TENDER FOR
Mechanized cleaning of sewerage system in NIB Noida

SCHEDULE FOR INVITATION OF BIDS

<table>
<thead>
<tr>
<th></th>
<th>Sale Period/Period for downloading Tenders</th>
<th>15.07.2020 to 04.08.2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Last Date of submission of Tenders</td>
<td>3:00 PM on 05.08.2020</td>
</tr>
<tr>
<td>3</td>
<td>Pre Bid meeting</td>
<td>3:00 PM on 27.07.2020</td>
</tr>
<tr>
<td>4</td>
<td>Date of Opening of Technical Bids</td>
<td>4:00 PM on 05.08.2020</td>
</tr>
<tr>
<td>5</td>
<td>Date of Opening of Price- Bids</td>
<td>Technically qualified bidders will be informed later to be present at the time of opening of Financial Bids.</td>
</tr>
<tr>
<td>6</td>
<td>Tender Cost</td>
<td>Rs. 590/- (Rs. Five hundred ninety including 18% GST) if purchased from NIB. No fee if downloaded by the bidder at their end.</td>
</tr>
</tbody>
</table>

Name of Bidder
Complete Address of Bidder
Phone Nos.
E mail Id
Contact Persons & their Mob. Nos.

July – 2020

NATIONAL INSTITUTE OF BIOLOGICALS
(Ministry of Health & Family Welfare)
A-32, SECTOR- 62 (INSTITUTIONAL AREA),
NOIDA – 201 309 (U. P.)
Tel: 0120-2400022, 2400072, Fax: 0120-2400074, 2403014

E-mail: info@nib.gov.in      Website: www.nib.gov.in
Tender No.: 03/2010-21/NIB/Engg. (C)

Tender for Mechanized cleaning of sewerage system in NIB Noida.

1. Introduction

NATIONAL INSTITUTE OF BIOLOGICALS (NIB) is an autonomous Institute under the administrative control of Ministry of Health & Family Welfare, Govt. of India, established on 27th January, 1992 and is to be central Drugs Laboratory for quality control of indigenously produced and imported biological products. Presently, eight laboratories of the Institute are notified as Central Drugs Laboratory under provision of Drugs & Cosmetics Act and Rules. Institute plays a vital role in collaboration with CDSCO to strengthen the regulation of biological in India by averting the Not of Standard Quality Biologicals reaching the consumer, thereby promoting and protecting public health”. The Institute has been set up over a plot area of Approx. 18 Acre, having 19 buildings, large green area and other support facilities spread over the entire campus.

NIB invites sealed Tenders from experienced Service Provider Firms/ Agencies/ Contractors under two bid system, on the attached tender format for “Mechanized cleaning of sewerage system in NIB Noida.

Complete tender document containing Terms & Conditions, Technical Bid, Scope of work, Specifications, Price Bid Proforma etc. can be purchased from the Finance Section of this Institute between 10:00 AM to 5:00 PM on all working days by submitting a written request by the agency on the letter head of the firm and on payment of tender fee of Rs. 590/- (Five hundred ninety) only through crossed demand draft/pay order (non-refundable) in favour of “National Institute of Biologicals”, payable at Noida. However before purchasing the tender document, bidders are advised to go through the tender document particularly eligibility criteria, scope of work etc. in their own interest.

Alternately bidders can downloaded the tender document free of cost from NIB website www.nib.gov.in or Central Public Procurement Portal.

The bidders are necessarily required to visit NIB campus, to see the site i.e. buildings & sewer network in the campus, so as to assess the quantum of work involved, manpower requirement for their operations, before submitting the tender. Once the tender is submitted, it will be presumed that the bidder has seen and understood the complete work involved.
2. **Scope of Work:**

Sewers and Manholes are to be cleaned by mechanized system in NIB Campus Noida. Waste, Muck, Silt etc. deposited in the Manholes and Sewers is to be cleaned by mechanized methods. **Manual cleaning will not be allowed and no person will be allowed to enter into the manholes under any circumstances.** The agency will indemnify NIB against any kind of risk, loss arising out of sewer cleaning job. Standard Operating Procedure (SOP) given in this tender will be followed by the agency. The muck, silt etc. removed from the sewer lines & sewer manholes will be disposed off outside NIB campus, at Noida authority designated dumping yard/ area as per instant rules, instructions issued by the local body (Noida). The manpower will be deployed under strict supervision of trained & experienced supervisor. Prescribed safety norms applicable to such jobs will be followed strictly. Around 225 (Two hundred twenty five) manholes/sewerage of varying depth from 3’ to 14’ are to be cleaned. All machines big/small required for mechanized cleaning shall be arranged by the agency. The charges of machines shall be deemed to be included in the quoted rates. No extra charges/rent etc. will be paid for machines required for this job work.

