Tender for
“Mechanized Cleaning of sewerage system” in NIB Campus Noida

Tender No. 37/2019/NIB/Engg. (C)

SCHEDULE OF BIDS

<table>
<thead>
<tr>
<th></th>
<th>Tender document download / sale period</th>
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<tbody>
<tr>
<td>1</td>
<td>28.02.2020 to 12.03.2020</td>
<td></td>
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<tr>
<td>2</td>
<td>Last Date &amp; time of submission of Tenders</td>
<td>13.03.2020 at 3:00 P.M.</td>
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<tr>
<td>3</td>
<td>Pre Bid meeting</td>
<td>05.03.2020 at 3:00 P.M.</td>
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<tr>
<td>4</td>
<td>Date &amp; time of Opening of Technical Bids</td>
<td>13.03.2020 at 4:00 P.M.</td>
</tr>
<tr>
<td>5</td>
<td>Opening of Price Bids</td>
<td>To be intimated separately only to technically eligible bidders.</td>
</tr>
</tbody>
</table>
| 6 | Tender Fee                           | i) No tender fee if downloaded by bidder at their own end.  
                                            ii) Rs. 560 including GST if purchased from NIB. |

Name of bidder

Address of Bidder

Phone Nos.

i- Landline Nos.

ii- Cell Nos.

E-mail Id

Contract Persons & their mobile nos.

i-

ii-

iii-
NOTICE INVITING TENDERS

Tender No. 37/2019/NIB/Engg. (C)

Invitation to Tenders for “Mechanized Cleaning of sewerage system” in NIB Campus Noida.

Sealed tenders are invited from experienced Contractors for “Mechanized Cleaning of sewerage system” in NIB Campus Noida. Bidders are advised to quote competitive rates for this work, on the enclosed Price-Bid format indicating Goods & Services Tax (GST) separately but including labour, T & P etc. required for proper completion of the work. The tender document can be downloaded free of cost from NIB Website www.nib.gov.in or Central Procurement Portal of Govt. of India from 28.02.2020 to 12.03.2020. Tender document can also be purchased from Finance Section of NIB from 10 AM to 5 PM on all working days from 28.02.2020 to 12.03.2020 by presenting Demand Draft of Rs. 560 including GST in favour of “National Institute of Biologicals” payable at Noida.

Sealed tender should be dropped in tender box of NIB Noida, kept at reception lobby of Administrative Building on or before the closing date, i. e., 13.03.2020 up to 3:00 P.M. and technical bid shall be opened on the same day at 4:00 P. M. in presence of the representatives of the bidders, who are present during opening of the tenders. Late tenders will not be received and treated as rejected.

Prospective bidders are advised to regularly scan through NIB website tender portal www.nib.gov.in as corrigendum/ amendments etc., if any, will be notified on this portal only and no separate intimation/ advertisement will be made in this regard.

Director
NOTICE INVITING TENDERS

Tender No. 37/2019/NIB/Engg. (C)

Invitation to Tenders for “Mechanized Cleaning of sewerage system” in NIB Campus Noida.

Introduction:

“National Institute of Biologicals (NIB) is an autonomous institution under the Ministry of Health & Family Welfare, Government of India, established on 27th January, 1992 and is to be the Central Drugs Laboratory for quality control of all 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 biologicals in India by averting the Not of Standard Quality Biologicals reaching the consumer, thereby promoting and protecting public health.”

1. **Scope of Work:**

Sewers and Manholes are to be Cleaned 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 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 will be paid for machines. **The work may be done in a phased manner in two Phases (I &II) at an interval of one month tentatively in March and April 2020.**
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.

Eligibility Criteria:

2.1. Eligibility will be based on meeting the following minimum criteria regarding the Bidder’s/Applicant's work experience, personnel and financial position, as demonstrated by the Bidder’s/Applicant's responses in the tender.

