

BRIHANMUMBAI MUNICIPAL CORPORATION

(HYDRAULIC ENGINEER'S DEPARTMENT)

Subject : **EXPRESSION OF INTEREST (EOI)**

Procurement of Latest Technologies / Instruments / Equipment for Leak Detection of Underground Water Mains of Various Sizes within BMC Limits under the Hydraulic Engineer's Department

SCOPE OF WORK & JUSTIFICATION IN BRIEF

Water distribution network of Mumbai city is complex in nature. There are various sizes of water mains ranging from 50 mm to 2200 mm \emptyset which caters the supplies to various zones of Mumbai city. Most of the water mains below 300 mm \emptyset are running below depth of approximate depth of 3 to 4 feet from the ground surface and above 300 mm \emptyset are 7 to 20 feet below from the ground surface depending upon the asphalt or concrete roads. Most of the water mains upto 300 mm \emptyset in the Mumbai distribution network is of Cast Iron Material & the water mains above 300 mm \emptyset are of the Mild steel material. These water mains are prone to leakages over the period of time. The first step involves in the work of arresting leakage is the identification of alignment of water main and subsequent leakage point by concerned department. Due to rapid development of infrastructure projects in Mumbai city sometimes it becomes very difficult to identify the exact alignment of water main to trace the leakage points.

Due to rapid infrastructure development in Mumbai, including metro works, flyovers, and road concretisation, it has become increasingly difficult to trace the precise alignment of underground water mains and pinpoint leakage locations.

The Leak Detection Section under the Hydraulic Engineer's Department plays a vital role in identifying underground pipeline leakages, water main alignments, and sources of contamination, and reporting the same to the concerned ward offices. Accurate leak detection helps in reducing Non-Revenue Water (NRW), improving system efficiency, and preventing water losses.

At present, most roads in Mumbai are concretised, and all utility services, including water pipelines, are laid beneath these concrete or asphalt roads. Based on the leak points identified by the Leak Detection Section, road cutting is carried out for attending leakages or contamination complaints. However, it is often observed that the identified leak location deviates from the actual leak point, resulting in excessive breaking of concrete roads and additional reinstatement costs.

Currently, conventional sounding rods are used for leak detection. However, this method does not yield accurate results when the depth of the water main exceeds 10 feet, particularly under concrete roads. Therefore, there is a pressing need for modern, non-destructive, reliable, and cost-effective leak detection technologies capable of accurately identifying leak points without damaging road surfaces.

Accordingly, Expression of Interest is hereby invited from reputed and experienced technology providers in the field of underground water main leak detection.

SCOPE OF WORK

- 1) The participant shall submit details of the leak detection technologies available with them, along with relevant technical literature and documentary proof of works executed using such technologies. The bidder shall specifically indicate one or more of the following technologies :
 - Acoustic Ground Microphones
 - Digital Correlators
 - Noise Loggers (Fixed / Mobile)
 - Tracer Gas (Helium or equivalent)
 - Ground Penetrating Radar System
 - AI-driven Leak Detection Tools
 - Any other internationally accepted non-invasive technology

Technical literature shall include advantages and limitations of the proposed technology.

- 2) The leak detection technology shall be non-destructive or minimally invasive, such that underground water mains are not exposed. Detection shall be carried out through existing access points such as manholes, control valves, or hydrants
- 3) The technology shall be capable of detecting leakages at depths up to 6–7 metres for Mild Steel, Cast Iron, and Ductile Iron water mains laid beneath concrete or asphalt roads.
- 4) The technology shall be capable of pinpointing leakages during day or night, irrespective of traffic noise and interference from other underground utilities.
- 5) The technology shall be suitable for leak detection on water mains of sizes ranging from 50 mm to 2400 mm, covering primary, secondary, and tertiary water distribution networks within BMC limits.

- 6) The bidder shall provide at least three on-site or more demonstrations at locations specified by BMC engineers. The detected leak points shall be confirmed by excavation.
- 7) The technology shall be capable of detecting minimum underground leakages under pressurised conditions, with a maximum tolerance of ± 1 metre.
- 8) The technology shall operate effectively under pressures ranging from minimum 0.2 kg/cm^2 to maximum 7 kg/cm^2 , during both continuous and intermittent water supply for a very supply duration of 60 to 120min.
- 9) The technology shall operate effectively even under the situation such that the leakage can be identified during the operation of booster pump & even in the event of completion of supply timing.
- 10) The technology shall be user-friendly, and preferably integrated with a mobile application providing access to GPS location, pipe size, depth, exact leak coordinates, and other relevant parameters.

