Ref. No. SSGC /LPG/ 1480
Date: October-19, 2026

M/s. _____

_____

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal
Tender Enquiry # SSGC/LPG/SC/PT/1480
Under Single Stage Two Envelope Bidding Procedure

SECTION - I
Invitation to Bid

SSGC LPG intends to carry out the work related to Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal (Under Single Stage Two Envelope Bidding Procedure) (On Complete Package Basis).

The Company invites you to submit Proposal in sealed envelopes **"Under Single Stage Two Envelope Bidding Procedure".**

The priced bids shall be submitted along with FIXED Bid Bond Rs Rupees Nine Hundred Seventy-Five Thousand Only (975,000) in the form of Pay order / Demand Draft in favor of SSGC LPG Limited. No bid shall be entertained without bid bond / earnest money.

The Company reserves the right to add, delete from or amend any part of these tender documents during the bidding period and bidders shall be informed accordingly.
Bids not conforming to the terms and conditions or a part thereof; stipulated in these tender documents may be rejected.
The Tender documents comprise the following:

Section-I	Invitation to Bid
Section-II	**Technical Proposal**
Section-III	Introduction & Background
Section-IV	Technical Specification-LPG Pump-Motor Set
Section-V	Bidders Qualification Criteria
Section-VI	Documentation to be submitted with technical bid
Section-VII	Form "X" SSTW-05.
Section-VIII	**Financial Proposal**
	Scheduled of Requirement (BOQ)

Application for technical and financial proposals will be received at:

On or before **14-12-2026** at **03:00 hrs.** The bids will be publicly opened at **03:30** hours on same day at the above address, in the presence of bidders and / or their authorized agents who may wish to attend.

Contract will be made on non-judicial stamp paper of value @ Rs 0.35 per hundred rupees of contract value, as per prevailing rate by Government of Sindh. The stamp duty will be borne by the contractor and also submit the copy of challan of stamp paper.

Tenders shall be enclosed in plain sealed envelope marked as:

"**STRICTLY CONFIDENTIAL**"
Enquiry # SSGC/LPG/SC/PT/1480

Yours faithfully,

Manager (Finance & Procurement)
SSGC LPG
Head Office Karachi

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TECHNICAL PROPOSAL



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Section:III

Introduction & Background

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

1. Introduction & Background

SSGC LPG Limited (SLL) is located at Plot No NWZ/1/P-305 (A-4, LPG Area) North Western Industrial Zone, Port Qasim, Karachi. SLL is 100% owned subsidiary of Sui Southern Gas Company Limited, engaged in LPG marketing & distribution across the country. The Company owns and operates a dedicated open access LPG terminal with storage facility at PQ Terminal. There is a ship receiving jetty located about 3.5 km south of the terminal. The product is stored in above ground spherical tanks of 3x1500 MT & 2x1000 MT with a combined capacity of 6,500 MT.

SSGC LPG Limited (SLL), Port Qasim Terminal, intends to procure and install a new LPG Bowser Filling Pump Package for reliable and continuous transfer of LPG from the terminal storage system to road tankers/bowsers. The scope shall include design, engineering, supply, installation, testing, commissioning and performance demonstration of a complete LPG pump package, including all associated mechanical, electrical, instrumentation, control, safety and installation accessories required for safe and reliable operation.

The bidder shall be responsible for providing a complete and operational system on a turnkey basis, whether or not every individual component is specifically mentioned in this specification. The proposed pump shall be suitable for continuous-duty LPG service at SLL Port Qasim Terminal and shall be compatible with the existing LPG storage, piping and bowser filling facilities.

The scope shall be on a complete turnkey basis and shall include construction of the civil foundation, supply and installation of LPG suction and discharge piping for connection with the existing LPG network, electrical power cable and all associated electrical/control systems, including motor starter, Start/Stop controls, Emergency Stop, protection devices, earthing, hazardous-area accessories, safety interlocks, testing and commissioning. The Contractor shall provide all materials, equipment, fittings, accessories, labour and services necessary to make the new LPG bowser filling pump fully operational and safely integrated with the existing SLL system.