2.2. The Applicant to meet the following minimum criteria for eligibility:

   a) **The firm should have minimum three years standing in the relevant business. Please attach documents in support of standing of the firm in the relevant business.**

   b) **Average Annual financial turnover for related works during the last three financial years, ending 31st March 2019 should be at least Rs. 1.07 lakh.**

   c) **Experience of having successfully completed similar works during the last seven years ending December 31, 2019 should be either of the following.**

      i) **Three similar completed works each costing not less than the amount equal to Rs. 1.43 lakh each.** Or

      ii) **Two similar completed works each costing not less than the amount equal to Rs. 2.15 lakh each.** Or

      iii) **One similar completed work costing not less than the amount equal to Rs. 2.86 lakh.**

2.3 **Definition of Similar Work: Experience of mechanized cleaning of sewer & drainage manholes in any Govt. office or large private sector company etc.**

2.4 **Eligibility of the bidder will be solely evaluated on the basis of documents submitted by them in support of above Eligibility Criteria.**

2.5 **The bidders are required to necessarily submit documents showing similar work experience certificate and balance sheet or certificate from chartered accountant in support of their financial turnover during the last three Financial Years i.e. 2016-2017, 2017-2018 and 2018-2019. Please note that if work experience and financial turn over documents as mentioned above are not found with the technical bid, the bid may be**
taken as non-responsive and NIB may straight away reject the bid without seeking any further clarification/document or intimation to the bidder.

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

The Bidder shall furnish EMD of **Rs. 7,000/- (Seven thousand only)** along with the tender in the shape of demand draft in favour of “National Institute of Biologicals” payable at Noida. EMD of unsuccessful bidders shall be returned after award of the work. The tender not accompanied with requisite amount of EMD shall be rejected. No interest will be paid on EMD.

EMD can also be deposited by way of NEFT/RTGS and bidder need to indicate transaction ID details with Date & Time etc. Bank details of NIB are as below: EMD will be returned after successful completion of entire work and settlement of bill.

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

<table>
<thead>
<tr>
<th><strong>BANK</strong></th>
<th><strong>NAME OF BANK</strong></th>
<th><strong>NAME OF ACCOUNT</strong></th>
<th><strong>S.B. ACCOUNT</strong></th>
<th><strong>IFSC CODE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BANK OF BARODA, SEC-29, NOIDA (U.P)</td>
<td>NATIONAL INSTITUTE OF BIOLOGICALS</td>
<td>2629010001774</td>
<td>BARB0NOIDAX (5th digit is zero)</td>
</tr>
</tbody>
</table>

In case of MSME unit, copy of relevant trade (Civil works) of Registration with MSME, need to be provided. If core MSME Certification is not for the relevant trade, same may not be considered for EMD exemption. If the selected bidders fail to start & execute the work, his EMD will be forfeited as per Government rules.

3. **Site Visit:**

3.1 **The bidder is advised to acquaint himself with the job work compulsorily, visit the site & examine site conditions, climatic conditions, labour, power, material availability, transport and communication facilities, environmental regulations, laws and byelaws of statutory, local bodies and the Govt. of India and collect all information that will be necessary for preparing the bid and entering into a contract. The cost of visiting the site and collecting information for the purpose of submission of the bid shall be to the bidder’s account.**

3.2 **The bidder and any of his personnel or agents will be granted permission by NIB to enter upon the site for the purpose of such inspection.**

4. **Pre-Bid Meeting:**

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

5. **Submission of Tender:**

The contractor shall submit the tender in the sealed envelope in the following manner. **Envelope No. 1** - shall contain:

- EMD, in the form of demand draft for **Rs. 7,000/- (Seven thousand only)** in favour of National Institute of Biologicals, Noida. MSME registration (in relevant trade) copy for seeking EMD exemption.

**Envelope No. 2** - shall contain:

- A copy of tender document duly signed and stamped by the bidder as a token of acceptance of terms & conditions and Bill of Quantities (BOQ) of the tender (*Page No. 1 to 28*).
- Similar work experience certificates in support of fulfilling the eligibility criteria, by the bidder as per tender Clause-2.
- Copy of PAN Card, GST Number and Return of Income for last three years.

**Envelope No. 3** – Shall contain:

- Price-Bid only. Price shall be filled up by the bidder on the Price-Bid format (*Page No. 29 to 30 enclosed*) with the tender by NIB. Price on any other format or letter head of the bidder is liable to be rejected.

All the three sealed envelopes No. 1, 2 & 3 shall be then put in a bigger envelope duly addressed to “**Director, National Institute of Biologicals, A-32, Sector - 62, Noida - 201309**” and marked on top Tender for “**Mechanized Cleaning of sewerage system**” in NIB Campus Noida.

6. **Evaluation & Award of work:**

6.1 The bids will be evaluated by NIB as per tender conditions. The bids which are found to be responsive shall only be considered. NIB may seek clarifications in the bids from the bidders during the evaluation process. The work will be awarded to the lowest responsive (L-1), evaluated bidder and Work- order will be issued to the firm. NIB may like to visit the
similar completed works of the successful bidder before considering their bid/award of work.

