



## **Section 4:**

### **SPECIFICATIONS, DRAWINGS AND SCOPE OF WORK**

## 1. OBJECTIVE

The scope includes carrying out the periodic maintenance of Steel & MDPE network and PNG connections and installations, including functional checks, in order to ensure smooth functioning and to respond to emergency situation like third party damage to HNGPL assets, customer complaints, equipment breakdown, leakages etc. It is proposed to engage a service provider who shall be competent enough to execute repairs & maintenance of the network and various components of the installations.

## 2. SCOPE OF WORK OF RESPECTIVE SOR ITEMS:

### 3 AGAINST SOR – 1to6 (O&M of CGD Network)

3.1 Contractor's scope of work for subject services shall include, but shall not be limited to the following. The work described herein shall be carried for the operation and maintenance as per applicable technical specifications and the tender conditions. HNGPL may, on its own discretion add or delete the activities in the scope of work for the sake of better operational efficiency and results.

3.2 Operation & Maintenance of Steel pipe line from Gail RT Jwalapur to CGS and City Gas Distribution (CGD) Network from downstream of City Gate Station (CGS) to the consumer end, which includes all steel and MDPE Pipelines and associated facilities, by keeping it in the healthy condition, to provide uninterrupted gas supply to Domestic, Commercial and Industrial customers etc. All operation & maintenance activities are needed to be performed as per O&M plan of HNGPL, Leakage survey along the pipeline route & Industrial/ Commercial customer's end & piping/tubing at CNG Station, once in every quarter. For Domestic consumer Leakage Survey & its rectification shall be done once in a year or as decided by HNGPL. Responding to all emergency situations & Taking Corrective action, like third party damage to Steel & MDPE network & its rectification, HNGPL assets, customer complaints, equipment breakdown etc., Meter & Flow Readings of Industrial and Commercial customers on daily basis and, Onsite maintenance of Steel / MDPE pipelines, GI/Copper Installations, DRS, industrial skids & installations, Meters, Regulators, etc. as per schedule plan and instruction of EIC or his representative.

- 3.3 Contractor shall provide patrolling services by deployment of suitable patrolling guards for pipeline patrolling to monitor & for surveillance as well as for safety of Pipe line/ Installations etc.
- 3.4 Removal of obstacles, grass, and other potentially hazardous materials, in and around of equipment and inside enclosures of all DRS, industrial skids, valve chambers, TLPs, etc. as per HNGPL directive.
- 3.5 Compliance of statutory and safety requirements.
- 3.6 Reporting Management Information System (MIS) and communication system / training to O&M team.
- 3.7 Inventory management, procurement and supply of spares, consumables, tools & Tackles. Bidder shall identify, procure and hold the needs for all equipment tools & tackles for O&M of Network and assets (As per Table - 1). Bidder will review the list of spares provided by owner and shall reconcile all spares / consumables / equipment / tools & tackles after completion of work or as directed by owner.
- 3.8 Periodic cleaning of establishment, Leak Detection & it's rectification of all domestic, Industrial & Commercial connections & HNGPL assets.
- 3.9 Alteration / Modification / shifting / dismantling of GI Pipe, Domestic Meter, Regulator etc. for existing PNG service connection as and when required (Domestic meter and regulator will be issued by HNGPL at free of cost and GI Pipes, Anaconda and related fittings shall be scope in the contractor).
- 3.10 Cleaning of filter element, Checking, monitoring, maintenance and setting of PRV (Active/Monitor), SSV, SRV, PCV, Meters etc. in DRS & industrial Skids etc as per PM Schedule / Plan / IMS Documents as per instruction of EIC.
- 3.11 Emergency & security management.
- 3.12 Providing the Human Resources (Drivers) in O&M Vehicle (Mahindra Bolero 01 no and Swift Dzire 01 no.) being supplied / deployed by the Contractor in **SOR Item No: 10&11**
- 3.13 All the maintenance activities covered under this contract shall be carried out at site. The contractor shall be responsible for providing transportation / conveyance facilities for all his personnel for attending duty. However, the contractor shall provide 2 nos. O&M Vehicle for 24x7 for Routine and Break down maintenance works at site.

- 3.14 Contractor shall co-ordinate and assists/liaison for the services related to the operations, e.g. electricity, telephone, water supply, testing & calibration, statutory issues etc. from time to time.
- 3.15 The contractor shall take all the necessary pre-cautions to prevent fire hazards during the execution of the work
- 3.16 Manning of the Control Rooms on Round the Clock Basis. Contractor shall establish O&M (24x7 days) control room at the designated space provided by HNGPL. The control room shall be located in the areas of CGD functioning and shall be manned accordingly for day to day operations, emergency handling of complaints, planned maintenance as per schedule, breakdown maintenance and other O&M functions as required for complete steel, MDPE and industrial, commercial & domestic gas distribution system. The control room shall also handle to-and-fro information regarding CNG Stations.
- 3.17 Manned facilities: Emergency control room will be manned on 24x7 basis by team operating in shifts, to coordinate all the activities of O&M, emergency handling for an uninterrupted gas supply to all industrial, commercial and domestic customers.
- 3.18 Unmanned facilities: all other stations like DRS, Metering Installations at all customer premises, etc. are unmanned, but shall be controlled from the control room as per scheduled visits, planned maintenance, patrolling and on emergency requirement.
- 3.19 The patrolling of the pipe line shall be done length wise. However, the patrolling of the pipe line for Domestic Gas Consumers shall be done area wise.
- 3.20 The patrolling of 80 kilometers of the steel/ MDPE pipe line should be done by one patroller per shift.
- 3.21 During the patrolling the patroller should see for any leakage, any third party activities that are being taken up near the HNGPL Pipeline area, any encroachments going on, any activity which may be detrimental for Pipeline / any damaged / missing markers, any other unsafe activity & unsafe conditions etc. on the pipe line route. The MRS (Metering and regulating stations) & DRS (District Regulating station) up to battery limit of HNGPL, should also be visited by the patroller during the patrolling & check for any leakage in the same. If same is observed then the patroller shall immediately bring it to the notice of O&M in-charge/ station in-charge of the city through their Supervisors

### 3.22 Tentative Resource Deployment

The contractor has to deploy sufficient Human Resources not less than that provided in Table given below. Deployment of resources would be decided by EIC/ its representative, as per prescribed qualifications and experience. Proof of qualification has to be submitted by the contractor.

#### Tentative Human Resources to be deployed for Haridwar and Roorkee

HARIDWAR GA (C-Class City)								
Sl. No.	Description	Wage category	Gen. shift (6 days a week)	Shift-A (7 days a week)	Shift-B (7 days a week)	Shift-C (7 days a week)	Total	
1	Supervisor	Highly Skilled	3	-	-		3	
2	Plumber	Skilled	4	3	2	-	9	
3	Technician (Electrical)	Skilled	2	-	-	-	2	
4	Technician (E/I/M)	Skilled	4	-	-	-	4	
5	Technician (E/I/M) For Roorkee area	Skilled	1	1			2	
6	Control Room	Semi-Skilled	1	1	1	1	4	
7	Helper	Un-Skilled	4	-	-	-	4	
8	Patrollers	Semi-Skilled	17	03	03	-	23	
9	Vehicle for O&M	-	02 No. of Vehicle for 1 <sup>st</sup> & 2 <sup>nd</sup> year					2

**NOTE:** 1) The manpower mentioned in above table shall be used for SOR item

no. 1 to 6 shall not be used for other SOR item wherein separate payment is payable.

