. The clarifications and amendments if any will be uploaded in the web site <https://pudutenders.gov.in>.

9. NON-ATTENDANCE AT THE PRE-BID MEETING

Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. Any clarification/request **will not be** entertained after the pre-bid meeting.

10. DOCUMENTS COMPRISING THE BID

10.1 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. The Bid shall comprise three envelopes submitted simultaneously, first envelope (**Envelope A**) shall consist the Document listed in ITB 10.2; Second Envelope (**Envelope B**) called the Technical Bid containing the documents listed in ITB 10.3 and the Third the Financial Bid (**Envelope C**) containing the documents listed in ITB 10.4.

10.2 Tender fee

Envelope A – (Online) shall contain the following scanned copy of the documents:

- (a) Proof towards Payment of Tender Document fee.

10.3 Technical Bid

Envelope B – (Online) shall contain the following scanned copy of the documents:

- (a) All the forms from I to XI shall be duly filled up and signed and uploaded.
- (b) Any other document required as per the RFP.

10.4 Financial Bid

Envelope C- (Online) as per the format provided in **SCHEDULE – A of RFP**, shall be submitted online.

11. BID PRICES

The contract shall be for the whole works as described in scope of bid, based on the priced Bill of Quantities submitted by the Bidder. The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price (both in figures and words). Items for which no rate or price is entered by the bidder will not be paid for by the PSCDL when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder.

12. SECURITY DEPOSIT

- i. Successful bidder shall submit a Security deposit of 2% of the bid amount (as accepted) through RTGS/NFET/Demand draft / FDR of any scheduled bank drawn in favour of the Chief Executive officer, PSCDL after receipt of LOA.
- ii. Security Deposit shall be deducted from each running bill @ 5% of bill amount. The total amount of security deposit so deducted shall not exceed the 5% of contract price.
- iii. The Security Deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt from nationalized / schedule bank assigned to the PSCDL, with validity up to 3(three) months beyond the completion of defect Liability Period.
- iv. Security deposit will be refunded after completion of the defect liability period.

13. BID VALIDITY

Bids shall remain valid for a **period of One hundred and Twenty days (120 days)** after the deadline for technical bid opening specified in **RFP**. A bid valid for a shorter period shall be rejected by the PSCDL as non-responsive.

In exceptional circumstances, prior to expiry of the original time limit, the PSCDL may request that the bidders may extend the period of validity for a specified additional period.

The request and the bidders' responses shall be made in writing / mail. A bidder may refuse the request without forfeiting his bid security. Bid evaluation will be based on the bid prices / negotiated price.

14. SUBMISSION OF BIDS

14.1. The bidder is required to submit online bid duly signed digitally.

14.2. The inner and outer envelopes shall:

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 nonresponsive and **Envelope "B" and/or "C" of such bid shall not be opened.**

- a. Bear the name and address of the Bidder;
- b. Be addressed to the PSCDL;
- c. Bear the specific identification of this bidding process (tender ID. NO);

14.3. 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 (Envelope 'B') shall not be opened.

14.4. Envelope 'C' (Financial Bid) of the qualified bidders shall be opened online only at the time & date notified. The bidder shall have freedom to witness opening of the Envelope 'C'. After opening Envelope 'C' all responsive bids shall be compared to determine the lowest evaluated bid.

14.5. PSCDL reserves the right to verify original copies of scanned documents uploaded by bidders. PSCDL may seek additional documentary evidence on their technical proposals, which the bidders shall provide either online using the e- Procurement / e-mail or in manual form.

14.6. Withdrawal, Substitution and Modification of Bid are not permitted.

14.7. Procedure for participation in e-Tendering

- i. Bidder should do Online Enrolment in this Portal using the option Click Here to Enroll available in the Home Page of <https://pudutenders.gov.in> . Then the Digital Signature enrollment has to be done with the e-token, after logging into the portal.
- ii. Bidder then logs into the portal giving user id / password chosen during enrollment.
- iii. The e-token that is registered should be used by the bidder and should not be misused by others.
- iv. DSC once mapped to an account cannot be remapped to any other account. It can only be inactivated.
- v. The Bidders can update well in advance, the documents such as certificates, purchase order details etc., under My Documents option and these can be selected as per tender requirements and then attached along with bid documents during bid submission. This will ensure lesser upload of bid documents.
- vi. After downloading / getting the tender schedules, the Bidder should go through them carefully and then submit the documents as per the tender document; otherwise, the bid will be rejected.
- vii. The BOQ template must not be modified/ replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for that tender. Bidders are allowed to enter the Bidder Name and Values only.

- viii.** If there are any clarifications, this may be obtained online through the e -Procurement Portal, or through the contact details given in the tender document. Bidder should take into account of the corrigendum published before submitting the bids online.
- ix.** Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender schedule and they should be in PDF/XLS/RAR/DWF formats. If there is more than one document, they can be clubbed together.
- x.** The bidder reads the terms and conditions and accepts the same to proceed further to submit the bids
- xi.** The bidder has to submit the tender document(s) online well in advance before the prescribed time to avoid any delay or problem during the bid submission process.
- xii.** There is no limit on the size of the file uploaded at the server end. However, the upload is decided on the Memory available at the Client System as well as the Network bandwidth available at the client side at that point of time. In order to reduce the file size, bidders are suggested to scan the documents in 75-100 DPI so that the clarity is maintained and also the size of file also gets reduced. This will help in quick uploading even at very low bandwidth speeds.
- xiii.** It is important to note that, the bidder has to click on the Freeze Bid Button, to ensure that he/she completes the Bid Submission Process. Bids which are not Frozen are considered as Incomplete/Invalid bids and are not considered for evaluation purposes.
- xiv.** The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local or technical issues.
- xv.** The bidder may submit the bid documents online mode only, through this portal. Offline documents will not be handled through this system.
- xvi.** At the time of freezing the bid, the e-Procurement system will give a successful bid up- dation message after uploading all the bid documents submitted and then a bid summary will be shown with the bid no, date & time of submission of the bid with all other relevant details. The documents submitted by the bidders will be digitally signed using the e-token of the bidder and then submitted.
- xvii.** After the bid submission, the bid summary has to be printed and kept as an acknowledgement as a token of the submission of the bid. The bid summary will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening event.
- xviii.** Successful bid submission from the system means, the bids as uploaded by the bidder is received and stored in the system. System does not certify for its correctness.
- xix.** The bidder should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected
- xx.** The time that is displayed from the server clock at the top of the tender Portal, will be valid for all actions of requesting bid submission, bid opening etc., in the e-Procurement portal. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission.

- xxi.** All the data being entered by the bidders would be encrypted at the client end, and the software uses PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission and not viewable by any one until the time of bid opening. Overall, the submitted bid documents become readable only after the tender opening by the authorized individual.
- xxii.** During transmission of bid document, the confidentiality of the bids is maintained since the data is transferred over secured Socket Layer (SSL) with 256 bit encryption technology. Data encryption of sensitive fields is also done.
- xxiii.** The bidders are requested to submit the bids through online e-Procurement system to the Tender Inviting Authority (TIA) well before the bid submission end date and time (as per Server System Clock).

15. EVALUATION OF PRICE BIDS Procedure

- i.** 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 nonresponsive, and Envelope "B" and/or "C" of such bid shall not be opened.
- ii.** 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 (Envelope 'B') shall not be opened.
- iii.** Envelope 'C' (Financial Bid) of the qualified bidders shall be opened online at the time & date notified. The bidder shall have freedom to witness opening of the Envelope 'C'.
- iv.** After opening Envelope 'C' all responsive bids shall be compared to determine the lowest evaluated bid.
- v.** The PSCDL 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.
- vi.** The PSCDL reserves the right of accepting the bid for the whole work or for a distinct part of it.
- vii.** The PSCDL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

16. AWARD OF CONTRACT

16.1. PSCDL's Right to Accept Any Bid, and to Reject Any or All Bids

- i.** The PSCDL may award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

- ii. The PSCDLs have right to accept any bid or to reject any or all bids without assigning a reason for that.

16.2. Notification of Award

- i. Prior to the expiration of the period of bid validity, the PSCDL shall notify the successful Bidder, in writing, that its Bid has been accepted by issuing a 'Letter of Acceptance' (LOA).
- ii. At the same time, the PSCDL shall also notify all other Bidders of the results of the bidding. The PSCDL will not publish the results of the bidding process in any of the newspapers. However, since the process adopted by the PSCDL is online through website (<https://pudutenders.gov.in>), the results identifying the following information will be published in the portal;
 - a. name of each Bidder who submitted a Bid;
 - b. bid prices as at bid opening; and
 - c. name of the winning Bidder, and the price it offered
- iii. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

16.3. Signing of Contract

- i. Promptly after acceptance of a tender, the PSCDL shall send a letter of acceptance (LOA) to the successful Bidder.
- ii. Within Fifteen (15) days of receipt of the letter of acceptance (LOA), the successful Bidder shall sign the agreement, and send it to the PSCDL.
- iii. The signing of contract agreement shall be reckoned as intimation to commencement of work.

16.4. Performance security

- i. All the documents / information enclosed with the technical proposals should be self-attested and certified by the Bidder. If any document / information are found false / fake / untrue after acceptance of the Bid, the sanctioning authority may at his discretion forfeit his performance security / guarantee, security deposit, enlistment deposit and take any other suitable action.
- ii. Prior to signing of the Contract, the bidder to whom LOA has been issued shall have to furnish performance Security @3% of the contract amount in specified form and duration, etc. as specified in the Bid Data Sheet.
- iii. The successful bidder shall have to furnish Performance security and sign the contract agreement within 15 days of issue of LOA.
- iv. The signing of contract agreement shall be reckoned as intimation to commencement of work. It is not necessary to issue separate work order by the PSCDL to the contractor for commencement of work.
- v. In the event of failure of the successful bidder to submit Performance Security or sign the Contract Agreement within fifteen (15) days of issue of letter of acceptance (LOA), it is the right of the PSCDL for taking action against the bidder as per the condition mentioned in the Bid Security Declaration **form - VIII**.
- vi. Performance Guarantee shall be submitted as per format given in **form- X**.

- vii. The performance security shall be refunded after completion of agreement period which shall include Construction, Maintenance & operation period.

17. COMPENSATION FOR DELAY

- i. The time allowed for the carrying out the work, as entered in the tender form shall be strictly observed by the contractor and shall be deemed to be the essence of the contract and shall be reckoned from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.
- ii. The work shall throughout the stipulated period of contract be proceeded with all due diligence keeping in view that time is the essence of the contract.
- iii. The contractor shall be bound to complete 1/8th of the whole work before 1/4th of the whole time allowed under the contract has elapsed, 3/8th of the work before 1/2 of such time has elapsed and 3/4th of the work before 3/4th of such time elapsed. In the event of the contractor failing to comply with the above conditions, the competent authority shall levy on the contractor as compensation an amount equal to 1% of the value of work per week.
- iv. The total amount of compensation under the provision of the clause shall be limited to 1% of the quoted value of work. The decision of the competent authority shall be final. The delay in departmental assistance ingrained in the contract will be taken duly into account while recovering any compensation for the delay in the scales prescribed above. Where the Competent authority decides that the contractor is liable to pay compensation for not giving proportionate progress under this clause and the compensation is recommended during the intermediate period, such compensation shall be kept in deposit and shall be refunded if the contractor subsequently makes up the progress for the last time within the period of the contract including extension granted if any.

18. EXTENSION OF TIME

18.1. 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.

18.2. The competent authority may 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. If the work is delayed due to contractor's negligence or fault the extensions may be granted in accordance with provisions under ITB 17.

18.3. In case of the work 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.

19. ACTION BY THE COMPETENT AUTHORITY WHEN THE WORK IS LEFT INCOMPLETE, ABANDONED OR DELAYED BEYOND THE PERMITTED LIMIT

In any case in which under any clause or clauses of this agreement the contractor shall have rendered himself liable to pay compensation amounting to the performance security and whole of his security deposit (whether paid in one sum or deducted by installments) for:

- i.** committed a breach of any of the rules and regulations related to labour laws or,
- ii.** in the case of abandonment of the work or ,
- iii.** the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation or,
- iv.** the Contractor does not maintain a valid instrument of financial Security, as prescribed or,
- v.** If the Contractor fails to deploy machinery and equipment or personnel as specified in the Contract Data or,
- vi.** if the Contractor, in judgmental of the engineer in charge has engaged in corrupt or fraudulent practices in competing for or in executing the contract or,
- vii.** If the contractor fails to achieve the mile stone of physical target or financial target.

Except due to permanent disability or death of the contractor, the competent authority on behalf of the Puducherry smart city development limited (PSCDL) shall give a notice before 15 days, and in the event of the contractor failing to comply with the direction contained in the said notice, shall rescind the contract of which rescission notice in writing to the contractor under the hand of the competent authority shall be conclusive evidence and in which case the performance security and the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of Puducherry smart city development limited (PSCDL) and expel the contractor from the site. However, in the case of sub para (III) or (VI) of above clause the competent authority may terminate the contract immediately.

20. CORRUPT OR FRAUDULENT PRACTICES

The PSCDL requires that Bidders, Suppliers, Contractors, and Consultants observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the PSCDL.

- a)** Defines, for the purposes of this provision, the terms set forth below as follows:
 - i.** “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
 - ii.** “Fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
 - iii.** “Collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the PSCDL, designed to establish bid prices at artificial, noncompetitive levels; and
 - iv.** “Coercive practice” means harming or threatening to harm, directly or indirectly persons or their property to influence their participation in the procurement process or affect the execution of a contract.

- b) will reject a proposal 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 in question;
- c) will have the right to require that a provision be included in Bidding Documents and in contracts requiring Bidders, Suppliers, Contractors to permit the PSCDL to inspect their accounts and records and other documents relating to the bid submission and contract Performance and to have them audited by auditors appointed by the PSCDL.

21. MOBILIZATION AND SECURED ADVANCE

- i. The mobilization advance is limited to 10% of tender amount at 10% simple interest can be sanctioned to the contractors on specific request as per term of the contract.
- ii. The mobilization advance will be released in two installments subject to the contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The interest on the advance shall be calculated from the date of payment to the date of recovery, both days inclusive.
- iii. It will be ensured that at any point of time bank guarantee is available for the amount of outstanding advance.
- iv. The recovery should be commenced after 10% of work is completed and the entire amount together with interest will be recovery by the time 80% of the work is completed.
- v. The contractor shall insure, at his cost, the plant and machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site.
- vi. Any amount that is not recovered from the insurers shall be borne by the contractor.

22. DEFECT LIABILITY PERIOD

After completion of three years of Operation and Maintenance period and successful handing over of MLCP facility to PSCDL, two years of Defect Liability Period is applicable. During the duration of DLP, the successful bidder shall attend the defects as and when PSCDL demands the same. The cost of the defective parts required to be replaced during the DLP shall be borne by the successful bidder.

23 Force Majeure

Definition

- a. For the purposes of this Agreement, “Force Majeure” means an event which is beyond the reasonable control of a Party, and which makes a Party’s performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions,

strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by government agencies.

- b. Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's Sub- contractor or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both (A) take into account at the time of the conclusion of this Agreement and (B) avoid or overcome in the carrying out of its obligations hereunder.
- c. Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

SECTION 3

TECHNICAL SPECIFICATIONS

23. TECHNICAL SPECIFICATIONS

I. For Multi-level parking system

The structure shall be designed in accordance with the latest Indian Standard Codes and

- Shall be designed to resist wind and seismic forces.
- Steel Structures shall be designed in accordance with the provision of IS 800-1984.
- Structural steel shall conform to IS 842. Tubular section shall conform to IS 4923.
- Architectural design norms as per NBC (National Building Code – 2005).
- Structural Design norms as per NBC and BIS (Bureau of Indian Standards)

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.

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,

The work shall be carried out in accordance with the Architectural drawings and structural drawings submitted to PSCDL by the bidder. 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.

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.

The rates of different items of work shall apply to all heights & depths unless otherwise specified.

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.

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.

a) Steel

All finished steel shall be well and cleanly rolled to the dimensions and weight specified by BIS subject to permissible 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 and shall be painted with anti-corrosive paint confirming to EN ISO 12944-5 suitable for coastal areas and maritime zones with a high salt content. 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 and shall be painted with anti-corrosive paint.

b) Fabrication

Fabrication shall generally be done as specified in IS:800.

In major works or where so specified, 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.

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.

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.

c) 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.

d) Overall Design Parameters

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. MPPWD Standards	
IS 456-2000	Plain and reinforced concrete-code of practice
IS 875	Code Of practice for design loads for buildings and structures
Part 1: 1987	dead loads- unit weights of building material and stored material
Part 2: 1987	Imposed loads
Part 3: 1987	Wind loads
IS 1893: 2002	Criteria for earthquake resistant design of structures
IS 13920: 1993	Code of practice for ductile detailing of reinforced concrete structures subjected to seismic forces
IS 800:1984 & 2007	Code of practice for general construction in steel
IS 3370 Part 1 TO 4	Code of practice for liquid retaining structures
IS 2911 Part 1 TO 4	Design & Construction of Pile Foundation
SP-24-2000	Explanatory Hand Book on Indian Standard Code of Practice for Plain and Reinforced Concrete
BS 8110: 1997	Plain and reinforced concrete-code of practice (British standard)
SP-16-2000 (Design Aids for Reinforced Concrete)	Design Aids for Reinforced Concrete to IS 456.
SP-34-1987	Hand Book on Concrete Reinforcement and Detailing.
IS 1343:2012	Code of practice for pre-stressed concrete (First Revision)
Soil Report	

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

Sl 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 ear thing
4	IS-13032, 1992(Rev.2)	MCB distribution boards for voltage upto 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), 1993	Air break switches for voltage not exceeding 1000V AC or 1800 V DC
10	IS-1248 (All parts), 1983, 1984, 1993	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 Engineer-in-charge, 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 (NFPA)
- vi) Safety code of Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) 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 Bidder and approved by the Owner /Architect.
- 2. The BIDDER 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 Bidder shall provide the fire safety arrangement as per National Building Codes/ DIS codes or any widely accepted international codes.

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.

System Specifications of Multi Level Multi Grid over Ground Four-Wheeler Parking System with Electro Mechanical Technology

Sl.no	Item	Detail Description
1	Model Proposed	Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle)
2	No. of Levels	Max. permissible height 20 mtr, height of parking as per bidder design keeping provision for 30% SUV's Four-Wheeler size 5000 mm length, 1900 mm breadth and 2000 mm height and 70% Sedan cars size 5000 mm length. 1800 mm breadth and 1550 mm height
3	Minimum Number of 4-Wheeler Requirement	At old jail site 100 nos./ at Old port site 100 nos.
4	Clear Length of the System	As Per Design
5	Clear Width of the System	As Per Design
6	Allowable Car Dimensions (Length X Height X Width)	As per requirement & specification for SUV & Sedan vehicles
7	Total Allowable Clear Height of the System	As per design
8	Type of System	Electromechanical System
9	No. of Front Columns	As Per Design
10	No. of Rear Columns	As Per Design
11	Load on each Front Column	As Per Design
12	Load on each Rear Column	As Per Design
13	Power rating of the Lifting Motor	As per Design requirement
14	Power rating for Horizontal movement	As per Design requirement

15	Type of Motor	As per Design requirement
16	Type of Pallet	As per Design requirement
17	Type of System	As per Design requirement
18	Wheel Stopper	As per Design requirement
19	Type of Operation	As per Design requirement
20	Safety Devices	
(a)	Photo sensors	As per Design requirement
(b)	Antenna Type Limit Switch	As per Design requirement
(c)	Cam limit Switch	As per Design requirement
(d)	Geared Motor With Brake	As per Design requirement
(e)	Emergency Stop	As per Design requirement
21	Average Retrieval Time per operation	Approx. 120 Sec
22	Operating Panel	Touch screen type
23	Control Panel	PLC
24	Standby power arrangement	Generators
25	Life of system	25 years
26	Noise level	6-75 decibel

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

e) Material Specifications

Structure	Industrial Grade MS
Guiderail for lifting unit	EN8
Gear boxes & drives	EN24
Delivery unit components	EN Grades
Facade	Aluminum Composite Panel (3 to 4mm tick) + Structural glazing work
Nuts and Bolts	High tensile strength grade
Steel	Special Grade Industrial steel
Motors	German make, Reputed Indian make as per IS Specifications
Lifts	Automatic
Access control	Automatic

f) HARDWARE, SOFTWARE, FACILITIES

- i. To provide install necessary complete hardware and software solutions, such as but not limited to boom barriers, auto pay station, devices, port-cabins, switches, gateway, guidance system, for Multi-Level parking (Vertical Rotary / Puzzle / Robotic / Shuttle) system.

- ii. Provide City Level Parking Management Mobile Application and Parking Guidance System to direct users to available parking slots through LED signage also through Smart Parking Mobile Application.
- iii. Provide and install necessary LED signage which also includes variable messages sign board for guidance to public regarding availability of parking spaces other necessary information.
- iv. Create API that can be integrated to the city Integrated Central Control & Command Centre (ICCC) for viewing, analyzing, storing and retrieval of the data to manage the Smart Parking;
- v. Install, operate and maintain an IT system, for parking fee payments, monitoring, and enforcement including installation of software / hardware for the processing of customer payments.
- vi. Comprehensive operation maintenance of all hardware software installed for this project throughout Operation & maintenance period.
- vii. Procure hardware software to aid in the planning monitoring of enforcement activities.
- viii. To provide install thermal cum optical/IR sensors at each of the parking slot for cars for all surface parking lots. All parking slots should be individually clearly marked mapped with parking sensors and have appropriate camera coverage. All sensors, devices equipment should have the capability to communicate back and forth with the ICCC for information feedback through a RF/ Wi- Fi/GPS or any combination of them in the enabled system
- ix. Establish the required facilities, equipment, information systems for the operations of the Parking System.
- x. The equipment shall not have been put to commercial use anywhere previous to the Commencement of Operations.

III) FIRE FIGHTING REQUIREMENT

Wet Raiser System, Automatic fire detection, Fire Extinguishers.

Wet Raiser system

The wet raiser system covered with.

- a) Pump House.
- b) Hydrant system.
- c) Yard Hydrant system.
- d) Sprinkler system.

a) Pump House

A) 1	Housing of motor and pump for firefighting (RCC sump with water capacity 50 thousand liter, Over head PVC tank minimum 20,000 liter mounted on steel fabricated structure of suitable design). Electrical Pump S.I.T.C of 'KIRLOSKAR' make Electric pump, of 70Mtr head with flexible coupling coupled with SPDP electric motor of Suitable HP including base frame coupling guard etc.	I Set
2	S.I.T.C of jockey pump of 180 LPM at 70 Mts head with electric motor of Suitable H.P, rating 3 phase, 415V, 50 Hz, AC supply 'KIRLOSKAR' make.	I set
3	Control panel with Star delta for one jockey pump and Star delta one main fire Pump with necessary controls auto/manual operation.	1 No
4	b) Hydrant System:- (Internal) YARD HYDRANT and SPRINKLER SYSTEM Providing, fixing, testing and commissioning of G.I or MS pipes of Heavy class "C" with "ISI" mark including necessary fittings. (Above ground piping along with angle support.) 1) 150 MM DIA for Main Raiser(6") 2) Hydrant valve, Double door hose box, RRL Hose 1SMtr X2Nos, Hose Reel drum covering each floor. c) Yard Hydrant (External) Providing, fixing, testing and commissioning of G.I or MS pipes of Heavy class "C" with "ISI" mark including necessary fittings. (Above ground piping along with angle support.) 1) 150 MM DIA for Main Raiser(6") 2) Hydrant valve, Double door hose box, RRL Hose 1SMtr X2Nos. d) Sprinkler system (sprinkler system covered each floor separate raiser pipe in pump house to each floor 150MM DIA pipe, 100MM DIA, 80 MM DIA 65MM DIA, 50MM DIA, 40MM DIA, 25 MM DIA pipes covered. The sprinkler pulp fitted each 1.5 Mtr or site condition.	

Note: All the above system should be operated with the electrical service and also in the event of power failure with DG set provided as per the RFP scope of bid 2.4.

Automatic Fire Detection

1	Automatic fire detection covered in each floor i) Heat detector. ii) Manual call point. iii) Hooter/ Sounder. iv) Fire Alarm Panel. V) 2c X 1.5sq.mm FRLS Armed Cable.
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Fire Extinguisher

1	Fire Extinguisher covered in each floor. i) ABC 6Kg capacity dry chemical powder Stored pressure type fire extinguisher. ii) CO2-4.5 kg fire extinguisher.
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Reference to codes

National building code of India	
IS:1239 (Part I	Mild steel pipes of heavy grade
IS:1978	Mild steel pipes when installed underground
IS:3589	ERW steel pipes
IS:10221	Coating and wrapping of pipes
IS:12469:1988	Specification for pumps for firefighting system
IS:9137:1978	Operation tests – Pumps
IS:3046	Diesel engine; rating standard
IS:5290:1993	Specification for landing valves
IS:884:1985	Specification for first aid hose reel
IS:903:1993	Specification for hose delivery, couplings, branch pipe, nozzles and spanner
IS:2189:1988	Code of practice for selection, installation and maintenance of automatic fire detection and alarm system.
IS:2190:1992	Selection, installation and maintenance of first aid fire extinguishers – Code of practice.
IS:3844:1989	Code of practice for installation and maintenance of internal fire hydrants and hose reels on premises.
IS: 2175: 1988	Specification for heat sensitive fire detectors
IS: 11360: 1985	Specification for smoke detectors
IS: 694: 1977	Specification for PVC insulated cables for working voltage upto and including 1100 volts
IS: 9968 (Part I): 1981	Rubber insulated braided cables
IS: 1554 (Part I): 1976	Armoured PVC/Rubber insulated cables.
IS: 2189 :2008	Selection, installation and maintenance of Automatic Fire detection and alarm system

List of approved makes

S.No	Item	Approved Make
	I Wet Riser	
1	Motor driven pump	KIRLOSKAR, MATHER & PLATT or equivalent
2	Motor control centre	L & T, SIEMENS
3	Switch board / panel	CPRI APPROVED VENDOR
4	MCCB	L & T, MERLIN GERIN
5	Cable	HAVELLS, GLOSTER
6	Cable gland	HM, BRACO
7	Cable ties	FINOLEX
8	End Termination	DOWELS, JAINSON
9	Indicating Meters	AE, L & T
10	Indicating Lamps	L & T,TELEMECHANIC
11	Power Contactors	L & T, SIEMENS
12	CT	KAPPA, AE
13	ELCB/ELMCB	LEGRAND, MERLIN GERIN
14	Isolator	HPL, L&T, GE

15	Diesel engine driven pump	KIRLOSKAR, ASHOKLEYLAND
16	Jockey pump	KIRLOSKAR
17	MS pipe	JINDAL, TATA
18	Single headed hydrant valve	NEW AGE, WINCO
19	Butterfly valve	KAMALA, KEJARIWAL
20	Non return valve	„
21	Fire brigade inlet	NEW AGE
22	Hose Box	NEW AGE, AFELINE (ISI MARKED)
23	Fire House with coupling	JAYASREE, NEW AGE
24	Air Release Valve	KAMALA, CASTINGS, KEJARIWAL
25	Hose reel Drum	NEW AGE / MINIMAX
26	Branch Pipe	NEW AGE, SAFELINE
27	Air cushion vessel	FABRICATED TYPE
28	Cast iron foot valve	KAMALA CASTING, KEJAREIWAL
29	DCP fire extinguisher	MINIMAX / SAFEX
30	Co2 fire extinguisher	MINIMAX / SAFEX
31	Sprinklers	TYCO, HD
32	Pressure switch	INDFOSS
33	Pressure gauge	D. GURU
34	Pipe supports, Anchor fasteners, clamps, bolts, slotted rail, grounding studs	HITECH, INTELLOTECH
35	Flow switch	SYSTEM SENSOR
36	Monitoring module	„
37	Paints	ASIAN/ BERGER
38	Wrapping coating	PYPKOTE / RUSTFIRE
39	2 x 1.5 sq. mm control armoured cable	HAVELLS, GLOSTER
40	Battery	EXIDE / AMCO
41	Strainers	KAMALA, ACME
42	GI & CS (MS) pipes and fittings	JINDAL, TATA (class ‘C’)
43	Ball valves	ZOLOTO
44	PVC Priming tank	
45	Puddle flange	FABRICATED
46	SS Orifice plate	„
47	C & I Equipment	NOTIFIER, SIEMENS
48	Fault Isolator	NOTIFIER, SIEMENS
49	Smoke Detector	NOTIFIER, SIEMENS
50	Heat Detector	NOTIFIER, SIEMENS
51	Response Indicator	NOTIFIER, SIEMENS
52	Hooter	NOTIFIER, SIEMENS

IV. FAÇADE WORKS

Details of materials	Manufactures Names
Aluminum sections for frame work	Jindal/Hindalco
Silicon sealant	Dow Corning
Hermitically sealed performance glass & Toughened Glass	Saint Gobin, Asahi
Aluminum Composite Panel	ALUCOBOND / REYNOBOND / ALPOLIC

V. Site development works

A. compound and flooring work

1. Steel grill work for compound and gate

Supplying and fixing of cast iron grill work comprising of built up tabular section, flats, angles round or square bars and solid designed shapes including fixing in position in masonry walls cement concrete 1:2:4 (cement :2 sand:4 graded stone aggregate 12.5mm nominal size) and in concrete work including cost of casting, molasses casting should conform IS 210gr. and free from crack, blow holes and all other defects grinding turning work etc., to make the surface smooth and to bring to intricate shape as per the design approved and directed by the Engineer-in-charges. The work also including finishing the grill with polyurethane MRF colour paint.etc, complete.

2. Brick work

Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 35 in foundation and plinth in - cement mortar 1:6 (1 cement : 6 coarse sand).

3. Plain concrete work

Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work up to plith level - 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size)

4. Reinforcement concrete work

Providing and laying in position specified grade of reinforced cement concrete, including the cost of centering, shuttering, finishing and reinforcement 1:1.5:3

5. Flooring

Providing and laying 20 to 23 mm thick factory made pre-polished cement concrete flooring tiles (design as decided by the Engineer-in-charge) of required colour and design over 20 mm thick cement mortar 1:4 (1 cement : 4 sand) and jointed with cement slurry mixed with an admixture of pigment to match the shade of the tile - (Endura \ Ultra \ Dazzle \ Technic)

6. Plastering

12mm cement plaster of mix -1:4 (1cement: 4 fine sand)

7. Cornice and architrave work with cement mortar as directed by Engineer-in-charge

8. Painting work

Finishing with deluxe multi surface paint system for interiors and exteriors using primer as per manufacture's specification - Two or more coats applied on walls @ 1.25 ltr / 10 sqm over and including one coat of special primer applied @ 0.75 ltr / 10 sqm.

9. Quarry rubbish

Supplying and filling Quarry rubbish including stacking to department gauge for pre-measurement and spreading to required thickness in layers consolidating each deposited layer by ramming and watering etc complete including all lead lift.

B. Electrical work

1. Supply and installation of 12.5 mtrs. High mast system with its accessories mast shaft shall be in two sections, hot dip galvanised (as per BS 729 or equivalent) and suitable for wind velocity as per IS 875-1987 (180 km /hour). It shall also include accessories for high mast including head frame, stainless steel wire rope 6mm dia (7/19 construction) double drum per winch , which galvanized lantern carriage arrangement suitable for 10 (ten) luminaries symmetrically and its motorized control gear boxes and lighting final. (as per detailed technical specification as shown in annexure - I) the work also includes laying of Reinforced cement concrete foundation of size 0.60 x 0.60 x 1.80 m in 1:2:4 (1 cement: 2 sand: 4 graded stone aggregate 20mm nominal size with adequate reinforcement, centering, shuttering as directed by Engineer-in-charge)
2. Supply and fixing of LED outdoor flood light fitting in Highmast/ Minimast having 140 watts to 160 watts (system wattage), IP 65/66, white colour with necessary over voltage, under voltage and surge protection with three years onsite warranty for replacement/ rectification. Make: Philips/ Havells/ Crompton/ Bajaj/ LEDGEO/ Eveready. The rate is inclusive of all taxes.
3. Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation , sand cushioning, protective covering and refilling the trench etc.as required - Upto 35 sq.mm
4. Wiring for circuit / sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor , single core cable in surface / recessed medium class PVC conduit as required - 4 X 16 sq.mm + 2 x 6 sq.mm earth wire.
5. Supplying and making end termination with brass compression gland and aluminum lugs for following size of PVC insulated and PVC sheathed / XLPE aluminum conductor cable of 1.1kV grade as required - 4 X16 sq.mm (28 mm).
6. Supply, erection, testing and commissioning of one no of SMC Box. (make: Sintex) with metering and timer panel board for the power supply to overall size 850mmx350mmx250mm made out of Glass wool with resin material. The front side top portion have energy meter with viewing glass with 10mm hylem sheet. The bottom side compartments with 40-63A rating, TPN MCB,C' series 10KA breaking capacity (make- Siemens/ABB),1no of timer switch (daily) aong with battery backup 200hrs (make-L&T-kaggar/legarand-lexic) 1no.60A power conductor (make-C&S/L&T),1no of toggle switch (make –C&S). The switch units are to be fixed

within the allotted size in the 10 mm hylem sheet. The bottom sheet of the shell should be of PVC thick roll sheet for cable entry. The panel has to be mounted 75mm x75mm 6mm MS'L angle on the floor with in the height of 600mm interior connection between the switch fuse units are to be done with 2.5/6.0/10.0 sq.mm ISI marked, FR PVC insulated, single core copper conductor cable. (Make-Finolex/Polycab).

The door should be flush type inter locking in one position. The panel provided with removable type pland plated to the bottom and with sufficient holes of required diameter. Earth work excavation of foundation trench of size 1.00mm x 06mm x 0.6m and fitting river sand for depth of 0.10m and P.C.C 1:2:4(1 cement:2 coarse sand: 4 graded stone aggregate of 20mm nominal size) of size 1.00mm x 0.60 x 1.00m. The cost should be inclusive of minor modification suitable for site condition as approved by the Engineer-in-charge.

VI. Man Power during operation & maintenance period

Sl. No.	Shift Timing	Total Personnel
1	No. of Operators	03 (1 per 8 hour Shift)
2	Backup of Operators	On requirement
3	Technician	On requirement
4	Cleaner	03 (1 on each Shift)

24. DETAILS OF PAYMENT SCHEDULE

The Chief Executive Officer of ISCDL shall have full powers to fix interim rates within the components. In case of any deviation/alternations/modifications of methodology leading to change in components or its quantity or incorporation of new items of work, the Chief Executive Officer shall have full powers to revise the breakup components keeping the contract price same as quoted by the bidder.

24.1 PAYMENT SCHEDULE FOR MULTI LEVEL CAR PARKING

Surveying, planning, investigation, sub-soil exploration, fixing layout, designing, drawing, and supply, installation, erection and commissioning of Mechanized multilevel Smart parking for minimum 100 Nos. of Four-Wheeler Parking. Smart parking system and LED signage at different location of parking to guide visitor with other amenities, such as construction of Ticket counters, Control Room, Firefighting system arrangements, all electrification and plumbing work, Ventilation, Civil and finishing works.