The agency will take every precaution to ensure that, the waste, muck, silt etc. removed from the sewer is not spilled during removal and disposal. Therefore, tanks etc. shall be used for collection and disposal of the waste. Since the work is to be carried out in a functional institute, the work programme shall be drawn in such a way so that there is minimal disturbance in the campus due to cleaning operations. The work programme will be drawn in consultation with NIB authorities. Necessary entries IN/ OUT will be made at NIB gate and all workers/ staff of contractor will be permitted entry with valid ID Cards/ID Proof.

3. **Eligibility Criteria for Bidders:**

   (i) The agency shall have experience of three (3) years for carrying out cleaning works of sewerage system.

   (ii) Valid authorization from local municipal body i.e. Noida Authority etc. for cleaning of sewer lines & sewer manholes etc. issued at least 3 years ago.

4. **Earnest Money Deposit (EMD):**

   i) The bidders are required to deposit Demand Draft of **Rs. 7,000/- (Seven thousand only)** in favour of the “National Institute of Biologicals, payable at Noida, as Earnest Money Deposit (EMD) along with original tender document for this work. EMD will be returned to unsuccessful bidders after award of the contract. No interest shall be payable by NIB on EMD. EMD will be returned on acceptance of work order and deposit of performance security by the successful bidder.
ii) EMD can also be deposited in NIB’s account by way of NEFT/RTGS and bidder shall furnish transaction ID details with Date & Time etc. in the EMD envelope. Bank details of NIB are as below:

**For Payment of EMD through Bank transfer:**

<table>
<thead>
<tr>
<th>NAME OF BANK</th>
<th>BANK OF BARODA, SEC-29, NOIDA (U.P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF ACCOUNT</td>
<td>NATIONAL INSTITUTE OF BIOLOGICALS</td>
</tr>
<tr>
<td>S.B. ACCOUNT</td>
<td>26290100001774</td>
</tr>
<tr>
<td>IFSC CODE</td>
<td>BARB0NOIDAX (5th digit is zero)</td>
</tr>
</tbody>
</table>

Agencies registered as MSME in relevant trade i.e. for Mechanized disinfection and sanitization work are exempted from payment of Tender Fee and EMD. However copy of relevant trade registration certificate shall be furnished in EMD envelope with the tender.

5. Tender Document Fee: -

Complete tender document containing Terms & Conditions, Technical Bid, Scope of work, Specifications, Price Bid Proforma etc. can be purchased from the Finance Section of this Institute on all working days by submitting a written request by the agency on the letter head of the firm and on payment of tender fee mentioned in the advertisement, only through crossed demand draft/pay order (non-refundable) in favour of “National Institute of Biologicals”, payable at Noida. However before purchasing the tender document, bidders are advised to go through the tender document particularly eligibility criteria, scope of work etc. in their own interest.

Alternatively bidders can downloaded the tender document free of cost from NIB website [www.nib.gov.in](http://www.nib.gov.in) or Central Public Procurement Portal.

6. Procedure for submission of tender:

The tenders are invited under two bid system i.e. Technical Bid and Price Bid

6.1. Technical Bid (Envelop No -1) shall contain:

i) EMD in a separate envelope duly marked on top as “EMD”. Demand Draft for Earnest Money Deposit or NEFT receipt/acknowledgement in EMD envelope. If EMD is not found with the Bid the bid will be taken as non-responsive and shall be rejected.

ii) The tender document in original along with duly filled FORM-I, including a copy of unfilled PRICE-BID (FORM-II) each page duly signed and stamped as a token of acceptance of complete document.

iii) Self attested copies of experience certificates or work completion certificates issued by the client in support of experience of similar works as per eligibility criteria particularly for
Mechanized cleaning of sewerage system and valid authorization from Noida authority for sewer cleaning work.

iv) **Envelope 1** shall be superscribed as “Technical Bid” for **Mechanized cleaning of sewerage system in NIB Noida**, along with Due date for opening----------

6.2 **Price Bid (Envelop No. 2) shall contain:**

The Price Bid only on the **FORM-II** given in the tender document after filling the Prices against each item, duly sealed and shall be superscribed as “Price Bid”. Please note that conditional Price Bid will not be accepted.

The Envelop No. 1 & 2 shall be sealed separately and placed in a third Envelope which also shall be sealed and duly super-scribed the name of the tender and Due date for opening ------

Complete bid in all respects must be addressed to the **Director, National Institute of Biologicals, A-32, Sector – 62, Noida**, and should be dropped in the tender box, kept at Reception Lobby of Administrative. Block of NIB. The bid should reach before the scheduled date & time of submission as mentioned in the tender document. **Late bids either by hand or by post will not be accepted.**

7. **Pre-Bid Meeting and Clarification of Bids:**

7.1 A Pre-Bid meeting will be organized by NIB, as indicated in the tender document. Bidders may ask clarification(s), if any, from NIB about the tender in the said meeting. The clarification shall be asked in writing. If required, NIB may issue Corrigendum to clarify the queries of the bidders.