2) Actual deployment of manpower shall be as per site requirement

or

direction of EIC, HNGPL

Human resources (as detailed in S. No. no. 1 & 8 in Table above) should have a valid applicable driving license and shall be deployed with a Two-Wheeler motorcycle (along with valid Registration certificate, insurance policy, PUC as per

requirement of the location). Contractor should pay fuel expenses incurred while doing office work to its resources against Sor no: 1 to 6 ( proof of record for fuel expense shall be attached along with RA bill).

### **3.23 Required Qualification and Experience**

CATEGORY	MINIMUM QUALIFICATION	MINIMUM EXPERIENCE
Supervisor	Diploma in Engg./ Degree in Engg. (Elec. / Mech. / Instr. /Electronics) with working knowledge in Computers.	1 Year in Natural Gas or Hydrocarbon Sector
Plumber	10th Std. / ITI The qualification can be relaxed by EIC, in case of highly experienced persons.	1 Year for 10th Pass / 1 Yr. for ITI Pass
Technician (Electrical)	ITI	1 Yr in Natural Gas or Hydrocarbon Sector
Technician (Instrument)	ITI	1 Yr in Natural Gas or Hydrocarbon Sector
Technician (Mechanical)	ITI	1Yr in Natural Gas or Hydrocarbon Sector
Technician (E/I/M)	ITI	1 Yr in Natural Gas or Hydrocarbon Sector
Patroller	12 <sup>th</sup> Std	1 yr. in Natural Gas or Hydrocarbon Sector
Control Room	Diploma in Engr/Graduate in any Discipline, working knowledge in Computer/1 year of computer course.	1 Yr. In similar field
Helper	8th Std.	

3.24 Indicative Frequency of Maintenance Activities will be as follows-

Sr.No.	Activity	Frequency
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1	Pressure Monitoring at DRS, industrial skids (Inlet/Outlet/Differential) and Meter Reading of Industrial and Commercial Consumers	Daily
2	Log Book Maintaining (To maintain every activity carried out in each shift and record process parameters like, pressure, temperature, flow, etc. from DRS and industrial skids)	Shifts/Daily
3	Preventive Maintenance of DRS, industrial skids & installation, Riser, Valves, PNG connections for domestic & commercial customers, etc	As per PM Schedule
5	House Keeping (In & Around Fenced Area and inside enclosure of all DRS and industrial skids, valve chambers, TLPs, etc.)	As per PM schedule
6	Leakage survey DPNG customers	Daily
7	Spares Consumption record	Fortnightly
8	Maintenance of all electrical instruments	As per Pm schedule
9	Attending Gas Leak, Over Pressure, Under Pressure, Gas Stoppage, third party damage, etc.	As and when required
10	Monitoring of cathodic protection system (taking TR unit readings and PSP readings from TLP)	Daily Reading of TR Unit and Quarterly Reading of TLP

The frequency of activity may be changed by HNGPL, whenever, required based on the asset requirement / Statutory Bodies Requirement / etc. However, Contractor shall follow detailed annual operation & maintenance plan of HNGPL for every activity.

SOR No- 1 to 3 is based upon the minimum rates of wages as per circular issued by Chief Labour Commissioner dated: 25.09.2024 w.e.f 01.10.2024 under the category “Construction for Maintenance of roads or runways or in building operations including Laying down underground electric, wireless, radio, television, Telephone, telegraph and overseas communication cables and similar Other underground cabling work, electric lines, water supply lines And sewerage pipe lines.” and the other components as tabulated below

SI No	Particulars	%	Monthly Amount per Resource (Rs.)	Total Amount (Rs.)
	Location		XYZ (Are aC)	No of days for work
	Notified Minimum Wage for <b>Category</b> w.e.f. <b>01.10.2024</b> (@Rs.)			26
	Duty Hours	8	Hours	
	<b>Duration of Contract</b>	<b>24</b>	Months	
1	Minimum Wage for required category in sor , as notified by Govt. of India for 8 hours per day @ Rs. Per day			
2	PF along with Admn. Charges	13.00%		
3	Bouns / Ex-gratia (to be released on yearly basis )	8.33%		
4	Employer ESIC	3.25%		
5	Provision for Leave with wages	4.81%		
	<b>Sub-total 1</b>			

### 3.25 Detailed Procedure for Patrolling:

The procedure mentioned below shall be followed by the patrollers/ patrolling teams during the daily patrolling (365 days a year) of pipe line network.

- a. To start with the patrolling of the steel/MDPE pipe line, there must be an originating point from where the patroller will start his patrolling & an ending point where the patrolling will be finished. During the return patrolling the terminating point shall become the originating point & vice versa.



- b. For the effective monitoring of the job the GPS instrument will be provided to all the patroller on duty by contractor as per **SOR-18** of the contract, before commencement of duty and hand over the same to designated person, after completion of patrolling duty. HNGPL will continuously monitor the movement of the deployed guards in the respective areas through this system. The contractor to take proper care of such systems/equipment and follow the instruction given by EIC from time to time.
- c. The patroller shall be given with the prescribed format along with a writing board & ball point pen which shall be used by him to note down the observations along the pipe line route during patrolling. The patroller should also carry water proof carry bag to keep the patrolling format in the bag to protect the document from rain water during rainy season.
- d. The patroller will start the patrolling in the designated route and carry out a thorough patrolling & checks like Road/Nalah/Rail Crossing, Valve-Chamber, High tension line, CP station/Warning, Excavation on Pipeline, Gas Leakage if any, condition of Markers etc , during the patrolling.
- e. When the patrolling is finished by the patroller & arrive at the end point, the data / observations should be submitted to Supervisor by the patroller.
- f. If there is no observation found in the format, the verbal discussion shall be done with the supervisor to apprise him about any third party activities which are going along the pipe line route. If any observation is noticed during patrolling, the patroller/ supervisor shall report the same to HNGPL site engineer immediately from the site telephonically.
- g. In case of any observation is mentioned &/or narrated by the patroller, then the Supervisor along with the HNGPL site engineer must immediately rush to the site of the vulnerable location to confirm the third-party activity. The vulnerable location format shall be filled by the patroller/ supervisor & shall be submitted to the O&M in-charge. The filled-up format after site visit & review shall be submitted to HNGPL site engineer.