- a. Upon receiving a report from the Engineer in Charge certifying the achievement of the below mentioned Payment Milestones.
- b. The payment shall be payable as per the Payment Milestone given below during Construction period for **BOQ item no. 1.2 and 2.2 shall be as under:**

Sl. no	Stages of Work	percentage of "bid amount"
1	After survey, investigation, layout, design-drawing, etc. for Fabrication, erection and commissioning of Mechanized multilevel Smart parking solution for minimum 100 Nos. of Four-Wheeler Parking with smart solution. Ticket counters, Control Room, all electrification and plumbing work, Ventilation, Civil and finishing works etc. for design, drawing & submission of necessary documents relating to statutory approval as mentioned in section 2.17 of scope of bid.	2.5 %
2	After Construction, Completion of Fabrication / Manufacturing / Erection, supplying of materials of Mechanized multilevel Smart parking for minimum 100 Nos. Parking. Running Bills will be paid as detailed below :-	85 %
I	25% on delivery & installation of structural work at site of each module on * prorata basis.	
II	20% on delivery & installation of drive assembly and pallets of each module on * prorata basis.	
III	20% on delivery & installation of electrical spares and control panel of each module on * prorata basis	
IV	15% on Commissioning and handing over of the Car Parking Module on * prorata basis.	
V	5% for providing & commissioning of software / hardware components with LED signage, Smart Parking solutions etc.,	
3	After Construction of Ticket counters, Control Room, all electrification and plumbing work, Civil and finishing works and other miscellaneous works as per approved design-drawing, specifications of relevant I.S. Codes and circulars issued by the Department from time to time.	12.5 %
	Total	100 %

**prorata basis can be measured with respect to percentage calculated as number of car parking (ECS) facilities completed to the satisfaction of authority, relevant to this stage.*

c. Provided that in case of Change of Scope, the Physical Progress shall be recalculated to account for the changed scope.

d. In case, there is a delay in achieving the Milestone, the payment shall be made on prorate basis of the particular milestone.

24.2 For BOQ Items 1.1, 1.3, 2.1, 2.3, payment will be made only on completion of Scope of work and duly certified for its stability and performance by the competent authority as stipulated in RFP

24.3 For other items in BOQ such as Civil / Electrical / Façade infrastructure work payment will be made as per actual measurement for finished item.

Note: 5% of the payment shall be deducted for security deposit on each payment and will be released after one year of defective liability period which commences from the expiry of 2 years Operation and Maintenance period and after successful transfer of the facility to Puducherry Smart City Development Ltd.

SECTION 4

BILL OF QUANTITIES

SCHEDULE – A

DESIGN, DEVELOP, IMPLEMENT, OPERATE, MAINTAIN AND TRANSFER MULTI-LEVEL FOUR-WHEELER MECHANIZED
PARKING AT OLD JAIL COMPLEX IN JN STREET & OLD PORT COMPLEX IN PUDUCHERRY (3rd CALL)

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
1		Supply, installation, erection, testing & commissioning of Rotary / Puzzle / Robotic / Shuttle Parking System with Electro Mechanical technology to accommodate minimum 100 Nos. of four-wheeler at Old jail complex as per details explained in scope of bid in section 2.1 to 2.21 of RFP with:					
1.1	NPSR 1	Providing and laying structurally designed suitable type / size of RCC foundation based on the GEO technical investigation report in the RFP to support the reactions of the structural framework able to sustain gravity, wind and seismic forces accordance with IS 456/IS 875/IS1893 latest codes, approved by PSCDL and thirty party approval obtained from government engineering institution. The rate for the foundation concrete is inclusive of all materials, reinforcement, centering and shuttering, dewatering if required and work shall be carried out as per standard specification of CPWD/IS 456 and as directed by engineer in change.	1			Job	
1.2	NPSR 2	Suitable steel structure frame work, Independent motorized pallet having up/down movement with electro-mechanical technology complete with PLC and electrical installation, Smart parking solution, ticket counter, ventilation, Electrification, Plumbing work, civil and finishing work etc. as per specification and direction of Puducherry Smart City Development Ltd. The system shall be designed to accommodate 30% SUV's cars and 70% Sedan cars with average retrieval/parking time not more than 180 seconds	100			ECS	
1.3	NPSR 3	Providing fire fighting arrangements as per requirement and specifications noted in RFP section-3, 23.g.	1			Job	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
2		Supply, installation, erection, testing & commissioning of Rotary / Puzzle / Robotic / Shuttle Parking System with Electro Mechanical technology to accommodate minimum 100 Nos. of four-wheeler at Old Port complex as per details explained in scope of bid in section 2.1 to 2.21 of RFP with:					
2.1	NPSR 4	Providing and laying structurally designed suitable type / size of RCC foundation based on the GEO technical investigation report in the RFP to support the reactions of the structural framework able to sustain gravity, wind and seismic forces accordance with IS 456/IS 875/IS1893 latest codes, approved by PSCDL and thirty party approval obtained from government engineering institution. The rate for the foundation concrete is inclusive of all materials, reinforcement, centering and shuttering, dewatering if required and work shall be carried out as per standard specification of CPWD/IS 456 and as directed by engineer in charge.	1			Job	
2.2	NPSR 5	Suitable steel structure frame work, Independent motorized pallet having up/down movement with electro-mechanical technology complete with PLC and electrical installation, Smart parking solution, ticket counter, ventilation, Electrification, Plumbing work, civil and finishing work etc. as per specification and direction of Puducherry Smart City Development Ltd. The system shall be designed to accommodate 30% SUV's cars and 70% Sedan cars with average retrieval/parking time not more than 180 seconds	100			ECS	
2.3	NPSR 6	Providing fire fighting arrangements as per requirement and specifications noted in RFP section-3, 23.g.	1			Job	
3	26.1	Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings, the aluminium quality as per grade 6063 T5 or T6 as per BS 1474, including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade (The item included cost of material such as cleats, sleeves, screws etc. necessary for fabrication of extruded aluminium frame work. Nothing extra shall be paid on this account)	6,600			Kg	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
4	26.2	<p>Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including:</p> <p>a) Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875 Part III (the system must passed the proof test at 1.5 times design wind pressure without any failure) , including fuctional design of the aluminium sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets , screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants , flashings , fire stop (barrier) - cum- smoke seals , microwave cured EPDM gaskets for water tightness , pressure equalisation & drainage and protection against fire hazard including:</p> <p>b) Fabricating and supplying serrated M.S.hot dip galvanised / aluminium alloy of 6005 T5 brackets of required sizes , sections and profiles etc. to accommodate 3 dimentional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC / masonry / structural steel frame work of building structure using stainless steel anchor fasteners / bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.</p> <p>c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment, including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass.</p> <p>d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.</p> <p>e) Making provision for drainage of moisture / water that enters the curtain glazing system to make it watertight , by incorporating principles of pressure equalization , providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item</p>	1300			sqm	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
		<p>includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved.</p> <p>The item also included the cost of all mock ups at site, cost of all samples of individual components for testing in an approved laboratory, and filed tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation.In the end, the contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the architectural drawings, as per item description, as specified, as per the approved shop drawings.</p> <p>Note: -1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub-head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm . Upto two decimal places.</p> <p>Note: -2. The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 sqm from the certified laboratories accredited by NABL (National Accreditation Board for Testing and Calibration laboratories) , Department of Science & Technologies , India . Cost of testing is payable separately. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system. Tests to be conducted in the NBL Certified laboratories.</p> <p>1. Performance Laboratory Test for Air Leakage Test (-50pa to -300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr"</p> <p>2. Static Water Penetration Test. (50 pa to 1500 pa) as per ASTME - 331-09 testing method for a range upto 2000 ml"</p> <p>3. Dynamic water Penetration (50pa to 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000 ml"</p> <p>4. Structural Performance Deflection and deformation by static air pressure test (1.5 times desing wind pressure without any failure) as per ASTME - 330-10 testing method for a range upto 50 mm"</p> <p>5. Seismic Movement Test (upto 30mm) as per AAMA 501.4-09 testing method for</p>					

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
		Qualitative test" Tests to be conducted on site 6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35psi) upto 2000 ml"					
5	26.6	Providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic float glass of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade so as to match the colour and shade of the IGUs in the vision panels etc., all complete for the required performances as specified . For payment , only the actual area of glass on face # 1 of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position , shall be measured in sqm. (Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevant item*) (i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, +12mm Airgap + 6mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 % , Light reflection internal 10 to 15% , light reflection external 10 to 20% , shading coefficient(0.25 - 0.28) and U value of 3.0 to 3.3 W/ sq.m degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement	1,300			sqm	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
6	26.7	<p>Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building, for all heights and all levels etc. including:</p> <p>a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required , proper drainage of water to make it watertight including checking of all the structural and functional design</p> <p>b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick) . The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws , nuts , bolts , washers , cleats , weather silicone sealent , backer rods etc</p> <p>c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners , SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing . The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composites panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation. Base frame work for ACP cladding is payable under the relevant aluminium items. The contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings.</p> <p>However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. Up to two decimal places.</p>	900			sqm	

PUDUCHERRY SMART CITY DEVELOPMENT LIMITED | 48
MULTILEVEL CAR PARKING

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
7	NPSR 7	Construction of compound wall in brick work with cast iron grills work as per Drawing 1 in RFP.	110			Mtr	
8	NPSR 8	Construction of reinforced cement concrete pillar finished with cornices and architraves and supplying and fixing cast iron grill gate as per Drawing 2 in RFP.	34			sqm	
9	NPSR 9	Providing and laying cement concrete kerbs, steps and the like at or near ground level including the cost of centering, shuttering in 1:2:4 (1cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) the rate inclusive of plastering the kerbs with 12 mm thick 1:4 cement mortar and painting with cement primer and enamel paint as per Drawing 3 in RFP.	400			Mtr	
10	NPSR 10	Providing and laying 20 to 23 mm thick factory made pre-polished cement concrete flooring tiles of required colour and design, over 20 mm thick cement mortar 1:4 (1 cement : 4 sand) and jointed with cement slurry mixed with an admixture of pigment to match the shade of the tile - (Endura \ Ultra \ Dazzle \ Technic) the base course for flooring is provided with plain cement concrete 1:5:10 (1cement: 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) of 125mm thick below which the surface is stabilized with quarry rubbish for an average of thickness of 250mm as per Drawing 3 in RFP.	2,700			sqm	
11	NPSR 11	Supply and installation of 12.5 mtrs. High mast system with its accessories mast shaft shall be in two sections, hot dip galvanised (as per BS 729 or equivalent) and suitable for wind velocity as per IS 875-1987 (180 km /hour). It shall also include accessories for high mast including head frame, stainless steel wire rope 6mm dia (7/19 construction) double drum per winch , which galvanized lantern carriage arrangement suitable for 10 (ten) luminaries symmetrically and its motorized control gear boxes and lighting final. (as per detailed technical specification as shown in annexure - II) the work also includes laying of Reinforced cement concrete foundation of size 0.60 x 0.60 x 1.80 m in 1:2:4 (1 cement: 2 sand: 4 graded stone aggregate 20mm nominal size with adequate reinforcement, centering, shuttering as directed by Engineer-in-charge)	6			Each	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
12	NPSR 12	Supply and fixing of LED outdoor flood light fitting in Highmast/ Minimast having 140 watts to 160 watts (system wattage), IP 65/66, white colour with necessary over voltage, under voltage and surge protection with three years onsite warranty for replacement/ rectification. Make: Philips/ Havells/ Crompton/ Bajaj/ LEDGEO/ Eveready. The rate is inclusive of all taxes.	36			Each	
13	NPSR 13	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation , sand cushioning, protective covering and refilling the trench etc.as required - Upto 35 sq.mm	250			Mtr	
14	NPSR 14	Wiring for circuit / sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor , single core cable in surface / recessed medium class PVC conduit as required - 4 X 16 sq.mm + 2 x 6 sq.mm earth wire	100			Mtr	
15	NPSR 15	Supplying and making end termination with brass compression gland and aluminum lugs for following size of PVC insulated and PVC sheathed / XLPE aluminum conductor cable of 1.1kV grade as required - 4 X16 sq.mm (28 mm)	6			Each	

Sl. No	Code	Description of work	Qty	Rate		Unit	Amount
				In figures	In words		
16	NPSR 16	Supply, erection, testing and commissioning of one no of SMC Box. (make: Sintex) with metering and timer panel board for the power supply to overall size 850mmx350mmx250mm made out of Glass wool with resin material. The front side top portion have energy meter with viewing glass with 10mm hylem sheet. The bottom side compartments with 40-63A rating, TPN MCB,C' series 10KA breaking capacity (make-Siemens/ABB),1no of timer switch (daily) aong with battery backup 200hrs (make-L&T-kagger/legarand-lexic) 1no.60A power conductor (make-C&S/L&T),1no of toggle switch (make –C&S). The switch units are to be fixed within the allotted size in the 10 mm hylem sheet. The bottom sheet of the shell should be of PVC thick roll sheet for cable entry. The panel has to be mounted 75mm x75mm 6mm MS'L angle on the floor with in the height of 600mm interior connection between the switch fuse units are to be done with 2.5/6.0/10.0 sq.mm ISI marked, FR PVC insulated, single core copper conductor cable. (Make-Finolex/Polycab).The door should be flush type inter locking in one position. The panel provided with removable type pland plated to the bottom and with sufficient holes of required diameter. Earth work excavation of foundation trench of size 1.00mm x 06mm x 0.6m and fitting river sand for depth of 0.10m and P.C.C 1:2:4(1 cement:2 coarse sand: 4 graded stone aggregate of 20mm nominal size) of size 1.00mm x 0.60 x 1.00m. The cost should be inclusive of minor modification suitable for site condition as approved by the Engineer-in-charge.	2			Each	

CHIEF EXECUTIVE OFFICER
PSCDL

Note:

1. *Specification mentioned at Schedule A prevails if any mismatch in items mentioned in BOQ exists. This BOQ contains 23 items*
2. *Bidders may note that they shall quote after understanding site condition, tender specifications and reasonable market rates.*
3. *Bidders shall ensure correct quality and quantity while bidding and avoid abnormal variations while quoting among the components.*

SECTION 5

FORMS OF BID

From –I
LETTER OF TENDERER

To,
The Chief Executive Officer,
Puducherry Smart City Development Limited,
No.2. Bussy Street,
Old court building,
Puducherry- 605 001.

Sir,

Sub: Submission of Bid for Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (*Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry (3rd call).

- a. I / Wehaving examined the details given in the Invitation to Bidders, we hereby submit the following information and relevant documents.
- b. I/We hereby certify that all the statements, information and data provided in the enclosed forms and accompanying sheets are true and correct to the best of my / our knowledge.
- c. I/We have read the instructions appended with the qualification document and I/We understand that any contract made between ourselves and **The Chief Executive Officer, PSCDL, Puducherry**, on the basis of the information given by me / us is liable to be cancelled if any false information is detected at a later date.
- d. I/Wehave also no objection if enquiries are made on all the projects and works listed by me / us in the accompanying sheets or any other enquiry on the information furnished herewith in the accompanying sheets.
- e. I/We have furnished all information and details as asked for and have no further pertinent information to provide.
- f. I/We submit in **from** the certificates in support of my / our suitability, technical know-how and capability for having successfully completed the works during the last five years.
- g. I/We also agree that the decision of **The Chief Executive Officer, PSCDL, Puducherry**, in the Qualification and selection of Contractors will be final and binding upon me / us.
- h. I/We agree that **The Chief Executive Officer, PSCDL, Puducherry**, reserves the right

to qualify any contractor or to cancel the exercise without assigning any reason for doing so or to incur any liability to any party whatsoever.

- i. I/We agree not to withdraw from the contract after issue of LOA and before signing the agreement. If so we abide by the condition that liquidated damages shall be claimed against us by “**The Chief Executive Officer, PSCDL, Puducherry,**”
- j. The following are enclosed as enclosures to the letter of tender.
 - 1. Certificate of Incorporation from Registrar of Companies.
 - 2. Annual Report / Audited Balance Sheet & Profit and Loss Statement for the last 5 years Proof of filing Income Tax returns for the past five years.
 - 3. Sales Tax / Works Contract Tax / GST / Service Tax / PAN Registration and Clearance certificate.
 - 4. PERT / BAR Charts and quality Formats used at site such as pour card for Concrete etc.
 - 5. Testimonials from Clients / Consultants for completion of works included in **form-V**.
 - 6. LOI/ Work Order issued by the Clients for ongoing works included in **form – VI**.
 - 7. Organization Chart of Company showing the Officer in-Charge who will have direct link with and control of, site organization.
 - 8. Organization Chart and Curriculum Vitae of top two officers, viz, Project Manager and coordinator.
 - 9. Method Statement : Programming & Planning and Progress monitoring plan, weekly and monthly ; Management of direct subcontractors from selection through execution of work; Coordination with Specialist contractors etc.; Quality Control & Quality Assurance at site; Safety Plan; and
 - 10. **Form II to VIII** with complete details and any certificates other than that listed above.

I / we hereby agree to abide by the decisions **The Chief Executive Officer, PSCDL, Puducherry**, in all matters relating to this Qualification.

Date of Submission

Signature of Bidder with Official Seal

* The bidder should clearly mention only one name of technology for which he is bidding and for that particular type of technology he should fulfil the eligibility criteria.

Form –II

ORGANISATION STRUCTURE (BIDDER)

Sl. No.	Details required	To be filled by the Bidder	Page Ref.
1	Name of the Bidder's Company		
2	Nationality of Bidder		
3	Establishment of the Company		
	i) Year		
	ii) Location		
4.	The Bidder is a company (Please enclose attested copy of registration incorporation under appropriate laws of the Bidder's Country)	Yes / No Enclosed / Not enclosed	
5	Address of the Bidder :		
i)	Registered Office Address		
	Telephone Number		
	Fax Number		
	E-mail Address		
	Web site		
ii)	Local office address:		
	Telephone Number		
	Fax Number		
	E-mail Address		
iii)	Office address through which this work will be handled and name of officer in-charge.		
	Telephone Number		
	Fax Number		
	E-mail Address		
6	The Bidder has to furnish a detailed note on how it will handle the project in India, if successful bidder, in terms of (i) Finance, (ii) Manpower,(iii) Tools & equipment, (iv) Use of local agencies and labour, (v) Project control and management plan		
7	Details of the Board of Directors		
	i) Name of the Director		
	ii) Qualification		
	iii) Organization		
	iv) Office address		
	v) Telephone Number		
	vi) Fax Number		
	vii) E-mail Address		
8	Enclose Company's Organization Chart showing the structure of the organisation including the names of the Directors / Chief Executive Officer and position of Officers.	Enclosed / Not Enclosed	

9	Number of years of experience and other Details.		
a	As a Principal Contractor (Contractor shouldering major responsibility)	Yes / No	
	i. In INDIA	Yes / No No. of Years :	
	ii. Other countries (If yes, pl. specify country)	Yes / No No. of Years : Country :	
10	Average number of permanent employees in the last 12 months.		
	i) Managerial	Nos.	
	ii) Technical	Nos.	
	iii) Administration	Nos.	
	iv) Financial	Nos.	
	v) Quality Control and Quality Assurance Engineer	Nos.	
	vi) Safety Officer	Nos.	
	vii) Public Relations Officer	Nos.	
	viii) Supervisors	Nos.	
	ix) Foreman / Technician	Nos.	
	x) Skilled Labours	Nos.	
	xi) Unskilled Labours	Nos.	
	xiii) Others (to specify)	1. Nos. 2. Nos. 3. Nos.	
11	i) How many years has your Company been in business of similar work under its present name & addressYears	
	ii) What were your fields of activities from when your Company was established?	1. 2. 3.	
	iii) Whether any new fields were added in your Company? and if so, when and in what fields?	1. 2. 3.	
12	Area of business activities other than construction works, if any (If yes, please furnish specific information).	Yes / No	
13	In which fields of Engineering works do you claim specialization and interest?	1. 2. 3.	
14	Whether registered with any Government / Public Sector Undertaking / Urban Local bodies like CPWD / MES / PWD or equivalent. If yes, please furnish details class and type of Registration.	Yes / No 1. 2. 3.	
15	Registration Details :		
	i) Sales Tax Registration No or equivalent applicable in the Bidder's country & Valid upto		
	ii) PF Registration No or equivalent applicable in the Bidder's country & Valid upto		
	iii) ESI Registration No or equivalent applicable in the Bidder's country & Valid upto		
	iv) Service Tax registration No or equivalent applicable in the Bidder's country & Valid upto		

16	Whether adequate and satisfactory evidence to indicate financial capacity of the organisation to undertake the said construction work is enclosed.	Yes / No	
17	Do you have plans for sub-contracting any part of the work. If yes, specify the quantum of contract in terms of percentage of works. Details of credentials of the subcontractors proving their ability to handle the component of this project.	Yes / No % Rs.....	
18	Maximum Quantities executed in a single day in any one year in the last five years in respect of the following items of work (Information only) mention the project name and cost.		
	i) - a) Plain Cement Concrete works	Cum	
	b) Reinforced Cement Concrete works	Cum	
	ii) Reinforcement steel	MT	
	iii) Rainwater Harvesting Structures	Nos.	
19	Do you have in-house Soil and Material testing laboratory Facility?	Yes / No	
20	Do you have Latest Survey instruments and Equipment to set out levels at any heights and all type of Special structures?	Yes / No If yes mention the name of equipment and the quantity possess.	
21	Do you have your own Ready mix concrete facility? If yes, give details of location and its production capability in terms of quantity per day.	Yes / No Location Production Cum/Day	
22	Do you have your own Cement manufacturing Plant / Ready mix plant? If yes, furnish details of your own plant. If no, please specify name of manufacturer for sourcing and the dependency of the manufacture by the Bidder.	Yes / No	
23	Do you have R&D department ? If yes, give details.	Yes / No	
24	i) Do you have and adopt Quality Control and Quality Assurance Manual?	Yes / No Enclose QA Plan	
	ii) Is your company an ISO certified Company? If yes, furnish the ISO certification no.	Yes / No	
	iii) Do you follow Quality Assurance System as per the appropriate ISO series of standards?	Yes / No	
25	i) Do you have and follow Safety Manual? If yes, give details of health and safety facilities available with you.	Yes / No Enclose Environmental Health and Safety Plan.	
	ii) Was there any major, fatal accident during execution in the last five years? If yes, furnish	Yes / No	
	iii) Whether corrective action taken immediately and first-aid facilities provided in the site?	Yes / No	
26	Proposed Methodology:	Enclose Statement	
	i) Whether the Programming and planning plan will be prepared in the form of PERT Chart or Bar Chart?	Yes / No	

	ii) Whether the coordination plan & report plan will be prepared in the standard format?	Yes / No	
	iii) Whether the technically qualified Sub- Contractors are engaged to carry out the work?	Yes / No	
27	Were you ever required to suspend work for a period of more than three months continuously after you started the work? If yes, furnish the name of project and reasons thereof.	Yes / No 1. Name of Project : Reasons 2. Name of Project : Reasons	
28	Have you ever left the work awarded to you incomplete? If yes, furnish the name of project and reasons thereof.	Yes / No 1. Name of Project : Reasons 2. Name of Project : Reasons	
29	Were any penalties imposed for delays on the completion of the project? If yes, furnish the name of project and reasons thereof.	Yes / No 1. Name of Project : Reasons 2. Name of Project : Reasons	
30	Were there any terminations of Contracts by the PSCDL? If yes, furnish the details.	Yes / No 1. Name of Project : Reasons 2. Name of Project : Reasons	
31	Litigation initiated by the Company and against the Company if any?		
	i) Whether cases of litigation proceedings have arisen in your projects during the last three financial years?	Yes / No	
	ii) If Yes, How many cases of litigation arisen during the last three financial years?	Nos.	
	iii) Furnish the details of the highest claim of Litigation during the last three financial years.	Rs.	
	iv) If the Bidder is a multinational company, please furnish the litigation history initiated by the Company and against the company in India, if any.		
32	Arbitration :		
	i) Whether cases of arbitration proceedings have arisen in your projects during the last three years?	Yes / No	
	ii) If Yes, How many cases of arbitration arisen during the last three years. Furnish name of work, name of the Client, cost of work, amount of claim.	Nos.	
	iii) Furnish the details of the highest claim of arbitration during the last three years.	Rs.	

33	Details of the Banker		
	Name of the Banker		
	Contact person		
	Office Address		
	Telephone Number		
	Fax Number		
34	Are you a Recipient of any Award in appreciation of your work? If yes, furnish the details	Yes / No	
35	Please give at least three references of Clients (Engineers, Architects or Top Officials of Organization) for whom you may have executed construction works of importance and similar nature from whom “The Chief Executive Officer, PSCDL,” and can verify.	1.Name: Designation: Company: 2.Name: Designation: Company: 3.Name: Designation: Company:	
36	Any special information, which you may like to provide.		

Place:

Date:

Signature of the Bidder
Common seal of the Company

From –III

PERSONNEL TO BE DEPLOYED FOR THE PROJECT

S.No.	Details required	To be filled by Bidder
A	Project Engineer	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
B	Site Engineer	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	
C	Electrical Engineer	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	

D	Mechanical Engineer	
1	Individual's Name	
2	Age	
3	Qualification	
4	Present position	
5	Professional experience in the similar nature of works.	
6	Years with the Bidder	
7	Language known	
8	Name two recent works and nature of involvement of the person	

Place:

Signature of the Bidder

Date:

Common seal of the Company

Note: 1) CV of each of the above key personnel and details of their experience should be included in the submission.

2) Organization Chart (both office and site) specific for this project for all the divisions of work (Main works & Direct Sub works) as an Annexure to this format must be attached.

Form –IV
FINANCIAL INFORMATION

Sl.No	Description	Details to be filled in by Bidder
A.	Annual Turnover in the last three financial years (In lakhs)	
i	Year : April 2017 to March 2018	
ii	Year : April 2018 to March 2019	
iii	Year : April 2019 to March 2020	
B	Financial Information (In lakhs)	
I	Year : April 2017 to March 2018	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
II	Year : April 2018 to March 2019	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
III	Year : April 2019 to March 2020	
	a. Total assets	
	b. Current assets	
	c. Total Liabilities	
	d. Current Liabilities	
	e. Profits before taxes	
	f. Profits after taxes	
	g. Net worth	
	h. Working Capital	
C	Credit facilities available to Bidder – Fund and non-fund based such as Cash Credit, Working capital term loans, LCs and Bank Guarantees - Banker's or Bankers' Letter must be produced. (Rs.in lakhs).	
	a. Name of Banker with address	

	b. Date of Letter of Support	
	c. Amount	
D	Bidder's Financial resources for this project	
	a. Own resources	
	b. Banker's or Bankers' credits	
E	a. Approximate total value of on-going works	
	b. Total Value of works to be completed as of now. Note: 1) The Bidder should furnish the value of work to be completed as of now along with break-up 2) The Bidder has to ensure that the list of works covered in this Proforma should be same as the ones listed in Proforma – VI (List & details of Ongoing works) with Proforma of each work.	
F	Anticipated total value of new works for the next financial year.	

Place:

Signature of the Bidder

Date:

Official Seal

Note: Balance sheet, Profit and loss statement, auditor's report etc. duly signed by Chartered Accountant is required to be attached separately.

Form –V

BID CAPACITY FORM

Maximum value of MLCP works executed in 1 year during the last 5 years (value of the executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum. Calculated from the date of completion to last date of submission of tender.

Years	Value of MLCP work completed	Appropriated value @ 7% per annum	Name of client	Date of work order	Date of completion
2016-17					
2017-18					
2018-19					
2019-20					
2020-21					

Bidder should workout the bid capacity as per the following formula:

$$\text{Bid Capacity} = A \times M \times N - B,$$

where

- A = Maximum value of MLCP works executed in any one year during the last five years (updated at the current price level), taking into account the completed as well as works in progress.
- M = Multiplier factor (usually 1.5)
- N = Number of years prescribed for completion of the work in question i.e one year.
- B = Value (updated at the current price level) of the existing commitments and ongoing works to be completed in the next 'N' years i.e one year.

Form –VI

DETAILS OF COMPLETED SIMILAR WORKS

S.No.	Details required	To be filled by the Bidder
1	Name of work	
2	Country and location	
3	Client's name and address	Name: Address :
4	Consultants name and address.	Name: Address :
5	Total tendered cost of work Agreement No. Date	Lakhs Agreement No: Date :
6	Total actual cost of work after completion	Lakhs
7	Excess / less in percentage.	%
8	Explain, if Excess / less is higher by 20% of the tendered cost of work.	
9	Date of commencement	
10	Period of completion	
11	Stipulated date of completion	
12	Actual date of completion	
13	Extended by the contractor, if any. Reason for non- completion of work in stipulated time limit / extended time limit, if so furnish details	Yes / No
14	Extension of time granted by the Client, if any. If yes, please specify the reason for extension of time.	Yes / No
15	Brief description of works including principal features and quantities of main items of the work.	
16	Name of Contractor's Engineer in-charge of the Project & Qualifications	Name : Qualification:
17	Details of specialized work executed under this Contract.	
18	Details of specialized work executed by their own divisions under the Contract	
20	Whether the Programming and planning plan was followed in the form of Pert Chart or Bar Chart?	Yes / No
21	Whether the Quality Control and Quality Assurance function was carried out? If yes, Please give details and copies of quality formats used in any one project.	Yes / No

22	Whether the safety measures were followed? If yes, Please give details.	Yes / No
23	Were there any penalties / fines / stop notice / compensation / liquidated damages imposed during execution of the project? If Yes, Please give amount, details and reason.	Yes / No Amount: Reason:
24	Whether the contract of the work was terminated? If Yes, furnish the details.	Yes / No Name of the Project: Reason:
25	Please specify the details of litigation / arbitration cases, if any, pertaining to works completed. If Yes, furnish the details i.e. Nature of litigation / arbitration. Please furnish whether the litigation is initiated by the Company or against the Company.	Yes / No
26	Attach client's certificate, as may be available (Not below the rank of Director or equivalent)	Yes / No

Place:

Date:

Signature of the Bidder
Official Seal

Form–VII
DETAILS OF ON-GOING WORKS

Sl.No.	Details required	To Be filled by the Bidder
1	Name of work	
2	Country and location	
3	Client's name and address	Name: Address :
4	Consultants name and address	Name : Address :
5	Total tendered cost of work (Agreement No. and Date)	Lakhs
6	(a) Brief description of works including principal features and quantities of main items of the work.	
7	i) Percentage of physical completion	
	ii) Amount billed for the work completed.	
	iii) Cost of work remaining to be executed as on the date of submission.	
	iv) Stipulated date of completion	
	v) Anticipated date of completion	
8	Name of Contractor's Engineer in-charge of the Project & Qualifications.	Name : Qualification :
9	Details of specialised works under this Contract	
10	Specialised works being executed by their own divisions	
11	Details of the sub-contracted specialised works by the Bidder	
	i) Total value of work sub-contracted.	Lakhs
	ii) Trade-wise value of work sub-contracted.	1 Lakhs 2 Lakhs
	iii) Trade-wise Name of sub-contractors Use separate sheet for details of such sub-contractors experience, capability, testimonial.	1. 2. 3. 4.
12	Attach client's certificate, as may be available (Not below the rank of Director or equivalent)	Yes / No

Place:

Date:

Signature of the Bidder
Official Seal

Form–VIII

FORMAT FOR POWER OF ATTORNEY

[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney]

Know by all men by these presents, We _____ (Name of the Bidder and address of their registered office) do hereby constitute, appoint and authorize Mr. / Ms _____ (name and residential address of Power of attorney holder) who is presently employed with us and holding the position of _____

as our Attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Proposal for the **“Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry (3rd call),”** including signing and submission of all documents and providing information / responses to the PSCDL, representing us in all matters before PSCDL, and generally dealing with the PSCDL in all matters in connection with our Proposal for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said Attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid Attorney shall and shall always be deemed to have been done by us.

For _____
Name:
Designation: Date:
Time:
Seal:
Business Address:

Accepted,

(Signature) (Name, Title and Address of the Attorney)

Note:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- The Power of Attorney shall be provided on Rs.200/- stamp paper.
- The Power of Attorney should be supported by a duly authorized resolution of the Board of Directors of the Bidder authorizing the person who is issuing this power of attorney on behalf of the Bidder.

Form-IX
BID SECURITY DECLARATION FORM

Date:_____ Tender No._____

To (insert complete name and address of the company/firm)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with PSCDL for a period of two year from the date of notification if I am / We are in a breach of any obligation under the bid conditions, because I/We

- a) Have withdrawn/modified/amended, impairs or derogates from the tender, my / our Bid during the period of bid validity specified in the form of bid; or
- b) Having been notified of the acceptance of our bid by the PSCDL during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am / we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) sixty days after the expiration of the validity of my / our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration)

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of (insert complete name of Bidder)

Dated on_____ day of _____(insert date of signing)

Corporate Seal (where appropriate)

Note: The above **Bid Security Declaration** should be furnished in Non Judicial Stamp Paper, not less than Rupees One Hundred.

Form-X

Form of Bank Guarantee

[Performance Security/Additional Performance Security]

Puducherry Smart City Development Limited, Puducherry WHEREAS:

- (A) [name and address of contractor] (hereinafter called the “**Contractor**”) and [name and address of the authority], (hereinafter called the “**Authority**”) have entered into an agreement (hereinafter called the “**Agreement**”) for the construction of the *Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry* on Engineering, Procurement and Construction (the “EPC”) basis, subject to and in accordance with the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupees..... crore) (the “Guarantee Amount”).
- (C) We, through our branch at (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [Chief Executive Officer, PSCDL], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect on [48 months from the date of issuance]. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of, 20..... at

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature) (Name) (Designation) (Code Number) (Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch

Form –XI

Form for Guarantee for Advance Payment

Puducherry Smart City Development Limited, Puducherry] WHEREAS:

(A) [name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the [name and address of the authority], (hereinafter called the “Authority”) for the construction of the Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry on Engineering, Procurement and Construction (the “EPC”) basis, subject to and in accordance with the provisions of the Agreement

(B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @ 10% of advance payment (herein after called “Advance Payment”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ----- cr. (Rupees crore) and the

amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the “Guarantee Amount”).

(C) We, through our branch at (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

7. The Guarantee shall cease to be in force and effect on ***, \$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of, 20..... at

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature) (Name) (Designation) (Code Number) (Address) NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch

Form –XII

TECHNICAL DETAILS

1. Name of the Technology:
2. System Description (one page note on the MLCP system) :
3. MLCP Architecture / design : (with respect to the specific site conditions) Attach in A3 size
4. No. of Levels:
5. Length x width x height of the system:
6. Retrieval time:
7. Type of motors deployed:
8. Power rate of the motors:
9. Type of pallet:
10. Safety features / devices:
11. Parking management system:
12. Material specifications (please mention specifications for all the materials going to be used):
13. Façade design : (Attach in A3 size)
14. List of manufactures from whom material is going to be sourced:
15. Tentative BOQ (for the following components for each site separately)
 - i. MLCP
 - ii. Foundation
 - iii. Fire fighting
16. Structural design vetting certificate from IIT Madras for both MCCP structure & Civil foundation:

SECTION 6
DRAWINGS AND ANNEXURE
(Available at page no.161 to 225)

SECTION 7

GENERAL CONDITION OF AGREEMENT

Agreement for the work, “Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking in the Puducherry Smart City area at at Old Jail Complex in JN Street & Old Port Complex under EPC mode”.

