SOR FOR LAYING OF UNDERGROUND PE PIPELINES & 12000 NOS PNG CONNECTION WORKS AT GOMATI & WEST TRIPURA (2 YEARS ARC)

Item No.	Activity	Unit	Total Qty	Rate	Amount inclusive of all applicable taxes & duties except GST (In Rs.)
1.0	**PE PIPELINE**				
1.1	**Pipe Laying in any unprepared surface (Katcha surface)/ Normal Surface/Hard surface**				
	Receipt, Loading, unloading, storing, reloading, tranportation, unloading, stringing and laying of PE100, SDR11/17.6 line pipes of all sizes including, proper stacking, identification,and supply of accessories of all sizes & thickness like PE Bends, Couplers, Endcaps, Tee, Reducer, CS to PE Fittings (i.e. Transition Fittings of sizes 32 mm and 63 mm), Warning Mat etc.. Handling, Stringing / uncoiling, aligning of the PE line pipe on the pipeline Right-of-Use / route , laying / installation of PE line pipe alongwith required accessories as mentioned above as per specification wherever required depending on site condition including execution of all works; Storeage of material in contractor's store, fabrication, access for construction procurement and supply of all materials, consumables,equipments, labour and other inputs. In the case of free issue items, the scope also includes, receiving and loading from TNGCL designated store, transportation, unloading and stacking of free issue items at Contractor's store				
	Carrying out all temporary, ancillary, auxiliary works required to make the PE pipeline ready for commissioning as per drawings.				
	Specifications, scope of work indicated in PJS and other provisions of Contract document and instructions of Engineer-in-charge, including but not limited to carrying out the following works:				
	Surveying of route and detours required at the time of execution including marking the same in topographical sheet, preparation of construction drawings showing survey details, and submit same to Owner for review / approval.				
	Carrying out preliminary activities such as preperation of drawings wherever required for crossing etc.				
	Preparation and getting approval of schedules, execution procedures, drawings/ sketches/ wherever required, making trial pits to determine the underground utilities/ services etc., restoration of the abandoned trial pits to original condition.				
	Stacking and installation of construction markers, clearing, fencing, grubbing, cutting of trees, full filling all the requirements of various statutory/ environment authorities to the entire satisfaction of concerned authorities, grading of work area.				
	Barricading the work area as per local authorities norms & to the satisfaction of Owner/ Eingineer -in- charge, installation of safety signs.				
	Barricading the pipeline construction area prior to execution of the works as per drawing no. MEC/23QH/05/25/M/001/011 & MEC/23QH/05/25/M/001/10 enclosed with tender document and to the entire satisfaction of owner / engineer- in -charge.				
	Trenching to all depths by excavation in all types of soils including soft/ rocky strata and different type of pavement / footpath / roads etc. including rock breaking, chiselling or otherwise cutting etc. as required and storing excavated soil, reusable materials at designated area as directed by Engineer in charge and to a width to accommodate the pipeline as per the relevant standard/ specification etc. [The minimum depth of the top of pipeline shall be 1.0 m measured from top of pipeline to the top of undisturbed surface of the soil or as per Specification/ OISD - 226 & PNGRB latest guidelines whichever is higher]. Dewatering of trenches / pits if required as per site condition.Repairing of all damaged utilities if any, and payment of any compensation (if claimed by owner / other utility agencies)				
	Uncoiling / stringing & aligning of PE pipes, clamping, jointing of the pipe ends / fittings / valves by qualified personnel using approved electro-fusion techniques as per specification.				
	Installation / lowering the pipeline in trench to required depth as per PJS, Technical Specification & drawings, supply & placement of HDPE Yellow colour warning mat (refer PJS item no.- 4.2J) over the pipeline along the complete route as per standard drawings, data sheets & technical specifications, padding around pipeline including supply of suitable padding material duly approved by EIC , backfilling to its original condition with excavated earth / borrowed select soil/sand duly approved by EIC & its compaction & crowning. At certain specific area of ROU, trench shall be backfilled & compacted and shall be made ready for motorable.All tiles/slabs/curb stones etc removed during excavation shall be placed properly and no seperate payment shall be admissible against this activity. Restoration shall be carried as per separate SOR item mentioned elsewhere in the SOR or to be done by Owner / concerned authorities.				
	The scope of work against this item also include Electro-fusion jointing of valves, fittings wherever required and as directed by Engineer-in-charge.				
	Pneumatic testing, purging with nitrogen and commissioning as per specification and approved procedures providing all tools and tackles, nitrogen, instruments, manpower and other related accessories and as per the instructions of the Engineer-in-charge.				