- h. The patrolling formats & vulnerable location formats duly filled & signed by the patroller & the Concerned Person (as per Direction of EIC) shall be handed over to the HNGPL representative of the respective site.
- i. Patroller shall intimate for unauthorized work carried out along or across the HNGPL pipeline. Some works are very critical like HDD, excavation by JCB, Backhoe/excavator, which should be taken care very seriously. Such activities should be immediately brought to the notice of HNGPL.
- j. In case of emergency/Any suspicious/Abnormal activity, they will inform the same, to HNGPL Officials promptly.
- k. For each and every incident occurred, the patroller shall provide pictorial evidence of JCB / Excavator machine with its registration number by using camera in his mobile phone.
- l. Patrolling Guard shall be able to operate the Valve (inside valve chambers), and it shall be the responsibility of patrolling guard to operate the valve chamber in case of any emergency.
- m. The upper age limit is 50 years for pipeline patroller.
- n. The patrolling services are to be provided on daily basis on each and every day of the year including Sundays, holidays etc. as per the instruction of EIC, on general or shift pattern.
- o. SERVICE PROVIDER shall provide safety torches, raincoat, umbrellas, stick etc. or any other safety equipment not mentioned herein however required for safe operations to each resource at his own cost. Charges to be included in **SOR 8 &9 (Material Charges)**
- p. Provision for monthly SIM charges has been kept in **SOR Item No: 8 & 9 (Material Charge)**. No separate payment towards maintenance and running of conveyance shall be made by HNGPL.

#### **4. AGAINST SOR : 7 (Distribution of 1 set PPE/Uniform against)**

Providing 1 pair of Uniform (1 pair of safety shoes, 2 nos. cotton trousers, 2 pair of socks, 2 nos. cotton shirts 1 no. rain coat and 1 no. helmet) to the contract workers, on yearly basis. HNGPL shall reimburse the cost of safety kits and uniform (sets/year), manpower required /day as per scope of work, on submission of proof of distribution and certification by EIC or his representative. The contractor has to ensure that all the deployed manpower always attends duty in prescribed safety kits and uniform. The contractor must obtain prior approval of the design of EIC before distributing the same.

Design of Uniform shall be as per provided design & Specification at Annexure-A of this document.

#### **5. AGAINST SOR : 8 &9 (Material Charges as per the provisions of Tender Document)**

5.1 Materials/ Consumables required in execution of **SOR 1, 2, 3,4,5&6** (viz. (Teflon tape, grease PVE tape, o rings, rubber washer for meter and regulator, dowel plug and screw, hexa blade rustolene and caution Tape etc.) Hiring Charges for DG Sets, Tools & Tackles, stationary items like log books, register etc to be used for maintaining records. The contractor shall provide & maintain 2 no Diesel / Petrol Generator set of 5 Kva, 01nos Telescopic Ladder Folding Step Ladder, 01nos wired drill machine, 01nos Cordless Drill Driver machine and 1 no. of Dewatering pump (5 HP and 900LPM) along with necessary fitting and pipes in good condition all the time during the contract period for handling the emergency requirement/portable power source requirement. The charges for providing and maintaining the Generator Set and dewatering pump inclusive diesel/petrol cost for running DG set and dewatering pump shall be payable by the HNGPL against **SOR 8 &9 (Material Charges)**.fuel/diesel charge for DG set over and above 50 operational hrs per month per generator shall be payable by HNGPL. A log book of operational hrs of DG set shall be maintain by contractor

5.2 Contractor shall ensure proper upkeep of utility system / services such as O&M Vehicles; owner's supplied tools / tackles / materials, other accessories, etc.

5.3 Safety torches, raincoat, umbrellas, sticks for patrollers, water proof Bags and telephone sim charges for patrollers, 2 DG Set(5KVA), 01 dewatering pump (5HP 900 LPM) along with necessary fitting and pipes, Consumables Tools & Tackles for O&M Activities.

#### 5.4 TOOLS / TACKLES / EQUIPMENTS / CONSUMABLES FOR HARIDWAR GA:

Contractor shall maintain inventory of following Tools / Tackles & Materials of reputed make at all the times. No separate payment is admissible on account of these tools tackles etc. If any of the material is found to be of sub-standard / inferior quality, the same to be replaced immediately.

**Table-1**

Sl. No.	DESCRIPTION	SPECIFICATION	QUANTITY
1	Adjustable Spanners	205 mm,305 mm,445 mm	2 Set
2	Combination pliers	165 mm,210 mm	2 Set
3	Long Nose pliers	165 mm,150mm	2 No.
4	Bent Nose pliers	165 mm	2 No.
5	Side cutting pliers	165 mm	2 No.
6	Mini Pliers (Long)	125mm	2 No.
7	Mini Pliers (Bent)	125mm	2 No.
8	Mini Pliers (Side)	125mm	2 No.
9	Mini Pliers (Combination)	125mm	2 No.
10	Screw Driver (Flat)	150 mm X 3.5 mm,200 mm X 4 mm,200 mm X 6 mm,250 mm X 8 mm,300 mm X 10 mm	2 Set
11	Screw Driver (Insulated)	300 mm X 8 mm,250 mm X 10 mm,150 mm X 4 mm	2 Set
12	Screw Driver (Two In One)	75 mm X 5 mm 1 Phillips & 5.0 mm X 0.8 mm	2 Set
13	Screw Driver (Two In One)	200 mm X 6 mm, 2 Phillips & 6.0 mm X 0.8 mm	2 Set
14	Screw Driver Set	Taparia 831	2 Set

15	Tester	130 mm Taparia	2 No. each to the Tech(Elect)/ Tech(Inst)
16	Universal Set	Taparia 1005	2 No.
17	Socket set	Taparia S-11H	2 No.
18	Torque Wrench (Standard)	Taparia TW 250	2 No.
19	Heavy Duty Pipe Wrench	200 mm X 33 mm,300 mm X 60 mm,450 mm X 73 mm,600 mm X 95 mm	4 Set
20	Hammer with handle (Ball and Cross)	200 Grams	2 No.
21	Hammer with handle (Club)	1000 Grams	2 No.
22	Hammer with handle (Sledge)	1800 Grams	2 No.
23	Hammer with handle (Soft Faced)	30 mm	2 No.
24	Tubular Spanner Set	Taparia TS08	2 No.
25	Double Ended Spanner Set	6x7,8x9,10x11,12x13,14x15,16x17,18x19,20x22,21x23,24x27,25x28,30x32,32x36,36x41mm	2 Set
26	Double Ended Spanners	5/16 x 3/8 , 5/16 x 7/16 , 7/16 x 9/16 , 9/16 x 5/8 , 5/8 x 3/4	2 Set
27	Ring Spanner Set	6x7,8x9,10x11,12x13,14x15,16x17,18x19,20x22,21x23,24x27,25x28,30x32,32x36,36x41mm	2 Set
28	Ring Spanner	5/16 x 3/8 , 5/16 x 7/16 , 7/16 x 9/16 , 9/16 x 5/8 , 5/8 x 3/4	2 Set
29	Octagonal Chisel	150 mmx 6 mm	2 No.
30	Center Punch	125 mmx 10 mm	2 No.
31	Cable Cutter	Taparia CC10	2 No.
32	Utility Knife	19mm	2 No.
33	Hack Saw Blades	carbon steel hard 24 TPI	2 No.
34	Allen Key Set	Taparia KM 9V	2 Set
35	Allen Key Set	Taparia KM 10V	2 Set
36	T Handle Hexagonal Key	Taparia TAK6	2 No.
37	T Handle Hexagonal Key	Taparia TAK8	2 No.
38	Hack Saw Frame		2 No.
39	Junior Hack Saw Frame		2 No.
40	Junior Hack Saw Blades		2 No.
41	Flat File	10"	2 No.
42	Round File	10"	2 No.
43	Triangular File	4" needle	2 No.
44	Circlip Plier (Internal)	6"	2 No.
45	Circlip Plier (External)	6"	2 No.