THIS AGREEMENT is entered into on this the day of,20...

Between

[The Puducherry Smart City Development Limited represented by Chief Executive Officer, having its registered office at No:2, Old Court building, Bussy street, Puducherry (hereinafter referred to as the “Authority” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One Part;

And

<insert name of party>, the selected bidder having its registered office at <insert registered office address of the party>, (hereinafter referred to as the “Contractor” which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the Other Part.

Whereas:

- A. The Government of India launched Smart City Mission in which Puducherry City was qualified as Smart City in Third round of Smart City Challenge
- B. The Government of Puducherry as per the Smart City guidelines established the Special Purpose Vehicle, Puducherry Smart City Development limited (PSCDL) to implement the Smart City Mission in Puducherry.
- C. The PSCDL Board approved the proposal to implement the Multi-Level Car parking facility in the Puducherry Smart City area.
- D. Accordingly, the authority invited proposals for the work, “Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking in the Puducherry Smart City area at at Old Jail Complex in JN Street & Old Port Complex under EPC mode”, from the eligible bidders as per the technical and commercial terms and conditions prescribed in the RFP for undertaking the Project.
- D. After evaluation of the bids received, the Authority accepted the bid of the selected bidder and issued its Letter of Acceptance No. <insert details> dated <insert date> (hereinafter called the “LOA”) to the selected bidder for Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking in the Puducherry Smart City area at Old Jail Complex in JN Street & Old Port Complex at the Contract Price specified hereinafter, requiring the selected bidder to inter alia:

- a. to give his consent to enter into this Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of LOA;
- b. submit Performance Security and Additional Performance Security (if any) as per RFP requirements, and
- c. execute this Agreement within 30 (thirty) days of the date of issue of LOA

E. The Contractor has fulfilled the requirements specified in Recital (D) above;

NOW, THEREFORE, in consideration of the foregoing and the respective covenants set forth in this Agreement, the sufficiency and adequacy of which is hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree as follows:

Article: 1

Definitions

1.1 Definitions

(i) The words and expressions beginning with capital letters and defined in this Agreement shall, unless the context otherwise requires, have the meaning ascribed thereto herein.

(ii) In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

“Accounting Year” means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;

“Agreement” means this Agreement, its Recitals, and any amendments thereto, or any supplementary agreement made in accordance with the provisions contained in this Agreement.

“Applicable Laws” means all laws, brought into force and effect by the GOI or the State Government including rules, regulations and notifications made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement.

“Applicable Permits” means all clearances, licenses, permits, authorizations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation and maintenance of the Project during the subsistence of this Agreement; “Appointed Date” means the date declared by the Authority as the project commencement date with the consent of the contractor;

“Arbitration Act” means the Arbitration and Conciliation Act, 1996, with all its subsequent amendments.

“Authority” means the Puducherry Smart City Development Limited (PSCDL).

“Bank” means a bank incorporated in India and recognized by the Reserve Bank of India

“Bid” means the documents in their entirety comprised in the bid submitted by the [selected bidder/ Joint venture] in response to the Request for Proposal in accordance with the provisions thereof.

“Bid Security” means the bid security provided by the Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security;

“Change of Scope” shall have the meaning set forth in Article 11.

“Completion Certificate” shall have the meaning set forth in Article 10.2;

“Construction Period” means the period commencing from the Appointed Date and ending on the date of the Completion Certificate.

“Contract Price” means the amount specified in Article 16.1 (i);

“Contractor” shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

“Cure Period” means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

(a)commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice;

(b)not relieve any Party from liability to pay Damages or compensation under the provisions of this Agreement; and

(c)not in any way be extended by any period of Suspension under this Agreement; provided that if the cure of any breach default by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority’s Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority’s Engineer to accord their approval;

“Defect” means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any Defect or deficiency which is specified in Schedule-E.

“Defects Liability Period” shall have the meaning set forth in Article 14.1.

“Drawings” means all of the drawings, calculations and documents pertaining to the Project as set forth in Schedule-I and shall include ‘as built’ drawings of the Project .

“Document” or “Documentation” means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form.

“Emergency” means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets.

“Encumbrances” means, in relation to the Project, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations and shall include any designation of loss to payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project, where applicable herein but excluding utilities referred to in Article 9.1.

“EPC” means engineering, procurement, and construction.

“Final Payment Certificate” shall have the meaning set forth in Article 16. ;

“Force Majeure” or “Force Majeure Event” shall have the meaning ascribed to it in Article 15 .

“GAD” or “General Arrangement Drawings” shall have the meaning set forth in Section 6 in the RFP.

“Good Industry Practice” means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Contractor in accordance with this Agreement, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner;

“Government Instrumentality” means any department, division or sub- division of the Government or the State Government and includes any commission, board, authority, agency or municipal and other local authority or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement

“Maintenance” means the maintenance of the Project as set forth in Article 12 for the period specified therein.

“Maintenance Inspection Report” shall have the meaning set forth in Article 13.2;

“Maintenance Manual” shall have the meaning ascribed to it in Article 8.7;

“Maintenance Programme” shall have the meaning set forth in Article 12.4;

“Maintenance Period” shall have the meaning set forth in Article 12.1;

“Maintenance Requirements” shall have the meaning set forth in Article 12.3;

“Materials” comprise of all the supplies used by the Contractor used in the Works or for the maintenance of the Project;

“Monthly Maintenance Statement shall have the meaning set forth in Article 12.2;

“Parties” means the parties to this Agreement collectively and “Party” shall mean any of the parties to this Agreement individually.

“Performance Security” and “Additional Performance Security” shall have the meaning set forth in Article 7.1;

“Plant” means the apparatus and machinery intended to form or forming part of the works of the Works.

“Project Assets” means all physical and other assets relating to project and (b) Project Facilities situated on the Site;

“Project Completion Date” means the date on which the Completion Certificate is issued;

“Project Completion Schedule” means the progressive Project Milestones set forth in Schedule-J for completion of the Project on or before the Scheduled Completion Date;

“Project Milestone” means the project milestone set forth in Article 8.1;

“Proof Consultant” is Indian Institute of Madras for the purpose of design vetting and issue of structural stability certificate.

“Quality Assurance Plan” or “QAP” shall have the meaning set forth in Article 9;

“Request for Proposals” or “RFP” shall have the meaning set forth in Recital ‘C’;

“Safety Consultant” shall have the meaning set forth in Article 9.1;

“Scheduled Completion Date” shall be the date set forth in Article 8.3;

“Scheduled Construction Period” means the period commencing from the Appointed Date and ending on Scheduled Completion Date;

“Scope of the Project” shall have the meaning set forth in Article 2.1;

“Specifications and Standards” means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project, as set forth in Schedule-A, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project submitted by the Contractor to, and expressly approved by, the Authority;

"Stage Payment Statement" shall have the meaning set forth in Article 16.4;

"Structures" means an elevated MLCP, as the case may be;

"Taking Over Certificate" shall have the meaning set forth in Article 12.11;

"Taxes" means any Indian taxes including GST, excise duties, customs duties, value added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

"Termination" means the expiry or termination of this Agreement;

"Termination Notice" means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement;

"Tests" means the tests set forth in Article 10 to determine the completion of Works in accordance with the provisions of this Agreement;

"Time Extension" shall have the meaning set forth in Article 8.4;

"User" means a person who parks the vehicle;

"Works" means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, maintenance, temporary works and other things necessary to complete the Project in accordance with this Agreement; and

"WPI" means the wholesale price index for various commodities as published by the Ministry of Commerce and Industry, GOI and shall include any index which substitutes the WPI, and any reference to WPI shall, unless the context otherwise requires, be construed as a reference to the WPI published for the period ending with the preceding month.

1.2 Priority of agreements and errors/discrepancies

(i) This Agreement, and all other agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:

(a) this Agreement; and

b) all other agreements and documents forming part hereof or referred to herein, i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).

(ii) Subject to the provisions of Article 1.4 (i), in case of ambiguities or discrepancies within this Agreement, the following shall apply:

(a) between two or more Articles of this Agreement, the provisions of a specific Article relevant to the issue under consideration shall prevail over those in other Articles;

(b) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;

(c) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and

(d) between any value written in numerals and that in words, the latter shall prevail.

Article: 2

Scope of Work:

1. Supply, installation, erection, testing & commissioning & two Year Comprehensive Operation and maintenance contract of Parking System with Electro Mechanical technology to accommodate minimum 100 Nos. of four-wheeler with suitable steel structure frame work, Independent motorized pallet having up/down movement with electro-mechanical technology complete with PLC and electrical installation etc. as per specification and direction of Puducherry Smart City Development Ltd. The system shall be designed to **accommodate 30% SUV's Four-Wheeler size 5000 mm length, 1900 mm breadth and 2000 mm height and 70% Sedan cars size 5000 mm length. 1800 mm breadth and 1550 mm height (The size mentioned are only indicative, ultimately it is responsibility of the successful bidder to design for accommodating all type of SUVs and SEDANs on road)** with average retrieval/parking time not more than 180 seconds. The maximum permissible height of the parking structure above the floor level on the ground shall be 20 metres and shall also abide by the recent norms of Town and Country planning department, Puducherry.
2. Provide required electrical, mechanical and automation for MLCP.
3. Provide all software and hardware required for automation and commissioning of the MLCP.
4. Other amenities Civil work, Civil foundations and Finished Flooring with suitable roofing over the system, necessary Power back up (diesel generator set with alternator and AMC panel board of suitable capacity), Firefighting System as per NBC norms, Electrical Cabling including Main, four-Wheeler Parking Panel with ELCB, Earthing, Lighting arrester including adequate capacity of compact substation and LT Panel board as per approved plans will be in the scope of bidder.
5. Facade development work for MLCP shall be in the scope of the contractor. The design / drawing of the facade development shall be approved by the Authority.
6. Digital display signage boards and CCTV surveillance has to be provided at site.
7. The bidder shall install brand new equipment and the same shall be free from all defects and faults in material, workmanship, and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The Contractor shall be responsible for execution of work without any defects that may develop under the conditions provided by the Contractor and under use, arising from faulty materials, design or workmanship such as corrosion of the equipment, inadequate contact protection, deficiencies in circuit design and or otherwise and shall rectify if any defects occur at his own cost when called upon to do so by the PSCDL.

8. The entire project will be financed by PSCDL. Further PSCDL reserves the right to collect the revenue from MLCP during operations & maintenance period.
9. The bidder shall get their structural design (MLCP & Civil structure foundation) vetted by IIT Madras. Necessary certificate towards this must be submitted by the bidder. The successful bidder shall also submit structural stability certificate for 10 years for all the components of MLCP from IIT Madras, after erection of MLCP.
10. Third party inspection: The PSCDL may appoint any approved Government agency/Authority or any person for third party inspection of the work. The cost towards the same will be borne by PSCDL.
11. All labor, materials, tools plants, machinery, equipment, and any other things required for execution for work shall be arranged by the CONTRACTOR at his own cost.
12. 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.
13. Testing and Commissioning shall include furnishing all labor, materials, instruments etc. and incidentals necessary for complete testing of each component as per the IS / NBC specifications and manufacturer's recommendations.
14. 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 Authority.
15. In view of the site location and their prevailing condition, it is mandatory on the Contractor to visit the site and make himself thoroughly familiar with the site conditions, access and account for all possible difficulties and other requirements mentioned elsewhere in his bid prior to submission. When a contractor submits his bid for this work, it will be considered that he has quoted for this work with full and complete knowledge of the site and prevailing conditions, and no claim for additional compensation shall be entertained on this account.
16. It is clarified that bidder should read carefully understand design features as mentioned in "Design Feature" in the para below so that the Bidder is familiarized with the scope of work while submitting a Bid.
17. All necessary statutory clearances / permissions such as approval from Puducherry Planning authority, Puducherry Municipality, Electricity services connection, Puducherry Coastal Zone Management Authority, Fire service Department etc., has to be obtained by bidder. However, the actual fees incurred will be paid by PSCDL. Further, the successful bidder shall commence the work at site after furnishing all the documents related to seeking necessary statutory approvals with the respective authorities.
18. The contractor shall submit the as built drawing, other specifications & additional maintenance, and Operation standard other than mentioned in the RFP.
19. **Comprehensive Operation and Maintenance:** The successful bidder/ CONTRACTOR will be required to undertake Operation & maintenance of the 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) Maintenance shall generally be allowed at nonpeak hours only.
 - c) The complete Mechanized system shall have the provision of emergency evacuation of vehicles manually also.
 - d) Contractor should maintain all the necessary INVENTORY of electro-mechanical parts of the system during Comprehensive Operation and maintenance period and also provide a list parts prone to wear and tear during regular operation to PSCDL authorities at the time of handing over after two-year Comprehensive Operation and maintenance.
 - e) During the Operation and Maintenance period, the successful bidder shall replace the damaged/defective/worn out parts at his own cost to ensure smooth functioning of MLCP.
 - f) 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. "PUDUCHERRY SMART CITY DEVELOPMENT LIMITED 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 display signboard about its availability.
 - g) Transfer of facility to "PUDUCHERRY SMART CITY DEVELOPMENT LIMITED. The CONTRACTOR shall transfer the parking facility to "PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, free and clear of any encumbrances on completion of or termination of contract, whichever is earlier.
 - h) During the Comprehensive Operation and maintenance period prior to anticipate transfer of the Facility the CONTRACTOR shall provide such training services to the representatives and employees of Engineer in Charge "PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, or its nominated agency to operate and maintain the Facilities efficiently and safely following such transfer.
20. The successful bidder will be expected to complete the works in **9 months** from the date of signing of the agreement.
21. Detailed description of work is given in General Technical Specifications.

Article: 3

Obligations of the Authority

3.1 Obligations of the Authority

(i) The Authority shall, at its own cost and expense, undertake, comply with and perform all its obligations set out in this Agreement or arising hereunder.

(ii) The Authority shall be responsible for the correctness of the Scope of the Project, Project Facilities, Specifications and Standards and the criteria for testing of the completed Works.

(iii) The Authority shall, upon submission of the Performance Security as per the RFP by the Contractor, shall provide to the Contractor:

a) No less than 90% of the required Project area within a period of 30 (thirty) days from the date of this Agreement.

(iv) The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:

a) upon written request from the Contractor, and subject to the Contractor complying with Applicable Laws, provide reasonable support to the Contractor in procuring Applicable Permits required from any Government Instrumentality for implementation of the Project;

b) upon written request from the Contractor, provide reasonable assistance to the Contractor in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity at rates and on terms no less favourable than those generally available to commercial customers receiving substantially equivalent services;

c) support, cooperate with and facilitate the Contractor in the implementation of the Project in accordance with the provisions of this Agreement; and

3.2 Deemed Termination upon delay

(i) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Authority (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Authority.

- (ii) If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Authority

When the contractor has made himself liable for action under any of the cases aforesaid, the Authority on behalf of the President of India shall have powers:

(a) To determine the contract as aforesaid (of which termination notice in writing to the contractor under the hand of the Authority shall be conclusive evidence). Upon such determination, the Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the Government.

(b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above courses being adopted by the Authority, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Authority has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

Article: 4

Obligations of the Contractor

4.1 Obligations of the Contractor

- (i) Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, construction, and maintenance of the Project and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder.
- (ii) The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.
- (iii) Subject to the provisions of Articles 4.1 (i) and 4.1 (ii), the Contractor shall discharge its obligations in accordance with Good Industry Practice and as a reasonable and prudent person.
- (iv) The Contractor shall remedy any and all loss, defects, or damage to the Project from the Appointed Date until the end of the Construction Period at the Contractor's cost, save and except to the extent that any such loss, defect, or damage shall have arisen from any willful default or neglect of the Authority.
- (v) The Contractor shall remedy any and all loss, defect or damage to the Project during the Defects Liability Period at the Contractor's cost to the extent that such loss, defect or damage shall have arisen out of the reasons specified in Article 14.3.
- (vi) The Contractor shall remedy any and all loss or damage to the Project during the Maintenance Period at the Contractor's cost, including those stated in Article 12.1 (ii), save and except to the extent that any such loss or damage shall have arisen on account of any willful default or neglect of the Authority or on account of a Force Majeure Event.
- (vii) The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:
 - (a) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-F and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws;
 - (b) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes and systems used or incorporated into the Project; make reasonable efforts to maintain harmony and good

industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;

- (d) ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement;
 - (e) not do or omit to do any act, deed or thing which may in any manner violate any provisions of this Agreement;
 - (f) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;
 - (g) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with the Applicable Laws and Good Industry Practice;
 - (h) keep, on Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope orders and other communications given under this Agreement. The Authority's Engineer and its authorised personnel shall have the right of access to all these documents at all reasonable times;
 - (i) cooperate with other contractors employed by the Authority and personnel of any public authority; and
 - (j) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Authority or of others.
- (viii) The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works. The Contractor shall provide all necessary superintendence of the Works for the proper fulfilling of the Contractor's obligations under the Agreement. Such superintendence shall be given by competent person having adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents) for the satisfactory and safe execution of the Works.
- (ix) The Contractor shall provide the documents of the Contractor specified in the Agreement, and all Contractors' personnel; Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for the execution, completion of Works and remedying defects.

- (x) The Contractor shall perform the Works in conformity with the Project requirements and other requirements and standards prescribed under or pursuant to the Agreement.
- (xi) The Contractor shall carry out such work incidental and contingent to the original Scope of the Project to comply with Good Industry Practices.
- (xii) The Contractor shall maintain required staff and necessary Contractor's equipment and materials within the reach of the Site during the Defects Liability Period so that any defects arising are promptly attended.

4.2 Contractor's personnel

- (i) The Contractor shall ensure that the personnel engaged by it in the performance of its obligations under this Agreement are at all times appropriately and adequately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice.
- (ii) The Authority's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's personnel. Provided that any such direction issued by the Authority's Engineer shall specify the reasons for the removal of such person.
- (iii) The Contractor shall on receiving such a direction from the Authority's Engineer order for the removal of such person or persons with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (ten) days of any such direction being issued in pursuance of Article 4.4 (ii). The Contractor shall further ensure that such persons have no further connection with the Works or Maintenance under this Agreement. The Contractor shall then appoint (or cause to be appointed) a replacement.

4.3 Contractor's care of the Works

The Contractor shall bear full risk in, and take full responsibility for, the care of the Works, and of the Materials, goods and equipment for incorporation therein, from the Appointed Date until the date of Completion Certificate, save and except to the extent that any such loss or damage shall have arisen from any wilful default or gross neglect of the Authority.

4.4 Electricity, water and other services

The Contractor shall be responsible for procuring of all utilities as may be required, including without limitation, adequate power, water and other services.

4.5 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

- (a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;
- (b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
- (c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

4.6 Co-ordination of the Works

- (i) The Contractor acknowledges that in addition to the Agreement, it is also aware of terms of the other Project contracts and other agreements the Authority has negotiated and entered into for performance of its obligations under the Agreement (copies of other contracts and other agreements are made available to the Contractor from time to time) and that the Contractor is fully aware of the consequences to the Authority which would or are likely to result from a breach by the Contractor of its obligations under the Agreement. In the event the actions of the Contractor result in the breach by the Authority of any or all of the other Project contracts and such breach imposes any liability on the Authority, the Contractor shall: (a) undertake all steps as may be possible to mitigate or neutralize the liability that has arisen, and (b) indemnify the Authority against any such liability and compensate the Authority to that extent.
- (ii) The Contractor shall be responsible for the co-ordination and proper provision of the Works, including co-ordination of other Contractors or Sub-contractors for the Project. The Contractor shall co-operate with the Authority in the co-ordination of the Works with the works under the other Project contracts. The Contractor shall provide all reasonable support for carrying out their work to:
 - (a) any other contractors employed by the Authority;
 - (b) the workmen of the Authority;
 - (c) the workmen of any Governmental Instrumentality who may be employed in the execution of work on or near the Site; and
 - (d) such other persons as is required in the opinion of the Authority for successful completion of the Project.

4.7 Environmental Measures

(i) The Contractor agrees to conduct its activities in connection with the Agreement in such a manner so as to comply with the environmental requirements which includes, inter alia, all the conditions required to be satisfied under the environmental clearances and applicable law, and assumes full responsibility for measures which are required to be taken to ensure such compliance.

4.8 Site Data

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:

- (a) the form and nature of the Site (including, inter-alia, the surface and sub-surface conditions and geo-technical factors);
- (b) the hydrological and climatic conditions;
- (c) the extent and nature of the works already completed and Materials necessary for the execution and completion of the Works and the remedying of any defects that includes already executed part also.
- (d) the suitability and the adequacy of the Site for the execution of the Works;
- (e) the means of access to the Site and the accommodation the Contractor may require;
- (f) arranging permits as required as per [...] of the Agreement. (g)
the requirements of operation and maintenance; and
- (h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price and Time for Completion.

4.9 Sufficiency of Contract Price

The Contractor shall have satisfied itself as to the correctness and sufficiency of the Contract Price. The Contract Price shall cover all its obligations under the Agreement, in addition to all risks the Contractor has agreed to undertake under the Agreement, including those associated with the performance of its obligations under the Agreement and all things necessary for the provision of the Works in a manner satisfactory to the Authority and in accordance with this Agreement.

4.10 Clearance of the Site

During the provision of the Works, and as a pre-condition to the issue of the Taking-Over Certificate, the Contractor shall clear away and remove from the Site, all Contractor's equipment, surplus material, wreckage, rubbish and temporary Works, and shall keep the Site free from all unnecessary obstructions, and shall not store or dispose of any Contractor's equipment or surplus materials on the Site. The Contractor shall promptly clear away and remove from the Site any wreckage, rubbish or temporary Works no longer required and leave the Site and the Works in a clean and safe condition to the sole satisfaction of the Authority.

Article: 5

Representations and Warranties

5.1 Representations and warranties of the Contractor

(i) The Contractor represents and warrants to the Authority that:

(a) it is duly organised and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;

(c) this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable against it in accordance with the terms hereof;

(d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;

(e) the information furnished in the Bid, Request for Qualification and Request for Proposals or otherwise and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;

(f) the execution, delivery and performance of this Agreement will not conflict with, or result in the breach of, or constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

(g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;

(h) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;

(i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;

(j) no representation or warranty by it contained herein or in any other document furnished by it to the Authority or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

(k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Authority in connection therewith;

(l) nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority, designers, consultants or agents of the Contractor;

(m) it is adequately financed has the requisite knowledge, expertise, technical know-how, experience, resources, infrastructure, licenses, patents, copy rights, for designing, supplying/ procuring the goods and materials, and for providing the installation and construction services required for completing the construction of the Project Facilities; and

(ii) it represents the Authority that:

(a) it owns or has the right to use all “Intellectual Property” necessary to perform the contractual obligations and to carry on the Works without conflict with the right of others;

(b) All intellectual property rights necessary to perform the contractual obligations and to carry on the Works are in full force and effect and are vested in, and beneficially owned by the Contractor, and are free from encumbrances.

(c) None of the intellectual property rights is being used, claimed, or posed or attacked by any other person, nor does the use of such intellectual property rights or any part of them infringe the intellectual property rights owned or enjoyed by any third party.

(d) None of the intellectual property rights owned or used by the Contractor is the subject of any claim, opposition, attack, assertion or other arrangement of whatsoever nature which does or may impinge upon their use, validity, enforceability or ownership by the Parties, and there are no grounds or other circumstances which may give rise to the same.

(e) No licenses or registered user or other rights have been granted or agreed to be granted to any third party in respect of such intellectual property rights.

(f) No act has been done or has been omitted to be done to entitle any authority or person to cancel, forfeit or modify any intellectual property rights.

(g) The Contractor shall notify the Authority of any adverse use of the intellectual property rights or confusingly or deceptively similar to the intellectual property rights.

(h) The Contractor shall recognize the Authority's ownership and title to the intellectual property rights and shall not at any time, either directly or indirectly, put to issue the validity or ownership of the intellectual property rights and it will not do any act or thing, either directly or indirectly, which in anyway impairs the validity and ownership of the intellectual property rights.

(i) The Contractor shall, promptly execute, acknowledge and deliver all documents which are requested by Authority to record with appropriate governmental agencies and authorities the fact that the Authority has the right to the use of the said intellectual property rights.

(j) The Contractor shall not, for any reason, object to, or interfere in any way with the ownership, registration or use of the intellectual property rights by the Authority (or its licensee or assigns) for any purpose whatsoever.

(iii) If at any time during the Defects Liability Period any item of the Works or Project Facilities or any part thereof, do not conform to the Authority requirements and Specifications and Standards, on being so notified by the Authority, the Contractor shall promptly rectify/remedy such nonconformity to the satisfaction of the Authority solely at the Contractor's expense; failing which the Authority may reject or revoke Taking-Over Certificate, and the Authority may proceed to correct the Contractor's nonconforming Work by the most expeditious means available, the costs of which shall be to the Contractor's account; or the Authority may retain the non-conforming Work and an equitable adjustment reducing the total Contract Price to reflect the diminished value of such non-conforming Work will be made by written amendment.

(iv) In addition to the other warranties, the Contractor represents and warrants as follows:

(a) The Contractor has (or, if the technology does not currently exist, will have granted at the time of passing to The Employer) in and to the technology used in the equipment, materials, goods, Works, Contractor's documents, Drawings and Manuals ("Technology") -

i. all right, title and interest free of any lien, claim or restriction; and right to grant to the Authority the right to use the Technology for the purpose of this contract, free of any lien, claim or restriction and on the terms of license as required.

(b) The Contractor has granted (or, if the technology does not currently exist, will grant at the time of passing to the Authority the property and title in and to the equipment, materials, goods, Works, spares, Contractor's documents, Drawings and Manuals in which it is used) to the Authority the right to use the Technology, free of any lien, claim or restriction.

(v) In addition to the other Warranties, the Contractor represents and warrants as follows:

(a) No Technology contains any worm (i.e., a program that travels from one computer to another computer but does not attach itself to the operating system of the computer it enters), virus (i.e., a program that travels from one computer to another computer that attaches itself to the operating system it enters) or self-destruct capability.

(b) The Technology will not abnormally end or provide invalid or incorrect results as a result of date-dependent data.

(c) The Technology can accurately recognize, manage, accommodate, and manipulate date-dependent data, including single and multi-century formulas and leap years.

(vi) No criminal proceedings instituted against any of the employees or Directors of the Contractor.

(vii) Till date the services of the Contractor has not been terminated by any person for any breach or non-performance or negligence by the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

(a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;

(b) it has taken all necessary actions under the Applicable Laws to authorise the execution, delivery and performance of this Agreement;

(c) it has the financial standing and capacity to perform its obligations under this Agreement;

(d) this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(e) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any

Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;

- (f) it has complied with Applicable Laws in all material respects;
- (g) it has good and valid right to the Site and has the power and authority to grant the project site in respect thereof to the Contractor; and

5.3 Disclosure

In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

Article: 6

Disclaimer

6.1 Disclaimer

(i) The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Proposal, Scope of the Project, Specifications and Standards of design, construction and maintenance, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all information provided by the Authority or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in **Article 3.1 and Article 5.2**, the Authority makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard. The contractor further acknowledges that the contract price is quoted for the correct quantity, correct quality, and for fair and reasonable rate and avoided abnormal variations in the components.

(ii) The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.

(iii) The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Article 6.1 (i) above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.

(iv) The Parties agree that any mistake or error in or relating to any of the matters set forth in Article 6.1 (i) above shall not vitiate this Agreement, or render it voidable.

(v) In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Article 6.1 (i) above, that Party shall immediately notify the other Party, specifying the mistake or error.

(vi) Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof.

Article: 7

Performance Security and Security Deposit

7.1 Performance Security

(i) Within 30 (thirty) days of receipt of Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form set forth in Form X (the “Performance Security”) for an amount equal to 3% (three percent) of its Bid Price.

(ii) This guarantee shall be in the form of Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/ Term Deposit receipt/ Pay order of any Scheduled Bank or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. The earnest money deposited alongwith tender shall be returned after receiving the aforesaid performance guarantee.

(iii) On evaluation of tender and if the tender is found that the overall amount quoted is below 15.00% and less, then the contractor shall be asked to pay an additional performance guarantee amounting to 50% of the difference between the quoted amount and estimate cost put to tender. Failure to furnish the additional performance guarantee over and above the normal performance guarantee of 5% within the specified period from the date of receipt of acceptance letter, shall entitle cancellation of award and forfeiture of EMD furnished.

7.2 Extension of Performance Security and Additional Performance Security

The contractor whose tender is accepted will be required to furnish performance guarantee of 3% (Three Percent) of the tender amount within the period specified as below.

(i)	Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance	15 days
(ii)	Maximum allowable extension with late fee @ 0.1% per day of performance Guarantee amount beyond the period provided in (i) above	15 days (1 to 15 days to be filled by NIT approving authority)

In case the contractor fails to deposit the said performance guarantee and additional performance guarantee, if any, within the period as indicated above, including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.

7.3 Release of Performance Security

The performance security shall be refunded after completion of agreement period which shall include Construction Maintenance & Operation period.

7.4 SECURITY DEPOSIT

- i. Successful bidder shall submit a Security deposit of 2% of the bid amount (as accepted) through RTGS/NFET/Demand draft / FDR of any scheduled bank drawn in favour of the Chief Executive officer, PSCDL after receipt of LOA.
- ii. Security Deposit shall be deducted from each running bill @ 5% of bill amount. The total amount of security deposit so deducted shall not exceed the 5% of contract price.
- iii. The Security Deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt from nationalized / schedule bank assigned to the PSCDL, with validity up to 3(three) months beyond the completion of defect Liability Period.
- iv. Security deposit will be refunded after completion of the defect liability period.

Article: 8

Design and Construction of the Project:

8.1 Obligations prior to commencement of Works

- (i) Within 20 (twenty) days of the Appointed Date, the Contractor shall:
- (a) Appoint its representative, duly authorized to deal with the Authority in respect of all matters under or arising out of or relating to this Agreement;
 - (b) appoint a Project Engineer who will head the Contractor's design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs;
 - (c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement, the Applicable Laws and Applicable Permits; and
- (ii) Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority a programme (the "Programme") for the Works, developed using networking techniques, for review and consent of the Engineer, giving the following details:
- (a) Part I: Contractor's organisation for the Project, the general methods and arrangements for design and construction, environmental management plan, Quality Assurance Plan including design quality plan, and safety plan covering safety of users and workers during construction Contractor's key personnel and equipment.
 - (b) Part II: Programme for completion of all stages of construction given in Schedule-A of Section-4 of RFP and Project Milestones of the Works as specified in Project Completion Schedule set forth herewith.

Mile stone(s) as per table given below:

Sl. No.	Description of Milestone(Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non achievement of milestone
1.	1/8 th (of the whole work)	1/4 th (of the whole work)	In the event of not achieving the necessary progress as assessed from the running payments, 1% of the tendered value of work will be withheld automatically for failure of each milestone .without any notice to the contractor.
2.	3/8 th (of the whole work)	1/2 (of the whole work)	
3.	3/4 th (of the whole work)	3/4 th (of the whole work)	
4.	Full	Full	

The Programme shall include:

- i. the order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works;
- ii. the periods for reviews under Article 8.2;
- iii. the sequence and timing of inspections and tests specified in this Agreement; and
- iv. the particulars for the pre-construction reviews and for any other submissions, approvals and consents specified in the Agreement.

The Contractor shall submit a revised Programme whenever the previous Programme is inconsistent with the actual progress or with the Contractor's obligations.

(c) Part III : Monthly cash flow forecast.

(iv) The Contractor shall compute, on the basis of the Drawings prepared in accordance with Article 8.2 (iv), and provide the quantum of work, in respect of the various items of work specified in Schedule-A and comprising the Scope of the Project. The Parties expressly agree that these details shall form the basis for estimating the interim payments for the Works in accordance with the provisions of Article 16.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted in accordance with the provisions of this Agreement.

(v) The Contractor shall appoint a safety consultant (the "Safety Consultant") to carry out a safety audit at the design stage of the Project in accordance with the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Authority a panel of three (3) names of qualified and experienced firms from which the Authority may choose one (1) to be the Safety Consultant.

(vi) The safety audit pursuant to Article 8.1 (v) shall be carried out by the Safety Consultant in respect of all such design details that have a bearing on safety of Users and general public. The recommendations of the Safety Consultant shall be incorporated in the design of the Project and the Contractor shall forward to the Authority a certificate to this effect together with the recommendations of the Safety Consultant. In the event that any works required by the Safety Consultant shall fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

8.2 Design and Drawings

- (i) Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Section-3. In the event, the Contractor requires any relaxation in design standards due to any restrictions in the site conditions the alternative design criteria for such section shall be provided for review and approval of the Authority.
- (ii) The Contractor shall get the design and drawings proof checked by the Proof consultant before the bid submission. Further the contractor shall provide structural stability certificate for 10 years from the Proof consultant after completing the project. The cost towards the proof checking and provision of structural stability certificate shall be borne by the Contractor.
- (iii) In respect of the Contractor's obligations with respect to the design and Drawings of the Project set forth in Schedule-I, the following shall apply:
 - (a) The Contractor shall prepare and submit, with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three (3) copies each of the design and Drawings, duly certified by the Proof consultant, to the Authority for its approval. Provided.
 - (b) by submitting the Drawings for review and approval to the Authority, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws;
 - (c) (c) within 15 (fifteen) days of the receipt of the Drawings, the Authority shall review the same and convey its approval/observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards.
 - (d) if the aforesaid observations of the Authority indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor in conformity with the provisions of this Agreement and resubmitted to the Authority for review and approval. The Authority shall give its observations, if any, within 10 (ten) days of receipt of the revised Drawings. In the event the Contractor fails to revise and resubmit such Drawings to the Authority for review/approval as aforesaid, the Authority may withhold the payment for the affected works in accordance with the provisions of Article 16.5 (iv). If the Contractor disputes any decision, direction or determination of the Authority, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure;

- (e) if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor's cost, notwithstanding any approval under this Article 8;
 - (f) the Contractor shall be responsible for delays in submitting the Drawing as set forth in Schedule-I caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Authority; and
 - (g) the Contractor warrants that its designers, including any third parties engaged by it, shall have the required experience and capability in accordance with Good Industry Practice and it shall indemnify the Authority against any damage, expense, liability, loss or claim, which the Authority might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Article.
 - (h) the Contractor shall ensure that all the designs and drawings shall be approved from the Authority within 60 days (sixty) from the Appointed Date.
- (iv) Any cost or delay in construction arising from review/approval by the Authority shall be borne by the Contractor.
- (v) Works shall be executed in accordance with the Drawings provided by the Contractor in accordance with the provisions of this Article 8 and the approval of the Authority thereon as communicated pursuant to the provisions of sub- Article (c) & (d) of Article 8.2 (iii). Such Drawings shall not be amended or altered without prior written notice to the Authority. If a Party becomes aware of an error or defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect.
- (vi) Within 60 (sixty) days of the Project Completion Date, the Contractor shall furnish to the Authority a complete set of as- built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project and setback lines, if any, of the buildings and structures forming part of Project Facilities.

8.3 Construction of the Project:

- (i) The Contractor shall construct the Project in conformity with the Specifications and Standards set forth in Section-3. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. The contractor shall complete the work within 9 months form the Appointed Date. The Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.

8.4 Extension for time

The time allowed for execution of the Works as specified in the RFP or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from such time period as mentioned in RFP or from the date of handing over of the site whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, PSCDL shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the performance guarantee absolutely.