	Final clean-up of right-of-use or area disturbed by contractor during their construction activities for laying of pipeline works and disposal of debris and surplus material to designated disposal areas and backfilling of trench and compaction of the same as per satisfaction of Owner and / or as directed by Engineer–in–charge.				
	Maintaining the completed pipelines and installation for any defect or failures during defect liability period (i.e. 12 months from date of completion of work) .				
	Handing over the completed works to TNGCL for their operation/ use, reconciliation of material area wise and obtaining "no objection certificate" from TNGCL/ MECON.				
	Preparation and submission of Daily progress report, Laying Graphs / PE line cards on daily basis.				
	On completion of gas charging of pipelines. Preparation and submission of As-built drawings, crossings details, termination, utility graphs and deviation statements.				
	In case, the minimum required depth is not possible due to site condition, necessary mitigation measures shall be required to be taken by contractor in consultation with EIC as per PNGRB Guidelines. No additional payment shall be admissible against the same.				
	Submission of all documents required for contract closure in numbers as mentioned in contract.				

	Any other activities not mentioned / covered explicitly above, but otherwise required for satisfactory completion / operation / safety / statutory / maintenance of the works shall also be covered under the scope of work and has to be completed by the Contractor within specified schedule at no extra cost to TNGCL. All the work shall be executed in accordance with the provision of contract.				
a)	20 mm PE 100 pipe	Meter	63,000	327.82	2,06,52,529
b)	32 mm PE 100 pipe	Meter	55,000	292.19	1,60,70,205
c)	63 mm PE 100 pipe	Meter	4,500	363.45	16,35,526
d)	90 mm PE 100 pipe	Meter	4,500	456.09	20,52,425
e)	125 mm PE 100 pipe	Meter	4,500	541.61	24,37,255
	NOTE				
i)	The lengths of pipelines are tentative.				
ii)	For restoration of asphalt / concrete roads, the item for construction of asphalt top / concrete top / red stone / paver shall be paid separately as per the rates quoted for the same elsewhere in the SOR.				
iii)	In case, contractor prefers to lay the pipeline through HDD method in place of method as per SOR item- 1.1, contractor shall be required to lay the pipe upto a depth not more than 1.4 m. The payment shall however be made as per SOR item No.- 1.1 only.				
1.2	**Restoration**				
	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 owner and to the satisfaction of Engineer-in-charge.				
a)	Asphalting	Meter	2,800	313.56	8,77,982
b)	Cement Concrete	Meter	1,000	876.56	8,76,557
c)	Tiles / Paver / Blocks / Curb Stones, Red sand stone	Meter	1,000	320.69	3,20,691
d)	Brick Soling / Channels, etc.	Meter	900	228.05	2,05,243
1.3	**VOID**				
1.4	**Pipe laying using manual Moling Technique (without casing) for PE pipe sizes of :**				
	Laying of all PE pipe (PE 100 SDR11/17.6), Including supply of Couplers, End caps etc.as required to complete the job (Ref. cl. 4.2 of Particular job specification.)				
	Survey of under ground utilities, execution of the work as per specification, approved procedure, including excavation of pits moling with the hole size not exceeding 20% of the pipe dia, jointing and insertion of carrier pipe, testing & commissioning and restoration of the pits to original condition, submission of as-built graphs as per specifications and the instructions of EIC.				