8. **Bid Opening:**

(i) Bids shall be opened in the office of this Institute at Noida, by the Tender Opening Committee on the scheduled date and time in presence of bidder(s) who shall remain present during opening of the bids.

(ii) The technical bid (Envelope No. 1) shall be opened first. If EMD is found with the bid then only technical bid will be opened/considered. The Price Bid (Envelop No 2) of only those bidders whose technical bid is evaluated to be responsive and eligible as per the eligibility criteria given in the tender Clause -3, above will be opened later and they shall be intimated separately about the date & time of opening.

(iii)Total number of Bids received will be announced to the bidders at the time of opening.

9. **Bid Validity:**

The bids shall be valid for 90 days from the date of opening of the Technical Bids.
10. **Evaluation of Tenders:**

a. Technical Bids will be evaluated by NIB as per the Eligibility Criteria given in the tender Clause-3.

b. The bids not accompanied with requisite EMD, experience certificate, authorization letter from Noida Authority etc. as per the tender conditions shall be treated as non-responsive and ineligible.

c. During evaluation of bids, NIB at its sole discretion may ask clarification from the bidder(s), if any, in their bid and the bidder is required to respond within the stipulated time period, failing which NIB will take suitable decision in this regard.

d. NIB may also ask the lowest responsive bidder to arrange a visit of their ongoing work/s site in National Capital Region, as a part of evaluation process before award of work or verify the work experience from the previous clients. The agency shall provide necessary assistance in this regard.

e. After evaluation of the Technical and Financial Bids etc. approval of the competent authority will be sought for award of work to the lowest responsive (L-1) bidder.

11. **Right to accept any tender and to reject any or all tender:**

NIB reserves the right to accept or reject any tender, and or to annul the bidding process and or reject all tenders at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for NIB’s action.

12. **A- Award of Contract:**

(i) NIB will notify the successful bidder that his tender has been accepted and a Letter of Award will be issued describing the works to be carried out and to submit Performance Guarantee as per tender conditions. The same shall be returned duly acknowledged affirmatively by the bidder as a token of acceptance.

(ii) **Period of Contract** – The contract will be awarded for One Time job work.

12. **B Time of Completion** - Whole job work of sewer/manhole cleaning & disposal of muck/silt etc. shall be completed within a period of 30 days from issue of work-order.

12. **C Foreclosure of contract due to abandonment or reduction in scope of work** - If at any time after acceptance of the tender, National Institute of Biologicals, decides to abandon or reduce the scope of the work for any reason, whatsoever, and does not require the whole or any part of the work to be carried out, the Institute shall give one month’s notice in writing to that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise, whatsoever, on account of any profit or advantage which he might have derived from the execution of the work in full but for the foreclosure of the work.
(iv) Subletting- The contractor shall not assign or sublet the work.

12 C. Termination of Contract for non-performance and subsequent putting the contractor on holiday.

If in the opinion of contract awarding authority the contractor fails to perform the works as per the contract, violates contract terms & conditions despite giving written instructions, so cause notice etc. The authority may penalize the contractor and even terminate the contract as a whole.

In case of termination of contract except under conditions of Force Majeure and termination after expiry of contract, the contractor shall be put under holiday [i.e. neither any enquiry will be issued to the party by NIB against any type of tender nor their offer will be considered by NIB against any ongoing tender (s) where contract between NIB and that particular contractor (as a bidder) has not been finalized] for three years from the date of termination by NIB.

13. Performance Guarantee: Not applicable

14. Signing of Contract:

A contract agreement will be entered in to by both the parties. The Contract Agreement Form is enclosed at APPENDIX-A. The contractor will present a signed copy of the same to NIB, on nonjudicial stamp paper of appropriate value.

15. Payment:

15.1 No advance payment will be made by NIB. Contractor will submit monthly Pre-Receipted Bills (affixing the Revenue Stamp) duly supported with necessary Check List/Log Sheets, material bills/ vouchers/challans etc. along with the proof of payment of wages/levies and deposits of challan of ESI, PF, Service Tax (if applicable), etc. NIB will make payment to the contractor within 15 days after receipt of the bills after deduction of applicable taxes/TDS etc. It may be noted that payment to the contractor will be released after disbursement of wages of the deployed manpower of respective work.

15.2. If the check list/ log sheets does not shows proper compliance of works to be done by the contractor as per schedule; NIB will make suitable/ proportionate deduction from the contractor’s bills. If the contractor fails to properly control pest & rodent as per contract, in such event, NIB may deduct the actual cost chargeable on this work plus 10% extra for departmental service charges from any amount payable to the contractor.

15.3 In case of deficiency in services as given in the contract, Institute will make suitable/ proportionate deduction from the bills on the basis of the rates quoted by the contractor.