As soon as possible after the Contract is concluded, the Contractor shall submit a Time and Progress Chart for each mile stone and get it approved by the Department. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Authority and the Contractor within the limitations of time imposed in the Contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per mile stones given in RFP.

- (a) Project Management shall be done by using project management software for works costing more than Rs. 5 Crore.
- (b) The project management shall be done using M.S. Project software for works costing more than Rs. 5 Crore and up to Rs. 20 Crore.

For works costing more than Rs. 20 Crore, project management shall be done using Primavera Software.

PROGRAMME CHART

- (i) The Contractor shall prepare an integrated programme chart in MS Project/Primavera software for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the programme within the stipulated period or earlier and submit the same for approval to the Engineer-in- Charge within ten days of award of the contract. A recovery of Rs.2500/- (for works costing upto Rs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the above programme.
- (ii) The programme chart should include the following:
 - (a) Descriptive note explaining sequence of the various activities.
 - (b) Network (PERT / CPM / BAR CHART).
 - (c) Programme for procurement of materials by the contractor.

Programme of procurement of machinery / equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor. In addition to above, to achieve the progress of Work as per programme, the contractor must bring at site adequate shuttering material required for cement concrete and R.C.C. works etc. for three floors within one month from the date of start of work till the completion of RCC work as per requirement of work. The contractor shall submit shuttering schedule adequate to complete structure work within laid down physical milestone.

- (iii) If at any time, it appears to the Authority that the actual progress of work does not conform to the approved programme referred above or after rescheduling of milestones, the contractor shall produce a revised programme within 7 (seven) days, showing the modifications to the approved programme to ensure timely completion of the work. The modified schedule of programme shall be approved by the Engineer in Charge. A recovery of Rs. 2500/- (for works costing upto Rs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the modified programme.
- (iv) The submission for approval by the Authority of such programme or such particulars shall not relieve the contractor of any of the duties or responsibilities under the contract. This is without prejudice to the right of Authority to take action against the contractor as per terms and conditions of the agreement.
- (v) The contractor shall submit the progress report using MS Project/Primavira software with base line programme referred above for the work done during previous month to the Authority on or before 5th day of each month failing which a recovery Rs. 2500/- (for works costing upto Rs. 20 Crores) / Rs. 5000/- (for works costing more than Rs. 20 Crores) shall be made on per day basis in case of delay in submission of the monthly progress report.

If the work(s) be delayed by:-

- (i) force majeure, or
- (ii) abnormally bad weather, or
- (iii) serious loss or damage by fire, or
- (iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or
- (v) delay on the part of other contractors or tradesmen engaged by Engineer-in- Charge in executing work not forming part of the Contract, or
- (vi) non-availability of stores, which are the responsibility of Government to supply or
- (vii) non-availability or break down of tools and Plant to be supplied or supplied by Government or

(viii) any other cause which, in the absolute discretion of the Authority is beyond the Contractor's control.

then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the authority as indicated in RFP but shall nevertheless use constantly his best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Authority to proceed with the works.

Request for rescheduling of Mile stones and extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay on the prescribed form to the authority as indicated in RFP. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.

In any such case the authority as indicated in RFP may give a fair and reasonable extension of time and reschedule the mile stones for completion of work. Such extension or rescheduling of the milestones shall be communicated to the Contractor by the authority as indicated in RFP in writing, within 3 months or 4 weeks of the date of receipt of such request respectively. Non application by the contractor for extension of time/ rescheduling of the milestones shall not be a bar for giving a fair and reasonable extension/ rescheduling of the milestones by the authority as indicated in RFP and this shall be binding on the contractor.

8.5 Compensation for delay

If the contractor fails to maintain the required progress in terms of Article 5 or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority specified in RFP (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Article 5 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

(i) Compensation @ 1.5 % per month of delay for delay of work to be computed on per day basis Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the Tendered Value of work or of the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the PSCDL. In case, the contractor does not achieve a particular milestone mentioned in terms of the Article 8, or the re-

scheduled milestone(s) in terms of Article 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of Extension of Time. Withholding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

8.6 Incomplete Works

In the event the Contractor fails to complete the Works in accordance with the Project Completion Schedule, including any Time Extension granted under this Agreement, the Contractor shall endeavour to complete the balance work expeditiously and shall pay Damages to the Authority in accordance with the provisions of Article 8.3 (ii) for delay of each day until the Works are completed in accordance with the provisions of this Agreement. Recovery of Damages under this Article shall be without prejudice to the rights of the Authority under this Agreement including the right to termination as per agreement.

8.7 Maintenance Manual

No later than 30 (thirty) days prior to the Project Completion Date, the Contractor shall, in consultation with the Authority, evolve a maintenance manual (the “Maintenance Manual”) for the regular and preventive maintenance of the Project in conformity with the Specifications and Standards, safety requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority. The Authority shall review the Maintenance Manual within 15 (fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications, if any.

8.8 As-Built Records

The Contractor shall prepare, and keep up-to-date, a complete set of as built records of the execution of the Works, showing the exact as built locations, sizes and details on the Works as executed with cross references to all relevant specifications and data sheets. These records shall be kept on the Site and shall be used exclusively for the purpose of this Sub-Article 8.8. The Contractor shall provide 2 (two) copies of as built records to the Authority prior to the commencement of the Tests on Completion.

8.9 Contractor's Use of Authority's Documents

Intellectual property in the Authority's requirements and Specifications and Standards and all other documents and materials issued by the Authority or the Authority's Representative to the Contractor shall (as between the parties) remain the property of the Authority. The Contractor may, at its cost, copy, use and communicate any such documents for the purposes of the Contract. They shall not, without the consent of the Authority, be used, copied or communicated to a third party by the Contractor, except as necessary for the purposes of the Works under the Agreement.

Article: 9

Quality Assurance, Monitoring and Supervision

9.1 Quality of Materials and workmanship

The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

9.2 Quality control system

- i. The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the “Quality Assurance Plan” or “QAP”).
- ii. The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority its Quality Assurance Plan which shall include the following:
 - a. organisation, duties and responsibilities, procedures, inspections and documentation;
 - b. quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the tender Specifications and Good Industry Practice; and
 - c. internal quality audit system.

The Authority shall convey its approval to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Article 9.2.

- (iii) The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.
- (iv) The cost of testing of Construction, Materials and workmanship under this Article 9 shall be borne by the Contractor.

9.3 Methodology

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority for review and consent the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority shall complete the review and convey its consent to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

9.4 Inspection and technical audit by the Authority

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Project and issue appropriate directions to the Authority's Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

9.5 External technical audit

(i) At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority shall carry out the tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor for taking remedial action in accordance with this Agreement.

(ii) After completion of the remedial measures by the Contractor, the Auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Article 9.5, the external technical audit shall not affect any obligations of the Contractor under this Agreement.

9.6 Inspection of construction records

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

9.7 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority a monthly report on progress of the Works and shall promptly give such other relevant information as may be required by the Authority.

The Contractor agrees that reporting under this Article 9.7 shall continue until the date of the completion of the Works. Each report shall include:

- (a) an executive summary;
- (b) charts showing the status of Contractor's documents, construction and manufacturing and environmental works;
- (c) details of work subcontracted and the performance of Sub-contractors;
- (d) for the construction of each main part of the Works, the extent of progress (both quantity and percentage of the whole), the actual or expected dates of commencement, anticipated completion date of the activity, Contractor's inspections and tests;
- (e) records of manpower and Contractor's equipment on the Site;
- (f) copies for that month of quality assurance documents, test results and certificates;
- (g) safety statistics, accident data collection including details of any hazardous incidents and activities relating to environmental aspects and public relations;
- (h) comparisons of actual and planned progress, with details of any aspects which may jeopardise the completion in accordance with the Agreement, and the measures being (or to be) adopted to overcome such aspects;
- (i) details of any unresolved disputes or claims, in relation to the Project;
- (j) details of any revision to the cash flow estimate, together with a copy of the revised cash flow estimate;
- (k) status of various Applicable Permits and compliance of conditions therein;
- (l) details of various royalty payment and insurances required to be taken by the Contractor; and
- (m) such other reports as may be required by the Authority for enabling the Authority to comply with its obligations under the other Project contracts.
- (n) details of defects by the Authority;
- (o) change in emission of any sewage or effluent of any nature whatsoever, whether qualitatively or quantitatively;
- (p) any Material Adverse Effect;
- (q) declaration towards compliance with Applicable Laws including but not limited to environmental and labour legislations;
- (r) declaration specifying compliance with all Manuals provided to the Contractor; an

9.8 Inspection

- (i) The Authority and its authorised representative shall at all reasonable times:
 - (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and
 - (b) during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.
- (ii) The Contractor shall give the Authority and its authorised agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

9.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority's for pre-construction review:

- (a) manufacturer's test reports and standard samples of manufactured Materials; and
- (b) samples of such other Materials as the Authority may require.

9.10 Tests

- (i) For determining that the Works conform to the Specifications and Standards, the Authority shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority shall comprise at least 50% (fifty percent) of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (ii) In the event that results of any tests conducted under this Article 9.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority in this behalf. The Authority shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

9.11 Examination of work before covering up

In respect of the work which the Authority is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed

thereon, the Contractor shall give notice to the Authority whenever any such work is ready and before it is covered up. The Authority shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

9.12 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Authority requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor; and may be deducted by the Authority from any monies due to be paid to the Contractor.

9.13 Remedial work

(i) Notwithstanding any previous test or certification, the Authority may instruct the Contractor to:

- (a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;
- (b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and
- (b) execute any work which is urgently required for the safety of the Project, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Article 21.6 shall apply.

(ii) If the Contractor fails to comply with the instructions issued by the Authority under Article 9.13 (i), within the time specified in the Authority's notice or as mutually agreed, the Authority may have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

9.14 Delays during construction

Without prejudice to the provisions of Article 10.3 (ii), in the event the Contractor does not achieve any of the Project Milestones or the Authority shall have reasonably determined that the rate of progress of Works is such that Completion of the Project is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

9.15 Quality control records and Documents

The Contractor shall hand over a copy of all its quality control records and documents to the Authority before the Completion Certificate is issued pursuant to Article 10.2.

9.16 Suspension of unsafe Construction Works

(i) Upon recommendation of the Authority to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority, such work threatens the safety of the Users and pedestrians.

(ii) The Contractor shall, pursuant to the notice under Article 9.17 (i), suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the Users and pedestrians. The Contractor may by notice require the Authority to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked. Upon reviewing, the Authority shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure set forth in this Article 9.17 shall be repeated until the suspension hereunder is revoked.

(iii) Subject to the provisions of Article 21.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension

(the “Preservation Costs”), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.

- (iii) If suspension of Works is for reasons not attributable to the Contractor, the Authority’s Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

9.18 Staff and Labour

(i) Engagement of Staff and Labour

- a) The Contractor shall make its own arrangements for the engagement of all personnel and labour, local or otherwise, and for their payment, housing, feeding and transport.
- b) The Contractor shall verify the identity and address of all its employees and officials related to the Works by collecting necessary documentary proof.
- c) The Contractor shall seek a self-declaration from its employees that they have not been convicted of any criminal offence by any court and if any criminal proceedings/charge-sheets have been pending/filed against them. The Contractor shall not employ persons with criminal track record on the project. In cases where it comes to notice later that the employee concerned has concealed any such fact in his self-declaration or commits a criminal offence during the course of his employment, the Contractor shall remove such person from the project
- d) The employees and personnel of the Contractor shall work under the supervision, control and direction of the Contractor and the Contractor shall be solely responsible for all negotiations with its employees and personnel relating to their salaries and benefits, and shall be responsible for assessments and monitoring of performance and for all disciplinary matters. All employees / personnel, executives engaged by the Contractor shall be in sole employment of the Contractor and the Contractor shall be solely responsible for their salaries, wages, statutory payments, etc and under no circumstances the personnel shall be deemed to be the employees of the Authority. Under no circumstances the Authority shall be liable for any payment or claim or compensation of any nature to the employees and personnel of the Contractor.

(ii) Returns of Labour

- a) The Contractor shall deliver to the Authority a detailed return in such form and at such intervals as the Authority may prescribe, showing the details including names, payment details and terms of appointment of the several

classes of labour employed by the Contractor from time to time for the Works. The Contractor shall, in its returns certify that all dues of the workers or labour have been fully paid.

- b) The Authority is entitled to witness labour payments made or to be made by the Contractor. If the Contractor defaults in its obligations for making any payments under the labour laws, the Employer may make the relevant payments. Any sum equal to any amount paid by the Employer under this Sub-Sub-Article 9.2 shall be immediately due as a debt from the Contractor to the Employer and until payment/ set off shall carry interest at 18% per annum. For this purpose it is agreed between the parties that debt due aforesaid shall be set off immediately out the running account bills of the Contractor under this Agreement.

(iii) Persons in the Service of Others

The Contractor shall not recruit, or attempt to recruit from amongst persons in the service of the Authority.

(iv) Labour Laws

(a). The Contractor shall obtain all relevant labour registrations and comply with all relevant labour laws applying to its employees, and shall duly pay them and afford to them all their legal rights.

(b). The Contractor shall make all deductions of tax at source and all contributions to the Payment of Gratuity, Provident Fund (including Employees' contribution) and Employees' State Insurance Scheme as may be required by Applicable Laws and deposit the aforesaid contributed amount with the appropriate authority/(s).

(c). The Contractor shall require all personnel engaged in the Works to obey all Applicable Laws and regulations. The Contractor shall permit Authority to witness labour payments for the Contractors direct labour.

(d). Documentary evidence confirming compliance with Sub-Article 10.4, as may be required from time to time, shall be provided to the Employer's Representative.

(e). The Employer shall not be liable for any delay/default of the Contractor in compliance of the labour laws.

(v) Facilities for Staff and Labour

The Contractor shall provide and maintain all necessary accommodation and welfare facilities for personnel engaged for the Works. The Contractor shall not permit any personnel engaged for the Works to maintain any temporary or permanent living

quarters within the structures forming part of the Works.

(vi) Health And Safety

All necessary precautions shall be taken by the Contractor to ensure the health and safety of staff and labour engaged for the Works. The Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that para-medical staff, first aid facilities, ambulance service are available on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The Contractor shall appoint a safety officer to be responsible for the safety of personnel on the Site. This safety officer shall be qualified for his work and shall have the authority to issue instructions concerning safety and take protective measures to prevent accidents. The Contractor shall maintain records and make reports concerning health, safety and welfare of personnel, and damage to property, in such manner as the Authority may reasonably require.

(vii) Contractor's Personnel

The Contractor shall employ only personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. The Authority may require the Contractor to remove any personnel engaged for the Works, who in the opinion of the Authority:

- (a) has engaged in any misconduct;
- (b) is incompetent or negligent in the performance of his duties;
- (c) fails to conform with any provisions of the Contract;
- (d) engages in any conduct which is prejudicial to safety, health, or the protection of the environment; or
- (e) makes errors in the discharge of his functions.

If appropriate and required by the Employer, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

(viii) Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst its personnel, and to preserve peace and protection of people and property in the neighbourhood of the Works.

Article: 10

Completion Certificate

10.1 Tests on Completion

(i) At least 30 (thirty) days prior to the likely completion of the Project, or a Section thereof, the Contractor shall notify the Authority of its intent to subject the Project to Tests. The date and time of each of the Tests shall be determined by the Authority in consultation with the Contractor and notified to the Authority who may designate its representative to witness the Tests. The Contractor shall conduct the Tests as directed by the Authority.

(ii) All Tests shall be conducted in accordance with Article 12.10. The Authority shall conduct or observe, monitor and review the Tests conducted by the Contractor, as the case may be, and review the results of the Tests to determine compliance of the Project or a Section thereof, with Specifications and Standards mentioned in the provisions of this agreement. If it is reasonably anticipated or determined during the course of any Test that the performance of the Project or Section or any part thereof, does not meet the Specifications and Standards, the Authority shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Contractor shall provide to the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Authority may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project the Specifications and Standards.

10.2 Completion Certificate

(i) Upon completion of all Works forming part of the Project and determining the Tests to be successful, the Authority shall, at the request of the Contractor forthwith issue to the Contractor and the Authority a certificate substantially in the form set forth here under.

THE COMPLETION CERTIFICATE

1. I, (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated (the "**Agreement**"), for ("Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking in the Puducherry Smart City area at at Old Jail Complex in JN Street & Old Port Complex under EPC mode") through (name of Contractor), hereby certify that the Test in accordance with Article 10.1 of the Agreement have been successfully undertaken to determine compliance of the project with the provisions of the Agreement, and I am satisfied the the Project can be safely and reliably placed in service of the Users thereof.

2. It is certified that, in terms of the aforesaid Agreement, all works forming part of project have been completed, and the project is hereby declared fit for entry into operation on this day of 20.... , Scheduled Completed Date for which was the Day of20

(ii) Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site within a period of 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris and temporary works and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.

(iii) Without prejudice to the obligations of the Contractor specified in Articles 10 and 12, the property and ownership of all the completed Works forming part of the Project shall vest in the Authority.

10.3 Rescheduling of Tests

If the Authority is unable to issue the Completion Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

Article: 11

Change of Scope

11.1 Change of Scope

(i) The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/ alterations to the Works (“Change of Scope”) within a period of six months counted from the Appointed Date. Upon the Authority making its intention known to the Contractor for the specific Change of Scope, be it positive or negative, the Contractor shall submit his proposal for the said Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued in accordance with the provisions of this Article 11.

(ii) Provided that any such Change of Scope, excluding major structures may be required and agreed to be executed between the parties, anytime during the course of work and before completion of the work, subject to the condition that it shall not entail any claims (e.g. Extension of Time/ Prolongation related claims), against the Authority.

(iii) The Change of Scope shall mean the following:

- a) change in specifications of any item of Works;
- b) omission of any work from the Scope of the Project except under Article 8.3 (iii); provided that, subject to Article 11.5, the Authority shall not omit any Work under this Article in order to get it executed by any other authority; and/or
- c) any additional Work, Plant, Materials or services which are not included in the Scope of the Project, including any associated Tests on completion of construction.

11.2 Procedure for Change of Scope

(i) In the event of the Authority determining that a Change of Scope is necessary, the authority shall issue to the Contractor a notice specifying in reasonable detail the Works and services contemplated thereunder (the “Change of Scope Notice”). The Contractor shall submit a detailed proposal as per Article 11.2 (iii) within 15 days from the receipt of Change of Scope Notice.

(ii) If the Contractor determines, not later than 90 days from the Appointed Date, that a Change of Scope to the Works is required, it shall prepare a proposal with relevant details as per Article 11.2 (iii) at its own cost and shall submit to the Authority to consider such Change of Scope (the “Change of Scope Request”).

(iii) Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority such information as is necessary, together with detailed proposal in support of:

- (a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and
 - (b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:
 - i. break-up of the quantities, unit rates and cost for different items of work; and
 - ii. proposed design for the Change of Scope;
 - iii. proposed modifications, if any, to the Project Completion Schedule of the Project.
- For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Article 11.4 (ii), the Contract Price shall be increased or decreased, as the case may be, on account of any such Change of Scope.

(iv) The parties agree that costs and time for implementation of the proposed Change of Scope shall be determined as per the following:

- (a) For works where Schedule of Rates (SOR) of Public Works Department, Government of Puducherry are applicable at the Base Date are available, the same shall be applicable for determination of costs. In case of non-availability of Schedule of Rates at the Base Date, the available Schedule of Rates shall be applied by updating the same based on WPI. In case the Contract Price is lower/ higher than the Estimated Project Cost as per RFP, then the SOR rates shall be reduced/ increased in the same proportion accordingly.
- (b) For item of Works not included in Schedule of Rates as mentioned in sub-para (a) of Article 11.2 (iv) above, the cost of same shall be determined by the authority using the prevailing market rates and discount the same considering WPI to achieve the prevailing rate at the Base Date, in accordance with Good Industry Practice.

For the avoidance of doubt, in case the cost as determined by the Contractor and the Authority reveals a difference of more than 10% (ten per cent), the cost as determined by the Authority shall be considered as final and binding on the Contractor.

- (c) The costs of existing works or items, which are being changed/ omitted shall also be valued as per above procedure and only net cost shall be considered.
- (d) The reasonable time for completion of works to be taken under Change of Scope shall be determined by the Authority on the basis of Good Industry Practice and if such time exceeds the Scheduled Completion Date, the issue of Completion Certificate shall not be affected or delayed on account of construction of Change of Scope items/ works remaining incomplete on the date of Tests.

(v) Upon consideration of the detailed proposal submitted by the Contractor under the Article 11.2 (iii), the Authority, within 15 (fifteen) days of receipt of such proposal, may in its sole discretion either accept such Change of Scope with modifications, if any, and initiate proceedings thereof in accordance with this Article 11 or reject the proposal and inform the Contractor of its decision and shall issue an order (the “Change of Scope Order”) requiring the Contractor to proceed with the performance thereof.

For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any works necessary for meeting any Emergency, that too with verbal approval of Authority which shall be confirmed in writing in next 3 (three) days. In the event that the Parties are unable to agree, the Authority may:

- (a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved in accordance with Article 26;
- or
- (b) proceed in accordance with Article 11.5.

(vi) The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply mutatis mutandis to the Works undertaken by the Contractor under this Article 11.

11.3 Payment for Change of Scope

Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.

11.4 Restrictions on Change of Scope

- (i) No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and except any Works necessary for meeting any Emergency.
- (ii) The total value of all Change of Scope Orders shall not exceed 10% (ten per cent) of the Contract Price.
- (iii) Notwithstanding anything to the contrary in this Article 11, if any change is necessitated because of any default of the Contractor in the performance of its obligations under this Agreement, the same shall not be deemed to be Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

11.5 Power of the Authority to undertake Works

(i) In the event the Parties are unable to agree to the proposed Change of Scope Orders in accordance with Article 11.2, the Authority may, after giving notice to the Contractor and considering its reply thereto, award such Works or services to any person or agency on the basis of open competitive bidding. It is also agreed that the Contractor shall provide assistance and cooperation to the person or agency who undertakes the works or services hereunder. The Contractor shall not be responsible for rectification of any Defects, but the Contractor shall carry out maintenance of such works after completion of Defect Liability Period of work by other person or agency during the remaining period of this agreement without any extra payment.

(ii) The Works undertaken in accordance with this Article 11.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimises the disruption in operation of the Project. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply mutatis mutandis to the Works carried out under this Article 11.5.

Article: 12

Maintenance

12.1 Maintenance obligations of the Contractor

- (i) The Contractor shall maintain the Project for a period of 3 (three) years, commencing from the date of the Completion Certificate (the “Maintenance Period”).

- (ii) **Comprehensive Operation and Maintenance:** The successful bidder/ CONTRACTOR will be required to undertake Operation & maintenance of the Parking System as per the following terms:
 - i) Undertaking routine maintenance including prompt repairs, undertaking repairs to structures. Operation and maintenance of all communication and administrative systems necessary for the efficient maintenance of the Project in accordance with the provisions of this Agreement.
 - j) 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.
 - k) Maintenance shall generally be allowed at nonpeak hours only.
 - l) The complete Mechanized system shall have the provision of emergency evacuation of vehicles manually also.
 - m) Contractor should maintain all the necessary INVENTORY of electro-mechanical parts of the system during Comprehensive Operation and maintenance period and also provide a list parts prone to wear and tear during regular operation to PSCDL authorities at the time of handing over after two-year Comprehensive Operation and maintenance.
 - n) During the Operation and Maintenance period, the successful bidder shall replace the damaged/defective/worn out parts at his own cost to ensure smooth functioning of MLCP.
 - o) 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. “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED 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 display signboard about its availability.
 - p) Transfer of facility to “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED. The CONTRACTOR shall transfer the parking facility to

“PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, free and clear of any encumbrances on completion or termination of contract, whichever is earlier.

- q) During the Comprehensive Operation and maintenance period prior to anticipate transfer of the Facility the CONTRACTOR shall provide such training services to the representatives and employees of Engineer in Charge “PUDUCHERRY SMART CITY DEVELOPMENT LIMITED, or its nominated agency to operate and maintain the Facilities efficiently and safely following such transfer.
- (iii) In respect of any Defect or deficiency, the Contractor shall, at its own cost, undertake repair or rectification in accordance with Good Industry Practice, save and except to the extent that such Defect or deficiency shall have arisen on account of any wilful default or neglect of the Authority or a Force Majeure Event.
- (iv) The Contractor shall remove promptly from the Project site any waste materials, rubbish and other debris and keep the Project site in a clean, tidy and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

12.2 Payment for Maintenance work:

For the performance of the maintenance obligations the contractor shall be paid as follows.

- a) The contractor shall be paid 1% of the contract price as maintenance charges for the first year of maintenance.
- b) The contractor shall be paid 1.25% of the contract price as maintenance charges for the second year of maintenance.
- c) The contractor shall be paid 1.5% of the contract price as maintenance charges for the third year of maintenance.

The contractor shall submit to the Authority a monthly maintenance statement as prescribed here under in duplicate by the 7th of each month, in the format set forth by the authority. The monthly lumpsum amount payable for the maintenance shall be one twelfth of the total amount payable.

The monthly statement for Maintenance Payment shall state:

- (a) The monthly payment admissible in accordance with the provisions of the Agreement;
- (b) The deduction for maintenance work not done;
- (c) Net payment for maintenance due, (a) minus (b);
- (d) Amount towards deduction of taxes

12.3 Maintenance Requirements

The Contractor shall ensure and procure that at all times during the Maintenance Period, the Project conforms to the maintenance requirements set forth by the authority.

12.4 Maintenance Programme

The Contractor shall prepare a monthly maintenance programme (the “Maintenance Programme”) in consultation with the Authority and submit the same to the Authority’s Engineer not later than 10 (ten) days prior to the commencement of the month in which the Maintenance is to be carried out. For this purpose a joint monthly inspection by the Contractor and the Authority shall be undertaken.

12.5 Reduction of payment for non-performance of Maintenance obligations

(i) In the event that the Contractor fails to repair or rectify any Defect or deficiency set forth by the authority within the period specified therein, it shall be deemed as failure of performance of Maintenance obligations by the Contractor and the Authority shall be entitled to effect reduction in monthly lump sum payment for maintenance in accordance with this agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

(ii) If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified by the authority, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority and conveyed to the Contractor and the Authority with reasons thereof.

12.6 Authority’s right to take remedial measures

In the event the Contractor does not maintain and/or repair the Project or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual or the Maintenance Programme, as the case may be, and fails to commence remedial works within 15 (fifteen) days of receipt of the Maintenance Inspection Report under Article 13.2 or a notice in this behalf from the Authority. The Authority shall, without prejudice to its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor, and to recover its cost from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 20% (twenty per cent) of such cost shall be paid by the Contractor to the Authority as Damages.

12.7 Restoration of loss or damage to Project

Save and except as otherwise expressly provided in this Agreement, in the event that the Project or any part thereof suffers any loss or damage during the Maintenance from any cause attributable to the Contractor, the Contractor shall, at its cost and expense,

rectify and remedy such loss or damage forthwith so that the Project conforms to the provisions of this Agreement.

12.8 Overriding powers of the Authority

(i) If in the reasonable opinion of the Authority, the Contractor is in material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause material hardship or danger to the Users and pedestrians, the Authority may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.

(ii) In the event that the Contractor, upon notice under **Article 12.8 (i)**, fails to rectify or remove any hardship or danger within a reasonable period, the Authority may exercise overriding powers under this **Article 12.8 (ii)** and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Authority in discharge of its obligations hereunder shall be recovered by the Authority from the Contractor, and the Authority shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor as per this agreement for the performance of its Maintenance obligations.

(iii) In the event of a national emergency, civil commotion or any other circumstances specified in **Article 18.3**, the Authority may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Authority. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt in accordance with the provisions of Article 18. It is also agreed that the Contractor shall comply with such instructions as the Authority may issue in pursuance of the provisions of this Article 12.8 (iii), and shall provide assistance and cooperation to the Authority, on a best effort basis, for performance of its obligations hereunder.

12.10 Tests on Completion of Maintenance Period

1. Performance of car parking facilities:

Performance test: Performance of each component of Multi Level Car Parking such as Electrical and Mechanical Accessories, Related Software, Fire Fighting requirements will be tested to its full load capacity to the satisfaction by the authority / representative.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of executed components as per specification stipulated in Schedule A.

12.11 Taking over Certificate

The Maintenance Requirements set forth in this agreement having been duly carried out, Maintenance Period as set forth in Article 12.1 (i) having been expired and after determining Tests on Completion of Maintenance to be successful in accordance with Article 12.10,

the Authority or the representative of the Authority will issue Taking Over Certificate to the Contractor substantially in the format set forth herewith.

Taking Over Certificate

I, (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated (the "Agreement"), for [*Design, Develop, Implement, Operate, Maintain and Transfer Multi-Level Four-Wheeler Mechanized Parking (Vertical Rotary / Puzzle / Robotic / Shuttle) at Old Jail Complex in JN Street & Old Port Complex in Puducherry*] on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

Article: 13

Supervision and Monitoring during Maintenance

13.1 Inspection by the Contractor

(i) The Authority shall undertake regular inspections to evaluate continuously the compliance with the Maintenance Requirements.

13.2 Inspection and payments

- (i) The Authority's Engineer may inspect the Project at any time, but at least once every month, to ensure compliance with the Maintenance Requirements. It shall make a report of such inspection ("Maintenance Inspection Report") stating in reasonable detail the Defects or deficiencies, if any, with particular reference to the Maintenance Requirements, the Maintenance Manual, and the Maintenance Programme, and send a copy thereof to the Authority and the Contractor within 10 (ten) days of such inspection.
- (ii) After the Contractor submits to the Authority the Monthly Maintenance Statement for the Project pursuant to Article 12.2, the Authority shall carry out an inspection within 10 (ten) days to certify the amount payable to the Contractor. The Authority shall inform the Contractor of its intention to carry out the inspection at least 3 (three) business days in advance of such inspection. The Contractor shall assist the Authority in verifying compliance with the Maintenance Requirements.
- (iii) For each case of non-compliance of Maintenance Requirements as specified in the inspection report of the Authority and shall calculate the amount of reduction in payment as decided by the Authority.
- (v) Any deduction made on account of non-compliance will not be paid subsequently even after establishing the compliance thereof. Such deductions will continue to be made every month until the compliance is procured.

13.3 Tests

For determining that the Project conforms to the Maintenance Requirements, the Authority shall require the Contractor to carry out, or cause to be carried out, Tests specified by it in accordance with Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such Tests in accordance with the instructions of the Authority and furnish the results of such Tests forthwith to the Authority.

At any time during Maintenance Period, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority shall carry out the Tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor for taking remedial measures. After completion of the remedial measures by the Contractor, the auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the maintenance works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Article 13.3, the external technical audit shall not affect any obligations of the Contractor under this Agreement.

Article: 14

Defects Liability

14.1 Defects Liability Period

The Contractor shall be responsible for all the Defects and deficiencies, till the expiry of a period of 2 years commencing from the date of Completion of the O&M period.

14.2 Remedying Defects

Save and except as provided in Article 12.1 (iii), the Contractor shall repair or rectify all Defects and deficiencies observed by the Authority during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority in this behalf, or within such reasonable period as may be determined by the Authority at the request of the Contractor, in accordance with Good Industry Practice.

14.3 Scope During Defects Liability period: During the duration of DLP, the successful bidder shall attend the defects as and when PSCDL demands the same. The cost of the defective parts required to be replaced during the DLP shall be borne by the successful bidder to the extent that such rectification – is attributable to ;

- (a) The design of the project
- (b) Plant, material or workmanship not being in accordance with this agreement and the specification and standards
- (c) Improper maintenance
- (d) Failure by the contractor to comply with any other obligations under this Agreement

14.4 Contractor's failure to rectify Defects

If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Article 14.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost to make the Project conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall be determined by the Authority. The cost so determined and an amount equal to 20% (twenty percent) of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

14.5 Extension of Defects Liability Period

The Defects Liability Period shall be deemed to be extended till the identified Defects under Article 14.2 have been remedied or rectified.

Article: 15

Force Majeure

As used in this Agreement, the expression “Force Majeure” or “Force Majeure Event” shall mean occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in this Articles, if it affects the performance by the Party claiming the benefit of Force Majeure (the “Affected Party”) of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

- (a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);
- (b) strikes or boycotts (other than those involving the Contractor, Sub- contractors or their respective employees/ representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project for a continuous period of 24 (twenty-four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event set forth in this Article;
- (c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;
- (d) any judgement or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Authority;
- (e) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

- (a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;
- (b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;
- (c) any civil commotion, boycott or political agitation which prevents construction of the Project by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;
- (d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;
- (e) any Indirect Political Event that causes a Non-Political Event; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

- (a) Change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions this agreement;
- (b) compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors;
- (c) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, licence, permit, authorisation, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, licence, authorisation, no objection certificate, exemption, consent, approval or permit;
- (d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or
- (e) any event or circumstances of a nature analogous to any of the foregoing.

Duty to report Force Majeure Event

- (i) Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

- (a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article 21 with evidence in support thereof;
 - (b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;
 - (c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and
 - (d) any other information relevant to the Affected Party's claim.
- (ii) The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.
- (iii) For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing information as required by this Article, and such other information as the other Party may reasonably request the Affected Party to provide.

Effect of Force Majeure Event on the Agreement

- (i) Upon the occurrence of any Force Majeure after the Appointed Date, the costs incurred and attributable to such event and directly relating to this Agreement (the "Force Majeure costs") shall be allocated and paid as follows:
- (a) upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure costs and neither Party shall be required to pay to the other Party any costs thereof;
 - (b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Authority to the Contractor for the Force Majeure events; and
 - (c) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.
 - (d) For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.

- (ii) Save and except as expressly provided in this Article 21, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.
- (iii) Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day for day basis for such period as performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

Termination Notice for Force Majeure Event

- (i) If a Force Majeure Event subsists for a period of 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may in its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Article 21, and upon issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days' time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

Termination Payment for Force Majeure Event

- (i) In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable on valuation of unpaid works already carried out.

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

- (ii) If Termination is on account of an Indirect Political Event, the Termination Payment shall include:
 - (a) any sums due as on date; and
 - (b) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

Dispute resolution

In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/ or excuse on account of such Force Majeure Event.

Excuse from performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

- (a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;
- (b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and
- (c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume performance of its obligations hereunder.

Article: 16

Payments

16.1 Contract Price

(i) The Authority shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of INR (INR) (the “Contract Price”), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the cost of Maintenance, which shall be paid separately in accordance with the provisions of this agreement. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until issue of Completion Certificate.

(ii) The Contract Price includes all duties, taxes, royalty, cess, charges, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the services performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement.

(iii) The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.

(v) Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor’s obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project.

(vi) All payments under this Agreement shall be made in Indian Rupees.