a)	20 mm PE 100 pipe	Meter	45,000	306.44	1,37,89,732
b)	32 mm PE 100 pipe	Meter	45,000	349.20	1,57,13,881
c)	63 mm PE 100 pipe	Meter	1,800	377.70	6,79,866
d)	90 mm PE 100 pipe	Meter	2,800	413.34	11,57,340
e)	125 mm PE 100 pipe	Meter	2,800	570.12	15,96,331
1.5	**Pipe laying using manual moling technique (with casing) for PE pipe sizes of :**				
	Laying of all PE pipe (PE 100 SDR11/17), Including supply of HDPE casing pipe, Couplers, End caps etc. (Ref. cl. 4.3 of Particular job specification)				
	Survey of under ground utilities, execution of the work as per specification, including excavation of pits moling with the hole size not exceeding 20% of the pipe dia, jointing and insertion of carrier pipe with casing, testing & commissioning and restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	20 mm PE 100 pipe (in 50 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	450	349.20	1,57,139
b)	32 mm PE 100 pipe (in 75 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	900	562.99	5,06,692
c)	63 mm PE 100 pipe (in 125 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	450	1161.62	5,22,727
d)	90 mm PE 100 pipe (in 180 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	900	2159.32	19,43,390
e)	125 mm PE 100 pipe (in 250 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	900	3470.59	31,23,535
1.6	**Pipe laying using Directional Drilling technique (with casing pipe) for PE pipe size of (Including Rail, Road & River Crossing):**				
	Laying of all PE pipe (PE 100 SDR11/SDR17.6), Including supply of HDPE casing pipe, Couplers, End caps etc. (Ref. cl. 4.2 of Particular job specification)				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per specification, approved procedure, including excavation of pits and subsequent backfilling compaction, jointing and insertion of carrier pipe in casing pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	32 mm pipe (in 75 mm dia. HDPE Casing Pipe, PE 63/80 PN6.0)	Meter	34	919.32	31,389
b)	63 mm pipe (in 125 mm dia. HDPE Casing Pipe, PE 63/80 PN6.0)	Meter	45	2016.79	90,756
c)	90 mm pipe (in 180 mm dia. HDPE Casing Pipe, PE 63/80 PN6.0)	Meter	45	3057.26	1,37,577
d)	125 mm pipe (in 250 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	450	4233.13	19,04,907
e)	125 mm PE 100 pipe (in 250 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0) for River Crossing	Meter	700	6349.69	44,44,783

1.7	**Pipe Laying using Directional Drilling Technique (without casing):**				
	Laying of all PE pipe (PE 100 SDR11/SDR 17.6), Including supply of Couplers, End caps as required to complete the job. (Ref. cl. 4.3 of Particular job specification)				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per standard procedure attached, including excavation of pits and subsequent backfilling, compaction, jointing and insertion of PE pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	32 mm pipe	Meter	100	662.76	66,276
b)	63 mm pipe	Meter	98	712.65	69,839
c)	90 mm pipe	Meter	100	1061.84	1,06,184
d)	125 mm pipe	Meter	500	1425.30	7,12,648
1.8	**Supply of GI/ MS/ Concrete Sleeves (wherever required as a Special Case as per instructions of the Engineer-in-charge)**				
	Supply, installation of sleeve, insertion of pipe, sealing the annuals, firm fixing of Sleeves with concrete mix. Breaking through any obstructions and their subsequent restoration, as per specifications and instructions of the Engineer-in-charge. GI/MS Pipes shall be Heavy (C-Class) as per IS-1239				
a)	**Concrete Sleeves/Block**				
i)	2 $^{1}/_{2}$" NB, 1' Length	Nos.	9,000	206.67	18,60,010
b)	**MS Enamel Coated**				
1.9	**Installation of valve in pit including supply of valves**				
	Supply of isolation valves (as per data sheet) and installtion of valves in the valve pits as per typical drawing and specification enclosed and instructions of Engineer-in-charge. Payment of valve pits shall be paid separately as per SOR.				
a)	PE Valve 32 mm dia	Nos.	40	4917.27	1,96,691
b)	PE Valve 63 mm dia	Nos.	5	10832.24	54,161
c)	PE Valve 90 mm dia	Nos.	7	16889.75	1,18,228
d)	PE Valve 125mm dia	Nos.	7	23303.58	1,63,125
1.10	Construction of Valve Pits as per the enclosed tender drawing and specification. The item includes supply of all the material including Pre-cast RCC cover, shuttering, reinforcement, labour, curing etc as per the drgs, specification and instruction of EIC.				
a	Type-I having Internal size of Minimum 1000 x 1000mm	Nos	52	22947.25	11,93,257
b	Type-II having Internal size of Minimum 600 x 600mm	Nos	7	14039.16	98,274
	Note: The tender drawing enclosed is only for reference purpose and contractor shall be required to prepare drawings (in line with reference tender drawing) for specific sizes of Valve pits and the same shall be approved by EIC.				
1.11	**Fabrication & Installation of Markers**				
i)	**RCC Route Markers**				
	Supply, fabrication and installation of RCC route markers as per the attached drawing in technical volume, along the route including all associated civil works such as excavation and construction in all types of soils, construction and pedestals and grouting with concrete.	Nos.	350	427.59	1,49,656
ii)	**Plate Markers with Foundation**				
	Supply, fabrication and installation of plate markers as per the attached drawings in technical volume including all associated civil works such as excavation and construction in all types of soils, construction and pedestals and grouting with concrete, cleaning, stencil let.	Nos.	600	2351.74	14,11,042
7.0	**PNG Connection to Domestic Consumers**				
7.1.1	**Installation of GI Service Pipe**				

	Loading, storing, unloading and installation of GI pipes, including supply of Appliance Valves, Isolation Valves, GI fittings/accessories including Anaconda, Fittings of all sizes & thickness like Elbows, Tees, unions, sockets, reducers, GI plugs,Sleeves etc., installation of GI line (alongwith installation of required accessories as mentioned above) of following sizes, including fabrication with supply of all materials, consumables, labour and other incidental works. The scope of work also includes installation of Regulators (1/6 Kg per sq m to 21 m bar) which shall be provided as free issue item. Carrying out all temporary, ancillary, auxiliary works required to make the GI line ready for commissioning as per drawings specifications.				