46	Baby File Set		2 No.
47	Mallet		2 No.
48	Crimping Tool	Upto 35 Sqmm	2 No.
49	Hand Blower		2 No.
50	Drilling Machine (Impact) with drill bits	All Sizes	2 No.
51	Hammer drilling (impact) with drill bits	All Sizes	2 No.
52	Electric Driven <a href="#">Concrete</a> Breaker machine		1 No
53	Electric Driven Hand grinding machine		2 No.
51	Measuring Tape	3 meter	4 No.
52	Measuring Tape	30 meter	4 No.
53	Grease Gun	Specs as per the site requirement	4 No.
54	Sealant Gun	Specs as per the site requirement	4 No.
55	Oil Can		4 No.
56	Tool Box	Folding type in 20 Gauge MS sheet	4 No.
57	Dies with NPT threads	All Sizes	2 No.
58	Blow lamp		2 No.
	Bench Vice	Medium/Large	1 No.
59	Pipe Vice	Medium/Large	1 No.
60	Foot Pump with calibrated pressure guage	0-5 Kg/Sq.cm	2 No.
61	Pickaxe		6 No.
62	Shovel		6 No.
63	Rake		6 No.
64	Saw		6 No.
65	Spade		6 No.
66	Crowbar		6 No.
67	Trowel		6 No.
68	Garden Hoe		6 No.
69	Multimeter (fluke 17B+)		2 No.
<b>Non-Sparking Tools</b>			
70	D-Spanner set in mm	Upto 32 mm	2 Set
71	Ring Spanner set in mm	Upto 32 mm	2 Set
72	Adjustable Spanners	8-in and 12-in	2 each
73	Hammer	450 gm	2 No.
<b>Other items</b>			
74	GUM BOOTS		10 pair
75	Safety cones		10 no
76	Safety apron (Reflective jackets, orange and yellow color)		10 no.

**NOTE:**

- a. MDPE pipes & fittings, Fusion machine, Squeezer, Coupler etc. required for repairing damages, shall be provided by HNGPL.
- b. The list of above tools including non-sparking tools have been given based on the past experience however it shall be the responsibility of contractor to maintain all the tools in optimum quantity require for normal O&M activities accept special tool such as hydraulic torque wrench/ OEM nature special tools required for equipment's etc.

**6. AGAINST SOR :10,11&12 (CHARGES FOR RUNNING OF VEHICLE)**

The contractor shall provide 2 nos. O&M Vehicle (Mahindra Bolero 01 no and Swift Desire / Equivalent) for 24x7 for Routine and Break down maintenance works at site. (Latest Model 2021 make with necessary provision to store tools & tackles). The fixed charges for vehicle deployment together with other associated charges like driver salary and toll charges etc. are included in SOR-10&11 vehicle maintenance insurance tool charges parking charges etc. However, the rate for extra running kms of the vehicle charges shall be reimbursed against SOR Item No: 12. The estimate quantities under this SOR are envisaged to be consumed in 24 months period. The monthly running charges are to be claimed in RA Bills. The contractor shall maintain a log book for vehicle usage, the log book readings to be counter signed by HNGPL Personnel. The monthly consolidated statement together with log book is to be enclosed with RA Bills for certification of EIC. Contractor shall ensure proper cleaning of both O&M Vehicles. Cleaning shall not be compromised at any cost.

**7. AGAINST SOR : 13 (SERVICE FOR DIGGING, BACKFILLING AND OTHER SIMILAR JOBS AS AND WHEN REQUIRED)**

Service for digging, backfilling and other similar jobs as and when required to be provided by the contractor as per instruction of EIC.

**8. AGAINST SOR : 14 (STEEL PIPELINE LEAK REPAIR)**

The work includes attending pipeline leak repair by sleeves at designated location/ sites including transportation of Sleeve, supply of resources & machinery, excavation & backfilling, cutting, welding, grinding, beveling, surface preparation,

leak testing, coating, holiday checking etc. to complete the work in all aspect as per HNGPL Laid Down procedure/SOPs & directions of EIC. This included all machinery, material (Sleeves (steel pipe) to be supplied by HNGPL ,contractor may get reimbursement of sleeves on submission of Actual bills to HNGPL, fittings,etc to be supplied by contractor only), consumables, and other resources required to complete the job in all respect. (Standard Sleeve length of 80 Cm has been assumed).

## **9. AGAINST SOR: 15 (SUPPLY AND APPLICATION OF PAINT ON PIPING AND STRUCTURE)**

9.1. The scope of work includes painting of above ground terminal piping, vessels, valves, structural steel pipe supports, walk ways, platforms, railings, fire water line,etc as per system S-1 in the following TABLE (Given Below) and as per various terms, specifications and conditions of the contract, after surface preparation after removal of loose paint / rust material if any with wire brush, emery paper, cleaning with lint free cloth including supply of all necessary paint materials, consumables, brushes, emery paper, tools, tackles, test & measuring instruments and related calibration accessories, support for carrying out the cleaning & painting work as per scope, specifications & special conditions of the contract at various sites . The item includes complete cost of paint removal (wherever required) surface preparation, repainting including material (paint, primer etc.), labor, transportation, and re-lettering/Marking on the pipelines/Structures as per the drawings issued and to the satisfaction of Engineer-in-Charge.