16.2 Mobilisation Advance

i. The Authority shall make an interest-bearing advance payment (the “Advance Payment”) @ “10%”, equal to 10 % (ten percent) of the Contract Price, exclusively for mobilisation expenses. The Advance Payment for mobilisation expenses shall be made in two instalments each equal to 5% (five percent) of the Contract Price. The second 5% (five percent) mobilization advance would be released after submission of utilization certificate by the Contractor for the first 5% (five per cent) advance already released earlier.

ii. The mobilization advance will be released only after obtaining a bank guarantee bond from a schedule bank for the amount of advance to be released and valid for the contract period. This shall be kept renewed time to time to cover the balance amount and likely period to complete recovery together with interest.

iii. The Contractor may apply to the Authority for the first instalment of the Advance Payment at any time after the Appointed Date, along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form XI provided in the RFP to remain effective till the complete and full repayment thereof.

iv. At any time, after 60 (sixty) days from the Appointed Date, the Contractor may apply to the Authority for the second instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof.

v. The Advance Payment shall be paid by the Authority to the Contractor within 15 (fifteen) days of the receipt of its respective requests in accordance with the provisions of this Article.

vi. It will be ensured that at any point of time bank guarantee is available for the amount of outstanding advance.

vii. The recovery should be commenced after 10% of work is completed and the entire amount together with interest will be recovery by the time 80% of the work is completed.

viii. The contractor shall insure, at his cost, the plant and machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site.

Any amount that is not recovered from the insurers shall be borne by the contractor.

16.3 Procedure for estimating the payment for the Works

(i) The Authority shall make interim payments to the Contractor as certified by the Authority on completion of a stage, as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Clause 24.1 of Section 3 in RFP.

(ii) The Contractor shall base its claim for interim payment for the stages completed till the end of the month for which the payment is claimed, valued in accordance with Article 16.3 (i), supported with necessary particulars and documents in accordance with this Agreement.

(iii) Any reduction in the Contract Price arising out of Change of Scope or the works withdrawn under Article 8.3 shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal.

The Parties further agree that the adjustments arising out of the aforesaid modifications shall be carried out in a manner that the impact of such modifications is restricted to the said Change of Scope or withdrawal, as the case may be, and does not alter the payments due for and in respect of items or stage payments which do not form part of such Change of Scope or withdrawal.

16.4 Stage Payment Statement for Works

The Contractor shall submit a statement (the “Stage Payment Statement”), in 3 (three) copies, by the 7th (seventh) day of the month to the Authority in the form prescribed by the Authority. The form shall show the amount calculated in accordance with Article 16.3 to which the Contractor considers himself entitled for completed stage(s) of the Works. The Stage Payment Statement shall be accompanied with the progress reports and any other supporting documents. The Contractor shall not submit any claim for payment of incomplete stages of work.

16.5 Stage Payment for Works

(i) Within 15 (fifteen) days of receipt of the Stage Payment Statement from the Contractor pursuant to Article 16.4, the Authority shall consider and approve the payment due to the Contractor.

(ii) In cases where there is a difference of opinion as to the value of any stage, the Authority’s view shall prevail.

(iii) The Authority’s Engineer may, for reasons to be recorded, withhold from payment:

- a) the estimated value of work or obligation that the Contractor has failed to perform in accordance with this Agreement and duly notified by the Contractor; and
- (c) the estimated cost of rectification of work done being not in accordance with this Agreement.
- (d) Payment by the Authority shall not be deemed to indicate the Authority's acceptance, approval, consent or satisfaction with the work done.

Article 17

Assignment and Charges

Restrictions on assignment and charges

This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Authority, which consent the Authority shall be entitled to decline without assigning any reason.

Hypothecation of Materials or Plant

Notwithstanding the provisions of Clause 24.1, the Contractor may pledge or hypothecate to its lenders, any Materials or Plant prior to their incorporation in the Works. Further, the Contractor may, by written notice to the Authority, assign its right to receive payments under this Agreement either absolutely or by way of charge, to any person providing financing to the Contractor in connection with the performance of the Contractor's obligations under this Agreement. The Contractor acknowledges that any such assignment by the Contractor shall not relieve the Contractor from any obligations, duty or responsibility under this Agreement.

Article 18

Liability and Indemnity

General indemnity

- (j) The Contractor will indemnify, defend, save and hold harmless the Authority and its officers, servants, agents, Government Instrumentalities and Government owned and/or controlled entities/enterprises, (the “Authority Indemnified Persons”) against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Authority Indemnified Persons.

Indemnity by the Contractor

- (i) Without limiting the generality of Clause 25.1, the Contractor shall fully indemnify, hold harmless and defend the Authority and the Authority Indemnified Persons from and against any and all loss and/or damages arising out of or with respect to:
 - (a) failure of the Contractor to comply with Applicable Laws and Applicable Permits;
 - (b) payment of taxes required to be made by the Contractor in respect of the income or other taxes of the Sub-contractors, suppliers and representatives; or
 - (c) non-payment of amounts due because of Materials or services furnished to the Contractor or any of its Sub-contractors which are payable by the Contractor or any of its Sub-contractors.
- (ii) Without limiting the generality of the provisions of this Article 25, the Contractor shall fully indemnify, hold harmless and defend the Authority Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Authority Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor’s obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or

preliminary injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Authority a licence, at no cost to the Authority, authorising continued use of the infringing work. If the Contractor is unable to secure such licence within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non-infringing.

Notice and contest of claims

In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the “Indemnified Party”) it shall notify the other Party (the “Indemnifying Party”) within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. If the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

Defence of claims

- (i) The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defence. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.

- (ii) If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

- (iii) If the Indemnifying Party exercises its rights under Clause 25.3, the Indemnified Party shall nevertheless have the right to employ its own counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:
 - (a) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or
 - (b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or
 - (c) the Indemnifying Party shall not, in fact, have employed independent counsel reasonably satisfactory to the Indemnified Party, to assume the defence of such action and shall have been so notified by the Indemnified Party; or
 - (d) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:
 - i. that there may be specific defences available to it which are different from or additional to those available to the Indemnifying Party; or
 - ii. that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c) or (d) of this Clause 25.4 (iii) shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defence of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

Survival on Termination

The provisions of this Article 25 shall survive Termination.

Article 19

Dispute Resolution

Dispute Resolution

- (i) Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the “Dispute”) shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 26.2.
- (ii) The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

Conciliation

In the event of any Dispute between the Parties, either Party may call upon the Authority’s Engineer, or such other person as the Parties may mutually agree upon (the “Conciliator”) to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Chairman of the Authority and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 30 (thirty) business day period or the Dispute is not amicably settled within 30 (thirty) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3 but before resorting to such arbitration, the parties agree to explore conciliation by the Conciliation Committees of Independent Experts set up by the Authority in accordance with the procedure decided by the panel of such experts and notified by the Authority on its website including its subsequent amendments. In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration Act. In case of failure of the conciliation process even at the level of the Conciliation Committee, either party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3.

Arbitration

- (i) Any dispute which remains unresolved between the parties through the mechanisms available/ prescribed in the Agreement, irrespective of any claim value, which has not been agreed upon/ reached settlement by the parties, will be referred to the Arbitral Tribunal as per the Arbitration and Conciliation Act.
- (ii) Deleted
- (iii) The Arbitral Tribunal shall make a reasoned award (the “Award”). Any Award made in any arbitration held pursuant to this Article 26 shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.
- (iv) The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.
- (v) This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder. Further, the parties unconditionally acknowledge and agree that notwithstanding any dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with this Article.
- (vi) In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

Adjudication by Regulatory Authority, Tribunal or Commission

In the event of constitution of a statutory regulatory authority, tribunal or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 26.3, be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure

shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

Article 20

Miscellaneous

Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at [Delhi] shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

Waiver of immunity

Each Party unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

Delayed payments

The Parties hereto agree that payments due from one Party to the other Party under the provisions of this Agreement shall be made within the period set forth therein, and if no such period is specified, within 30 (thirty) days of receiving a demand along with the necessary particulars. In the event of delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to Base Rate plus 2 (two) percent, calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

Waiver

- (i) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement:-
 - (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
 - (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
 - (c) shall not affect the validity or enforceability of this Agreement in any manner.
- (ii) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

Liability for review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

- (a) no review, comment or approval by the Authority or the Authority's Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties and liabilities under this Agreement, the Applicable Laws and Applicable Permits; and
- (b) the Authority shall not be liable to the Contractor by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

Exclusion of implied warranties etc.

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

Survival

(i) Termination shall:

- (a) not relieve the Contractor or the Authority, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and
- (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

(ii) All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Qualification or Request for Proposals, as the case may be, shall be deemed to form part of this Agreement and treated as such.

Severability

If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

No partnership

This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

Third parties

This Agreement is intended solely for the benefit of the Parties and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

Successors and assigns

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

- (a) in the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside [Delhi] may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Authority;

[***]

- (b) in the case of the Authority, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the [Chairman] of the Authority with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Delhi] it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and

- (c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e- mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

Language

All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

Counterparts

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any

particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

Copyright and Intellectual Property rights

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Authority a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's documents, including making and using modifications of them. This licence shall:
 - (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;
 - (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works; and

- (c) in the case of Contractor's documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Contractor.
- (ii) The Contractor's documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Clause 27.17.
- (iii) As between the Parties, the Authority shall retain the copyright and other intellectual property rights in this Agreement and other documents made by (or on behalf of) the Authority. The Contractor may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without the Authority's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the contract.

Limitation of Liability

- (i) Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Articles 23 and 25.
- (ii) The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

Care and Supply of Documents

- (i) Each of the Contractor's documents shall be in the custody and care of the Contractor, unless and until taken over by the Authority. Unless otherwise stated in the Agreement, the Contractor shall supply to the Authority 2 (two) copies of the each of the Contractor's documents.
- (ii) The Contractor shall keep, on the Site, a copy of the Agreement, publication named in the Authority's requirements, the Contractor's documents, and variations and other communications given under the Agreement. The Authority's personnel shall have the right of access to all these documents at all reasonable times.

- (iii) If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other party of such error or defect.

Authority's Use of Contractor's Documents.

- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.
- (ii) The Contractor hereby gives to the Authority a non-terminable transferable nonexclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:
 - (a) apply through out the actual or intended working life (whichever is longer) of the relevant parts of the Works,
 - (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
 - (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contractor, including replacements of any computers supplied by the Contractor.
- (iii) The Contractor's Documents and other design documents made by or on behalf of the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Sub-Clause.

Contractor's Use of Authority's Documents

As between the Parties, the Authority shall retain the copyright and other intellectual property rights in the Authority's requirements and other Documents made by (or on behalf of) the Authority. The Contractor may, at its cost copy, use, and obtain communication of these documents for the purpose of the Agreement. They shall not

without the Authority's consent, be copied, used or communicating to a third party by the Contractor, except as necessary for the purposes of the Agreement.

Access to the Site by Others

The Contractor shall, at all times, afford access to the Site to the authorized representatives of the Authority, the Authority's Engineer and anyone else authorized by the Authority to access the site and to the persons duly authorized by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project and to investigate any matter within their authority and upon reasonable notice, the Contractor shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project consistent with the purpose for which such persons have gained such access to the Site.

Term

This Agreement shall come into force and effect from the date first hereinabove written and shall remain in force and effect till the Termination Date i.e. the Parties perform all their respective obligations or is terminated by any of the Parties for the reasons and in the manner provided for in the Agreement.

Amendments

The Agreement may not be supplemented, amended, modified or changed except by an instrument in writing signed by the Contractor and the Authority and expressed to be a supplement, modification or change to the Agreement.

Representation and Bribes

The Contractor represents and warrants to the Authority that:

- (a) No representation or warranty by the Contractor contained herein or in any other document furnished by it to the Authority, or to any Governmental Instrumentality in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and
- (b) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Contractor, to any person by way of fees, commission or otherwise for securing or entering into the Contractor for influencing or attempting to influence any officer or employee of the Authority or GOI in connection therewith.

No Agency

The Agreement does not constitute either Party as the agent, partner or legal representative of the other for any purposes whatsoever, and neither Party shall have any express or implied right or authority to assume or to create any obligation or responsibility on behalf of or in the name of the other Party.

~*~

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Ref: AAL/8194/GT-Report/P.No.1627/Nehru street/Pdy/2020-21

Date: 29.08.2020

GEOTECHNICAL INVESTIGATION REPORT

PROJECT : GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF MULTI LEVEL CAR PARKING AT OLD JAIL COMPLEX, NEHRU STREET, PUDUCHERRY.

PROJECT NO : AAL.1627/NEHRU STREET/PDY/2020-21.

**CLIENT : THE CHIEF EXECUTIVE OFFICER,
PSCDL,
PUDUCHERRY.**

REFERENCE : WORK ORDER NO: 1040/PSCDL/MLCP/2020/513 DATE: 11.08.2020

**EXPLORATION
DATE : 13.08.2020 – 15.08.2020.**

**DATE OF
REPORT : 29.08.2020.**

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NAME OF WORK: GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF MULTI LEVEL CAR PARKING AT OLD JAIL COMPLEX, NEHRU STREET, PUDUCHERRY.

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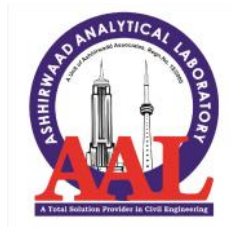
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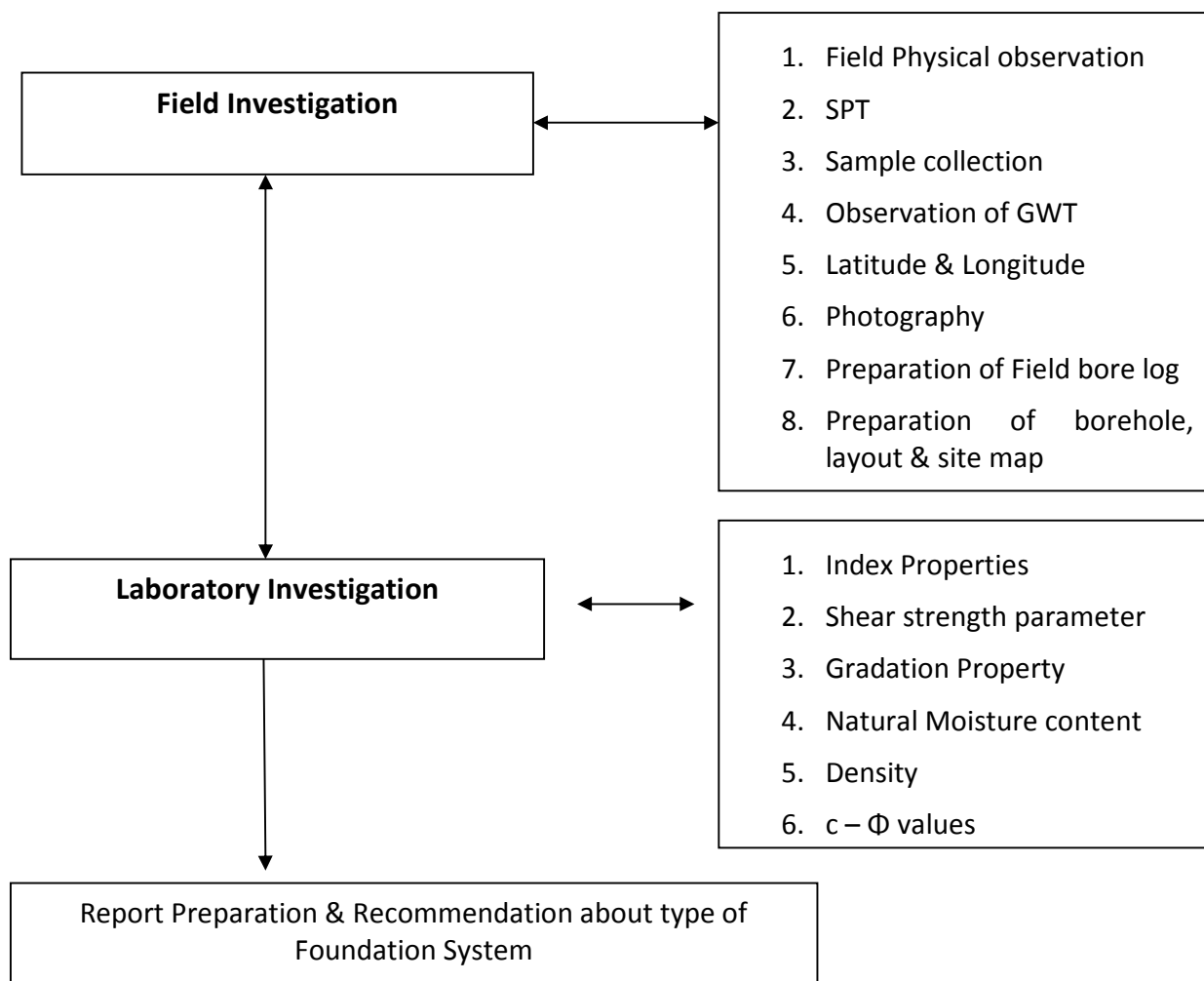
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1. INTRODUCTION

A Geotechnical investigation for the above said work was undertaken as per the authorization given by **THE CHIEF EXECUTIVE OFFICER, PSCDL, Puducherry.**

FLOW CHART



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2. SCOPE OF WORK

2.1 This geotechnical investigation has been carried out to ascertain the safe bearing capacity and to decide upon suitable foundation system for the proposed structure. It was instructed to make two number of bore holes. The BH -1 was driven upto 20.0 m depth BH-2 & BH-3 was driven upto 10.0m depth and terminated as per the clients instruction.

2.2 The allowable safe bearing capacity of the soil is calculated based on the field geotechnical investigation, soil properties, GWT and subsequent laboratory experiments.

3. FIELD INVESTIGATION

3.1 GENERAL

Mobilizations of equipment, skilled and unskilled labours are arranged at site. The various factors for the number and position of boreholes and spacing of boreholes are based on the extent of the site, nature and type of structure. Depth of borehole is concluded based on condition of soil, penetration capacity of soil, shear failure and hard strata condition. Standard Penetration Test (SPT) is conducted at various depths. The disturbed soil sample is collected from the site and transported for examination to Ashhirwaad Analytical Laboratory. The field investigation is being monitored by experienced civil engineers/ Geotechnical/ Structural Engineer.

3.2 STANDARD PENETRATION TEST (IS: 2131 – 1981)

EQUIPMENT PREPARATION

3.2.1 DRILLING EQUIPMENT

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The equipment used shall provide a clean borehole 100 to 150 mm in diameter, for insertion of the sampler ensure that the penetration test is performed on undisturbed soil and shall permit driving of the split spoon sampler to obtain penetration record and sample in accordance with procedure.

3.2.2 DRIVE WEIGHT ASSEMBLY

The drive weight assembly shall consist of driving head and a 63.5 kg weight with 75cm free fall. It is ensured that the energy of the falling weight is not reduced by friction between the drive weight and the guides. The rods to which the sampler is attached for driving should be straight, tightly coupled and straight in alignment. For driving the casting, a hammer heavier than 63.5 kg may be used.

3.2.3 CLEANING THE BOREHOLE

In case wash boring is adopted for cleaning the borehole, side discharge bits are permissible, but in no case a bottom discharge bit be permitted. In cohesive soils, the borehole may be cleaned with bailer with a flap valve.

3.2.4 OBTAINING THE SAMPLES

Test shall be made at every change in stratum or at intervals of not more than 1.5 m whichever is less. Tests may be made at lesser or greater intervals if specified or considered necessary.

The sampler shall be lowered to the bottom of the borehole. The following information shall be noted and recorded.

- (a) Depth of bottom of borehole below ground level.
- (b) Penetration of the sampler into the soil under the combined weight of sampler and rods

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- (c) Water level in the borehole or casting
- (d) Depth of bottom of casting below ground level.

Labels shall be fixed to the jar or notation shall be written on the covers with the following information:

- a) Origin of sample
- b) Job designation
- c) Boring number
- d) Sample number
- e) Depth of sampling
- f) Penetration record
- g) Length of recovery
- h) Date of sampling

The jars containing samples shall be stored in suitable container for shipment. Samples should not be placed in the sun.

3.3 IS CODE FOR FIELD INVESTIGATION

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 1498 – 1970 (Reaffirmed 2007)	Classification & Identification of soil for general engineering purpose (First Revision)
2	IS : 1892 – 1979 (Reaffirmed 2002)	Code of practice for sub surface investigation for foundation (First Revision)
3	IS : 2131 – 1981 (Reaffirmed 2002)	Method of Standard Penetration Test for soil (First Revision)
4	IS : 2132 – 1986 (Reaffirmed 2002)	Code of practice for thin walled tube sampling of soil (Second Revision)
5	IS : 4968 – 1976 (Reaffirmed 2007)	Method of sub surface sounding of soil : Static cone penetration (First Revision)

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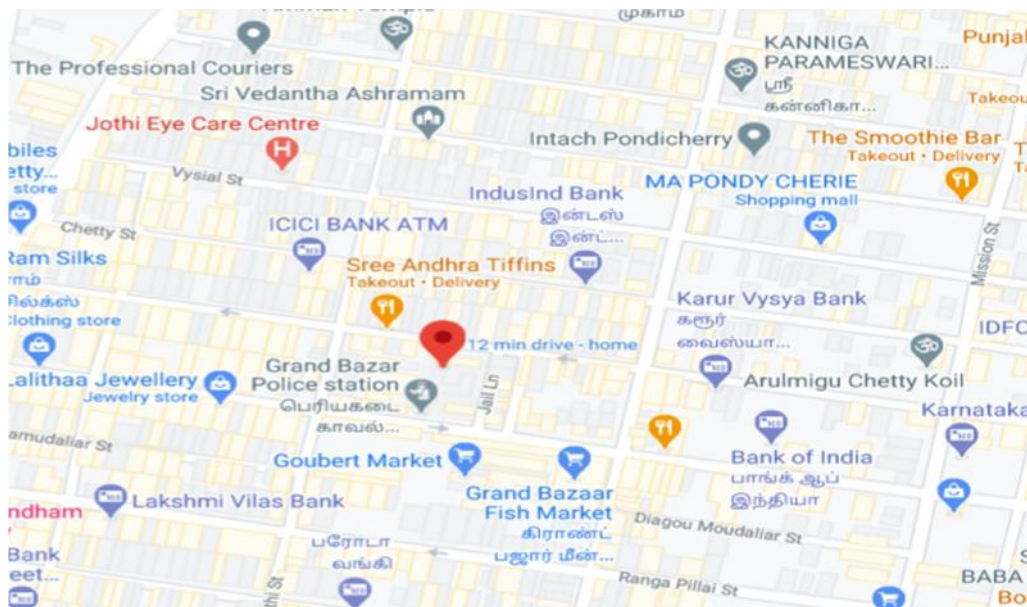
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3.4 SITE EXPLORATION

Subsurface exploration should be carried out in preliminary and detailed exploration. Shear strength and compressibility of the soil is determined in the detailed exploration. The method of boring for soil exploration is rotary boring. Rotary boring is effected by cutting action of the soil. The bit is carried at the end of hollow, jointed drill rods which is rotated by the chuck. A mud laden fluid is pumped continuously and fluid returns to surface in angular space. Undisturbed samples are collected at suitable intervals.

3.5 SITE MAP



Bore Hole No	LATITUDE	LONGITUDE
BH-1	11°56'11.24"N	79°49'42.18"E
BH-2	11°56'11.24"N	79°49'42.18"E
BH-3	11°56'12.33"N	79°49'41.79"E

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3.6 BOREHOLE DETAILS

Three number of bore holes are driven in the field at various location of the site. As per IS: 1892 - 1979 (Reaffirmed 2002), the various driven depth of the borehole, Ground Water Table and their corresponding identifications are tabulated below

SL.NO	BOREHOLE IDENTIFICATION NUMBER	DRIVEN BOREHOLE DEPTH (m)
1.	BH-1	20.0
2.	BH-2	10.0
3.	BH-3	10.0

BOREHOLE IDENTIFICATION NUMBER	GROUND WATER TABLE (m)
BH-1	1.20
BH-2	1.20
BH-3	1.20

4. GEOTECHNICAL MODELLING AND OBSERVATION:

4.1 GENERAL

Various laboratory test are carried out to assess the soil as per IS code standard and calculations are done. The results of the test are tabulated and interpretation is given.

4.2 LIST OF IS CODE

4.2.1 LABORATORY IS CODE

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 2720 – 1983 (Part – 1) (Reaffirmed 2006)	Methods of test for soil :Preparation of dry soil sample for various test (Second Revision)

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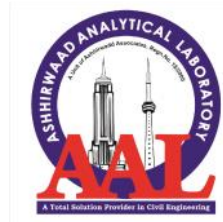
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2	IS 2720 – 1980 (Part – 2) (Reaffirmed 2010)	Methods of test for soil : Determination of water content (Second Revision)
3	IS 2720 – 1980 (Part – 3) (SECTION – 1) (Reaffirmed 2002)	Methods of test for soil : Determination of specific gravity : Fine grained soil (First Revision)
4	IS 2720 – 1980 (Part – 3) (SECTION – 2) (Reaffirmed 2002)	Methods of test for soil : Determination of specific gravity : Fine, Medium, Coarse grained soil (First Revision)
5	IS 2720 – 1985 (Part – 4) (Reaffirmed 2006)	Methods of test for soil : Grain size analysis(Second Revision)
6	IS 2720 – 1985 (Part – 5) (Reaffirmed 2006)	Methods of test for soil : Determination of liquid and plastic limit (Second Revision)
7	IS 2720 – 1985 (Part – 15) (Reaffirmed 2006)	Methods of test for soil : Determination of consolidation properties (First Revision)
8	IS 1809 – 1972 (Reaffirmed 2006)	Methods of test for soil : Glossary of terms & symbols relating to soil engineering (Third Revision)

4.2.2 FOUNDATION IS CODE

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 1080 – 1986 (Reaffirmed 2002)	Code of practice for design and construction of shallow foundation on soil (other than raft, ring and shell) (Second Revision)
2	IS 1904 : 1968 (Reaffirmed 2006)	Code of practice for design and construction of foundation on soil :General requirement (Third Revision)
3	IS 6403 – 1981 (Reaffirmed 2002)	Code of practice for determination of bearing capacity of shallow foundation (First Revision)

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4.2.3 SEISMIC IS CODE

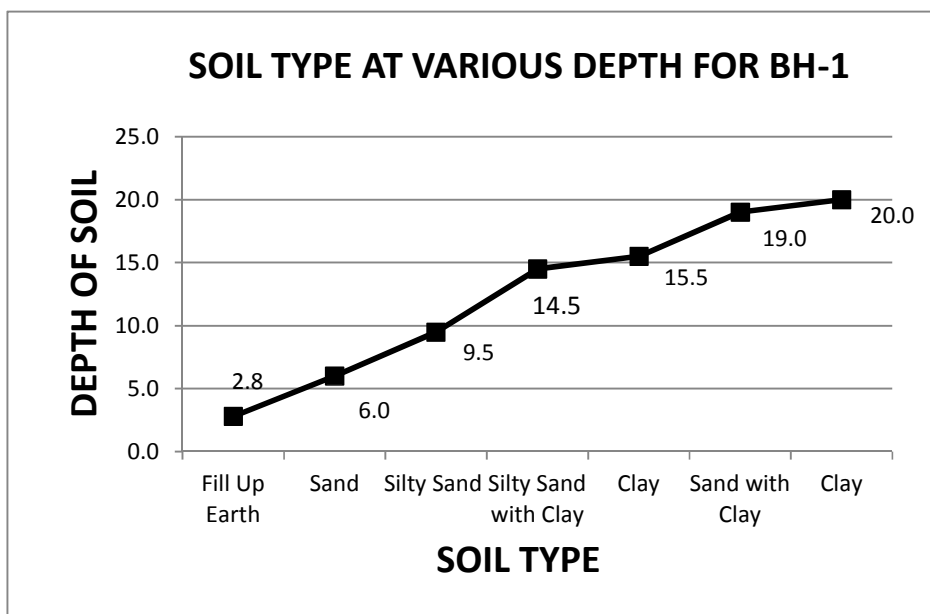
SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS 1893 – 2002 (Reaffirmed 2007)	Criteria for Earthquake Resistant design of Structures(Fifth Revision)

4.3 RESULT:

Laboratory tests the following soil profiles for the boreholes as observed is detailed below:

BH -1

The details of soil stratification are presented in the bore - log and their interpretation is shown below



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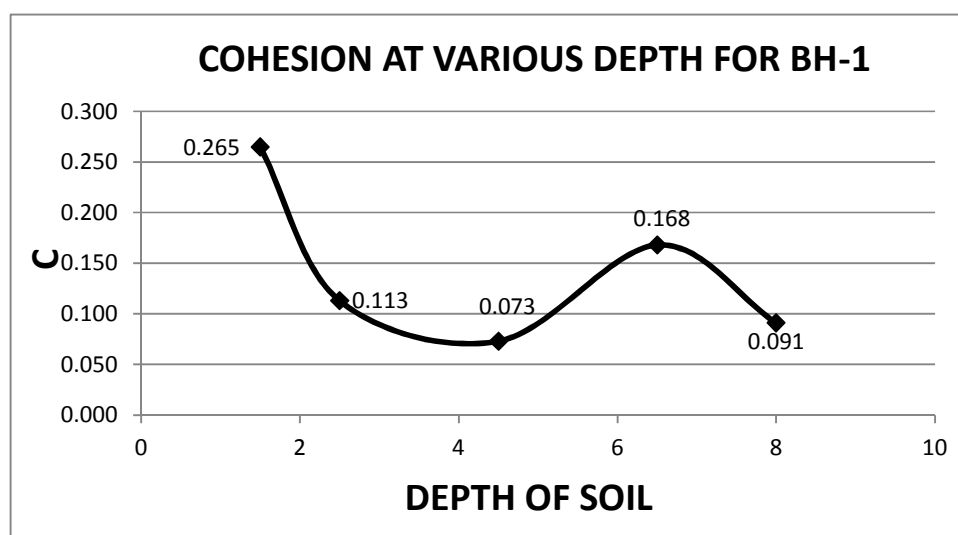
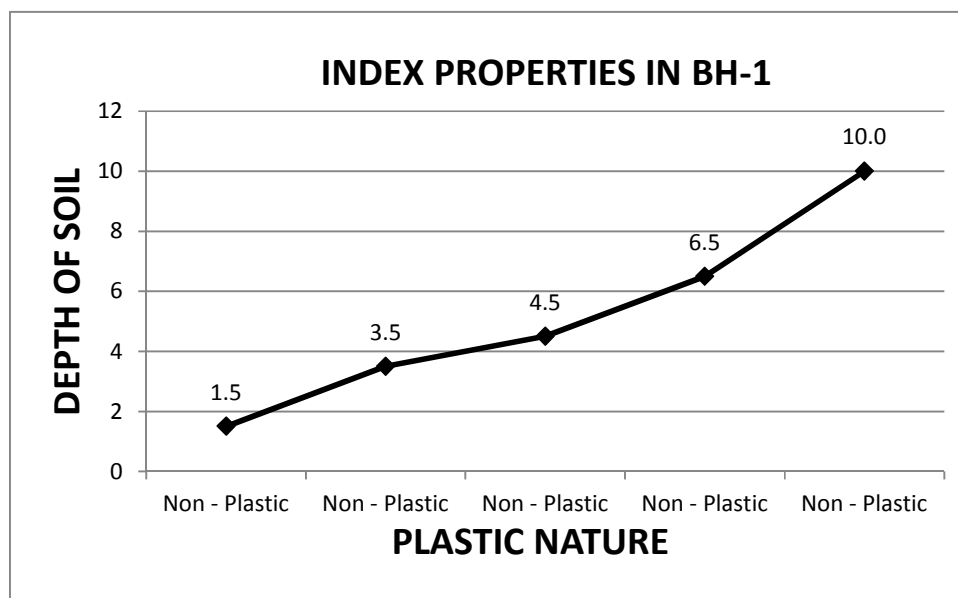


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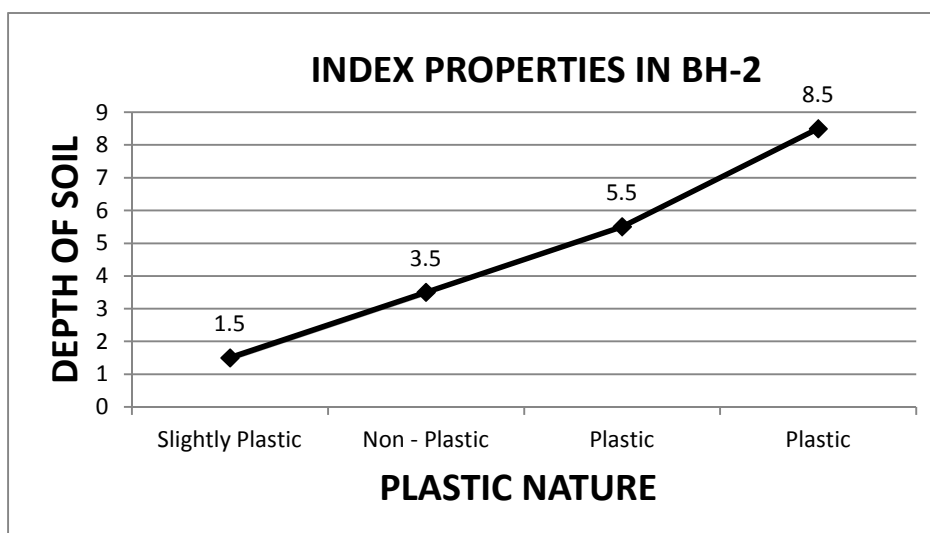
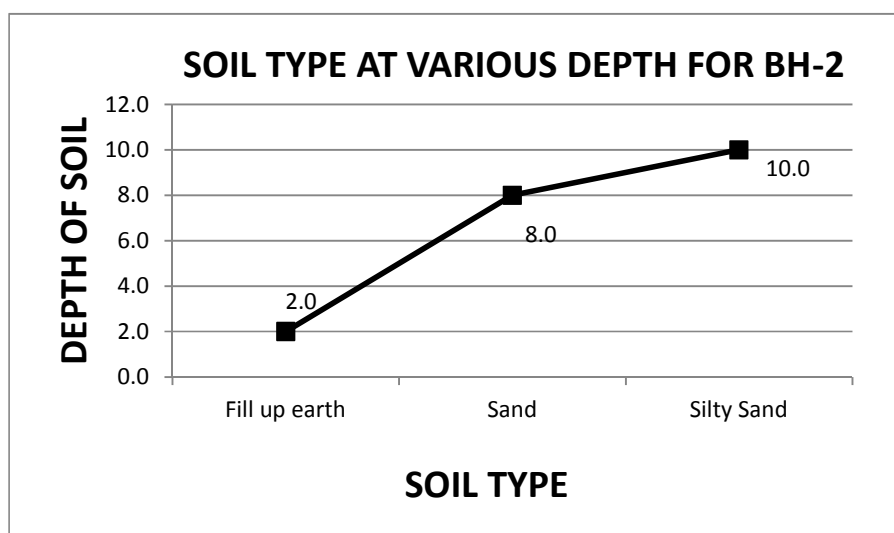
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BH -2

The details of soil stratification are presented in the bore - log and their interpretation is shown below