15.4 The contractor shall be responsible for proper maintenance of decorum, punctuality, discipline and work out put. The personnel so deployed by him should be in a proper, neat & clean well-dressed uniform. Providing of uniform etc. to the deployed staff shall be the
responsibility of the contractor. If the staffs are not present in uniform, a penalty @ Rs 100/per day/per person will be levied and deducted from the bill.

15.5 Levy/Taxes payable by contractor – GST or any other tax on materials in respect of this contract shall be payable by the contractor and NIB shall not entertain any claim whatsoever in this respect.

All tendered rates shall be inclusive of all taxes and levies payable under respective statutes. However, pursuant to the Constitution (46th Amendment Act, 1982), if any further tax or levy is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies, the said amount so paid by the contractor shall be reimbursed by NIB.

16. Applicable Law:

16.1 The contract shall be interpreted in accordance with the Laws of the Union of India. Contractor shall be solely responsible for compliance of all labour laws, payment of fair wages/salaries and allowances to his personnel that might become applicable under any new act, law or order of the State Government / Central Government. NIB shall have no liability whatsoever in any manner.

16.2 Minimum wages act to be complied with - The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, and rules framed hereunder and other labour laws affecting contract labour that may be brought into force from time to time.

17. Resolution of Dispute:

17.1 All disputes arising out of this contract shall be referred to the sole arbitration of a person selected by the contractor out of the panel of three persons nominated by the Director NIB, and his decision/award shall be final and binding on both parties. The Arbitration shall be governed under the Indian Arbitration Act 1996 or any statutory modifications or re-enactment thereof and rules made there under and for the time being in force shall apply to the arbitration proceeding under this contract.

18. Force Majeure:

18.1 Notwithstanding the provisions stated above, the service provider shall not be liable for forfeiture of its performance security, penalty or termination for default, if and to the extent that, it’s delay in performance or other failure to perform its obligations under the contract is the result of an event of force majeure.

18.2 For purpose of this clause “Force Majeure” means an event beyond the control of the service provider and not involving the contractor/service provider’s fault or negligence and not foreseeable. Such events may include, but are not limited to acts or the service provider...
either in its sovereign or contractual capacity, ware or revolutions fires, floods, epidemics, quarantine restrictions and freight embargoes.

18.3 If a force Majeure situation arises, the contractor/ service provider shall promptly notify the NIB in writing of such conditions and the cause thereof. Unless otherwise directed by the employer in writing, the service provider shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.
Particulars of bidders:

The following details of the bidder are necessary for linking on Central Procurement Portal etc. as per Govt. of India guidelines. The details may be filled carefully.

(a) Details of bidders:

<table>
<thead>
<tr>
<th>Srl. No.</th>
<th>Name of Company/ firm/ agency with full address</th>
<th>Name of Contact Person</th>
<th>Mobile No.</th>
<th>Land Line Telephone No.</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
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(b) Details of Company’s past experience of Annual Rate Contracts in the relevant field

<table>
<thead>
<tr>
<th>Srl. No.</th>
<th>Period (Year)</th>
<th>Name of the client with the address and contact number</th>
<th>Contract Value (Rs.)</th>
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<tbody>
<tr>
<td>1.</td>
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</table>

(c) Details of any three running contracts

<table>
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<tr>
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<th>Period</th>
<th>Name of the client with the address And contact number</th>
<th>Contract value (Rs.)</th>
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<tbody>
<tr>
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Signature and seal of Bidder.

Date: _________________
AGREEMENT

This agreement made the ....... day of ......... two thousand twenty (2020) between
the National Institute of Biologicals, Plot No. A–32, Sector-62, NOIDA, (hereinafter called
“NIB”) of the one part, which expression shall include his successors and assigns and M/s
(herinafter called “The contractor”) which expression shall include his heirs, executors,
administrators and assigns of the other part.

Whereas NIB is desirous that certain works should be executed by the Contractor,

for National Institute of Biologicals at NOIDA – 201 309 (U. P) (“the works”) and has
accepted a Bid of the Contractor for the execution and completion of the works and the
remedying of any defects therein.

Now this Agreement witnesses as follows:

1. In this Agreement words and expressions shall have the same meaning as are
respectively assigned to them in the Conditions of Contract herein after referred to.

2. The following documents shall be deemed to from and be read and construed as part of
this Agreement, viz:

a- Tender No. ......................... dated: .........................

b- Letter No. .................................to M/s ..........................................

c- NIB Work Order letter No. .................................dated: .........................

3. In consideration of the payment to be made by the NIB to the contractor as
hereinafter mentioned, the Contractor hereby covenants with NIB to execute and
complete the works and remedy any defects therein in conformity in all respect with
the provisions of this agreement.

4. The National Institute of Biologicals hereby covenants to pay the Contractor in
consideration of the execution and completion of the works and the remodeling of
defects therein the Contract Price or such other sum as may become payable at the times and in the manner prescribed by this agreement.