6.2 Substantially responsive financial bids will be checked for any arithmetic errors. Arithmetic errors are to be rectified on the basis of the standard procedure as follows:

a) If there is a difference between the amount of rate in figure and in words of an item, and the total amount is worked out, then the rate which corresponds to the amount worked out by the bidder shall be taken as correct.

b) If the bidder has not worked out the amount of an item, or the same does not correspond with the rates written either in figures or in words, then the rate quoted by him in words shall be taken as correct.

c) If the rate quoted by the bidder in figures and in words tallies, but the amount is not worked out correctly, the rate quoted by the contractor in words shall be taken as correct.

7. **Security Deposit:** Not Applicable

8. **Contract Agreement:**

NIB will notify the successful bidder that his tender has been accepted and it will send a work order to the bidder describing the works to be carried out and the same shall be returned duly acknowledged affirmatively by the bidder as a token of acceptance and a contract agreement will be signed between both the parties on the agreement form **Annexure-A**. The contractor shall present the agreement on appropriate value of stamp paper for signature of NIB.

9. **Time of Completion:**

i) The work shall be completed within 20 (Twenty) days from the date of issue of work order/work permit for Phase-I and 20 (Twenty) days for Phase-II.

ii) Due to an event, not attributable to the contractor, causing delay occurs or a variation order is issued, which makes it impossible to complete the work by scheduled completion date, NIB may consider extending the completion date on request of the contractor.

10. **Liquidated Damages/Penalty for Delay:**

If the contractor fails to complete the work within the stipulated time or time extended by the Institute (if any), liquidated damages at the rate of 1% per day subject to maximum 10% of the total work value shall be deducted/recovered from the contractor.
11. **Specifications:**

The work shall be carried out as per Standard operating procedure (SOP) as attached at Annexure-I and instruction issued by NIB from time to time as per site requirement.

12. **Defect Liability Period:** - Not applicable

13. **Payment:**

(i) Running bill payment will be made after completion of the work of Phase I and final payment will be made after completion of whole work & handing over of the works to NIB. The contractor will submit the bill and payment shall be made within 30 (thirty) days from receipt of the bill. TDS will be deducted from the amount payable to the contractor. No advance payment shall be made to the contractor. The contractor will be required to raise Invoice/ Bill as per GST Rule and GST amount should be shown properly in the invoice.

(ii) Necessary Bank details need to be provided for release of payment directly in bidder’s Bank Account. Bank Details is to filled in the column by bidder as given below:

<table>
<thead>
<tr>
<th>NAME OF ACCOUNT HOLDER</th>
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<tbody>
<tr>
<td>NAME OF BANK &amp; ADDRESS</td>
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<td>ACCOUNT NO</td>
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<td>PAN NO</td>
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14. **Bill of Quantity:**

The quantities of work given in the Bill of Quantities (BOQ) are approximate to give an idea of work. Work will be carried out as per the given scope. The quantities may vary 25% on higher or lower side. The contractor will execute the varied quantity of work on the quoted rates. Payment will be made as per actual quantity of work done at site.

15. **Validity of Bid:**

Validity of bid shall be 90 (Ninety) days from the last date of submission of the bid.

16. **a) Tools & Tackles:**

All machines, vehicles, transport, equipment etc. required for mechanized sewer cleaning work will be arranged by the contractor and their charges will be deemed to be included in the quoted rates, no extra payment shall be made for the same. Site covering and cleaning etc. charges shall be deemed to be included in the quoted item rates.
b) **Water & Electricity**: Water & Electricity if required by the agency will be provided free of cost by NIB, at one point near the work place from where the contractor will make arrangement of pipes, cables, power plugs, sockets etc. to extend the same to the work place.

17. **Risks:**

Contractor shall be solely responsible for safety of his workers, working at site by taking insurance cover and by following all safety norms in the trade.

All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor. Excepted Risks are:

a.  
   (i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies.
   
   (ii) rebellion, revolution, insurrection, or military or usurped power, or civil war,
   
   (iii) Ionising radiations, or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component thereof. Pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speed.

b. Loss or damage due to the use or occupation by the Employer of any section or part of the Permanent Works, except as may be provided for in the Contract.

