


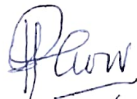
SCHOOL OF PLANNING AND ARCHITECTURE, NEW DELHI
Center of Excellence – Urban Planning & Design

**BID INVITING NOTICE FOR CARRYING OUT TOTAL STATION SURVEY (TSS) &
GROUND PENETRATING RADAR (GPR) SURVEY**

1. School of Planning and Architecture, New Delhi wishes to engage Total Station Survey (TSS) and Ground Penetrating Radar (GPR) agencies for carrying out survey for its consultancy project on “Water logging at Delhi Cantonment area (NH-08)”. The enclosed document details out the nature and quantity of surveys to be carried out.
2. The interested agencies are required to submit their financial quotation in a sealed envelope addressed to Dr. Sairam Dasari, (Project team member) latest by 01st April 2025, 4 P.M in the Department of Physical Planning, 2nd floor, SPA Delhi, 4B Estate, ITO, New Delhi-110002.
3. All bids received shall be evaluated by an expert committee and the final bidder (L1) shall be intimated by 02nd April 2025. The decision of the school shall be final in this regard.


(Sairam Dasari)
Project Team Member

Coordinator, CASS


27/3/25

SCOPE OF WORK FOR TOTAL STATION SURVEY & GROUND PENETRATING RADAR SURVEY

INTRODUCTION

Waterlogging is a critical issue affecting urban infrastructure, traffic mobility, and environmental sustainability. NH 8, particularly near the Delhi Cantonment Board area, has been prone to water stagnation due to poor drainage, uneven road gradients, and high surface runoff during monsoons. To comprehensively analyze and mitigate this issue, a combination of Total Station Survey (TSS) and Ground Penetrating Radar (GPR) Survey is essential.

OBJECTIVES

The Total Station Survey & Ground Penetrating Radar Survey will assist in:

- Conducting a detailed topographic survey using TSS to identify surface elevations, gradients, and low-lying areas contributing to waterlogging.
- Mapping existing drainage infrastructure and highlighting deficiencies.
- Providing high-precision contour maps to aid in the planning of new drainage solutions.
- Delivering survey data in digital formats compatible with GIS and CAD software for further analysis.

STUDY AREA

The consultancy service is for the area between Parade Road and Rao Tularam Marg. Below map outlines the locations for the surveys