In Witness whereof the parties hereto have this Agreement to be executed the day and year first before written.

Signed, Sealed and Delivered by the Said _________________________________

Binding signature for and on behalf of
National Institute of Biologicals, A-32, Sector -62, NOIDA.

__________________________________
Binding Signature of Contractor ______________________________________________

In the presence of

Witness (1): .................................

Witness (2): .................................
**AMENDMENT SHEET**

<table>
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<tr>
<th>S. No.</th>
<th>Date</th>
<th>Page No.</th>
<th>Revision No.</th>
<th>Nature of Amendment Section/ Details</th>
<th>Authorization</th>
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<tbody>
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</tbody>
</table>

**Prepared by**: Krishna Kumar
**Verified By**: R.P. Joshi
**Authorized by**: Dr. J.P. Prasad

**Signature**

**Date**: 03-01-2020

**Master Copy Issue Date**: 03-06-01-2020
NATIONAL INSTITUTE OF BIOLOGICALS
NOIDA

Title: Standard Operating Procedures (SOP) for cleaning Sewer/manholes in NIB Campus Noida

SOP No.: NIB/Engg/SOP/001/00 Page 2 of 13
Revision No.: 00 Replaces: Nil Department: Engg Section
Effective Date: 06/01/2020 Review Date: 01/02/2022

DISTRIBUTION LIST

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<td>Quality Management Unit QM/DQM</td>
<td>Lab/ unit preparing the SOP</td>
<td>Ink to be used is Blue</td>
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<tr>
<td>Controlled Copy C1</td>
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<td>After Xerox by the unit preparing the SOP</td>
<td>Ink to be used is Blue</td>
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<tr>
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<td>-do-</td>
<td></td>
</tr>
<tr>
<td>Uncontrolled Copy C3</td>
<td>Outside NIB- section /c</td>
<td>-do-</td>
<td></td>
</tr>
</tbody>
</table>

1. Objective:

The main objective of this SOP is to eliminate hazardous cleaning or at least to avoid the accidents due to improper practice of cleaning of sewers/emptying of septic tanks, thereby, preventing human casualties. Further, the SOP intends to prevent the risk of acquiring diseases to the concerned person because of following the unhygienic & unscientific working procedures. This SOP also provides information on tanks cleaning, emergency preparedness, emergency due to toxic gas emission precaution due to gas hazard & infection, precaution due to vehicular traffic, responding to sewers/ septic tanks overflows by workers/ employees in case of crisis, responsibility to stakeholders and so on.

2. Procedures for Cleaning of Sewers (Manholes)

2.1 Mechanical:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Prepared by</th>
<th>Verified By</th>
<th>Authorized By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Krishna Kumar</td>
<td>R.P. Joshi</td>
<td>Dr. J.P. Prasad</td>
</tr>
<tr>
<td>Designation</td>
<td>Junior Engineer (Civil)</td>
<td>Assistant Engineer (Civil)</td>
<td>Quality Manager</td>
</tr>
<tr>
<td>Date</td>
<td>03-01-2020</td>
<td>06.01.2020</td>
<td>06.01.2020</td>
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CONTROLLED COPY C1  MASTER COPY

ISSUE 7/13 06.01.2020
Step 1: Reaching the site

1.1 Selection of prospective agency/ Contractor for the sewer cleaning should take into account the duties they will be expected to perform;

1.2 The complete hazard involved in the cleaning activity should be explained clearly to the workers/ employees by the supervisor and should get their consent in written before start of cleaning activities;

1.3 A supervisor along with adequate machinery and staff shall reach the designated site, preferably during lean period of sewage flow in sewers;

1.4 The supervisor shall have the names, address and emergency contact information of the staff involved in cleaning the sewers; and

1.5 Appropriate protective gears and safety devices shall be worn by the staff before beginning the work of cleaning the sewers.

Step 2: Identification and isolation of the area

2.1 Identify the stretch to be cleaned and identify the manholes associated with the stretch;

2.2 Barricade the area where cleaning is to be carried out; and

2.3 Cones (similar to the one used by police) shall be placed on the road for barricading the working area.

Step 3: Verify the presence of any gases or other hindrances

3.1 Ventilate the sewer line by opening 2-3 manholes on both sides of the working stretch for at least 1 hour prior to start of the work to ensure escape of toxic gases; The worker opening the manhole must not bend down into the opened manhole and
this may cause his getting overcome by Hydrogen Sulphide and even tripping into the manhole.

3.2 Insert a long pole with lead acetate paper which will convert to black colour in the presence of hydrogen sulphide. The person shall not try to insert the paper by hand into the manhole.