9.2. Paints and Primers of one of the following manufacturers only shall be acceptable under this tender-

- a) Asian Paints
- b) Berger Paints
- c) Jenson & Nicholson
- d) Shalimar Paints
- e) Good lass Nerolac Paints

### **TABLE**



System Design	Surface preparation	Primer (Generic name)	No. of Coats	Intermediate Coat (Generic name)	No. of Coats	Finish coat (Generic name)	No. of Coats	Finish Shade
S1	Removal of dust, grease, dirt, loosely adhering paint with wire brush, emery paper, cleaning with lint free cloth	High solid polyamine cured primer paint. (self-priming mastic) DFT-100 Micron	1	Two component polyamide cured high build coating DFT - 125 Micron	1	Acrylic polyurethane DFT - 50 Micron	2	Golden yellow / grey / fire red
S2		Chloro HB zinc phosphate DFT-50 Micron	1	NONE	0	Synthetic Enamel DFT-60 Micron	2	Golden yellow / grey / fire red
S3		Red-Oxide Zinc Chromate DFT - 30 Micron	1	NONE	0	Aluminum Paint DFT-35 Micron	2	Aluminum

## 10. AGAINST SOR -16 (SUPPLY AND APPLICATION OF PAINT ON WIRE MESH/CHAIN-LINK FENCING)

10.1. Scope of work includes painting for fencing / Gate / Electric Pole, as per various terms, specifications and conditions of the contract, after surface preparation and removal of loose paint / rust material if any with wire brush, emery paper, cleaning with lint free cloth including supply of all necessary paint materials consumables, brushes, emery paper, tools, tackles, test & measuring instruments and related calibration accessories, support for carrying out the cleaning & painting work as per scope, specifications & special conditions of the contract at various sites . The item includes complete cost of paint removal (wherever required) surface preparation, repainting including material (paint, primer etc.), labour, transportation, and

re-lettering/Marking on the pipelines/Structures as per the drawings issued and to the satisfaction of Engineer-in-Charge.

10.2. For specification of surface preparation, primer, intermediate and finish coat, System Design S-3 may be referred in TABLE above in SOR -15.

10.3. Paints and Primers of one of the following manufacturers only shall be acceptable under this tender-

- a. Asian Paints
- b. Berger Paints
- c. Jenson & Nicholson
- d. Shalimar Paints
- e. Good lass Nerolac Paints

**11. AGAINST SOR – 17 (SUPPLY OF JCB)**

Excavation and backfilling work is to be carried out with utmost care and disposal of lead and lifts and dressing of soil is to be done to the entire satisfaction of EIC. The JCB is to be deployed by contractor, as and when required as per instruction of EIC.

**12. AGAINST SOR- 18 (SUPPLY OF HYDRA / CRANE (UPTO 20 TON CAPACITY))**

The Hydra / Crane is to be deployed by contractor, as and when required as per instruction of EIC.

**13. AGAINST SOR- 19 (IRON WORK)**

The work includes fabrication & supply of iron work i.e. angles, channels, tee, pipes, flats, I-beams, chequered plates, sheets, nuts bolts, washers, framed work ,GI cable trays of required size for platforms, pipe supports, Gate, fencing, stands and similar structures including cutting, hoisting, fixing in position. The above also includes providing supports for piping /valves/meter-tubes/skid in Pipelines and associated facilities of HNGPL.

**14. AGAINST SOR : 20 (SUPPLY AND FILLING WITH SAND / SOIL/CEMENT BAG)**

The scope covers filling up of washout trenches with sand, cement & gunny bags as per site requirements. Item includes supply of gunny bags, cement, sand etc, dry mixing of cement and sand in 1 cement: 10 sand proportion, filling of the bags, stitching/sewing of bags with nylon thread, placing of the bags in the washout trenches in specified layers as per site requirements/ instructions of EIC.

(Approx. 28 Nos. of bags will be required to be laid for one Cu. Mt. of volume)

The item shall be paid as per compacted volume measured at site. Item include cost of the material, transportation, other resources (human), royalty etc. complete in all respect.

## **15. AGAINST SOR : 21 TWO SOR (HIRING OF GPS DEVICES & WEB HOISTING OF DATA)**

15.1. Vendor scope shall include (but not limited to) providing GPS based Personnel tracking devices and generating report through Web based application as per the following terms and conditions and scope of work/Technical specifications. After installation and commissioning of the GPS system, the contractor shall give Training to the EIC/Technical staff of HNGPL on the operation of the GPS system hardware and software. The contractor shall demonstrate all the functionalities mentioned in the Scope of Work and only upon acceptance by EIC, the GPS system shall be considered commissioned.

### **15.2. TERMS AND CONDITIONS:**

15.2.1. Services of providing “GPS Device and Web Hoisting of Data” would be executed by an agency that has experience of providing GPS Devices and/or Web Hoisting the GPS data. If the bidder does not have such experience, they shall engage suitable sub-contractor for execution of this job, which has experience of providing GPS Devices and/or Web Hoisting the GPS data .The contractor/Sub contractor, must have executed at least one PO for providing GPS Devices and/or Web Hoisting the GPS data. The E-I-C shall satisfy himself with the experience of the bidder/sub-contractor, before giving go ahead to contractor, for execution of this SOR, based on the documentary evidence like PO Copies/Completion certificate/Invoice etc, provided in support of experience.

- 15.2.2. GPS based tracking device provided (on hire basis) should have facility to transmit required DATA on GSM with GPRS network of their exact location marked via GPS navigation/ satellite and movement as per detail mentioned in this tender document elsewhere on real time basis.
- 15.2.3. All hardware and software for GPS devices, web hoisting and maps with proper license required for completing the job (as defined elsewhere in tender document) should be provided by the vendor. Vendor has to ensure that he is having all the valid licenses for all the software (including GIS Maps etc.) in his name or in the name of agency it has engaged for executing the job. Vendor has to indemnify HNGPL against liability arising out of software usage.
- 15.2.4. Patrolling Guard's movement report should be generated on real time basis on Map as well as Excel and Pdf format and should be displayed on the web using vendor provided authentication.
- 15.2.5. History of at least 180 days should be available, which can be downloaded by HNGPL user in their PC.
- 15.2.6. ROUTE MANAGEMENT: Key landmarks provided by HNGPL for the route, should be indicated in then online Map and the same should be visible on the reports generated
- 15.2.7. The contractor shall demonstrate the successful working of the system in totality to HNGPL's representative at site.
- 15.2.8. SIM required in the device with required DATA/SMS plan will be provided by vendor along with the device. SIM will be in the name of contractor which shall be taken back at the end of the contract along with GPS Devices. No separate charges shall be admissible for DATA / SMS plan. Call facility is not required in the SIM.
- 15.2.9. The vendor will provide the GPS devices on per monthly hiring basis along with SIM. The charges towards SIM and Data/SMS plan shall be borne by the vendor. The GPS devices will be maintained by vendor during the

contract period which will be returned to vendor after the expiry of the contract period. The charges against repair and maintenance are assumed to be included in the hiring charges.

15.2.10. In case any device mal-functions repeatedly, after 3 incident of mal-functioning, the device must be replaced with new one.

**15.2.11. Compliance to Bids condition**

The offer shall include Make, Model no. and detailed specifications of GPS devices to be provided.

**15.2.12. DOCUMENTATION**

Detailed manuals and catalogues shall be submitted by the vendor along with the offer.