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Section:IV

TECHNICAL SPECIFICATION – LPG PUMP-MOTOR SET

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

TECHNICAL SPECIFICATION – LPG PUMP-MOTOR SET	
Parameter	Minimum Technical Specification / Requirement.
Service	LPG transfer / road-bowser loading and filling.
Fluid	Commercial LPG – Propane & Butane mixture.
Pump Type	Horizontal, multistage centrifugal pump, specifically designed and suitable for LPG service.
Rated Capacity	60–70 MT/hr.
Design Duty Point	Pump shall be capable of delivering minimum 60 MT/hr at the specified differential pressure and shall be capable of operating up to 70 MT/hr, subject to the manufacturer's certified performance curve.
Rated Differential Pressure	8–10 bar(g).
Maximum Differential Pressure	≥12 bar or as required to ensure the pump does not overload the motor under all specified operating conditions.
NPSH Available (NPSHA)	9 ft (2.74 m)
Required NPSH (NPSHR)	≤5 ft (1.52 m) at 60 MT/hr, based on manufacturer's certified performance curve.
NPSH Margin	Minimum 4 ft (1.22 m) between NPSHA and NPSHR at rated flow.
Pump Speed	1500 RPM nominal, subject to manufacturer's final pump selection.
Suction Flange	Dia. 4-inch or Dia. 6-inch, Class 300, subject to final hydraulic design and existing piping.
Discharge Flange	Dia. 3-inch or Dia. 4-inch, Class 300, subject to final hydraulic design and existing piping
Shaft Sealing	API-type single, balanced, self-cooled/uncooled mechanical seal, specifically suitable for LPG service.
Pump Design Pressure	Minimum 20 bar(g)
Pump Design Temperature	Approximately −20°C to +60°C, or as required by the manufacturer's LPG service design
Relief / Bypass Protection	Integral or external bypass/relief arrangement suitable for the selected pump and system. For positive-displacement equipment, a pressure relief system shall be mandatory. For centrifugal pumps, overpressure protection shall be provided as required by the hydraulic/system design.
Motor Type	TEFC, squirrel-cage induction motor
Motor Duty	S1 – Continuous Duty
Motor Hazardous Area Protection	Flameproof / explosion-proof, suitable for the classified LPG hazardous area
Motor Rating	To be selected and guaranteed by the pump manufacturer based on the complete pump performance curve.
Motor Supply	415 V, 3-phase, 50 Hz
Motor Efficiency	IE3 minimum
Motor Insulation	Class F minimum
Motor Temperature Rise	Class B temperature rise preferred
Motor Enclosure	IP66 minimum
Hazardous Area Certification	Suitable for the actual site classification and LPG service. ATEX/IECEx or equivalent internationally recognized certification acceptable, subject to SLL approval
Gas Group	IIC, where required by the site hazardous-area classification
Temperature Class	T4 or better, subject to site classification
Motor Certificate	Valid certificate for the complete motor/execution offered
Coupling	Flexible coupling suitable for rated motor power and speed, complete with robust non-sparking safety guard
Base Frame	Heavy-duty fabricated steel baseplate, machined and precision aligned.
Installation	Horizontal.
Area Classification	Equipment shall be suitable for the classified LPG hazardous area at SLL Port Qasim Terminal
Testing	Factory performance test, hydrostatic test, mechanical running test, vibration test and other applicable manufacturer's routine tests.
Documentation	GA drawing, certified pump performance curve, NPSH curve, pump datasheet, motor datasheet, hazardous-area certificates, material certificates, test reports, installation instructions and O&M manuals.