18. **Disputes:**

If any dispute or difference of any kind, whatsoever, shall arise between NIB and the Contractor, in connection with or arising out of the Contract, or the execution of the works, whether during the progress of the works or after their completion and whether before or after the termination, abandonment or breach of the contract, it shall, be settled under the Indian Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. Such arbitration shall be settled by Sole arbitrator who shall be appointed by Director, NIB. The arbitration shall take place in Noida/Delhi unless both parties agree otherwise.
19. CHECK LIST FOR TECHNO COMMERCIAL BID 
(Envelope No. 1)

<table>
<thead>
<tr>
<th>Srl.</th>
<th>Documents</th>
<th>Details of attached document</th>
<th>Attached Yes/No</th>
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<tbody>
<tr>
<td>1.</td>
<td>Work experience as per Clause 2, Eligibility Criteria.</td>
<td></td>
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<tr>
<td>3.</td>
<td>EMD in the shape of Demand Draft (DD) Rs. 7,000/- (Seven thousand only)/ MSME registration copy</td>
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<td>4.</td>
<td>Signed &amp; sealed tender document page No. 1 to 28</td>
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20. Particulars of bidders:

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

Details of Bidder

1. Name of Company/ firm/ agency with full address
2. Name of Contact Person
4. Land Line Telephone No.
5. E-mail address

21. Right to accept or reject the Tender:

Director, NIB reserves the right to accept or reject any or all the tenders without assigning any reason thereof.

Stamp of bidder with signature of authorized signatory,
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………………………………………………………………………………………………………………… (hereinafter 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, viz……………………………………………………….…………………………………… 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 remedying 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>
<thead>
<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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</table>

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

**Signature**  
**Name:** Krishna Kumar  
**Designation:** Junior Engineer (Civil)  
**Date:** 03-01-2020

**Verified By**  
**Name:** R.P. Joshi  
**Designation:** Assistant Engineer (Civil)  
**Date:** 06.01.2020

**Authorized by**  
**Name:** Dr. J.P. Prasad  
**Designation:** Quality Manager  
**Date:** 06.01.2020

**CONTROLLED COPY**

**MASTER COPY**  
**ISSUE DATE:** 03-01-2020
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>
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</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 2/13  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.

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<td>Quality Manager</td>
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<tr>
<td>Date</td>
<td>03-04-2020</td>
<td>06-01-2020</td>
<td>06-01-2020</td>
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</tbody>
</table>
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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ISSUE Dt. 06-01-2020
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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</table>
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
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
Revision No.: 00  Replaces: Nil
Effective Date: 06/01/2020

Page 9 of 13

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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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 corset</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>
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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.

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<tr>
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<tr>
<td>33. Port oxy</td>
<td>34. raincoat</td>
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<tr>
<td>35. Reflecting jacket</td>
<td>36. Safety belt</td>
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<tr>
<td>37. Safety body clothing</td>
<td>38. Safety gumboots</td>
</tr>
<tr>
<td>39. Safety helmets</td>
<td>40. Safety showers</td>
</tr>
<tr>
<td>41. Safety torch</td>
<td>42. Safety tripod set</td>
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<tr>
<td>43. Search light</td>
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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 the 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.26.1.2020
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/contract shall not involve in cleaning of sewers/ septic tanks.

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BIL  OF QUANTITY  (BOQ)

Tender No. 37/2019/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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</thead>
<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 in two phases (Phase I &amp; Phase II).</td>
<td>Each</td>
<td>41</td>
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<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 in two phases (Phase I &amp; Phase II).</td>
<td>Each</td>
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<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 in two phases (Phase I &amp; Phase II).</td>
<td>Each</td>
<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</td>
<td>Per round</td>
<td>75</td>
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</table>
5. Providing Jet Compressor Machine for Mechanized cleaning/removal of chokes/blockage of sewerage system (Manholes/Sewers lines) in two phases (Phase I & Phase II). Per day 02

Stamp of bidder with signature of authorized signatory,
### PRICE-BID

**Tender No. 37/2019/NIB/Engg. (C)**

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<th><strong>Qty.</strong></th>
<th><strong>Rate (in words &amp; figure) (Rs.)</strong></th>
<th><strong>Amount (in words &amp; figure) (Rs.)</strong></th>
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Campus at Noida Authority designated disposal site simultaneously with the work of each Phase (I & II). Complete work as per Noida Authority guidelines on the subject.

5. Providing Jet Compressor Machine for Mechanized cleaning/removal of chokes/blockage of sewerage system (Manholes/Sewers lines) in two phases (Phase I & Phase II).

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

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**NOTE:**

i) Running bill payment will be made for Phase I. However 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,**

**National Institute of Biologicals (NIB)**

Page 30 of 30