3.3 If gases are detected, extend waiting period to allow residual gases to escape and to avoid the chance of explosion, in case. Repeat the procedure many times for checking the escape of toxic gases;

3.4 Before the start of the cleaning operation, workers/employees shall check for hindrances that may delay the cleaning process; and

Step 4: Removal of silt/ wax- Mechanical Process

3.5 Appropriate machines, at least to the extent specified in this SOP are to be used to remove the silt/ wax;

3.6 The operating procedures of these machines shall be strictly followed for cleaning; and

3.7 The manhole cover shall be closed tightly after cleaning.

Step 5: Leaving from the site

5.1 All the equipment/ machineries along with the protective gears and safety devices that had any direct contact with the sewage shall be cleaned properly as per the cleaning procedure specified by the manufacturer;

5.2 All the equipment, safety gears, barricades etc. shall be removed from the working area after completion of work.
5.3 The entire operation shall be monitored by the supervisor.

2.2 Manual

Step 1: Reaching the site

1.1 Selection of prospective workers for sewer cleaning should take into account the duties they will be expected to perform;

1.2 The complete hazard involved in the cleaning activity should be explained by the supervisor and should get their consent in written before to start cleaning activities;

1.3 A supervisor along with adequate machinery and workers shall reach the designated site, preferably during lean period of sewage flow in sewers;

1.4 The supervisor shall have the names, address and emergency contact information of the staff involved in cleaning the sewers; and

Step 2: Identification and isolation of the area

2.1 Identify the stretch to be cleaned and identify the manholes associated with the stretch;

2.2 A flag man shall be stationed at least 15m ahead of the site and should be visible to incoming traffic for at least 150m.

2.3 Cones (similar to the one used by police) shall be placed on the road.

Step 3: Verify the presence of any gases or other hindrances

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<td>06.01.2020</td>
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3.1 Ventilate the sewer line by opening 2-3 manholes on both sides of the working stretch for at least 1 hour before to start the work to ensure escape of toxic gases;

3.2 The labour opening the manhole must not bend down into the opened manhole and this may cause his getting overcome by Hydrogen Sulphide and even tripping into the manhole.

3.3 Use gas monitor, detector lamp, wet acetate paper or gas detector makes to detect any residues of poisonous gases like hydrogen sulphide, carbon monoxide, methane and gasoline vapours;

3.4 Insert a long pole with lead acetate paper which will convert to black. The person shall not try to insert the paper by hand into the manhole.

3.5 If gases are detected extend waiting period to allow residual gases to escape and to avoid the chance of casualty, in case. Repeat the procedure many times for checking the escape of toxic gases;

3.6 Before to start the cleaning operation, workers/employees shall check for hindrances that may delay the cleaning process; and

Step 4: Removal of silt/ clogs/ rocks

4.1 Identify and close off or re-route the inlet sewage of the identified stretch, if possible;

4.2 Air should be supplied into the manholes or to make provision of ventilation to achieve the desired oxygen level;

4.3 The staff shall wear full bodysuit if entering manholes of more than 5 ft. depth or partial fishing wade suits if entering manholes of less than 5 ft. depth;

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4.4 All the staffs entering the sewer shall wear helmet attached with head lamp;

4.5 The staff entering the sewer shall preferably wear full-face mask having escape breathing apparatus with at least 10-minute air supply along with other appropriate protective gears and safety devices;

4.6 Safety belt shall be fastened tightly onto their suit;

4.8 The staff shall have extra flashlights and communication devices

4.8 The staff shall check for the stability of the manhole walls visually and the strength of the manhole walls visually and the strength of the rope ladder and descend into the manhole carefully after getting the permission of the supervisor;

4.9 The persons entering the manhole shall be monitored by suitable mechanism at the ground;

4.10 Clogs/silt/rocks shall be removed by using appropriate machineries/equipment and brought up to ground level and then shall be suitable disposed of at the designated areas;

4.11 Pull the staff out of the manhole after completion of cleaning activities;

4.12 Manhole lid shall be closed tightly after cleaning;

4.13 At a stretch, a duration not exceeding 90 minute shall be taken for cleaning the sewers and a mandatory interval of 30 minute shall be given between two cleaning jobs.

**Step 5: Leaving from the site**

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</table>
5.1 All the equipment/machineries along with the protective gears and safety devices that had any direct contact with the sewage shall be cleaned properly as per the cleaning procedure specified by the manufacturer;

5.2 All the equipment, safety gears, barricades etc. shall be removed from the working area after completion of work.

5.3 The entire operation shall be monitored by the supervisor.

3: EMERGENCY PREPAREDNESS

3.1 Emergency plan to execute the work shall be prepared before arriving at the site.

3.2 The supervisor and all the crew members involved in sewer cleaning should be familiarized with the emergency plan;

3.3 A tripod attached with rope & pulley and harness or some other suitable system shall be put in place for retrieving the injured worker.