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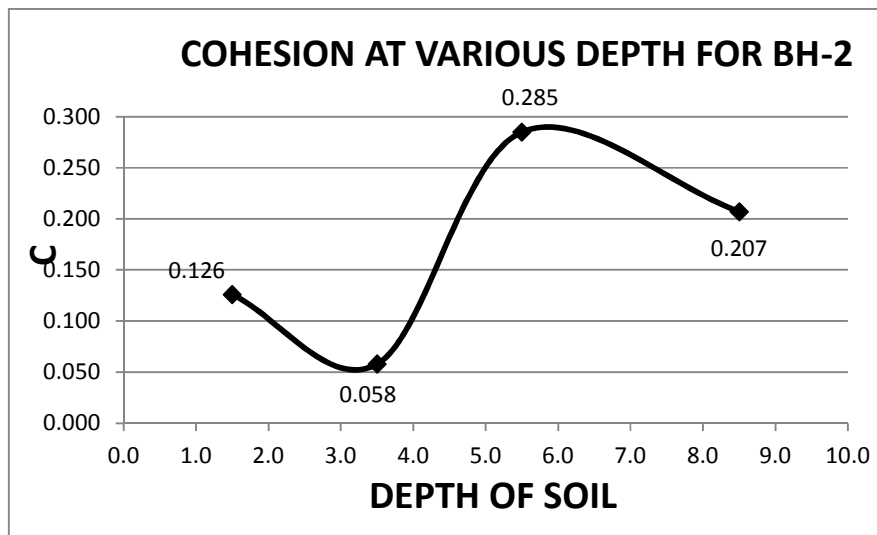
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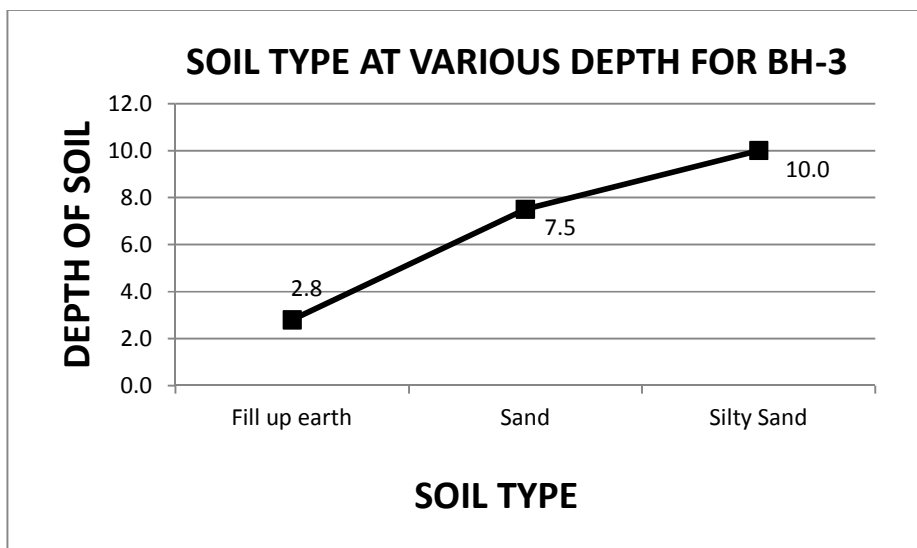
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BH -3

The details of soil stratification are presented in the bore - log and their interpretation is shown below



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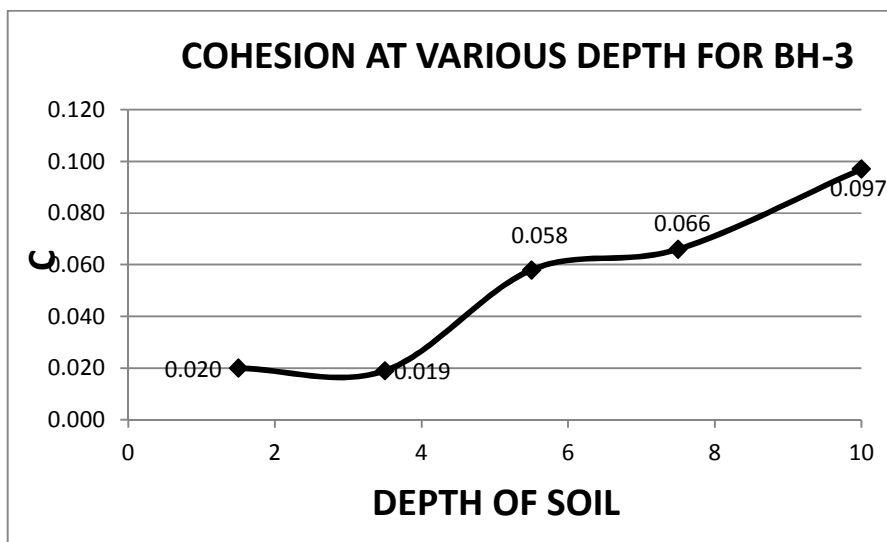
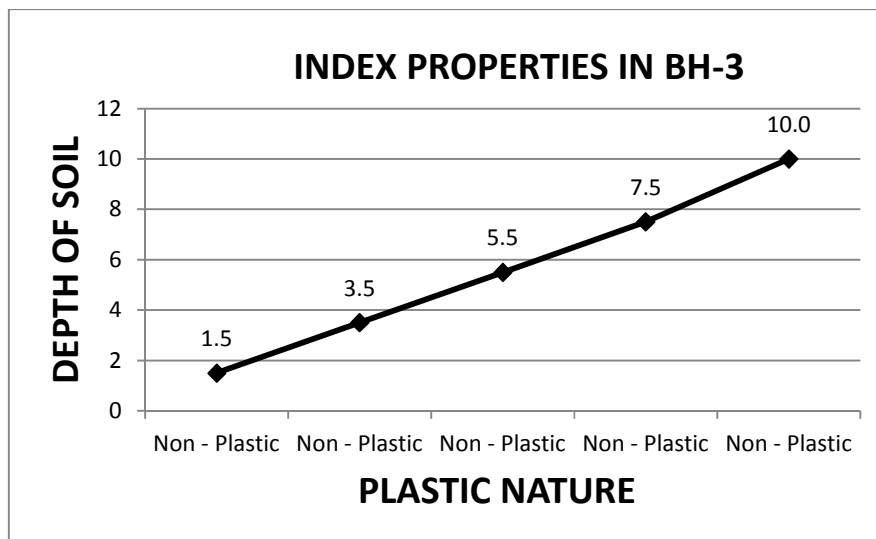


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5. CHEMICAL TEST:

Chemical tests were performed on water samples collected from bore holes for determining pH value and chloride. The results are given in a tabular form below:

Table 5.1
As per IS 3025 (Part 11 & 32), IS 456-2000.

SL.NO	Particulars	Results	Stipulations of IS 456-2000, IS 3025(Part 32) (Water for Construction Purpose)
1.	pH value	7.9	6.5 – 8.5
2.	Chloride	201.17mg/l	500 - 2000 mg/l

It is seen that the values are within the permissible limit (As per IS 456-2000). So no special cement will be required for foundation concrete.

6. RECOMMENDATIONS:

The following recommendations are made based on the field investigations SPT values, GWT and subsequent Laboratory Experiments.

6.1 Considering in situ condition of the soil Strata, two types of foundations are suggested for the **Proposed Construction Of Multi Level Car Parking at Old jail Complex, Nehru Street, Pondicherry.**

a) Isolated/Combined Footing

or

b) Strip Raft Foundation

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Note: Filled up Earth Formation was seen in the Bore Hole Locations upto a maximum Depth of 2.80m from the NGL. Hence Footing have to be founded over/Medium to Dense Layer available beyond 2.80m.

6.2 If **"ISOLATED/COMBINED FOOTING"** is considered, the allowable safe bearing capacities are calculated and tabulated below along with the allowable settlement.

Table 6.2.1
Safe Bearing Capacity Calculation As per IS 6403:1981

Sl. No.	Bore Hole No	Depth in meter from NGL	SBC in T/m ²	As per IS:1904-1986 (Reaffirmed 2006)	
				Total Arrived Settlement (mm)	Total Arrived Settlement (mm)
1.	BH-1	3.0	13	3.34	50
2.	BH-2 &	3.25	15	4.00	50
3.	BH-3	3.5	17	4.66	50

6.3. If **"STRIP RAFT FOUNDATION"** is considered, the allowable safe bearing capacities are calculated and tabulated below along with the allowable settlement.

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Table 6.3.1
Safe Bearing Capacity Calculation As per IS 6403:1981

Sl. No.	Bore Hole No	Depth in meter from NGL	SBC in T/m ²	As per IS:1904-1986 (Reaffirmed 2006)	
				Total Allowable Settlement (mm)	Total Allowable Settlement (mm)
1.	BH-1	3.0	15	4.11	75
2.	BH-2 & BH-3	3.25	17	4.73	75
3.		3.50	19	5.12	75

***NGL – Natural Ground Level**

- 6.3.2 The Decision of selecting the suitable type and depth of foundation rests with the Structural Engineer Concerned.
- 6.3.3 The width of footing should not be less than 1.5m in order to satisfy the stability requirements.
- 6.4 **SAFETY PRECAUTIONS:** Since the **GWT** is located at 1.20m depth, during construction, adequate safety measures should be taken for the safety of adjacent structures by controlled and constant dewatering with sufficient support measures for prevention of the sliding soil mass. The safety of the men, machineries and structure should be ensured.
- 6.5 For the sub structure [RCC] the environmental exposure condition may be considered as '**Severe**' and all the precautions as laid by the relevant code of practice for the design of structures may be adopted.

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6.6 The entire recommendations as above are based on three bore holes executed as per the Clients directions at the location shown by the client's representative as per terms of reference. The uniformity or otherwise of the soil delineation and strength profile over the entire site shall be verified during execution. If there are any variations the same shall be reported to us for review and further advice.

S\d-

Er. N.J.L. RAMESH

CHIEF CONSULTANT (Geotech& Structures)

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7.APPENDICES

7.1 SAFE BEARING CAPACITY CALCULATIONS:

7.1.1 For Shallow foundation it is as per **IS: 1904 – 1995**, *Code of practice for design and construction of foundations*: General requirements (third revision). The recommended safe bearing Capacity of soil for shallow foundation was calculated as per **IS: 6403-1981**, *Code of practice for Determination of Bearing Capacity of Shallow Foundation*. The settlement calculations are as per **IS: 8009 (Part-I) - 1976**, *Code of practice for calculation of settlements in foundations, part I Shallow foundation subjected to symmetrical static vertical Loads*. All the calculations are carried out based on the SPT value observed from the field.

7.2. SAFE BEARING CAPACITY CALCULATION FORMULAE:

7.2.1 FOR SHALLOW FOUNDATION:

IN CASE OF GENERAL SHEARE FAILURE AS PER IS: 6403: 1981

$$\text{The Ultimate Net Bearing Capacity } q_d = c N_c s_c d_c i_c + q (N_q - 1) s_q d_q i_q + 0.5 B \gamma N_\gamma s_\gamma d_\gamma i_\gamma W'$$

$$\text{Safe Load Carrying Capacity} = q_d / F.S$$

DEPTH FACTOR

$$d_c = 1 + (0.2 D_f / B \sqrt{N_\phi})$$

$$d_q = d_\gamma = 1 \text{ for } \phi < 10^\circ$$

$$d_q = d_\gamma = 1 + 0.1 D_f / B \sqrt{N_\phi} \text{ for } \phi > 10^\circ$$

INCLINATION FACTOR

$$i_c = i_q = (1 - \alpha / 90)^\circ$$

$$i_\gamma = (1 - \alpha / \phi)^\circ$$

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SHAPE FACTOR

Sl. No.	Shape of Base	s_c	s_q	s_γ
i)	Continuous strip	1.00	1.00	1.00
ii)	Rectangle	$1 + 0.2 B/L$	$1 + 0.2 B/L$	$1 - 0.4 B/L$
iii)	Square	1.3	1.2	0.8
iv)	Circle	1.3	1.2	0.6

Where,

c	= Cohesion in Kg/cm
D_f	= Depth of foundation in cm
d_c, d_q, d_γ	= Depth factors
i_c, i_q, i_γ	= Inclination factors
L	= Length of footing in cm
L'	= Effective length of footing in cm
N	= Corrected standard penetration value
N_c, N_q, N_γ	= Bearing capacity factors
N_ϕ	= $\tan^2 (\pi/4 + \phi/2)$
q	= Effective surcharge at the base level of Foundation
qd	= Net ultimate bearing capacity based on general shear failure
W'	= Correction factor for location of water table
α	= Inclination of the load to the vertical in degrees
ϕ	= Angle of shearing resistance of soil in degrees
γ	= Bulk unit weight of foundation soil
F.S	= Factor of safety.

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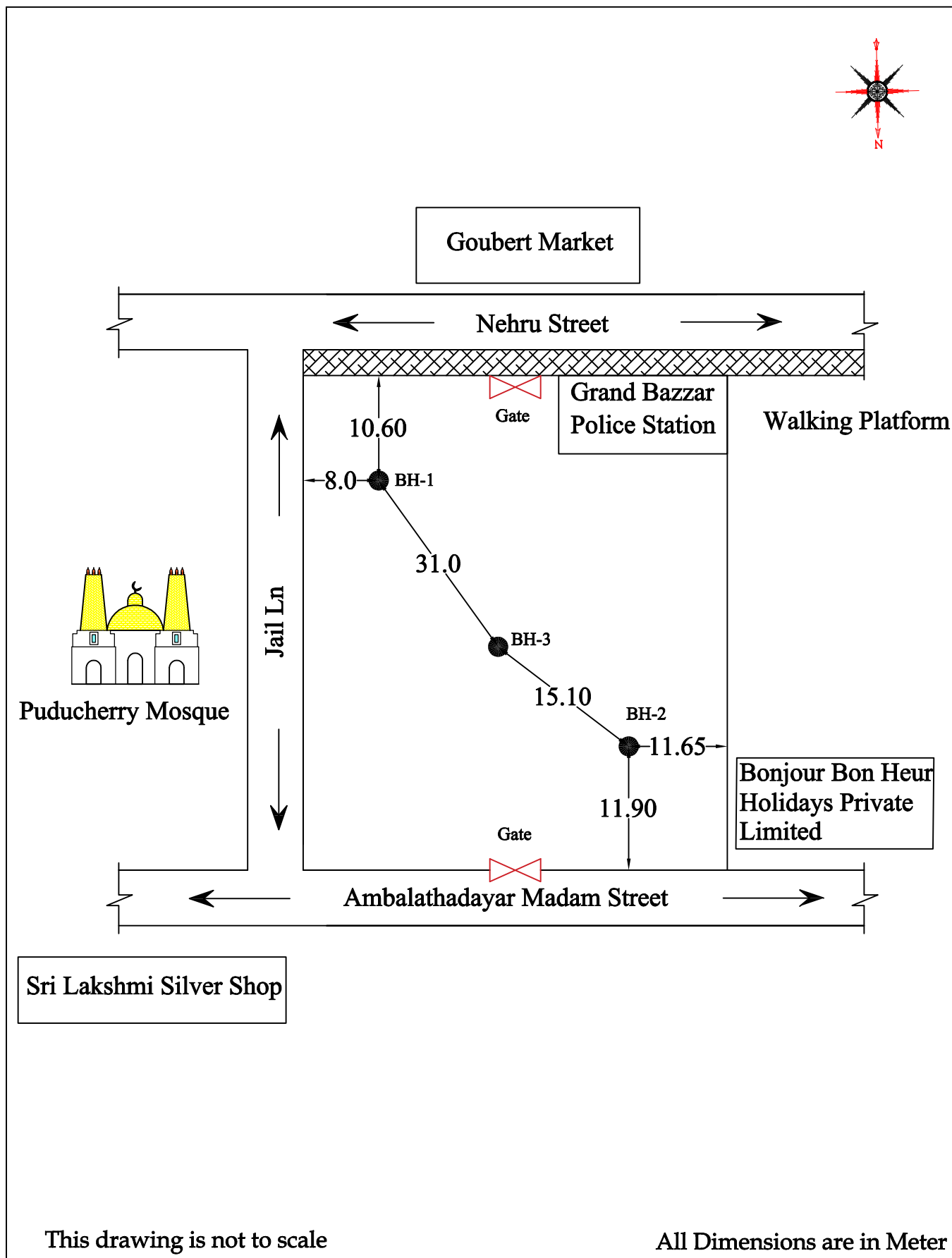


Fig. 1 – Site Photo Showing the Soil Exploration Work.

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Borehole Layout



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ULR : TC86192000000260F

BORE LOG - 1/3

Project No:		AAL.1627/Pdy/2020	Date:	13.08.2020		Location:	Old Jail Complex, Puducherry.							Index properties (%)					Shear strength parameters		Gradation properties (%)					
BH. No :		1	GWT (m):	1.20		Graphical Representation of Standard Penetration Test Data (N)						Description /consistency	Natural moisture content (%)	Density (γ) t/m ³	Liquid limit (WL) Plastic limit (WL) Plasticity index(I _p) Consistency index (I _c) Free swell index(Cs)					Direct shear test		Sieve analysis				
Depth of boring (m) :		20.00																								
Depth Below GL	Soil stratum	Classification of soil	Thickness of Layer (m)	Depth of Sampling(m)		N Value	10	20	30	40	50							C (kg/cm ²)	ϕ (degrees)	Gravel	Coarse sand	Medium sand	Fine sand	silt & clay		
1.0		Fill up earth Sand (SW) with gravel	2.80		0.5	3						Very Loose	22	1.39	Non - Plastic			Nil	0.033	31°10'	18.06	5.29	65.20	9.69	1.76	
					1.0																					
					1.5																					
2.0					2.0	11					Medium															
3.0					2.5																					
4.0		Light Brown Sand (SW)	3.40		3.0	19						Medium	14	1.59	Non - Plastic			Nil	0.012	30°45'	0.00	1.49	70.15	25.37	2.99	
					3.5																					
5.0					4.0	35					Dense	20	1.75	Non - Plastic			Nil	0.058	30°32'	0.00	2.41	29.76	65.68	2.14		
					4.5																					
6.0					5.0	33					Dense															
				5.5																						
7.0		Black Silty sand (SM-SW)	3.50	6.0	32						Dense	21	1.75	Non - Plastic			Nil	0.052	31°10'	0.00	0.00	13.21	83.57	3.21		
				6.5																						
8.0				7.0	26					Medium																
				7.5																						
9.0				8.0	41					Dense																
				8.5																						
10.0		Silty sand (SM-SW)	0.50	9.0	9							Loose	37	1.72	Non - Plastic			Nil	0.015	31°10'	0.00	0.00	30.38	65.82	3.80	
				9.5																						
				10.0																						

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ULR : TC86192000000260F

BORE LOG - 1/3

Project No: AAL.1627/Pdy/2020			Date: 13.08.2020		Location: Old Jail Complex, Puducherry.		Index properties (%)										Shear strength parameters		Gradation properties (%)								
BH. No : 1			GWT (m): 1.20		Graphical Representation of Standard Penetration Test Data (N)								Description /consistency	Natural moisture content (%)	Density (γ) t/m³	Liquid limit (W _L)	Plastic limit (W _p)	Plasticity index(I _p)	Consistency index (I _c)	Free swell index(C _s)	Direct shear test		Sieve analysis				
Depth of boring (m) : 20.00			Thickness of Layer (m)																		Depth of Sampling(m)		UDS	DS	C (kg/cm²)	φ (degrees)	Gravel
Depth Below GL	Soil stratum	Classification of soil					N Value	10	20	30	40	50															
11.0	Black Silty Sand (SM-SW) with clay	4.50		10.5	4								Very Loose														
				11.0																							
12.0				11.5	4										Very Loose	37	1.52	Slightly Plastic		30	0.082	18°10'	0.00	0.00	20.83	58.8	20.83
				12.0																							
13.0				12.5	5										Loose												
				13.0																							
14.0	13.5	5										Loose	39	1.71	Slightly Plastic		20	0.094	15°55'	1.58	1.58	30.04	45.45	21.34			
	14.0																										
15.0	Black Clay (CH)	1.00		14.5	9								Loose	42	1.24	72	35	37	0.81	90	0.113	7°17'	0.00	0.00	0.00	1.25	98.75
				15.0																							
16.0	Black Sand (SP) with clay	3.50		15.5	9								Loose	30	1.38	Slightly Plastic		20	0.137	10°15'	0.00	0.00	30.69	37.62	31.68		
				16.0																							
17.0				16.5	6										Loose												
				17.0																							
18.0				17.5	12										Medium	26	1.42	Slightly Plastic		20	0.095	20°6'	0.00	0.00	49.8	33.47	16.37
				18.0																							
19.0	18.5	6											Stiff														
	19.0																										
20.0	Black Clay (CH)	1.00		19.5	10								Very Stiff	36	1.21	68	31	37	0.86	100	0.191	7°44'	0.00	0.00	0	2.22	97.78
				20.0																							

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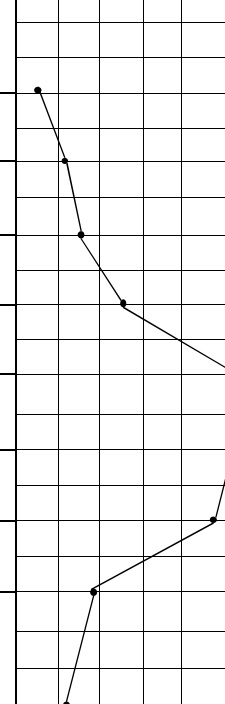
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ULR : TC86192000000261F

BORE LOG - 2/3

Project No: AAL.1627/Pdy/2020			Date: 15.08.2020		Location: Old Jail Complex, Puducherry		Index properties (%)					Shear strength parameters		Gradation properties (%)												
BH. No :		2		GWT (m): 1.20		Graphical Representation of Standard Penetration Test Data (N)					Description /consistency	Natural moisture content (%)	Density (γ) t/m ³	Liquid limit (W _L)	Plastic limit (W _p)	Plasticity index(I _p)	Consistency index (I _c)	Free swell index(C _s)	Direct shear test		Sieve analysis					
Depth of boring (m) :		20.00		Thickness of Layer (m)	Depth of Sampling(m)														C (kg/cm ²)	φ (degrees)	Gravel	Coarse sand	Medium sand	Fine sand	silt & clay	
Depth Below GL	Soil stratum	Classification of soil	UDS		DS	N Value	10	20	30	40	50															
1.0	Fill Up Earth Red sand	2.00		0.5	5																					
				1.0																						
2.0				1.5											23	1.71	Non - Plastic		Nil	0.030	28°25'	0.00	1.29	11.59	84.98	2.15
				2.0																						
3.0	Light Brown Sand (SP)	6.00		2.5	11								15	1.66	Non - Plastic		Nil	0.042	30°45'	0.00	1.37	64.73	32.53	1.37		
				3.0																						
4.0				3.5	16									14	1.65	Non - Plastic		Nil	0.042	31°10'	0.00	2.16	63.36	31.90	2.59	
				4.0																						
5.0				4.5	26																					
				5.0																						
6.0				5.5	55									15	1.70	Non - Plastic		Nil	0.045	30°22'	0.00	0.00	40.80	58.28	0.92	
				6.0																						
7.0	6.5	50 _(7cmf)																								
	7.0																									
8.0	7.5	46											19	1.84	Non - Plastic		Nil	0.036	31°10'	0.00	0.00	40.80	58.28	0.92		
	8.0																									
9.0	Black Silty Sand (SM-SW)	2.00	8.5	19																						
			9.0																							
			9.5																							
10.0			10.0	12										14	1.9	Non - Plastic		Nil	0.018	31°32'	0.00	0.00	27.82	70.56	1.61	

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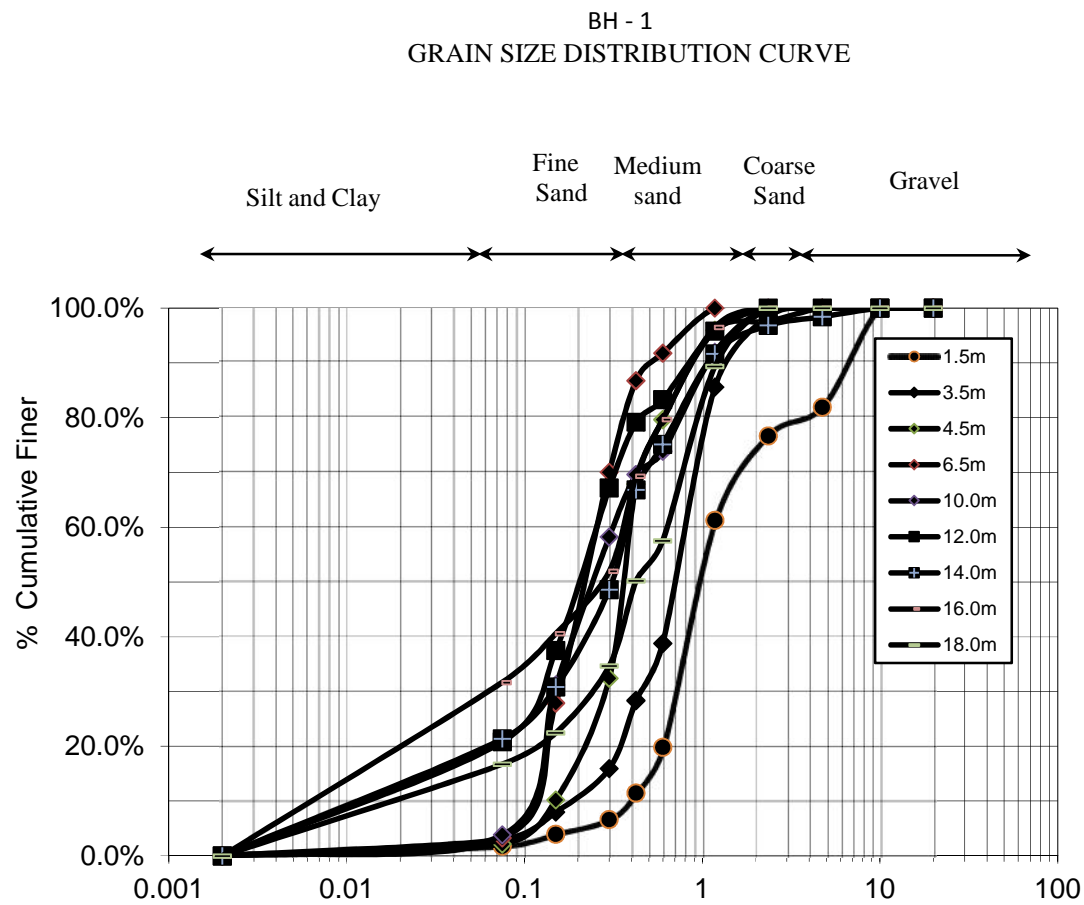
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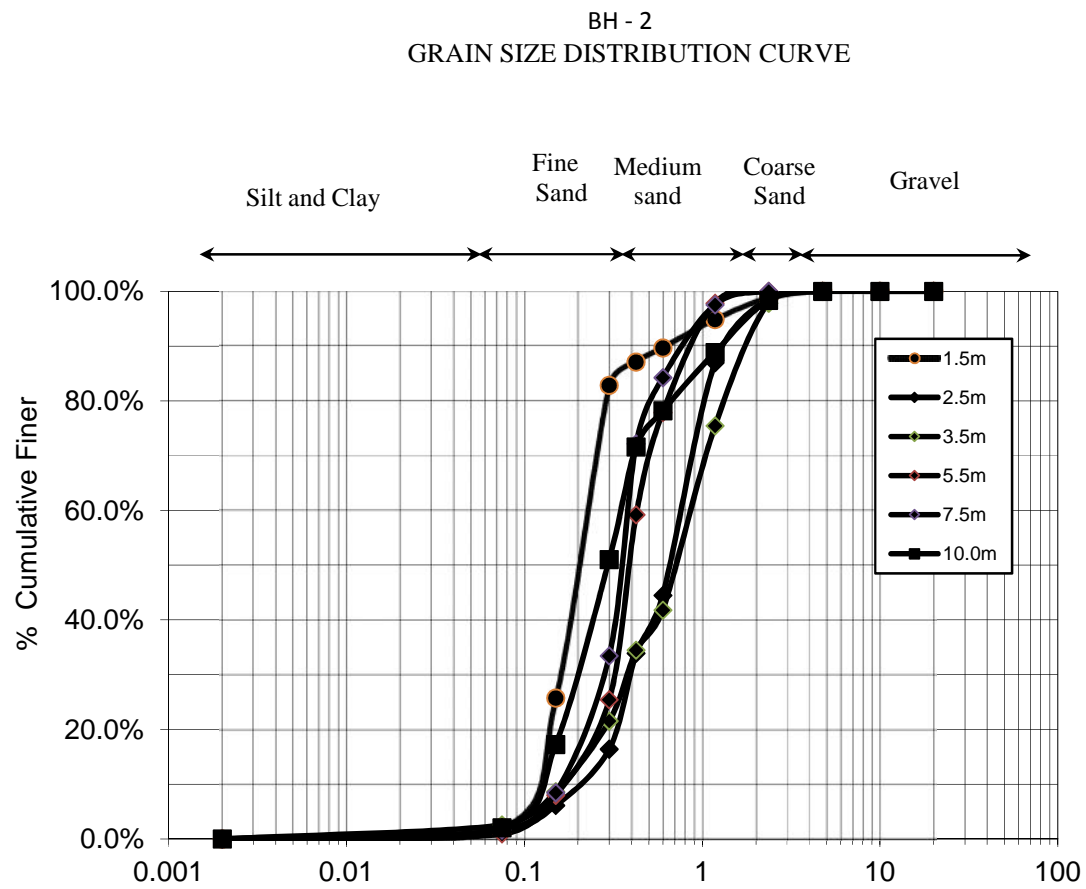
BORE LOG - 3/3

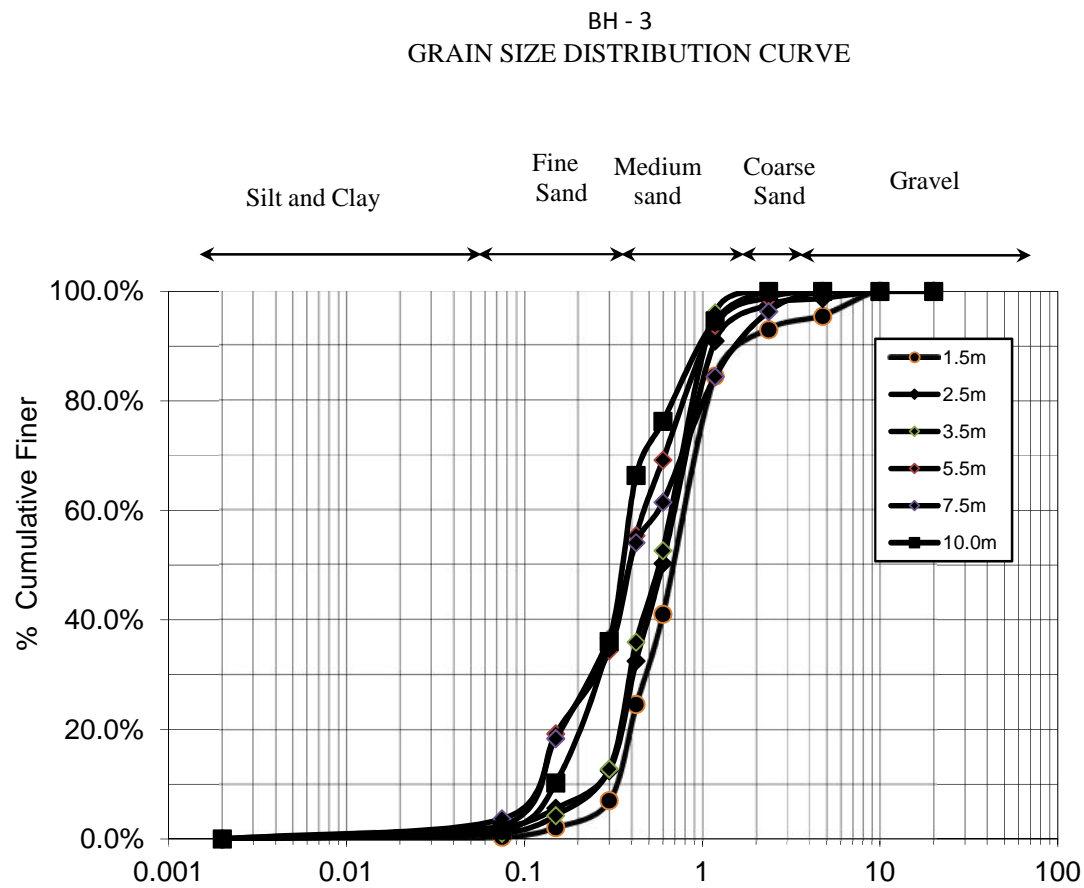
Project No:			AAL.1627/2020		Date:		16.08.2020		Location:		Old Jail Complex, Puducherry							Index properties (%)					Shear strength parameters		Gradation properties (%)				
BH. No :			3		GWT (m):		1.20		Graphical Representation of Standard Penetration Test Data (N)						Description /consistency	Natural moisture content (%)	Density (γ) t/m ³	Liquid limit (WL)	Plastic limit (WL)	Plasticity index(I _p)	Consistency index (I _c)	Free swell index(Cs)	Direct shear test		Sieve analysis				
Depth of boring (m) :			10.00				C (kg/cm ²)																ϕ (degrees)		Gravel	Coarse sand	Medium sand	Fine sand	silt & clay
Depth Below GL	Soil stratum	Classification of soil	Thickness of Layer (m)	Depth of Sampling(m)		N Value	10	20	30	40	50	Description /consistency	Natural moisture content (%)	Density (γ) t/m ³	Liquid limit (WL)	Plastic limit (WL)	Plasticity index(I _p)	Consistency index (I _c)	Free swell index(Cs)	C (kg/cm ²)	ϕ (degrees)	Gravel	Coarse sand	Medium sand	Fine sand	silt & clay			
			UDS	DS																									
1.0		Fill Up Earth Sand (SW) with gravel	2.80		0.5	6						Loose	19	1.59	Non - Plastic				Nil	0.020	30°32'	4.56	1.65	26.75	69.55	2.06			
					1.0																								
					1.5																								
2.0					2.0	8						Medium																	
					2.5																								
3.0	3.0																												
4.0		Light Brown Sand (SP)	4.70		3.5	16							Medium	22	1.73	Non - Plastic				Nil	0.019	31°10'	0.00	0.00	64.06	34.88	1.07		
					4.0	26						Medium																	
					4.5																								
5.0					5.0							Very Dense	21	1.73	Non - Plastic		Nil	0.058	30°32'	0.00	1.09	43.48	52.90	2.54					
				5.5	21																								
6.0				6.0																									
				6.5	18						Very Dense																		
7.0				7.0																									
8.0		Black Silty Sand (SM-SW)	2.50	7.5	6							Dense	20	1.66	Non - Plastic				Nil	0.066	31°32'	0.00	32.67	42.20	50.46	3.67			
				8.0	16						Medium																		
				8.5																									
9.0				9.0																									
				9.5																									
10.0				10.0			13								Medium	9	1.56	Non - Plastic				Nil	0.097	30°45'	0.00	0.00	33.61	64.75	1.64

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Ref: AAL/8209/GT-Report/P.No.1633/Old Port /Pdy/2020-21

Date: 10.09.2020

GEOTECHNICAL INVESTIGATION REPORT

PROJECT : GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF MULTI LEVEL CAR PARKING AT OLD PORT , PUDUCHERRY.

PROJECT NO : AAL.1633/ OLD PORT /PDY/2020-21.