Figure 1: Proposed Survey Location I

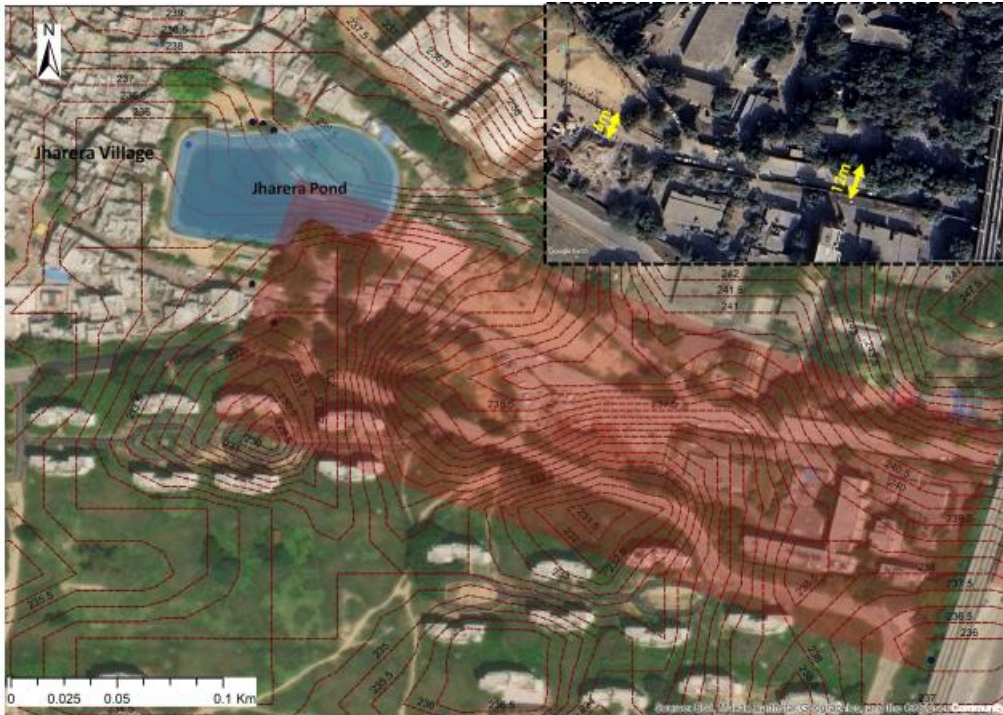


Figure 2: Proposed Survey Location II



Figure 3: Proposed Survey Location III

SCOPE OF WORK

The consultant will be responsible for carrying out the following tasks as part of the consultancy services:

TASK 1: Total Station Survey (TSS)

Ground Elevation & Contour Levels

- Surface elevation points at regular intervals
- Contour levels to identify low-lying areas

- Longitudinal & Cross Sections of Roads & Drains
- 5m to 10m grid in general terrain
- 1m to 2m grid in critical areas (low-lying spots, depressions, slopes)
- 0.5m interval along road edges, medians, and pedestrian zones

Road & Surface Features Mapping

- Road center line, edge elevations, Carriageway width, camber, and surface slope
- Longitudinal and cross-sectional profiles
- Footpath levels and widths
- Medians, dividers, and kerb height
- Roadside Features
- Roadside obstructions affecting drainage
- Roadside Electric Poles & Streetlights
- Every 10m along the road length
- Every 2m for cross-sections (especially in waterlogging-prone zones)

Existing Drainage Data

- Location & Alignment of Open Drains
- Drain Widths & Surface-Level Depths (Measured from Ground to Top of Drain Edge)
- Manhole & Stormwater Inlet Locations
- Culverts, Bridges, & Drainage Outfalls
- Water Supply Pipeline Markings (Only Visible Surface Features)
- Telecom & Underground Cable Markings (Only Visible Access Points)

TASK 2: Ground Penetrating Radar (GPR) Survey

GPR underground utility survey using advance GPR having dual frequency from 100 Mhz-200Mhz range for deeper penetration and high frequency should 600 Mhz – 800 Mhz range for shallow depth, covering all existing underground utilities lines.

Subsurface Drainage & Utility Mapping

- Depth & Alignment of Stormwater Drains
- Underground Sewer Lines & Their Condition (Blockages, Breaks, etc.)
- Water Supply Pipelines (Major & Distribution Networks)
- Gas Pipelines & Underground Cables (Electric, Telecom, Fiber Optics)
- Manhole & Catch Basin Depths & Connectivity
- Underground Storage Tanks or Septic Systems (if present)

Subsurface Structural & Geotechnical Features

- Void Detection Under Roads (Causing Road Depressions & Potholes)
- Soil Layering & Moisture Content (Indicative of Water Percolation Issues)
- Detection of Sinkholes or Subsurface Erosion

The accuracy of the level of depth should be in the order of +/- 100mm

TASK 3: DATA SUBMISSION

- Submission of collected data for all locations in Drawing /Shapefile and Excel sheets
- Longitudinal & Cross-Section Profiles of Roads & Drains
- 2D & 3D GPR Scans of Underground Features
- Utility & Drainage Network Maps (GIS & CAD-compatible)

- Depth Profiles of Subsurface Features

TIMELINE

The overall project duration is estimated to be one week from the date of award of the contract, with the following tentative timeline:

1. Submitting Drawing /Shapefile and Excel sheets: within one week from the work order
2. Report and Analysis from the Survey: within one week
3. Handholding and Assisting SPA New Delhi Team: one week

CONSULTANT REQUIREMENTS

The consultant must have experience in conducting these type surveys, particularly in the context of Drainage and water logging studies. A multidisciplinary team including Geographer and surveyors are required to successfully execute the scope of work. The Surveyor should be qualified, trained and have great communication skills. Surveyor should know English and Hindi.