TECHNICAL REQUIREMENTS – ANNEXURE ‘A’

| Sr. | Eligibility Parameter | BMC Requirement | Remarks |
|-----|-------------------------|---|--|
| 1) | Type of Applicant | OEM / Technology Provider / Startup / Research Institution | Certificate of Incorporation / Registration / Company Profile shall be submitted |
| 2) | Similar Work Experience | The bidder shall have satisfactorily executed the work of similar nature i.e. Supply of Leak Detection Technology / Carrying out the Survey of Leak Detection in the Water Distribution Network in Govt. / Semi Government / Government Undertakings / Private Companies during last seven years | Purchase Order with Performance Certificates issued by competent authority shall be submitted. |
| 3) | Leak Detection Method | The leak detection technology shall be non – destructive or it shall be minimum invasive technology. | To be specified |
| 4) | Technology Type | <ul style="list-style-type: none"> ▪ Acoustic Ground Microphones ▪ Digital Correlators ▪ Noise Loggers (Fixed / Mobile) ▪ Tracer Gas (Helium or equivalent) ▪ AI-driven Leak Detection Tools ▪ Any other internationally accepted non-invasive technology | To be specified. The bidder shall also submit the advantages and limitations of the technology. |
| 5) | Material Compatibility | The technology shall be compatible to detect the leakages on Mild Steel, Cast Iron, Ductile Iron water mains | To be specified |
| 6) | Diameter Range | Min 50 mm to 2400 mm | To be specified |
| 7) | Operating Pressure | 0.2 kg/cm ² to maximum 7 kg/cm ² , during both continuous and intermittent water supply for a very supply duration of 60 to 120min | To be specified |

| Sr. | Eligibility Parameter | BMC Requirement | Remarks |
|-----|---|---|--|
| 8) | Depth of water main up to which the leakage can be detected | Maximum up to 6 to 7 meters in all types of road surfaces. | The bidder shall specify about the maximum depth up to which leakage can be detected with all types of road surfaces. The bidder shall also submit the technical specifications along with any case study are carried out with technology. |
| 9) | Supply Conditions | Intermittent & continuous | To be specified |
| 10) | Leak Detection Accuracy | The tolerance for the leak location shall be within ± 1 mtr within leakage area. | To be specified |
| 11) | Frequency Ranges of the operation | The frequency range shall be specified for the various material of the water main & recommended travel range of the frequency | To be specified. |
| 12) | Data Communication (If applicable) | GSM / NB-IoT / LoRa / RF / Ethernet | Network architecture shall be if applicable submitted & it shall be compatible to the available existing resources of BMC. |
| 13) | System Integration, if possible, with existing BMC infrastructure | Capability to integrate with SCADA | Integration methodology shall be specified if any. |
| 14) | Power & Battery Life | Minimum multi-year life for field sensors. | Battery specifications shall be provided |
| 15) | Ingress Protection | Minimum IP 67 Protection | Compliance certificates shall be submitted. |
| 16) | Cyber security (if applicable) | Data encryption & secure communication | Cyber security compliance certificates if applicable. |
| 17) | Standards Compliance | ISO / BIS / AWWA / WRC | Compliance Certificates shall be specified and related documents shall be submitted. |

| Sr. | Eligibility Parameter | BMC Requirement | Remarks |
|-----|--|--|---|
| 18) | Training of the technology | Training of the technology shall be given to the BMC staff | The bidder shall specify the specify the training policies |
| 19) | Cost of the technology considering the 3 years Defect Liability Period | To be quoted by participant | The bidder shall submit the detailed offer of the technology. |
| 20) | Cost of the AMC of the technology for one year | To be quoted by participant | The bidder shall submit the detailed offer. |