**CLIENT : THE CHIEF EXECUTIVE OFFICER,
PSCDL,
PUDUCHERRY.**

REFERENCE : WORK ORDER NO: 1040/PSCDL/MLCP/2020/513 DATE: 11.08.2020

EXPLORATION

DATE : 20.08.2020 – 22.08.2020.

DATE OF

REPORT : 10.09.2020.

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**NAME OF WORK: GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF
MULTI LEVEL CAR PARKING AT OLD PORT , PUDUCHERRY.**

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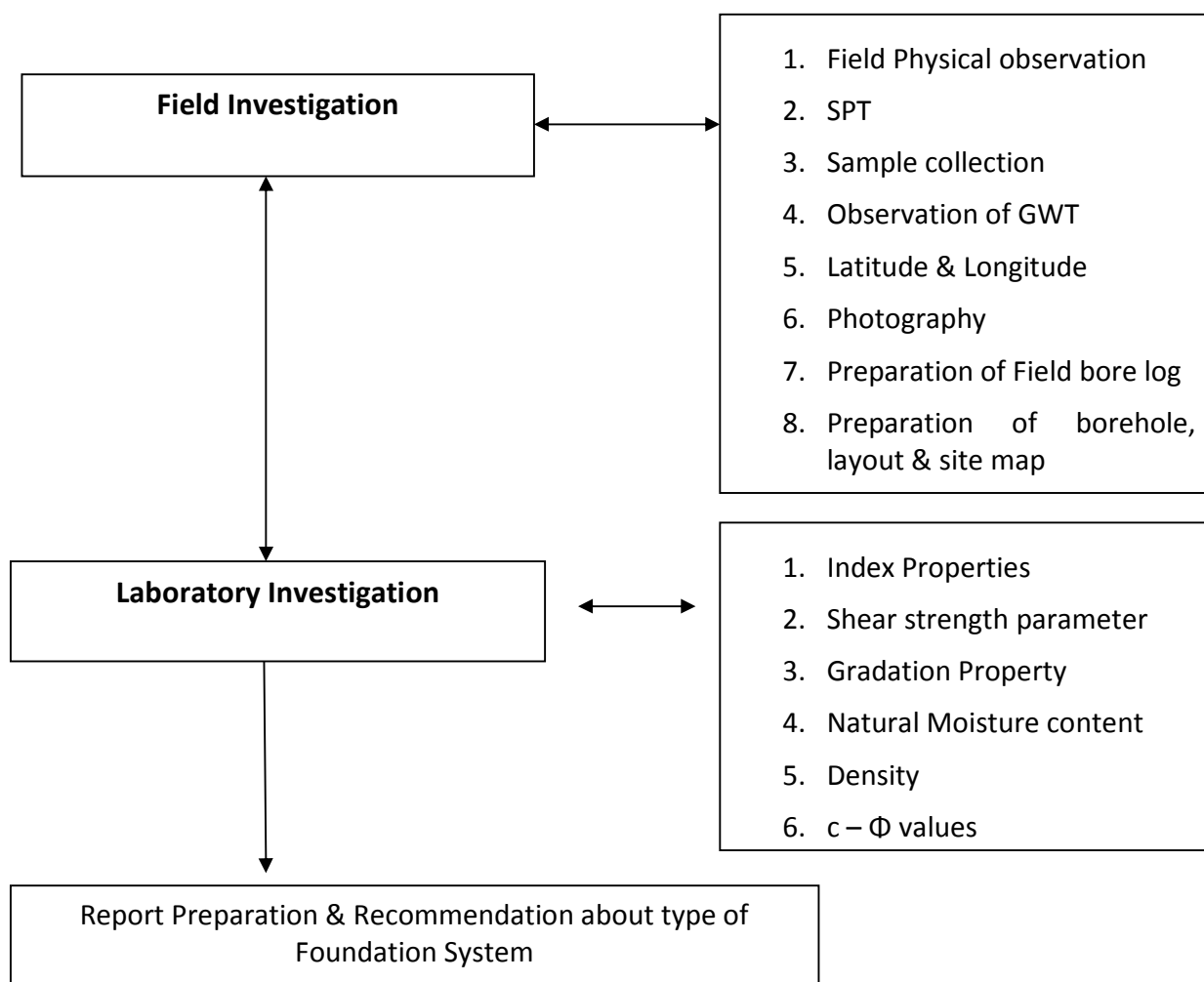
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1. INTRODUCTION

A Geotechnical investigation for the above said work was undertaken as per the authorization given by **THE CHIEF EXECUTIVE OFFICER, PSCDL, Puducherry.**

FLOW CHART



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2. SCOPE OF WORK

2.1 This geotechnical investigation has been carried out to ascertain the safe bearing capacity and to decide upon suitable foundation system for the proposed structure. It was instructed to make two number of bore holes. The BH -1 & BH-2 was driven upto 10.0m depth and terminated as per the clients instruction.

2.2 The allowable safe bearing capacity of the soil is calculated based on the field geotechnical investigation, soil properties, GWT and subsequent laboratory experiments.

3. FIELD INVESTIGATION

3.1 GENERAL

Mobilizations of equipment, skilled and unskilled labours are arranged at site. The various factors for the number and position of boreholes and spacing of boreholes are based on the extent of the site, nature and type of structure. Depth of borehole is concluded based on condition of soil, penetration capacity of soil, shear failure and hard strata condition. Standard Penetration Test (SPT) is conducted at various depths. The disturbed soil sample is collected from the site and transported for examination to Ashhirwaad Analytical Laboratory. The field investigation is being monitored by experienced civil engineers/ Geotechnical/ Structural Engineer.

3.2 STANDARD PENETRATION TEST (IS: 2131 – 1981)

EQUIPMENT PREPARATION

3.2.1 DRILLING EQUIPMENT

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The equipment used shall provide a clean borehole 100 to 150 mm in diameter, for insertion of the sampler ensure that the penetration test is performed on undisturbed soil and shall permit driving of the split spoon sampler to obtain penetration record and sample in accordance with procedure.

3.2.2 DRIVE WEIGHT ASSEMBLY

The drive weight assembly shall consist of driving head and a 63.5 kg weight with 75cm free fall. It is ensured that the energy of the falling weight is not reduced by friction between the drive weight and the guides. The rods to which the sampler is attached for driving should be straight, tightly coupled and straight in alignment. For driving the casting, a hammer heavier than 63.5 kg may be used.

3.2.3 CLEANING THE BOREHOLE

In case wash boring is adopted for cleaning the borehole, side discharge bits are permissible, but in no case a bottom discharge bit be permitted. In cohesive soils, the borehole may be cleaned with bailer with a flap valve.

3.2.4 OBTAINING THE SAMPLES

Test shall be made at every change in stratum or at intervals of not more than 1.5 m whichever is less. Tests may be made at lesser or greater intervals if specified or considered necessary.

The sampler shall be lowered to the bottom of the borehole. The following information shall be noted and recorded.

- (a) Depth of bottom of borehole below ground level.
- (b) Penetration of the sampler into the soil under the combined weight of sampler and rods

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- (c) Water level in the borehole or casting
- (d) Depth of bottom of casting below ground level.

Labels shall be fixed to the jar or notation shall be written on the covers with the following information:

- a) Origin of sample
- b) Job designation
- c) Boring number
- d) Sample number
- e) Depth of sampling
- f) Penetration record
- g) Length of recovery
- h) Date of sampling

The jars containing samples shall be stored in suitable container for shipment. Samples should not be placed in the sun.

3.3 IS CODE FOR FIELD INVESTIGATION

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 1498 – 1970 (Reaffirmed 2007)	Classification & Identification of soil for general engineering purpose (First Revision)
2	IS : 1892 – 1979 (Reaffirmed 2002)	Code of practice for sub surface investigation for foundation (First Revision)
3	IS : 2131 – 1981 (Reaffirmed 2002)	Method of Standard Penetration Test for soil (First Revision)
4	IS : 2132 – 1986 (Reaffirmed 2002)	Code of practice for thin walled tube sampling of soil (Second Revision)
5	IS : 4968 – 1976 (Reaffirmed 2007)	Method of sub surface sounding of soil : Static cone penetration (First Revision)

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3.4 SITE EXPLORATION

Subsurface exploration should be carried out in preliminary and detailed exploration. Shear strength and compressibility of the soil is determined in the detailed exploration. The method of boring for soil exploration is rotary boring. Rotary boring is effected by cutting action of the soil. The bit is carried at the end of hollow, jointed drill rods which is rotated by the chuck. A mud laden fluid is pumped continuously and fluid returns to surface in angular space. Undisturbed samples are collected at suitable intervals.

3.5 SITE MAP



Bore Hole No	LATITUDE	LONGITUDE
BH-1	11°55'24.09"N	79°49'54.95"E
BH-2	11°55'26.01"N	79°49'55.48"E

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3.6 BOREHOLE DETAILS

Two number of bore holes are driven in the field at various location of the site. As per IS: 1892 - 1979 (Reaffirmed 2002), the various driven depth of the borehole, Ground Water Table and their corresponding identifications are tabulated below

SL.NO	BOREHOLE IDENTIFICATION NUMBER	DRIVEN BOREHOLE DEPTH (m)
1.	BH-1	10.0
2.	BH-2	10.0

BOREHOLE IDENTIFICATION NUMBER	GROUND WATER TABLE (m)
BH-1	3.5
BH-2	3.5

4. GEOTECHNICAL MODELLING AND OBSERVATION:

4.1 GENERAL

Various laboratory test are carried out to assess the soil as per IS code standard and calculations are done. The results of the test are tabulated and interpretation is given.

4.2 LIST OF IS CODE

4.2.1 LABORATORY IS CODE

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 2720 – 1983 (Part – 1) (Reaffirmed 2006)	Methods of test for soil :Preparation of dry soil sample for various test (Second Revision)
2	IS 2720 – 1980 (Part – 2) (Reaffirmed 2010)	Methods of test for soil : Determination of water content (Second Revision)

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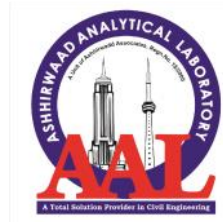
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3	IS 2720 – 1980 (Part – 3) (SECTION – 1) (Reaffirmed 2002)	Methods of test for soil : Determination of specific gravity : Fine grained soil (First Revision)
4	IS 2720 – 1980 (Part – 3) (SECTION – 2) (Reaffirmed 2002)	Methods of test for soil : Determination of specific gravity : Fine, Medium, Coarse grained soil (First Revision)
5	IS 2720 – 1985 (Part – 4) (Reaffirmed 2006)	Methods of test for soil : Grain size analysis(Second Revision)
6	IS 2720 – 1985 (Part – 5) (Reaffirmed 2006)	Methods of test for soil : Determination of liquid and plastic limit (Second Revision)
7	IS 2720 – 1985 (Part – 15) (Reaffirmed 2006)	Methods of test for soil : Determination of consolidation properties (First Revision)
8	IS 1809 – 1972 (Reaffirmed 2006)	Methods of test for soil : Glossary of terms & symbols relating to soil engineering (Third Revision)

4.2.2 FOUNDATION IS CODE

SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS : 1080 – 1986 (Reaffirmed 2002)	Code of practice for design and construction of shallow foundation on soil (other than raft, ring and shell) (Second Revision)
2	IS 1904 : 1968 (Reaffirmed 2006)	Code of practice for design and construction of foundation on soil :General requirement (Third Revision)
3	IS 6403 – 1981 (Reaffirmed 2002)	Code of practice for determination of bearing capacity of shallow foundation (First Revision)

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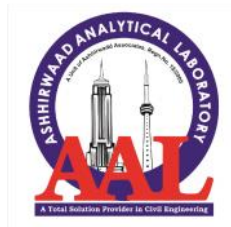
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4.2.3 SEISMIC IS CODE

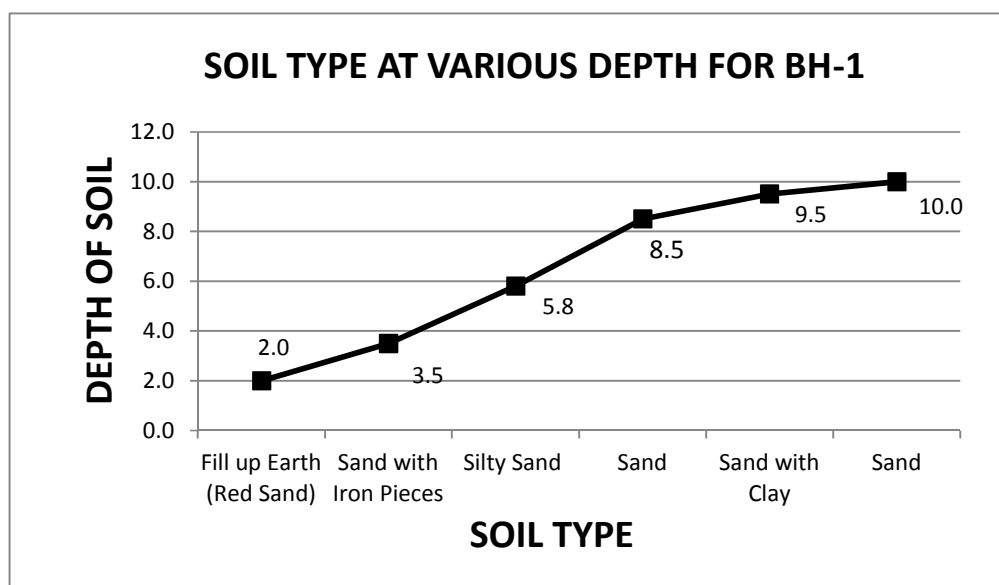
SL.NO	IS CODE NUMBER	IS CODE NAME
1	IS 1893 – 2002 (Reaffirmed 2007)	Criteria for Earthquake Resistant design of Structures(Fifth Revision)

4.3 RESULT:

Laboratory tests the following soil profiles for the boreholes as observed is detailed below:

BH -1

The details of soil stratification are presented in the bore - log and their interpretation is shown below



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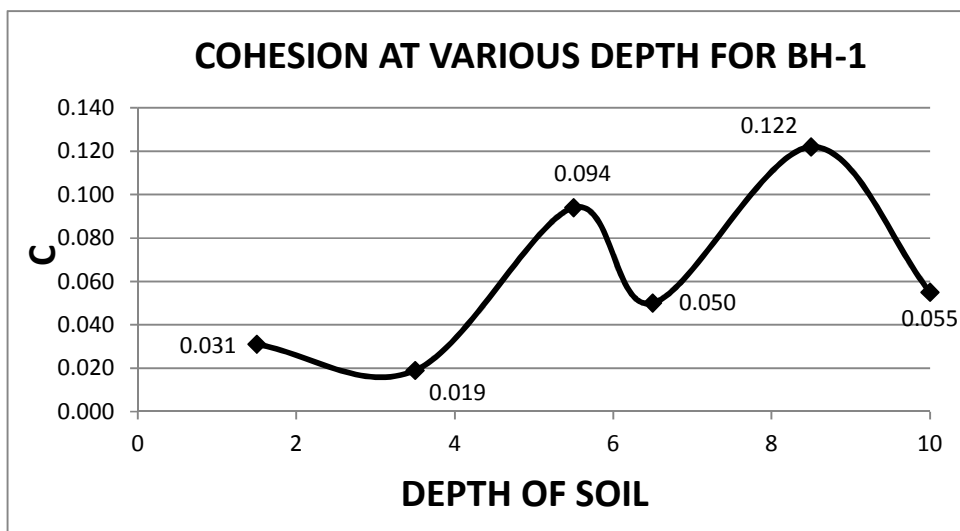
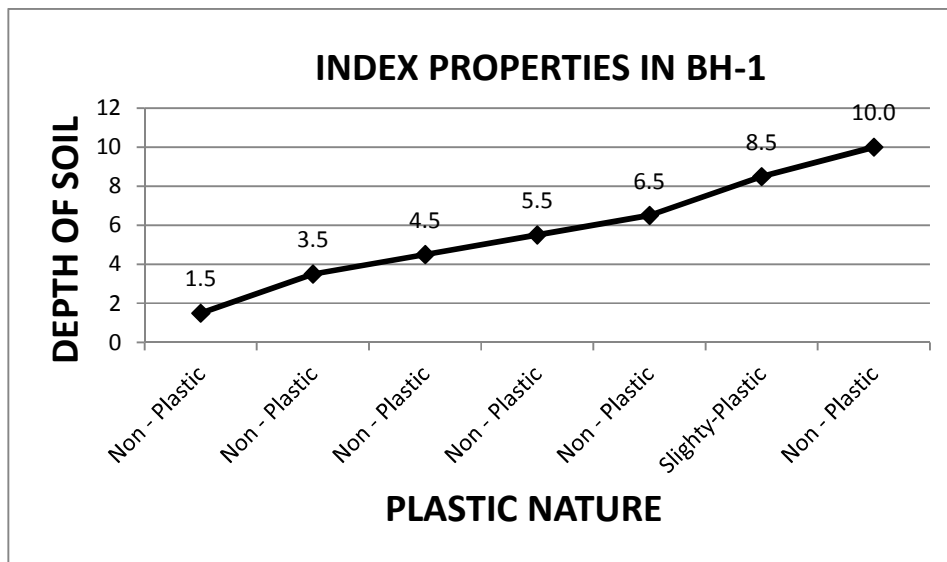


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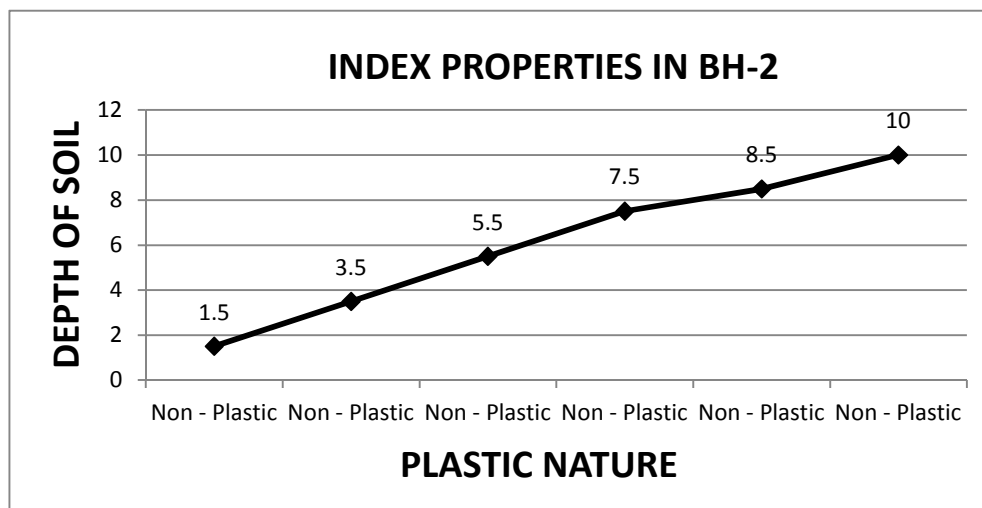
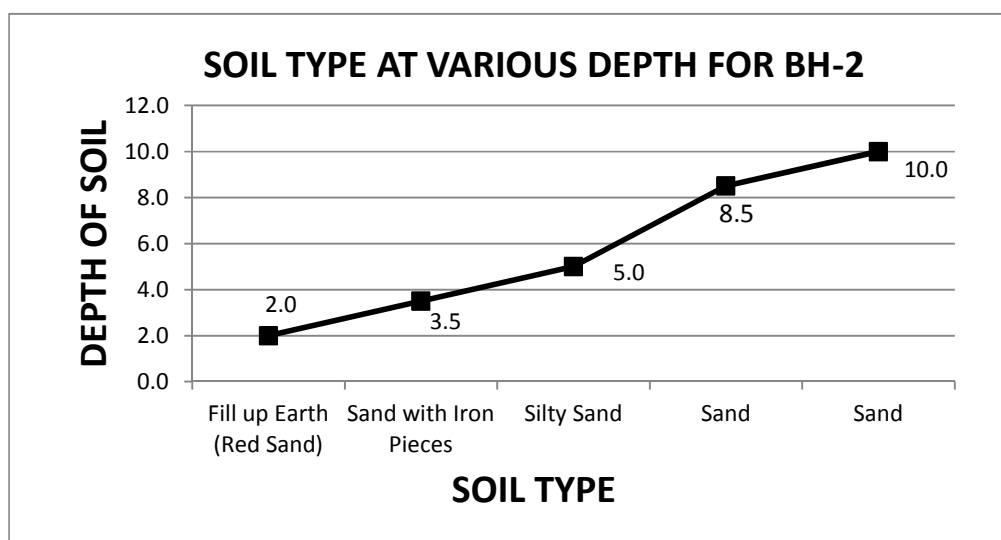
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BH -2

The details of soil stratification are presented in the bore - log and their interpretation is shown below



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(A Unit of Ashhirwaad Associates - Regd. No. 18/2000)

(Approved by Government of India)

Civil Engineering Consultancy Services

- ❖ Geotechnical Investigation
- ❖ Survey and contouring
- ❖ Load testing on Piles
- ❖ Structural consultancy
- ❖ Material testing
- ❖ NDT Services

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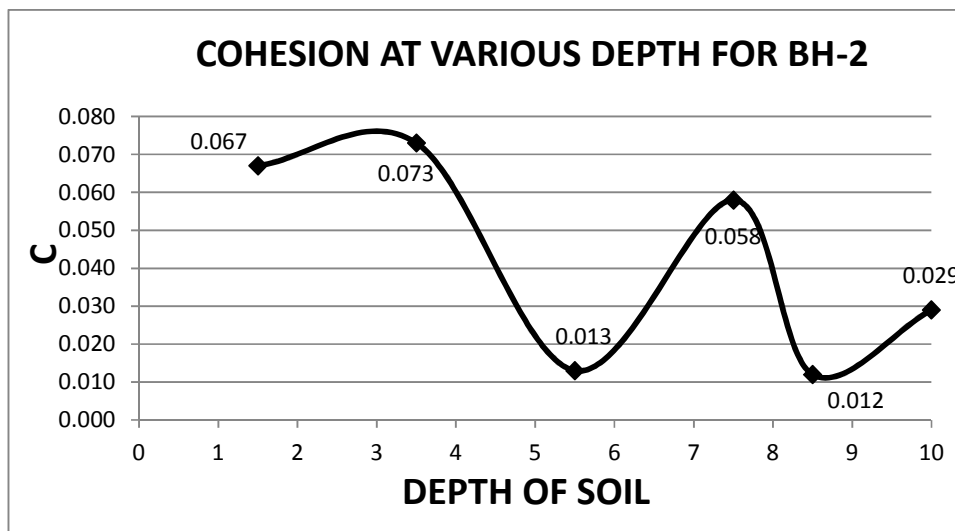


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ISO/IEC 17025:2005

Ref: AAL/8209/GT-Report/P.No.1633/Old Port /Pdy/2020-21

Date: 10.09.2020



5. CHEMICAL TEST:

Chemical tests were performed on water samples collected from bore holes for determining pH value and chloride. The results are given in a tabular form below:

Table 5.1
As per IS 3025 (Part 11 & 32), IS 456-2000.

SL.NO	Particulars	Results	Stipulations of IS 456-2000, IS 3025(Part 32) (Water for Construction Purpose)
1.	pH value	9.2	6.5 – 8.5
2.	Chloride (Cl)	842.5mg/l	500 (for RCC) - 2000 mg/l (for PCC)

It is seen that the pH value is exceeds the permissible limit (As per IS 456-2000). So the necessary precaution will be made for foundation concrete to prevent the excessive corrosion of steel and cracks in concrete.

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6. RECOMMENDATIONS:

The following recommendations are made based on the field investigations SPT values, GWT and subsequent Laboratory Experiments.

6.1 Considering in situ condition of the soil Strata, two types of foundations are suggested for the **Proposed Construction Of Multi Level Car Parking at Old Port, Puducherry.**

- a) Isolated/Combined Footing
- or
- b) Strip Raft Foundation

Note: Filled up Earth Formation was seen in the Bore Hole Locations upto a maximum Depth of 3.50m from the NGL. Hence Footing have to be founded over/Medium to Dense Layer available beyond 3.50m.

6.2 If "**ISOLATED/COMBINED FOOTING**" is considered, the allowable safe bearing capacities are calculated and tabulated below along with the allowable settlement.

Table 6.2.1.1

Safe Bearing Capacity Calculation As per IS 6403:1981

Sl. No.	Bore Hole No	Depth in meter from NGL	SBC in T/m ²	As per IS:1904-1986 (Reaffirmed 2006)	
				Total Arrived Settlement (mm)	Total Arrived Settlement (mm)
1.	BH-1 &	3.75	14	6.12	50
2.	BH-2	4.0	16	6.76	50

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Date: 10.09.2020

6.2 B

6.2.1 If "STRIP RAFT FOUNDATION" is considered, the allowable safe bearing capacities are calculated and tabulated below along with the allowable settlement.

Table 6.2.1.1

Sl. No.	Bore Hole No	Depth in meter from NGL	SBC in T/m ²	As per IS:1904-1986 (Reaffirmed 2006)	
				Total Allowable Settlement (mm)	Total Allowable Settlement (mm)
1.	BH-1 &	3.75	16	6.81	75
2.	BH-2	4.0	18	6.99	75

***NGL –Natural Ground Level**

6.2.2 The Decision of selecting the suitable type and depth of foundation rests with the Structural Engineer Concerned.

6.2.3 The width of footing should not be less than 1.5m in order to satisfy the stability requirements.

6.3 SAFETY PRECAUTIONS: Since the **GWT** is located at 3.50m depth, during construction, adequate safety measures should be taken for the safety of adjacent structures by controlled and constant dewatering with sufficient support measures for prevention of the sliding soil mass. The safety of the men, machineries and structure should be ensured.

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6.4 For the sub structure [RCC] the environmental exposure condition may be considered as '**Severe**' and all the precautions as laid by the relevant code of practice for the design of structures may be adopted.

6.5 The entire recommendations as above are based on two bore holes executed as per the Clients directions at the location shown by the client's representative as per terms of reference. The uniformity or otherwise of the soil delineation and strength profile over the entire site shall be verified during execution. If there are any variations the same shall be reported to us for review and further advice.

sd/-

Er. N.J.L. RAMESH

CHIEF CONSULTANT (Geotech& Structures)

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Place : Puducherry

Date : 10.09.2020

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7.APPENDICES

7.1 SAFE BEARING CAPACITY CALCULATIONS:

7.1.1 For Shallow foundation it is as per **IS: 1904 – 1995**, *Code of practice for design and construction of foundations*: General requirements (third revision). The recommended safe bearing Capacity of soil for shallow foundation was calculated as per **IS: 6403-1981**, *Code of practice for Determination of Bearing Capacity of Shallow Foundation*. The settlement calculations are as per **IS: 8009 (Part-I) - 1976**, *Code of practice for calculation of settlements in foundations, part I Shallow foundation subjected to symmetrical static vertical Loads*. All the calculations are carried out based on the SPT value observed from the field.

7.2. SAFE BEARING CAPACITY CALCULATION FORMULAE:

7.2.1 FOR SHALLOW FOUNDATION:

IN CASE OF GENERAL SHEAR FAILURE AS PER IS: 6403: 1981

$$\text{The Ultimate Net Bearing Capacity } q_d = c N_c s_c d_c i_c + q (N_q - 1) s_q d_q i_q + 0.5 B \gamma N_\gamma s_\gamma d_\gamma i_\gamma$$

$$\text{Safe Load Carrying Capacity} = q_d / F.S$$

DEPTH FACTOR

$$d_c = 1 + (0.2 D_f / B \sqrt{N_\phi})$$

$$d_q = d_\gamma = 1 \text{ for } \phi < 10^\circ$$

$$d_q = d_\gamma = 1 + 0.1 D_f / B \sqrt{N_\phi} \text{ for } \phi > 10^\circ$$

INCLINATION FACTOR

$$i_c = i_q = (1 - \alpha / 90)^\alpha$$

$$i_\gamma = (1 - \alpha / \phi)^\alpha$$

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SHAPE FACTOR

Sl. No.	Shape of Base	s_c	s_q	s_γ
i)	Continuous strip	1.00	1.00	1.00
ii)	Rectangle	$1 + 0.2 B/L$	$1 + 0.2 B/L$	$1 - 0.4 B/L$
iii)	Square	1.3	1.2	0.8
iv)	Circle	1.3	1.2	0.6

Where,

c	= Cohesion in Kg/cm
D_f	= Depth of foundation in cm
d_c, d_q, d_γ	= Depth factors
i_c, i_q, i_γ	= Inclination factors
L	= Length of footing in cm
L'	= Effective length of footing in cm
N	= Corrected standard penetration value
N_c, N_q, N_γ	= Bearing capacity factors
N_ϕ	= $\tan^2 (\pi/4 + \phi/2)$
q	= Effective surcharge at the base level of Foundation
qd	= Net ultimate bearing capacity based on general shear failure
W'	= Correction factor for location of water table
α	= Inclination of the load to the vertical in degrees
ϕ	= Angle of shearing resistance of soil in degrees
γ	= Bulk unit weight of foundation soil
F.S	= Factor of safety.

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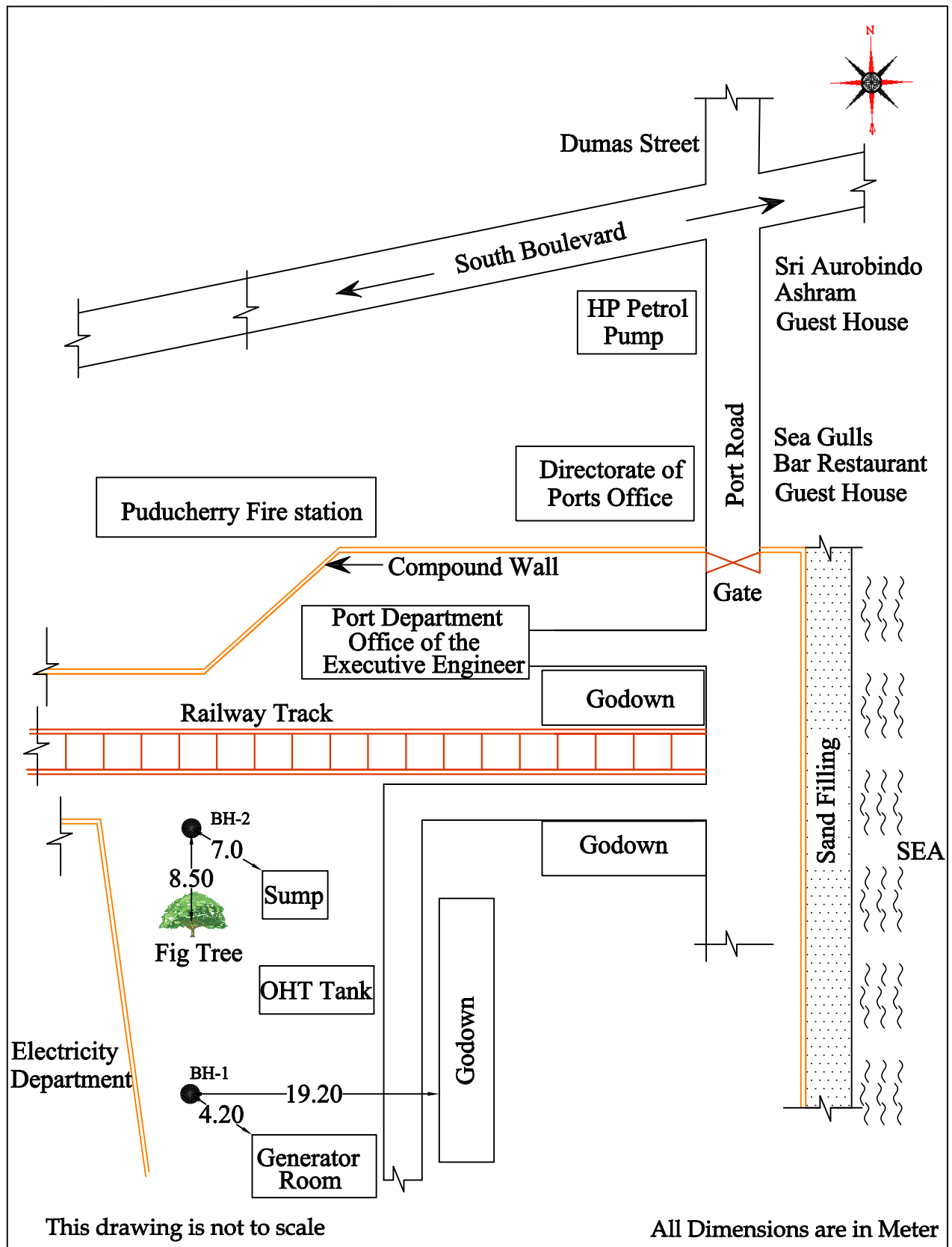


Fig. 1 – Site Photo Showing the Soil Exploration Work.

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Borehole Layout



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Name Of The Work : Geotechnical Investigation For The Proposed Construction Of Multi Level Car Parking at Old Port, Puducherry.