3.4 A first aid kit distinctly marked with a red cross on white back ground shall be readily available at the site.

3.5 Wash-up material like soap & skin cream for applying on the body shall be adequately available at the site.

3.6 A list of medical care centres available near the site may be prepared and made readily available;

3.7 Vehicle preferably and ambulance shall be available at the site for carrying the injured worker(s) to the hospital, in case of any emergency.

4. GAS EMERGENCY
4.1 If a gas emergency occurs everyone should immediately put on their escape sets (breathing apparatus) and raise the alarm.

4.2 The men at the ground level are trained rescuers and they shall immediately send down the rescue sets and await the men working in sewer to come out. The men at the ground level shall attempt to rescue the man inside sewer with all the equipment at their disposal.

4.3 If there is a casualty, he (should be propped up out of sewage in a comfortable position. Immediately call the emergency services (ambulance, fire brigade). When the victim has the gas mask on the face and if he is breathing, a rescuer should always be with him because he may vomit thereby choking the supply of oxygen.

3.8 Guidelines for giving first-aid to a gas victim are given below:

a) Remove him to fresh air as soon as possible.

b) Apply artificial respiration with an oxygen resuscitation if he is not breathing. If one is not available, apply mouth to mouth breathing; and

b) Keep him lying down and wait for an ambulance.

5. PROTECTIVE GEARS AND SAFETY DEVICES

All the protective gears and safety devices shall be checked before starting the work for its proper up keep. Proper inventory of all the protective and safety gears to be maintained. The following (refer table1) are the protective gears and safety devices, but not limited to, as prescribed by Prohibition of Employment as Manual Scavengers and their Rehabilitation Rules, 2013 to prevent and hazardous entry of humans into the sewers.

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ISSUE Dt.06-01-2020
# Table 1

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Protective gears and safety devices</th>
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<tbody>
<tr>
<td>1.</td>
<td>Air compressor</td>
<td>2.</td>
<td>Airline breathing apparatus</td>
</tr>
<tr>
<td>3.</td>
<td>Airline respirator</td>
<td>4.</td>
<td>Air purifier gas mask/chain cortege</td>
</tr>
<tr>
<td>5.</td>
<td>Artificial respiration/reticulate</td>
<td>6.</td>
<td>Barrier caution tape</td>
</tr>
<tr>
<td>7.</td>
<td>Barrier cream</td>
<td>8.</td>
<td>Barrier cone</td>
</tr>
<tr>
<td>11.</td>
<td>Caution board</td>
<td>12.</td>
<td>Chlorine mask</td>
</tr>
<tr>
<td>15.</td>
<td>Emergency wader suit attached with boots</td>
<td>16.</td>
<td>First aid box</td>
</tr>
<tr>
<td>17.</td>
<td>Face mask</td>
<td>18.</td>
<td>Gas monitor (4 gases)</td>
</tr>
<tr>
<td>21.</td>
<td>Fishing wader suit attached with boots</td>
<td>22.</td>
<td>Hand gloves</td>
</tr>
<tr>
<td>23.</td>
<td>Head lamps</td>
<td>24.</td>
<td>Helmet</td>
</tr>
<tr>
<td>25.</td>
<td>Helmet demolishing</td>
<td>26.</td>
<td>Lead acetate paper</td>
</tr>
<tr>
<td>27.</td>
<td>Life guard pad</td>
<td>28.</td>
<td>Modular airlines supply trolley system</td>
</tr>
<tr>
<td>29.</td>
<td>Normal face mask</td>
<td>30.</td>
<td>Nylon rope ladder -5 m</td>
</tr>
</tbody>
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**Signature**  
Prepared by: Krishna Kumar  
Verified By: R.P. Joshi  
Authorized By: Dr. J.P. Prasad  
Name: Krishna Kumar  
Designation: Junior Engineer (Civil)  
Date: 03-01-2020  

**Date**  
06-01-2020  
06/01/2022  

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**ISSUE Dt.: 06-01-2020**
6: TYPE OF INSPECTIONS AND EXAMINATIONS OF SEWERS

Inspection and examination are the techniques used to gather information to develop operation and maintenance programs to ensure that new and existing collection systems serve their intended purpose on a continuing basis. Inspection and testing are necessary to identify existing or potential problem areas in the collection system, evaluate the seriousness of detected problems, locate the position of problems, and provide clear, concise, and meaningful reports to supervisors regarding problems. There are two basis of inspection and examination i.e., direct and indirect, described below:

6.1. Direct Method

Direct method is performed through direct visual inspection by the inspector who enters into the manhole with proper safety gear as prescribed. This shall never be done once a sewer has been put into service.
6.2 Manual Methods

6.2.1: Section Sewer Rods

These rods are used for cleaning small sewer. The sewer/rods may be of bamboo or teak wood or light metal usually about one long at the end of which is a coupling, which remains intact in the sewer but can be easily disjointed in the manhole. Sections of the rods are pushed down the sewer. The front or the advancing end of the sewer rod is generally fitted with a brush, a rubber ring for cleaning or a cutting edge to cut and dislodge the obstructions. These rods are also useful to located the obstruction from either manhole in case a particular portion of the sewer has to be exposed for attending to the problem.