	Scope of work indicated in PJS and other provisions of Contract document and instructions of Engineer-in-charge, including but not limited to carrying out the following works: Preparation and approval of schedules, execution procedures, sketches.				
	Finalisation of optimum route with consent of customer, from transition fitting to cooking oven/ appliance.				
	Making temporay but stable platforms/ scaffolding/ rope ladders and all other safety measures including safety belts wherever required.				
	Installation of GI Pipes, Fittings, including NPT threading, painting as specified.				
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackeles, using proper sealent /grout materialed colors to match the original replacement of damages during drillling, restoring the area to original condition.				
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/ lock tight, drilling of holes through tiles/ wood/ marble/ Granite etc. jointing of PE to above Ground service GI pipes, testing, purging with Nitrogen and commissioning of the complete installation as per specification.				
	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 complete as per specification & direction of EIC. Restoring the wall surface to origin.				
	All above activities to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.				
	Handing over the completed works to TNGCL for operation/ use, reconciliation of material area wise and obtaining "no objection certificate" from TNGCL / MECON.				
	Any other activity not mentioned/ covered, explicitly above, but otherwise required for satisfactory completion/ safety/ statutory/ maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule time.				
a)	1" All floors TF to Appliance Valve- **with supply of GI Pipes by Owner on Free Issue Basis.**	Meter	300	263.68	79,104
b)	½" All floors TF to Appliance Valve- **with supply of GI Pipes by Owner on Free Issue Basis.**	Meter	1,11,000	213.79	2,37,31,167
c)	¾" All Floors (Including connectivity from TF to regulator) **with supply of GI Pipes by Owner on Free Issue Basis.**	Meter	300	213.79	64,138
7.3	**Installation of Meter, Flexible Hose & Conversion of Domestic Appliance:**				
a.	**Installation & fixing of meters** with associated inlet and outlet connections/ fittings, valves, regulators (100 m bar to 21 m bar, wherever required), approved meter brackets and other supports by proper scaffolding/ grouting, Restoring the area to original completre as per specification. (Meter and Regulator will be provided as as free issue Items)	Nos.	10,000	235.17	23,51,737
b.	**Conversion of Domestic Appliance** The work also includes installation and supply of Steel reinforced Flexible Hose as per IS 9573 (with Type as per lastest PNGRB guidelines), Gas tube from end of Isolation / Appliance Ball Valve upto burner/stove and conevrsion of all the burners of the LPG stove (one per household) including supply of all types of burner nozzles/jets and associated controls etc. Appliance & Isolation ball valve supply is in the scope of Successfull Bidder.	Nos.	12,000	156.78	18,81,390
	Cleaning and performing minor maintenance, greasing etc. of appliance, testing/ showing performance to the customer ,signing of Joint Meter Records (JMR) and instructing customer on use & safety norms, complete as per specifications & to satisfaction of customer				
7.4	**Installation of Commercial Regulators and Meters**				
	Installation of Commercial regulators and Metres which will be provided as free issue material.	Nos.	60	3919.56	2,35,174
7.5	**Conversion of Commercial Connection**	Nos.	400	427.59	1,71,035
	Installation of flexible hoses including conversion of burners. The scope of work includes supply of all items required (Only Meters and Regulators shall be provided as free issue) and all associated works.				
	Total Price (inclusive of all applicable taxes, duties & other levies [if any] payable by the Contractor under the Contract, or for any other cause except final GST) for complete scope of work				**12,56,41,595**
	Contractor Agency Charge in Percent % (- / +)				
	Total after adding Agency Charge				
	GST @18% on Total Cost				
	Grand Total after GST				
	Notes: i) The above length is not for a single section but for no. of sections.				
	ii) All accessrious ie; End caps and two nos tappings of 3/4 inches, PG to be considered per section and rate for the same shall be quoted by bidder under this item.				
	iii) If three month is partially complete, payment shall be made on prorata basis.				
	iv) Scope includes pressure holding for a period of three months or as per EIC and jointing of PE pipe (if required) due to damage by any means and further filling of nitrogen for pressure holding.				