TERMS AND CONDITIONS

1. A trained and experienced Supervisor shall be present at all times at all the survey locations.
2. As mentioned in the survey plan, the mentioned number of digital equipment's shall be placed at all the survey locations for all the days of the surveys.
3. All the Equipments and stationery items shall be procured by the survey agency
4. All the necessary infrastructure required for smooth conduct of surveys such as safety jackets, lighting (for night times or low light conditions), temporary seating arrangements, tents, traffic cones, batons, etc. Should be provided by the survey agency and it is the responsibility of the survey agency to maintain the same for the whole duration of the surveys.
5. All the surveyor and supervisors should be well trained and experienced before the start of each survey. The mandatory age of all the surveyors shall be minimum as prescribed and applicable by the local laws.
6. Manpower deployment should be as per commitment. Delhi Cantonment Board (DCB) and on its behalf School of Planning & Architecture (SPA- New Delhi) reserves the right to conduct checks at random, and in case of any discrepancy, you would have to repeat that particular survey on the same day of the week and the cost of the repeated survey will be borne by the survey agency.
7. In case DCB/ SPA - New Delhi is not satisfied with the quality of the data, you may be asked to repeat that particular survey on the same day of the week and the cost of the repeated survey will be borne by the survey agency.
8. If the work is not completed within the stipulated time frame, unless the reasons are beyond control, a penalty of 0.5% of total fee will be levied on per day basis.
9. The cost of local conveyance (to and fro from survey locations), food and any other daily allowance of all the Supervisors and surveyors shall be borne by the survey agency.
10. Survey schedule and contact numbers of the deployed team should be communicated to the Client (SPA-Delhi) at least 24 hours prior to commencement of the survey.
11. Survey agency team should follow the checklist given below at all the time of the survey.

Apart from the above-mentioned terms and conditions, checklist provided as part of the work order should also be strictly followed

PAYMENT SCHEDULE

The payment to the survey agency shall be made in Indian (INR) currency. Payment will be made upon raising the invoice as per following schedule:

1. 20% mobilization fee.
2. 80% amount shall be released after submission of all data in soft and hard copies and incorporating all corrections/ suggestions, if any

QUOTATION

Submit the quotation under major heads mentioning the rates along with the total amount in the Indian currency excluding taxes.

Part A: Quotation for Total Station Survey

S.No	Survey	Rate (per unit)
		(in Acres)
1	Total Station Survey (TSS)	
Total Amount in Rs. (Amount in Numbers excluding taxes):		
Total Amount in Rs. (Amount in Words excluding taxes):		
Taxes applicable (GST):		
Total Amount in Rs. (Amount in Words excluding taxes):		

Part B: Quotation for Ground Penetrating Radar Survey

S.No	Survey	Rate (per unit)
		(in Acres)
1	Ground Penetrating Survey	
Total Amount in Rs. (Amount in Numbers excluding taxes):		
Total Amount in Rs. (Amount in Words excluding taxes):		
Taxes applicable (GST):		
Total Amount in Rs. (Amount in Words excluding taxes):		

A survey agency may quote for the both surveys or any one of the surveys but only one survey will be awarded for one survey agency based on the least cost method.

CHECK LIST

For survey supervisors and enumerators

Checklist during Traffic Surveys	
1	All survey supervisors and surveyor present at site should be wearing reflective jackets as safety precautions
2	Surveyor should be clearly briefed and tested the digital Equipments before starting the actual survey
3	Mock survey at start of the day is ensured at all locations
4	Proper precautions shall be taken care of like the anticipation of rain which should not hamper the survey progress
5	Frequent checks are done to ensure the data collection