**15.3. SCOPE OF WORK AND TECHNICAL SPECIFICATIONS**

**THE SCOPE OF WORK WILL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING.**

- a. Providing GPS Tracking Devices for pipeline patrollers and report generation on a network of computer after Software Installation.
- b. Installation of GPS devices tracking system comprising tracking devices, hardware and the software commissioning as per SOR, however, HNGPL reserves the right to increase or decrease the quantity of GPS Devices as per requirement without any escalation in price.
- c. Interfacing the GPS data on GIS map of the city of HARIDWAR. License for GIS maps, if any, to be arranged by vendor.
- d. Real time display of vehicle position and development of effective monitoring system.
- e. The system should be designed in such a fashion that the following details need to be captured by the GPS device: latitude, longitude, speed, distance

travelled, route taken by patroller, start point, end point, and direction of travel, speed variation and stoppage time.

- f.** The frequency of tracking should not exceed 01 minutes.
- g.** Generation of various reports including exception reports as per the requirement of HNGPL and as mentioned in the technical Specifications above.
- h.** Vendor has to provide all necessary reports at the end of every quarter through Email as per mailing list for all the devices. All peripherals, stationary required for preparation of reports will have to be supplied by vendor.
- i.** Since, the GPS devices are on hiring basis, the maintenance, repair or replacement of the Tracking Devices for any faults developed during contract period will be taken care by vendor and no extra payment shall be paid by HNGPL.
- j.** The reporting formats would be as required and must be amended from time to time as per HNGPL requirement with no additional cost for the same.

#### **15.4. SERVICE DESCRIPTION:**

- a.** 24 hours 365 days system operation
- b.** Proactive monitoring, fault detection and management of the GPS tracking system
- c.** Fine tune of GSM / GPRS technology for best response time.
- d.** Vendor should replace the application and equipment whenever they stop Working or start mal-functioning with version / model or application / equipment during the contract period.

- e. Vendor shall update the application software with the latest versions as and when available.
- f. The equipment should be weather, water and vibration proof.
- g. Technical support, Response to problem of all types should be available within 2 days of occurrence of any complaint in the system. HNGPL warrants that the Goods supplied under the Agreement are brand new, unused and of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract Documents.

**15.5. VENDOR MUST ALSO COMPLY TO THE BELOW MENTIONED SPECIFICATION / REQUIREMENT:**

**15.5.1. Personnel tracking device** with build-in GPS and GSM/GPRS modules. It should be small in size, high accuracy real time location tracking via GPS satellite. It should provide accurate position information under dynamic condition, work well even in areas with limited sky view like urban canyons.

Network	GSM/GPRS
Band	850/900/1800/1900 Mhz
GPS sensitivity	Better than, (-)150 dBm
GPS accuracy	Better than 10m
Internal memory	1MB or more
Weight	100 grams (approx.)
Time interval to record the location	Maximum 1 min via GPS/GPRS
Battery	Re- Chargeable Li-ion
Battery Capacity	More than 10 hours continuous tracking per charge
Operation Temp	0°C to +50°C
Battery charger	External battery charger

**15.6. TECHNICAL SPECIFICATIONS – HARDWARE:**

The tracking device should be based on the following specifications.

- a. Satellite GPS (Global Positioning System) receiver for determining the patroller location and traveling speed.
- b. The device should receive the GPS data and send the data via GSM (Global System for Mobile) / GPRS (General Packet Radio Service) wireless network to the web application.
- c. If no wireless coverage is present, the GPS data is stored and sent to the web application on availability of the wireless network.
- d. The GPS data is to be recorded and stored in a secure database by the web application.
- e. The device shall be vibration /shock resistant, heat resistant, dust resistant and water / rain splash resistant and shall be tamper proof.

#### 15.7. TECHNICAL SPECIFICATIONS – SOFTWARE :

The system architecture should be web technology based. The software should be web application and accessible through the Internet using the logon facility for multiple users through multiple levels of security. The basic features of the software should be:

- a. Real Time Tracking – Should provide real time information on pipeline patroller status based on location, speed and time.
- b. Online Alerts - Should provide critical alerts such as – Over Speeding – Acceleration/deceleration – Unauthorized stoppages.
- c. Trip Replay – Should provide replay of the routes traveled by patroller plotted on the map.
- d. Reports – Should provide reports by Date. Generate standard reports on criteria such as patroller stoppages, patroller speed and trip summary.



**15.8. THE FOLLOWING ARE THE DETAILED REQUIREMENT FOR THE SOFTWARE FOR EACH DEVICE:**

- a.** The real time location of the patroller should be available on the MAP.
- b.** The route undertaken by the patroller should be shown on the MAP.
- c.** All the specified points (way points) mentioned by HNGPL to be shown on the MAP.
- d.** Responding to a poll command.
- e.** Total Distance travelled and distance travelled between stops.
- f.** Total time, time taken between stops and time taken during a trip.
- g.** The vendor shall use its own server for entire contract and the server should be capable to maintain historic data for at least 180 days.
- h.** The vendor shall provide a dedicated web page for HNGPL to get the real time information and data.
- i.** Stoppage reports with Stoppage time.
- j.** Over Speed alerts on the web application.
- k.** Various Zoom levels of the MAP (at least 05 zoom levels).
- l.** Location accuracy of + 10 meters.
- m.** Facility to create / modify / delete and view all the above parameters by HNGPL. Facility to Email any of the above reports to other departments/individual within the organization straight from the software.
- n.** 24X7 web support availability.

**15.9. OTHER FEATURES OF GPS DEVICE / SOFTWARE:**

- a. Having very powerful GPS receiver, able to receive signals even in concealed conditions.
- b. Support single location and continuous live tracking and generate report of real-time and historical trajectory on Map.
- c. Ideal for locating Field force.
- d. Works indoors even when the GPS signals are not available.
- e. USB connector for connectivity with PC and downloading the DATA.
- f. Generate trip report on Map as well as in Excel/PDF format.

**16. AGAINST SOR : 22 (Web Hosting Charges):**

The charges of web hosting for 24 month or for the tenancy of contract period to be quoted in SOR item no.22

**17. AGAINST SOR : 27 (Supply & Installation of Pole Marker)**

Fabrication of Warning Signs is to be done as per attached drawings. Structural steel work welded in built up sections, trusses & framed work including cutting, hoisting, fixing in position & applying a priming coat of good quality steel primer (as per the direction of EIC or his representative) complete in all respect. Painting & lettering of Warning Signs as per drawings in Hindi & English both by using synthetic enamel paint of Asian / Burger / Nerolac make including cost of material. The markers should be painted and lettered with min. two or more coat of specified color paint. Providing & laying in position cement concrete of specified grade including the cost of cementing & shuttering etc. – all work up to plinth level 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), excavation of foundation for markers as per drawing, earth work in excavation in foundation trenches or drains including dressing of sides and ramming of bottoms etc. as per the drawing, specification and direction of EIC, including getting out the excavated soil & rocks and disposal of surplus

excavated soil & rocks as directed, within a lead of 50 mtrs., with all kind of soils & rocks. Transportation & fixing of pole markers at site or as per direction of EIC. The material cost and rework cost are included in SOR rates. No additional payment other than SOR shall be payable by HNGPL.