**Documents to be submitted in following sequence along with application of
EXPRESSION OF INTERESESET:**

- 1) The participant shall submit the complete company profile along with Expression of Interest.
- 2) Last three years Turn-over certificate issued by the Chartered Accountant.
- 3) The participant shall submit undertaking on Rs. 500/- Non-Judicial stamp paper duly notarized that, the firm / company is not black listed by any state / Central Govt. / Board / Semi. Govt. body or public sector undertaking at the time of submission of Expression of Interest.
- 4) Certified copies of PAN documents of proprietor / company
- 5) GST Certificate of company.
- 6) Partnership Deed to be submitted in case of Partnership firm.
- 7) If the bidder is authorized dealer of the leak detection product / technology then the participant company shall submit the "Authorization Letter" from the Original Equipment Manufacturer signed by authorized signatory.
- 8) The participant shall submit the satisfactory completion certificate with Purchase orders of similar type of works i.e. **"Supply of Leak Detection Technology / Carrying out the Survey of Leak Detection in the Water Distribution Network"** in any Govt. / Semi. Govt. authorities / Government Undertaking Companies / Private Companies during last seven years.
- 9) The participants shall submit the Annexure 'A' (Technical Requirement) with relevant documents along with Expression of Interest.
- 10) The participants shall submit the Annexure 'B' for the demo.
- 11) The bidder shall submit the complete technical literature of the technology.
- 12) The bidder shall submit the Undertaking regarding readiness for the site demo as directed by BMC engineers.
- 13) The bidder shall submit ISO / BIS / AWWA / WRC or equivalent certificate.

Annexure 'B' - Demo

I, Mr./Ms. (Name of person) _____ of M/s. (Name of Firm / Company) _____, having office at _____, hereby undertake that I have purchased the EOI for the work titled "Procurement of Latest Technologies / Instruments / Equipment for Leak Detection of Underground Water Mains within BMC Limits" and shall carry out three leak detection demonstrations at sites identified by BMC Engineers.

(Name, Seal & Authorized signatory of the company)

Submission of Expression of Interest

- 1) The Expression Of Interest shall be submitted along with the documents cited above (in above sequence) and processing fees of **Rs.34,830/-** (Rupees Thirty Four Thousand Eight Hundred Thirty only) in the form of Demand Draft (DD) drawn on any Nationalized Bank, duly discharged in favor of Brihanmumbai Municipal Corporation, payable at Mumbai
- 2) The applicant shall physically submit the Expression Of Interest application along with the documents & water meter samples as mentioned in EOI at the following address on or before 06/04/2026 (04:00 PM)

Office of : Assistant Engineer (Maint) Water Works Western Suburb South I

Below Capt. Vinayak Gore Fly Over Bridge,

Dadabhai Path, Vile Parle (West), Mumbai: 400 056.

- 3) The EOI application will be available from 20/03/2026 (1:00 PM) to 06/04/2026 (04:00 PM), the **Expression Of Interest** application will be issued from the office of **Assistant Engineer (Maint) Water Works Western Suburb South I, Below Capt. Vinayak Gore Fly Over Bridge, Dadabhai Path, Vile Parle (West), Mumbai: 400 056.**, on any working day from 11.00 AM to 05:30 PM, except on Sunday and public holidays.
- 4) Also **Expression Of Interest** document is available on website (www.mcgm.gov.in). The applicant may download the EOI and submit the downloaded copy by attaching the relevant documents & samples as mentioned in **Expression Of Interest** and physically submit the same with relevant papers mentioned address.
- 5) The **Expression Of Interest** submitted after 06/04/2026 (04:00 PM), will not be accepted and such applications will not be considered for evaluation.
- 6) The EOI submitted after 06/04/2026 (04:00 PM), will not be accepted and such applications will not be considered for evaluation

- 7) **“EXPRESSION OF INTEREST - Procurement of Latest Technologies / Instruments / Equipment’s for the Leak Detection of Various Sizes Underground Water Mains within BMC limit under Hydraulic Engineer Department”** shall be written on upper side of envelope containing the application and relevant documents.
- 8) Submitted **EXPRESSION OF INTEREST** applications received within the stipulated date & time, will be opened on 07/04/2026 at 11:00 AM

Note :

- 1) The processing fee above is non-refundable and non-transferable
- 2) The EOI document shall not be sent by post. The bidder shall submit the EOI in office only.

Sd/-
A.E.(Maint.)W.W. WS S I

Sd/-
E.E.(Maint.) M.W.

Sd/-
Dy.HE (Maint)