6.3 Mechanical Methods

6.3.1: Velocity Cleaners (Jetting Machines)

The high velocity sewer-cleaner makes use of high velocity water-jets to remove and dislodge obstructions. It combines the functions of a rodding machine and gully emptier machine. It includes a high-pressure hydraulic pump capable of delivering water at variable pressure up to about 8 MPa through a flexible hose to a sewer cleaning nozzle. The nozzle has one forward facing jet and a number of peripheral rearward facing jets. The high-pressure water coming out of the holes with a high velocity pressure suitable, the nozzle itself acts as a jack-hammer and break up stubborn obstructions. A separate suction pump or airflow device may also be used to suck the dislodged material. The entire equipment is usually mounted on a heavy truck chassis with either a separate prime mover or a power take off for the suction device. The truck carries secondary treated sewage, if available, and if not untreated fresh water for the hydraulic jet. The truck also has a tank for the remove sludge and various controls grouped together for easy operation during sewer cleaning.

Now-a-days, Mini jetting machines are also available in the market which can travel into narrow leans and clean the sewer lines up to a length of 200 feet (60 meters).

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ISSUE Dt..06-01-2020
7. Roles & Responsibilities

7.1 Employees

7.1.1: Workers/Contractors/Employers

7.1.2 Contractors/ Employers shall provide adequate safety gears and cleaning devices as prescribed in the SOP and the Rules;

7.1.3 Contractors/ Employers are responsible for paying premium for life insurance of the staffs assigned with him/her for cleaning of sewers/septic tanks;

7.2: Employees/Workers

7.2.1 Employees/Workers must familiarize them with the SOP and follow the procedures to ensure the personal safety and the safety of others.

7.2.2 In case of any doubt in the operating procedures of cleaning equipment and emergency procedures or inadequate training, the employee shall report the same to the concerned supervisor/contractor.

7.2.3 Workers/Employees should, despite their discomfort, use all the necessary safety gears and cleaning devices when employed in cleaning sewers/septic tanks.

7.2.4 Workers/Employees without the knowledge and consent of the supervisor/contractor shall not involve in cleaning of sewers/septic tanks.

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**BILL OF QUANTITY (BOQ)**

Tender No. 03/2020-21/NIB/Engg. (C)

Name of work: Tender for “Mechanized Cleaning of sewerage system” in NIB Campus Noida.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description of Work</th>
<th>Unit</th>
<th>Qty.</th>
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<tbody>
<tr>
<td>1.</td>
<td>Mechanized cleaning of sewerage system (Manholes/Sewers lines) depth from 9’ to 14’ from ground level, complete work as per SOP</td>
<td>Each</td>
<td>41</td>
</tr>
<tr>
<td>2.</td>
<td>Mechanized cleaning of sewerage system (Manholes/Sewers lines) depth from 6’ to 8’ from ground level, complete work as per SOP</td>
<td>Each</td>
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<tr>
<td>3.</td>
<td>Mechanized cleaning of sewerage system (Manholes/Sewers lines) depth from 3’ to 5’ from ground level, complete work as per SOP</td>
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<td>141</td>
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<tr>
<td>4.</td>
<td>Disposal of waste/silt/muck removed from sewerage system (Manholes/sewers lines) by Mechanical transportation outside NIB Campus at Noida Authority designated disposal site simultaneously, complete work as per Noida Authority guidelines on the subject.</td>
<td>Per round</td>
<td>75</td>
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<tr>
<td>5.</td>
<td>Providing Jet Compressor Machine for Mechanized cleaning/removal of chokes /blockage of sewerage system (Manholes/Sewers lines)</td>
<td>Per day</td>
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</tr>
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*Stamp of bidder with signature of authorized signatory,*

*National Institute of Biologicals (NIB)*

Page 26 of 28
**PRICE-BID**

Tender No. 03/2020-21/NIB/Engg. (C)

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<td>Goods &amp; Service Tax (GST)</td>
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<td>Total including GST</td>
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**Amount (in words):**

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**NOTE:**

i) **No running payment will be made for this work, only full & final payment will be made after completion of whole work.**

ii) **Validity of Bid shall be 90 days from the last date of submission of the bid.**

iii) **GST ........ % (percentage) and amount not specified in Price-Bid will be treated as inclusive and value of work will be calculated on reverse calculation basis.**

(iv) **The bidders are strongly advised to go through the complete bid document, visit the site before quoting their rates.**

(v) **The rate (%) and amount of GST applicable should be mentioned very clearly and any vague terms, i.e. applicable as per rule etc. will not be entertained and it will be treated as inclusive.**

Stamp of bidder with signature of authorized signatory,