**18. AGAINST SOR:28 (Supply & Installation of RCC Marker or Boundary marker):**

Fabrication, Casting and Installation of markers of RCC markers as per drawing, specifications and direction of EIC. The marker shall be constructed by cement concrete of grade as per the drawing. The construction of RCC marker shall be 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size). Reinforcement: Fabrication of Boundary Pillars as per drawing. Reinforcement for RCC work including cost of material, straightening, cutting, bending, placing in position, cold Painting & Lettering. Minimum 02 coats of painting & lettering of RCC markers as per drawings both by using synthetic paint of Asian / Burger / Nerolac make, complete in all respect including transportation, excavation, earthwork, back filling, restoration and disposal of surplus excavated soil & rocks as directed, within a lead of 50 mtrs., with all kind of soils & rocks. The material cost and rework cost are included in SOR rates. No additional payment other than SOR shall be payable by HNGPL.

**19. AGAINST SOR : 29 (Repair & Painting of pole marker)**

Complete painting and writing on existing pole after proper positioning, scrapping / removing of old paint and surface cleaning and Painting & lettering of Pole/ Warning markers as per drawings in Hindi & English both by using synthetic enamel paint of Asian / Burger / Nerolac make including cost of material. The markers should be painted and lettered with minimum two or more coat of specified color paint. The material cost and rework cost are included in SOR rates. No additional payment other than SOR shall be payable by HNGPL.

**20. AGAINST SOR: 30 (Repair & Painting of RCC Marker)**

Complete painting and writing on existing RCC marker after proper positioning, scrapping / removing of old paint and surface cleaning and Painting & lettering of markers as per drawings and direction of EIC, by using synthetic enamel paint of

Asian / Berger / Nerolac make including cost of material. The markers should be painted and lettered with min. two or more coat of specified color paint. The material cost and rework cost are included in SOR rates. No additional payment other than SOR shall be payable by HNGPL.

**21. AGAINST SOR: 31 (STEEL OR MDPE PIPELINE VALVE CHAMBERS MAINTENANCE)**

Maintenance of Steel or MDPE line Valve chamber -Removal of all foreign materials like grass, vegetation, garbage, water (by arranging dewatering pump if required), sewage etc. Pest control Treatment in valve chamber such as Limestone powder etc. Checking of Valve Operatively & greasing. Painting of Valve and Chamber Cover. (Average no. of valves considered calculated by considering length of steel and MDPE Pipeline, valve at every 3 km steel and 1 km of MDPE and servicing of each valve 2 times in a year.)

**22. AGAINST SOR: 32 (Construction of pipeline Valve chamber (as per indicative drawing attached in the tender) - (RCC )**

All civil works including supply of human resources, materials, excavation of pit, piping & valve supports including all RCC work, addition of water proofing agent for valves pits of approximate size 1.5m x 1m X 1m (RCC VALVE CHAMBER), pedestals with insert plates as required sealing of pipe at valve pits, providing cover etc. and finishing, dewatering if required, clean-up and restoration of site, filling and grading of area around the valve station to avoiding any local flooding of area, as per specification, drawing enclosed and instruction of Engineer - in - Charge. All civil works including supply of manpower, materials, excavation of pit, piping supports including all PCC, and Brick works for valve pits, pedestals with insert plates as required, sealing of pipe at pits, providing cover etc., finishing, clean up and restoration as per technical specification & instruction of EIC. Scope also includes installation of PE valve in valve chamber with required squeezing of on line Gas network cutting, cleaning, electrofusion jointing, testing and commissioning of gas network. The rate includes liasioning with statutory bodies, other utility agencies and settlement of third party claims and no separate rates are payable.

**23. AGAINST SOR:33 (Repair / Modification in size, Increase / Decrease in height of valve chambers of any size-RCC WORK)**

Increase the height of valve pit by RCC and plaster as per scope of work includes demolition and increasing of height of chamber with roof casting as per drawing/instruction of EIC.

**24. AGAINST SOR: 34 (Construction of pedestal PCC work)**

Construction of pedestal by PCC work as per instruction of EIC.

**25. AGAINST SOR:35 (Fabrication of Fresh Top RCC Slab along with manhole cover – valve Chamber (1m x 1m))**

All civil works including supply of manpower, materials, excavation of pit, piping supports including all RCC works for valve pits, pedestals with insert plates as required, sealing of pipe at pits, providing cover etc., finishing, clean up and restoration as per technical specification & instruction of EIC. scope also includes installation of PE valve in valve chamber with required squeezing of online Gas network, cutting, cleaning, electrofusion jointing, testing and commissioning of gas network. The rate includes liasioning with statutory bodies and no separate rates are payable.

**26. AGAISNT SOR:36 (Providing Manhole cover of Valve chamber 1.5m x1m x 1m) Only if manhole is damaged)**

All civil works including supply of manpower, materials, excavation of pit, piping supports including all RCC works for valve pits, pedestals with insert plates as required, sealing of pipe at pits, providing cover etc., finishing, clean up and restoration as per technical specification, as per the drawing issued by HNGPL& instruction of EIC. scope also includes installation of PE valve in valve chamber with required squeezing of on line Gas network, cutting, cleaning, electrofusion jointing, testing and Commissioning of gas network. The rate includes liasioning with statutory bodies and no separate rates are payable.

**27. AGAINST SOR: 38 (GI Pipe supply and installation using fresh/ new pipes and fittings up to 1” pipeline size(dia))**

To maintain minimum inventory of material, consumables as per instructions of EIC. Prior assessment of shortage & material requirement for installation at site, order placement for Purchasing of GI Pipes & GI Fittings from HNGPL's approved vendors (list attached in tender), forwarding QAP for approval & subsequently arranging Inspection Call, Dispatch Clearance, handling, loading, transportation and unloading of these items at respective contractor's store. Receiving, taking over, handling, loading, transportation and unloading of owner supplied above ground items like regulators, meters, Isolation Valve, Appliance valve, flexible hose and other free issue items from Owner's designated stock yards to Contractor's own stores / work sites, proper storing, stacking, identification, providing security and insurance cover. Making temporary but stable platforms/ scaffolding/ rope ladders and supply of all other safety devices including full body harness of PETZL or equivalent make. Installation of GI/ Copper service pipes & fittings only for modifications & extra points, replacement of Meter, regulators, Valves etc. including NPT threading, as specified, Drillings of holes through the walls (Brick, RCC), Granite, Marble, Wood Cutting, Glass Cutting with proper heavy duty hammer drill machine, tools & tackles, using proper sealant/grout material and colors to match the original replacement of the damages during drilling, restoring the area to the original condition, Painting of entire length of pipe along with fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint. Restoring the wall surface to original conditions, Supply & fixing of approved clamps & dowel Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape / lock tight, joining of transition fittings to above ground service. GI pipes testing, purging and commission of the complete installation. Planning & coordination with existing consumer's for testing of existing risers and re-commissioning of existing connections. All installation/re-installation carried out with GI/Copper will be paid on running meter basis These rates include testing and commissioning.