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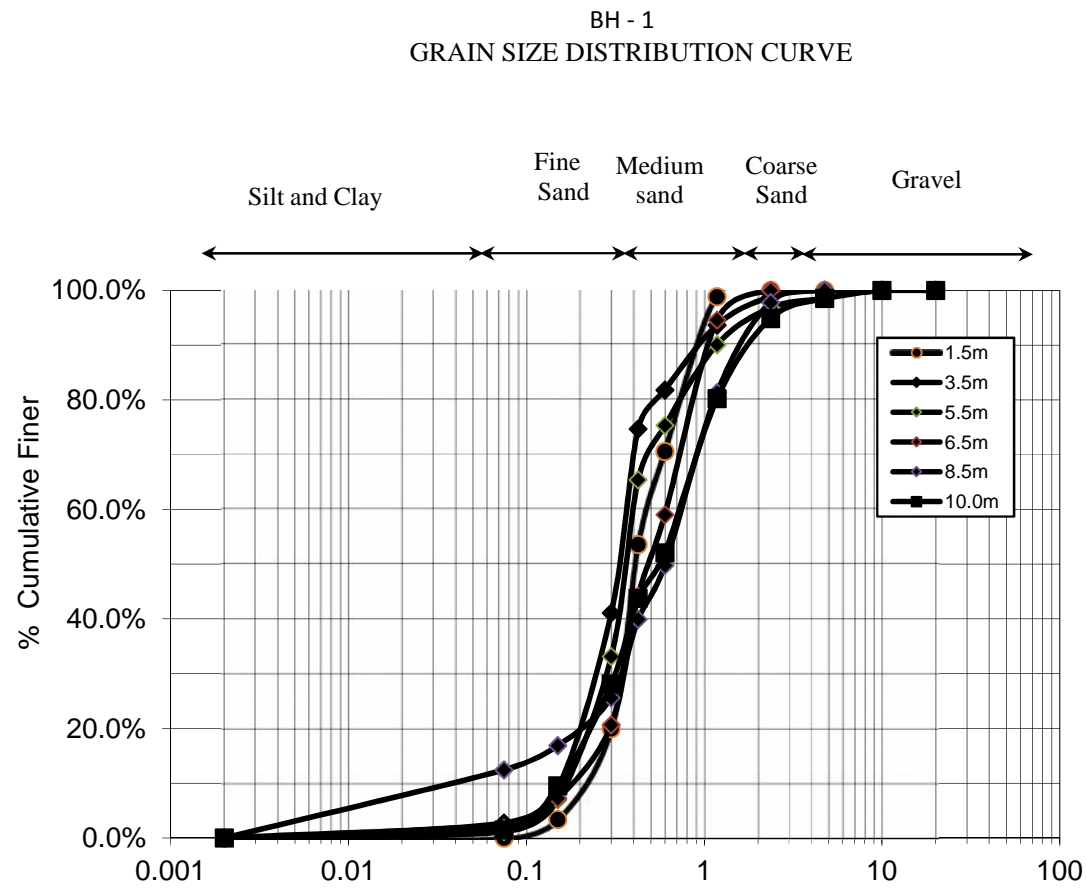
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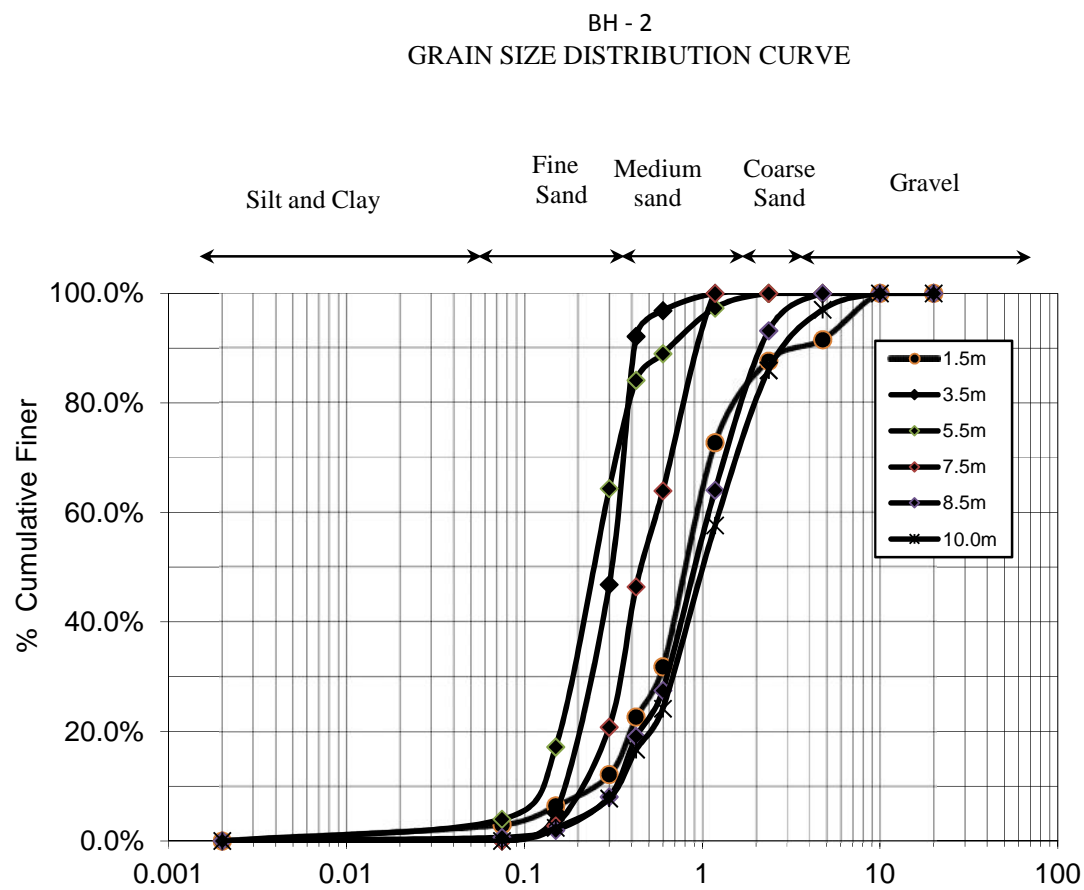
BORE LOG - 2/2

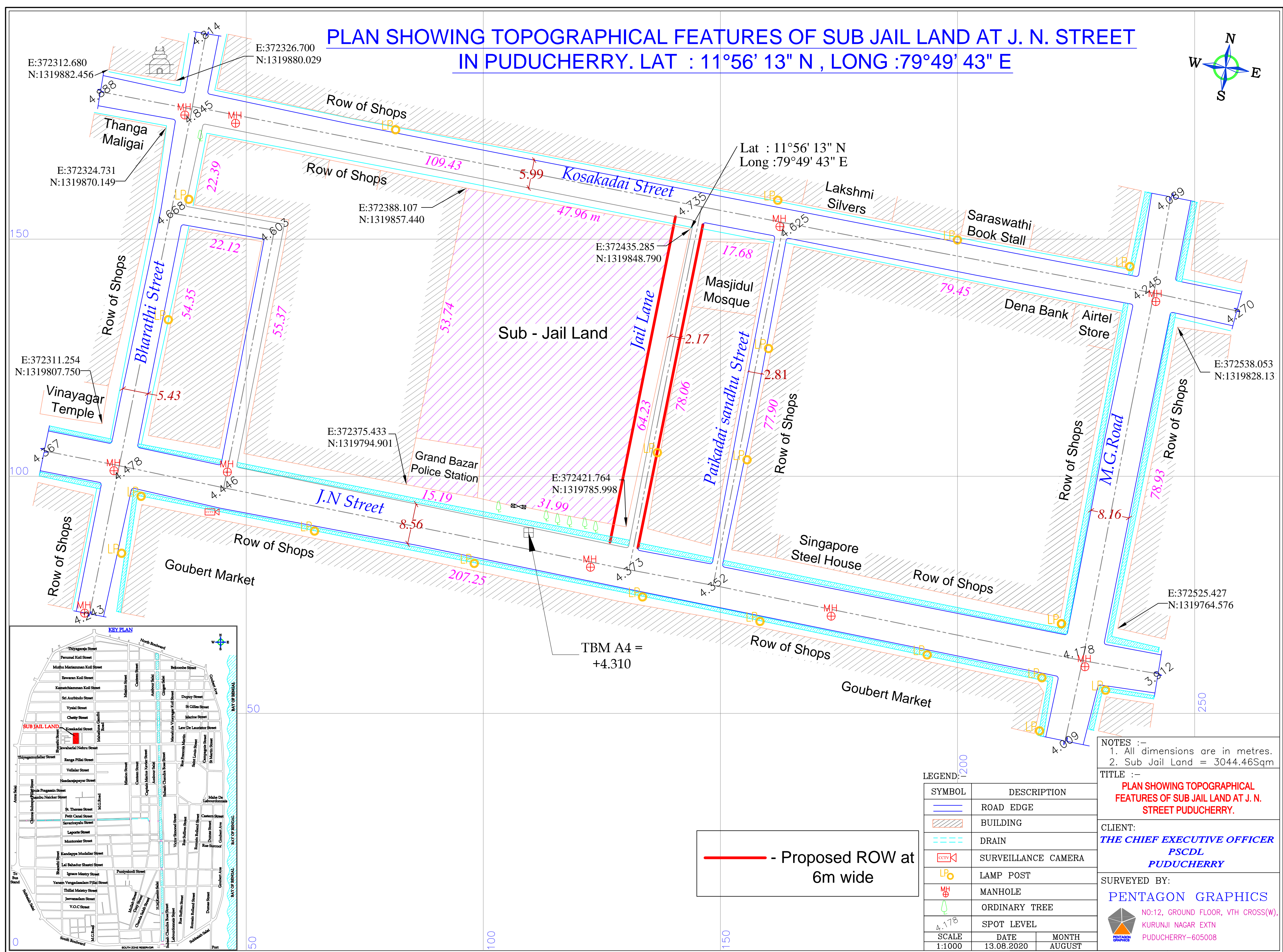
Project No:		AAL.1633/Pdy/2020	Date:	22.08.2020		Location:	Old Port , Puducherry.						Index properties (%)					Shear strength parameters		Gradation properties (%)									
BH. No :		2	GWT (m):	3.50		Graphical Representation of Standard Penetration Test Data (N)					Description /consistency	Natural moisture content (%)	Density (γ) t/m ³	Liquid limit (W _L)	Plastic limit (W _p)	Plasticity index(I _p)	Consistency index (I _c)	Free swell index(Cs)	Direct shear test		Sieve analysis								
Depth of boring (m) :		10.00		Thickness of Layer (m)															Depth of Sampling(m)		C (kg/cm ²)		φ (degrees)	Gravel	Coarse sand	Medium sand	Fine sand	silt & clay	
Depth Below GL	Soil stratum	Classification of soil	Thickness of Layer (m)	UDS	DS	N Value	10	20	30	40	50																		
1.0		Fill up earth Red Sand	2.00		0.5																								
					1.0																								
					1.5																								
2.0					2.0								15	1.61	Non - Plastic			Nil	0.067	33°54'	8.47	3.89	64.99	19.68	2.97				
					2.5																								
3.0		Fill up earth Black Sand with iron Pieces	1.50			3.0																							
	3.5				12						Medium	21	1.63	Non - Plastic			Nil	0.073	30°45'	0.00	0.00	7.87	92.13	0.00					
	4.0																												
4.0		Light Brown Silty Sand (SM-SW)	1.50			4.0																							
					4.5	20																							
				5.0																									
6.0		Light Brown Sand (SP)	3.50		5.5	54							16	1.72	Non - Plastic			Nil	0.013	31°10'	0.00	0.00	15.86	80.18	3.96				
				6.0	50 _(6cm^f)																								
				6.5																									
7.0					7.0																								
					7.5	50 _(9cm^f)									16	1.86	Non - Plastic			Nil	0.058	31°32'	0.00	0.00	53.55	46.45	0.00		
8.0					8.0																								
				8.5	17																								
				9.0																									
9.0		Black Sand (SW)	1.50		9.5																								
				10.0	10																								
10.0																													

Project No: AAL.1633/2020

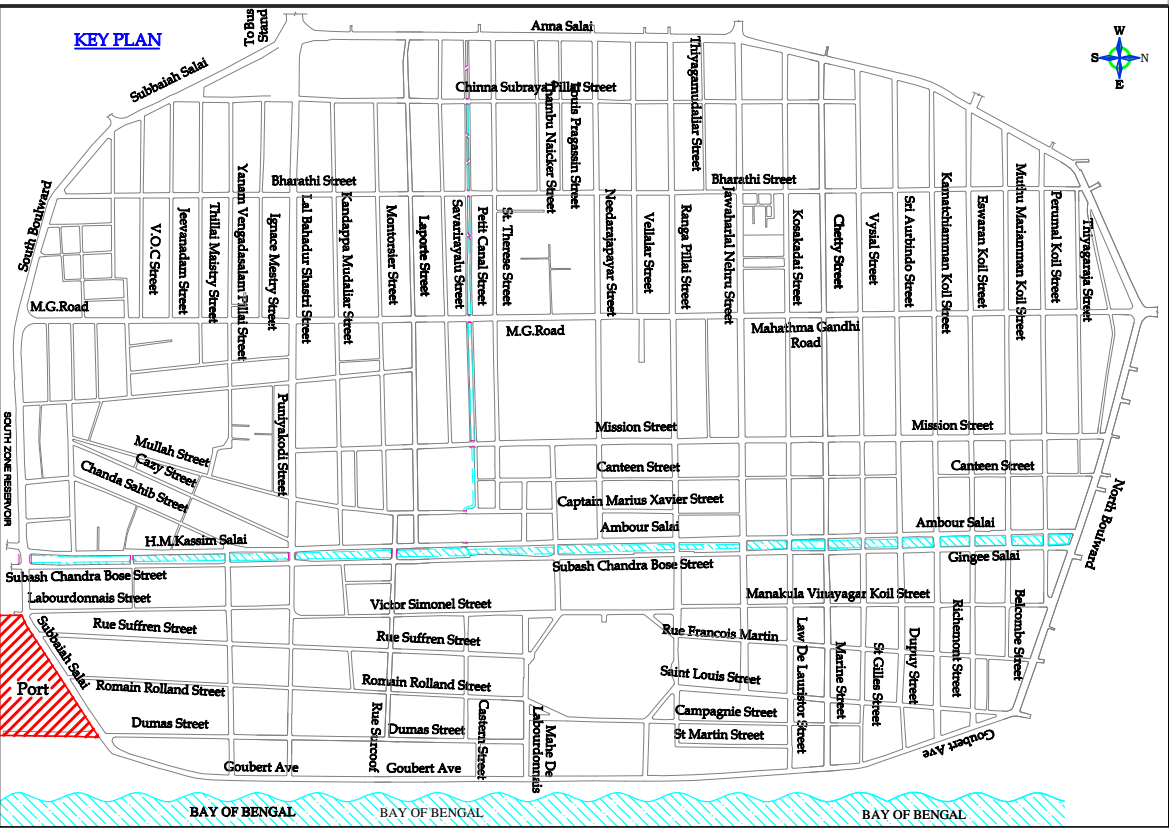
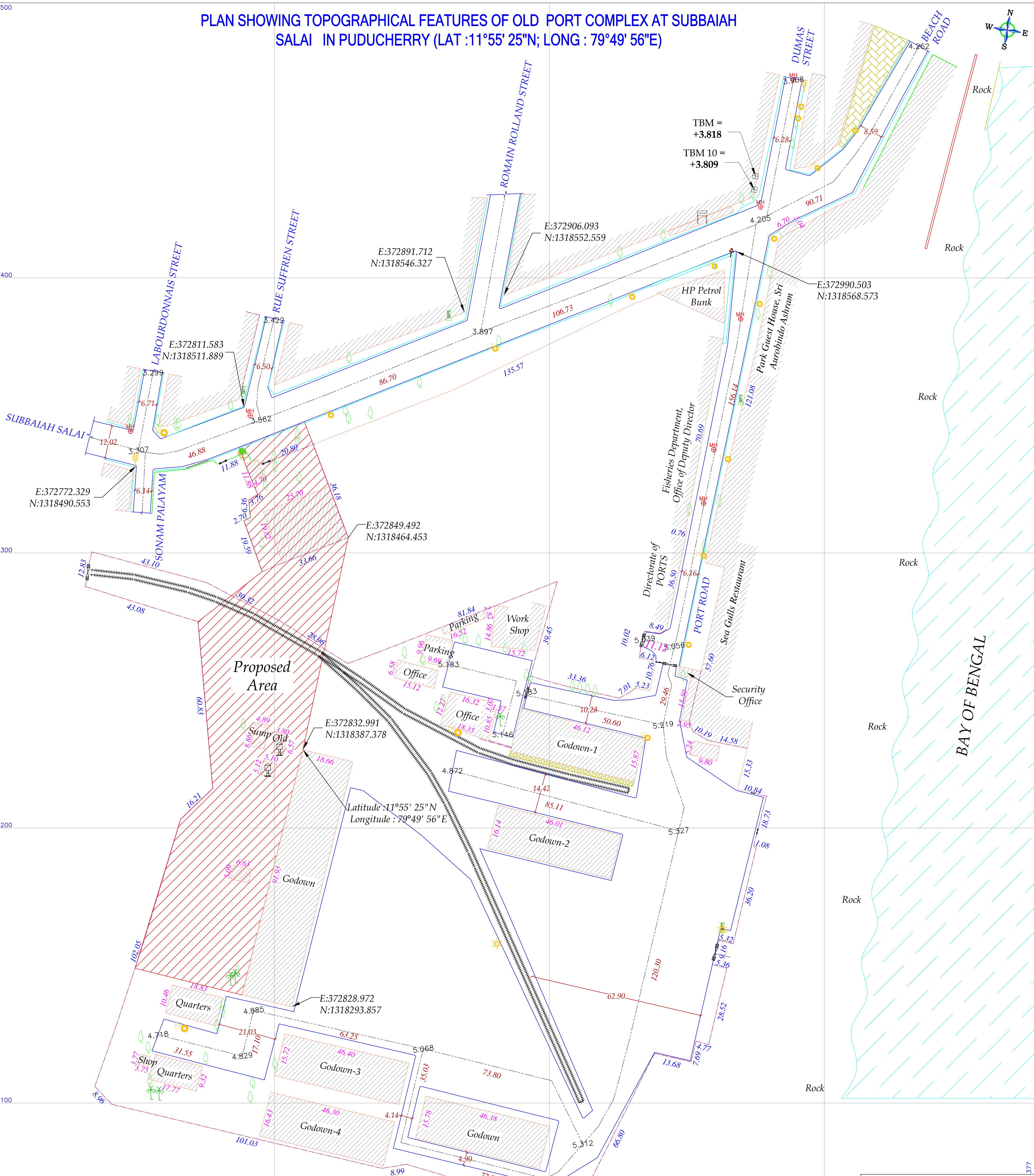
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








PLAN SHOWING TOPOGRAPHICAL FEATURES OF OLD PORT COMPLEX AT SUBBAIAH SALAI IN PUDUCHERRY (LAT :11°55' 25"N; LONG : 79°49' 56"E)



LEGEND :-

SYMBOL	DESCRIPTION
	ROAD EDGE
	BUILDING
	COMPOUND WALL
	DRAIN
	PLATFORM
	FENCE
	ELECTRIC & LAMP POST

	SIGN BOARD	
	SIGNAL POST	
	HIGHMASS LIGHT	
	EB JUNCTION BOX	
	MANHOLE	
	NAME BOARD	
	COCONUT& BANYAN TREE	
	ORDINARY TREES	
	SPOT LEVEL	
SCALE	DATE	MONTH
1:1000	24.08.2020	AUGUST

NOTES :-
1. All dimensions are in metres.

TITLE :-
PLAN SHOWING TOPOGRAPHICAL FEATURES OF OLD PORT COMPLEX AT SUBBAIAH SALAI IN PUDUCHERRY.

CLIENT:
THE CHIEF EXECUTIVE OFFICER PSCDL PUDUCHERRY

SURVEYED BY:
PENTAGON GRAPHICS
NO:12, GROUND FLOOR, VTH CROSS(W), KURUNJI NAGAR EXTN PUDUCHERRY-605008

Crompton

m. Lighting protection finial	: GI single spike of Length 1200 mm
n. Size of Base Plate.	
i. Diameter.	: 540 mm
ii. Thickness.	: 30 mm
2 <u>Dynamic Loading As Prevailing At Site.</u>	
a. Maximum Wind Speed (IS 875 - 1987)	: 180 Km/Hr
b. Number of Foundation Bolts.	: 06 Nos
c. PCD of Foundation Bolts.	: 440mm
d. Diameter of Foundation Bolts.	: M24
e. Length of Foundation Bolts	: 850 mm
3 <u>Lantern Carriage.</u>	
a. Material of Construction.	: 40 NB ERW Class B- M.S Pipe
b. Diameter of Lantern Carriage Ring.	: 600 mm (ID)
c. Construction.	: 5 Arm Welded
d. Number of Joints.	: 2 Segments
e. Load Carrying Capacity.	: 10 Luminaire , Asymmetrical
4 <u>Winch.</u>	
a. Number of Drums Per Winch.	: Double Drum.
b. Gear Ratio.	: 50 : 1
c. Capacity	: SWL 350 Kgs.
d. Method of Operation.	: Motor OR Manual.
e. Lubrication Arrangement.	: Self Lubricating in Permanent Oil Bath
f. Type of Lubricant.	: SAE - 90 / 140.

Crompton

5 Stainless Steel Wire Rope

- | | |
|----------------------------|-----------------------------|
| a. Grade | : AISI 316. |
| b. Diameter of SS Rope | : 6 mm |
| c. Construction of SS Rope | : 7 / 19. |
| d. Number of SS Ropes | : Two Wire Rope System |
| e. Thimbles & Terminals. | : Provided. |
| f. Breaking Load Capacity. | : 2350 Kgs Per SS Wire Rope |

6 Trailing Cable.

- | | |
|----------------------------|------------------------------------|
| a. Type | : Flexible Copper 5 Core 4 Sq mm |
| b. Material. | : EPR Insulated PCP Sheathed / PVC |
| c. Make . | : I.S. Approved Brand. |
| d. No.of circuits per mast | : One |

7 Power Tool.

- | | |
|-----------------------------------|--------------------------|
| a. Model. | : Integral |
| b. Capacity(HP) | : 1.5 HP |
| c. Number of Speeds. | : Single Speed. |
| d. Reversible / Non - Reversible. | : Reversible. |
| e. Input Supply. | : 415 Volts / 240 Volts. |

ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED

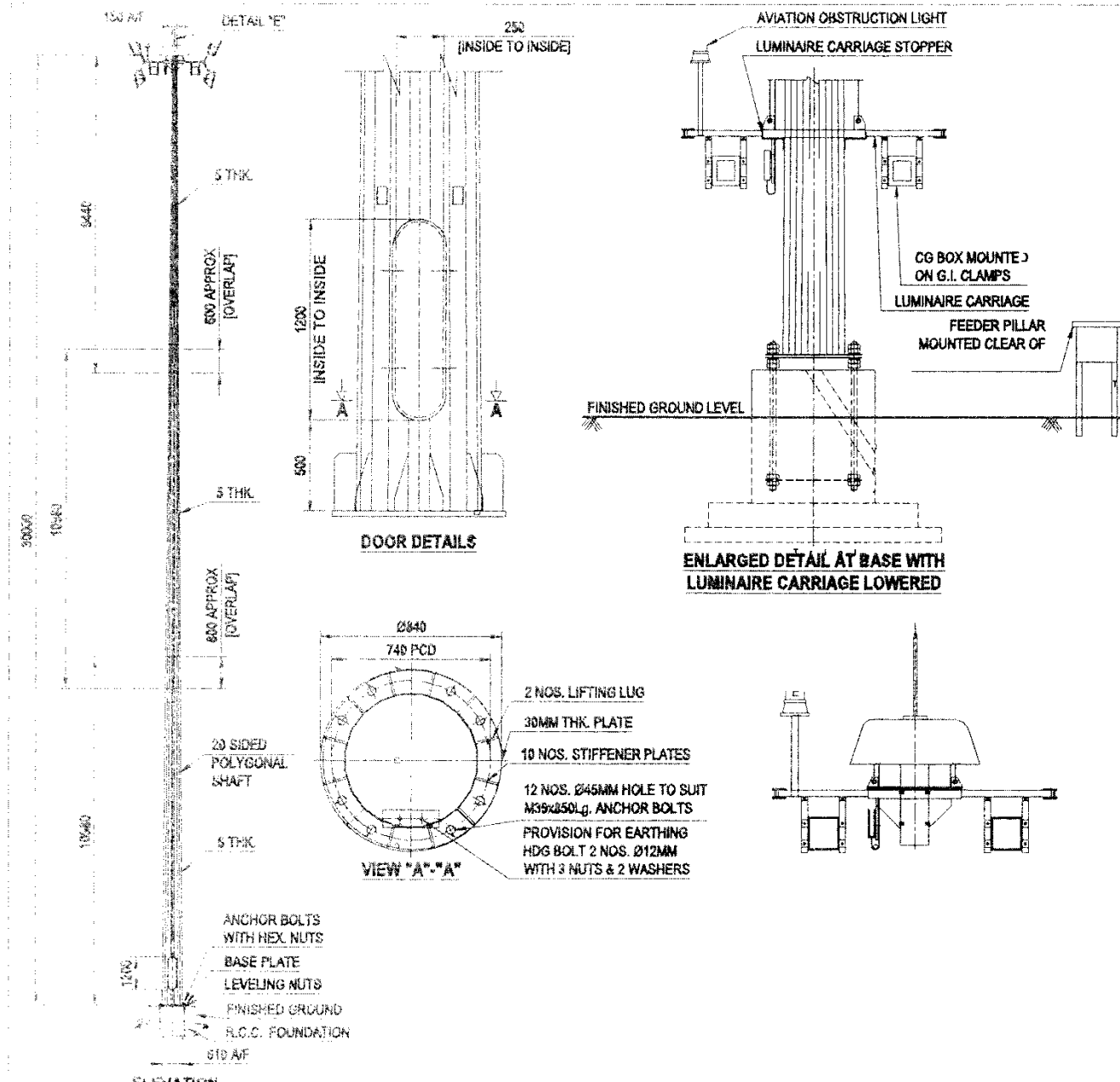
NOTES :-

1. ALL DIMENSIONS ARE IN M.M.
2. DESIGN STANDARD I.L.E TECHNICAL REPORT NO. 7.
3. DESIGN CRITERIA :
 - 3.1. BASIC WIND SPEED - IS : 875 PART III : 1987
 - 3.2. DESIGN LIFE - 25 YEARS.
 - 3.3. TERRAIN CATEGORY - 2
 - 3.4. TOPOGRAPHY - FLAT
4. MATERIALS :
 - 4.1. SHAFT/GUSSETS : S355 AS PER BS EN 10025.
 - 4.2. FLANGE/DOOR STIFFENER : AS PER IS-2062.
 - 4.3. FOUNDATION BOLTS : T.S. 500 N/Sq.mm Y.S.-405 N/Sq.mm.
5. FINISHING : HOT DIP GALVANIZED TO BS EN ISO 1461.
6. THE TOLERANCE IN A/F DIMENSION ARE ± 3 mm.
7. THE A/F DIMENSIONS ARE OUTSIDE TO OUTSIDE.
8. THE DOOR SHALL BE VANDAL PROOF AND WEATHER PROTECTED
9. THE MAST WILL HAVE PADLOCKING ARRANGEMENT IN THE CENTER AND 2 Nos ALLEN BOLT AT TOP AND BOTTOM.

NOT TO SCALE

GOVERNMENT OF PUDUCHERRY
PUBLIC WORKS DEPARTMENT
PUDUCHERRY

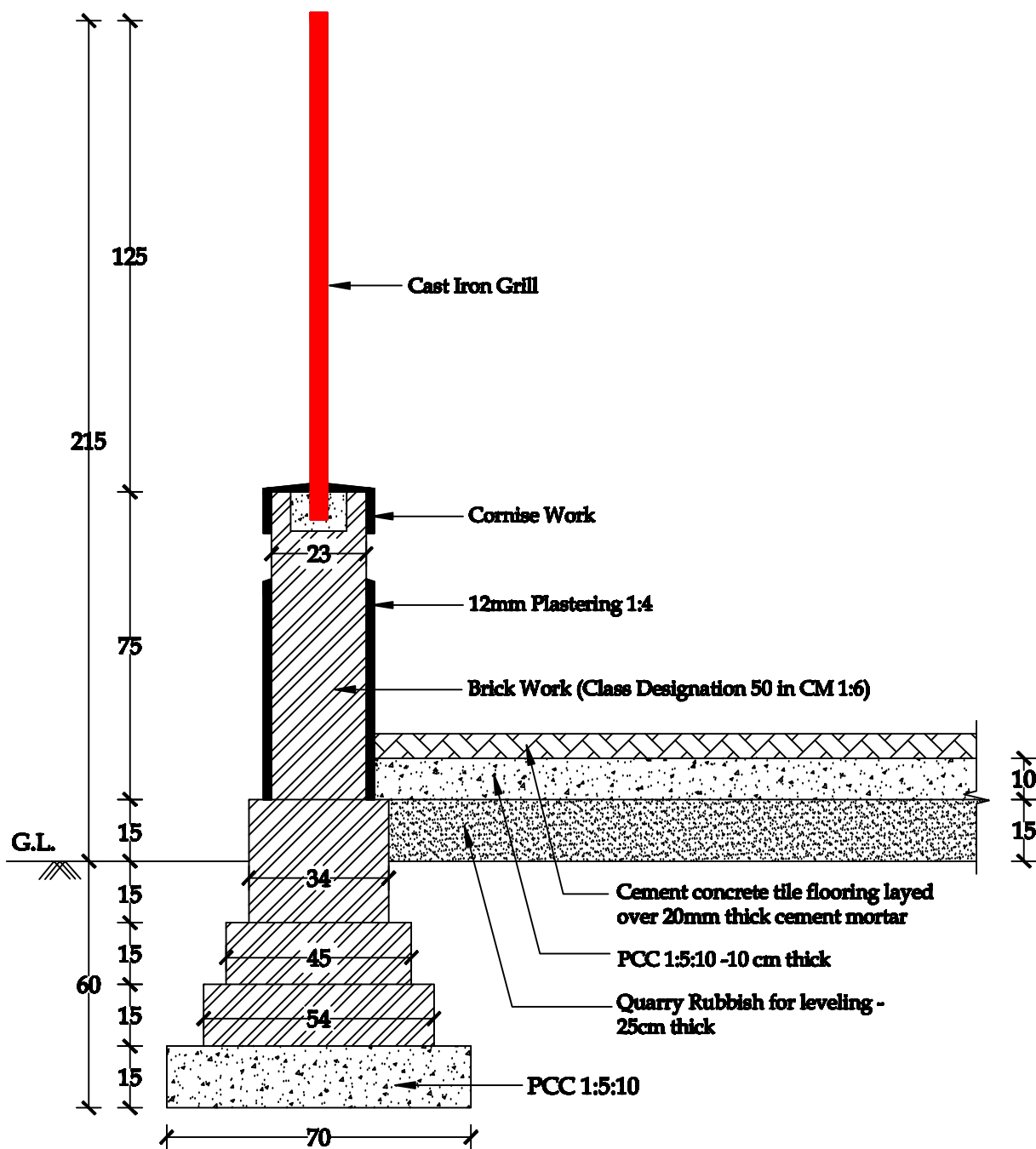
HIGH MAST LIGHT SUPER STRUCTURE





Name of Work: - Proposed Construction of Compound wall & Paver Block Flooring for MLCP at old Jail Campus in JN Street, Puducherry.

DRAWING 1



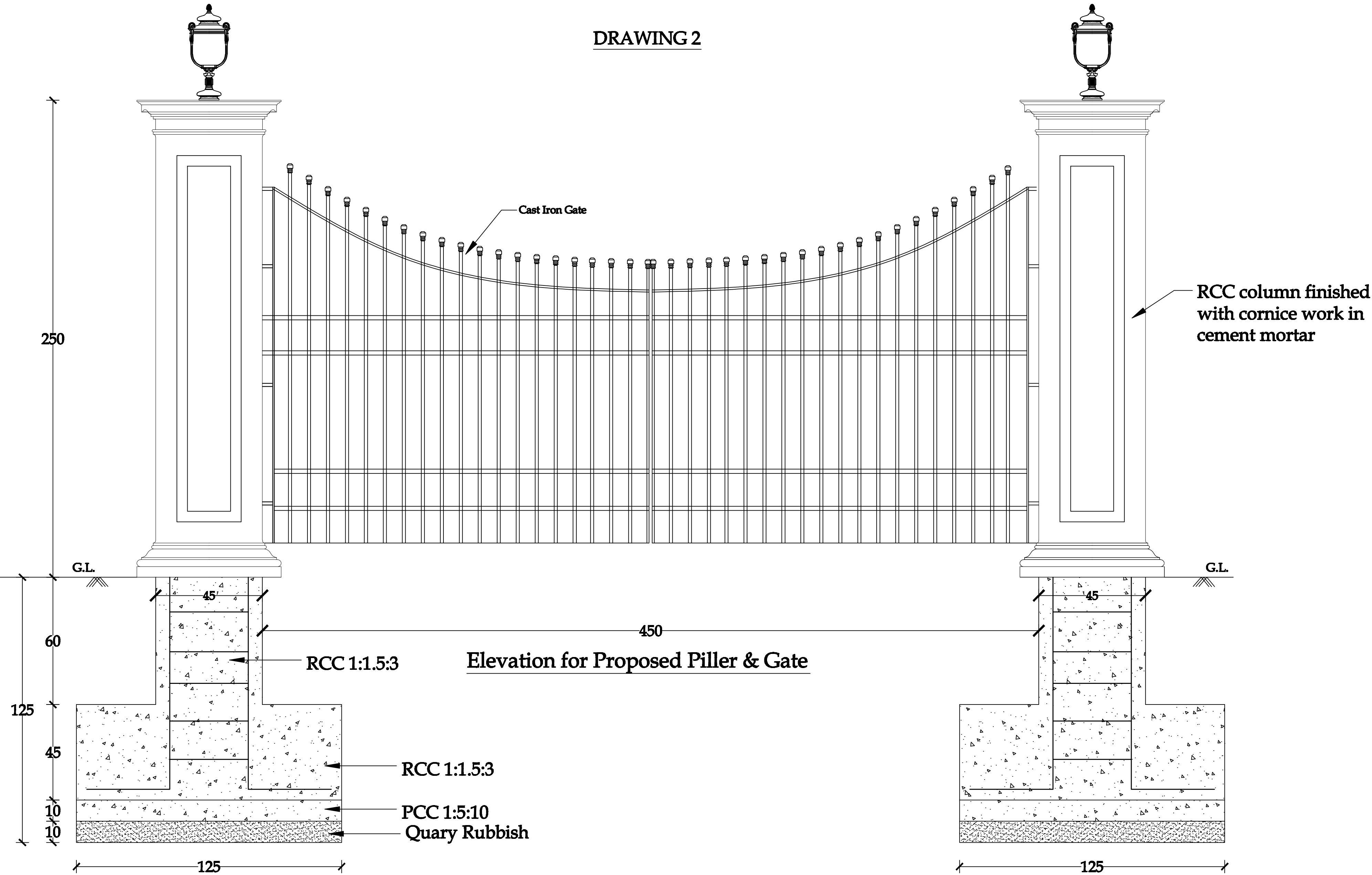
Cross Section for Compound Wall & Paver Block Flooring

**Not to Scale
All dimension in cm**



Name of Work: - Proposed Construction of Gate for MLCP at old Jail Campus in JN Street, Puducherry.

DRAWING 2

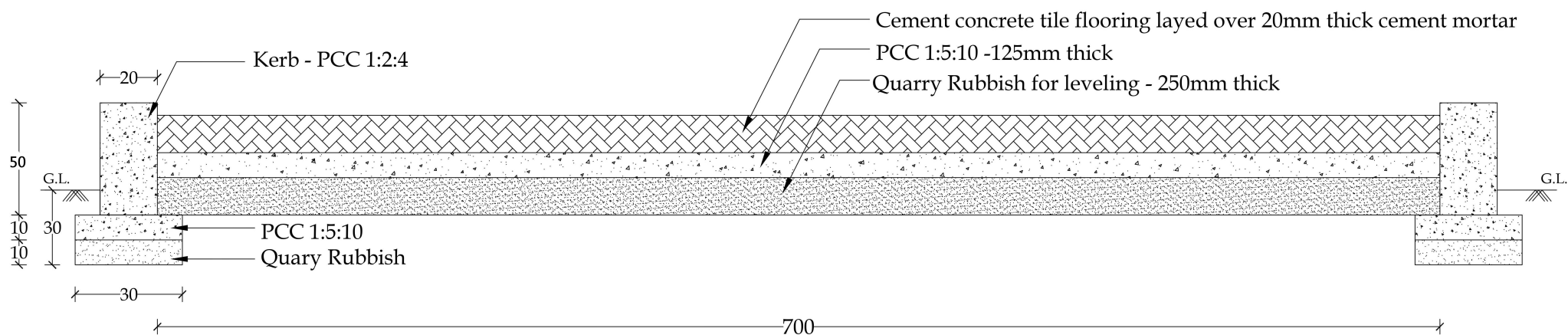


Elevation for Proposed Pillar & Gate

Not to Scale
All dimension in cm

Cross Section of Cement Concrete Tile Flooring along with Kerb Wall for MLCP

DRAWING 3



Not to Scale
All dimension in cm



Illustration for façade work