- a. GI fittings shall not be counted separately. It shall be included in the measurement of GI & Cu pipe.
- b. Dismantling of GI Pipes shall also be included while executing.

**28. AGAINST SOR: 39 (Re-Install GI Pipe Using Old Pipe- (1/2 - 2" size))**

Removal & Re-Installation of GI Pipes using old removed pipes. If quantity of reinstalled pipe is more than removed Pipeline, then charges for additional pipe length shall be applicable as per SOR. To maintain minimum inventory of material, consumables as per instructions of HNGPL control room in charge. Prior assessment of shortage & material requirement for installation at site, order placement for Purchasing of GI Pipes & GI Fittings, Copper pipes & Copper fittings, Brass Fittings from HNGPL's approved vendors (list attached in tender), subsequently arranging Inspection Call, Dispatch Clearance, handling, loading, transportation and unloading of these items at respective contractor's store. Receiving, taking over, handling, loading, transportation and unloading of owner supplied above ground items like regulators, meters, Isolation Valve, Appliance valve, flexible hose and other free issue items from Owner's designated stock yards to Contractor's own stores / work sites, proper storing, stacking, identification, providing security and insurance cover. Making temporary but stable platforms/ scaffolding/ rope ladders and supply of all other safety devices including full body harness of PETZL or equivalent make. Installation of GI/ Copper service pipes & fittings only for modifications & extra points, replacement of Meter, regulators, Valves etc. including NPT threading, as specified, Drillings of holes through the walls (Brick, RCC), Granite, Marble, Wood Cutting, Glass Cutting with proper heavy duty hammer drill machine, tools & tackles, using proper sealant/grout material and colors to match the original replacement of the damages during drilling, restoring the area to the original condition, Painting of entire length of pipe along with fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint. Restoring the wall surface to original conditions, Supply & fixing of approved clamps & dowel Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape / lock tight, joining of transition fittings to above ground service. GI pipes testing, purging and commission of the complete installation. Planning & coordination with existing consumer's for testing of existing risers and re-commissioning of existing connections. All installation/re-installation carried out with GI/Copper will be paid on running meter basis. These rates include testing and commissioning. GI, Copper, brass fittings shall not be counted separately. It shall be included in the measurement of GI & Copper pipe. Dismantling of GI Pipes and Copper Pipes shall also be included while executing the SOR.

**29. AGAINST SOR: 23 (Cement Concrete work)**

Cement Concrete of 100mm Thickness in Ratio 1:1.5:3 (1 Cement 2 Coarse sand 4 stone aggregate)

**30. AGAINST SOR: 24 (Reinforcement cement concrete work)**

RCC 1:1.5:3 Mix FOUNDATION; PLINTH; SUPERSTRUCTURE Providing and laying reinforced cement concrete using reinforcement and 20mm metal incl. shuttering form work and curing for a period of 14 days.

**31. AGAINST SOR:25 (Brick Masonry work)**

Brick Masonry work shall be done as per requirement

**32. AGAINST SOR: 26 (Air Compressor)**

To provide Air Compressor on requirement basis. This SOR includes fuel (required to run compressor) and compressor shifting charges from source to site and vice versa. No extra charges associated with compressor shall be reimbursed separately.

**33. AGAINST SOR:37 (Pickup Mini/Chota Hathi)**

To provide Pickup Mini/Chota Hathi for material (GI pipe, etc) shifting on requirement basis.

**34. AGAINST SOR: 40&41 Supply of 1/2" & 3/4 " GI Isolation valve**

To supply 1/2" & 3/4" GI Isolation valve for PNG customers on requirement basis.

**35. AGAINST SOR: 42 LAYING OF UNDERGROUND PE PIPELINES**



The scope of work involves Laying, purging, testing and commissioning of under- ground medium density Polyethylene (MDPE) pipelines of size 20,32, 63,90,125 and 180-mm OD along with fittings, in Haridwar GA, as and when required due to damage of network, shifting & re-routing of network.

**Detail Scope of work involves as:**

- a) Trenching to all depths in all types of soil including soft & hard rock by chiselling or otherwise cutting etc. to a width to accommodate the Pipeline as per relevant standards, drawings, specification etc. transportation of PE pipes along the route, stringing, aligning, bending, jointing including testing, inspection, field jointing including supply of all materials as per specifications, laying and lowering of the pipeline, back filling, Supply and installation of pipeline as shown in approved drawings and as directed by OWNER, installation of supports wherever required, supply of select backfill material as required, clean- up, flushing, pneumatic testing, nitrogen purging / pre-commissioning and commissioning of laid pipeline., including all associated works as per relevant specifications, standards and approved drawings.
- b) Sand/ soft soil padding around pipe wherever required in areas where trenching has been done in hard soil area / rocky area including supply of sand/ soft soil. The thickness of sand/ soft soil padding at the top of pipe shall be minimum 150mm and bottom of pipe shall be minimum 150 mm or as per drawing enclosed.
- c) Installation of all inline/ online instruments/ valves/ fittings/ transition fittings/ appurtenances etc. as per requirements of approved drawings.
- d) PE pipe and valves shall be the free issue material and Supply of fittings are in the Bidders scope.
- e) Reconciliation of material received from store each time before submission of RA bills.

- f) CONTRACTOR shall procure and supply all the materials other than OWNER supplied materials, after obtaining owner's prior approval or from owner's approved vendors.
- g) All construction works shall be carried out as per "Approved for Construction" drawings, procedures, specification and applicable codes and standards. Any changes at site shall also need prior approval from the OWNER and revision of drawings.
- h) The city condition field / other fields may have lots of PVC, PE & utility pipelines or other pipelines & cables being used for city utility / other utilities purposes. The CONTRACTOR shall ensure that these lines shall not be damaged/cut affecting the water / power / communication / other supply to concerned Users / Owners /Authorities. The CONTRACTOR shall be responsible for claims if any arising out of damage/obstruction to public utilities ,where the claims will cover the restoration costs as well as loss of revenue due to down time.
- i) Provide, maintain and operate all temporary facilities required for the construction related works and remove after completion of work. Providing barricading at trench in city area as per instruction of engineer in charge for safety.
- j) Restoration of the roads, pavements, channels, footpaths, tiles, stones etc. to original condition including supply of the approved quality material required, as per local authorities norms, obtaining NOC from concerned local authorities / land owners / third party inspection agencies (if any) designated by Haridwar Natural Gas Ltd. and to the satisfaction of Engineer-in-charge.

**Annexure-A**

**Standard Design of Uniform for contract employees under this contract will be as follows:**

1. **Shirts:** Cotton, Full Sleeve, Grey Color, Single/double Pocket with Logo & Name of the Contractor on the label of the pocket with contrasting color like White/ yellow etc.



2. **Trousers:** Dark Grey Color, Cotton, Straight cut, slant front pockets, two hip pockets.



3. Black Safety Shoes
4. White Safety Helmet with chin strap – ISI marked

**DRAWINGS**