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Section:IV
TECHNICAL SPECIFICATION – LPG PUMP-MOTOR SET
Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for
SLL Port Qasim Terminal
Under Single Stage Two Enveloped Bidding Procedure
Tender Enquiry # SSGC/LPG/SC/PT/1480

1. DESIGN DUTY REQUIREMENTS

The proposed LPG pump shall be designed for reliable and continuous transfer of commercial LPG from the terminal storage tanks to road tankers/bowsers. The pump shall meet the following minimum duty requirements:

- Capacity: 60–70 MT/hr
- Minimum guaranteed operating capacity: 60 MT/hr
- Maximum required operating capacity: 70 MT/hr
- Differential pressure: 8–10 bar(g)
- Maximum differential pressure: minimum 12 bar
- NPSH Available: 9 ft (2.74 m)
- Maximum permissible NPSHR: 5 ft (1.52 m) at 60 MT/hr
- LPG density: Bidder shall consider the applicable LPG composition; design basis approximately 0.51–0.57 kg/L
- Motor supply: 415 V, 3-phase, 50 Hz
- Motor duty: S1 continuous
- Motor efficiency: IE3 minimum
- Hazardous area: LPG classified area

The bidder shall verify the above duty conditions and shall submit hydraulic calculations demonstrating that the proposed pump is suitable for the actual SLL installation.

2. PUMP PERFORMANCE CURVE

The bidder shall submit a certified pump performance curve covering the complete operating range.

The curve shall show, as a minimum:

1. Capacity vs. differential pressure/head.
2. NPSHR vs. capacity.
3. Pump efficiency vs. capacity.
4. Power absorbed vs. capacity.
5. Recommended operating range.
6. Minimum continuous stable flow.
7. Shut-off head.
8. Maximum allowable operating point.

The curve shall clearly demonstrate operation at:

- 60 MT/hr.
- 65 MT/hr.
- 70 MT/hr.

at the specified differential pressure. The pump shall not operate outside the manufacturer's recommended operating range during normal operation.

3. CRITICAL NPSH REQUIREMENT

The pump shall be specifically selected for the low available suction head at the installation.

Design Basis

NPSHA = 9 ft (2.74 m)

The pump's certified NPSHR shall not exceed 5 ft (1.52 m) at 60 MT/hr.

Accordingly, the minimum NPSH margin shall be:

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NPSHA – NPSHR ≥ 4 ft (1.22 m)

The bidder shall submit a manufacturer's certified NPSH curve demonstrating compliance. The pump shall be capable of operating continuously at the specified duty without:

- Cavitation;
- Excessive vibration;
- Abnormal noise;
- Loss of capacity;
- Mechanical seal damage;
- Bearing damage.

The bidder shall specifically state the NPSHR at:

- 60 MT/hr.
- 65 MT/hr.
- 70 MT/hr.

NPSHR shall not be accepted solely on the basis of a general catalogue value. The value shall be supported by the manufacturer's certified performance data.

4. LPG DENSITY / HYDRAULIC DESIGN BASIS

For pump hydraulic calculations, the bidder shall consider the actual LPG composition handled at SLL. For preliminary selection, the following density range shall be considered:

0.51–0.57 kg/L (510–570 kg/m³)

The bidder shall clearly state the density used for:

- Pump selection
- Hydraulic calculations
- Power calculation
- NPSH calculation

The final pump shall remain suitable for the applicable LPG composition and density range.

5. MOTOR SIZING & Soft Starter

The motor shall be selected by the pump manufacturer based on the complete certified pump performance curve, rather than merely the nominal duty point. The motor shall have sufficient capacity to operate the pump without overloading.

Motor sizing requirement

The motor rated power shall provide a minimum 10–15% margin above the maximum absorbed pump power over the specified operating range. The bidder shall submit:

- Pump absorbed power curve;
- Motor rated power
- Motor efficiency
- Full-load current
- Power factor
- Starting current
- Motor service factor
- Maximum absorbed pump power
- Non-overloading requirement

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The pump/motor combination shall be non-overloading across the entire specified operating range, including:

- Minimum flow
- Rated flow
- Maximum flow
- Maximum differential pressure
- Maximum absorbed pump power

The motor shall not exceed its rated current or thermal limits during operation. Motor sizing shall therefore be based on the maximum power absorbed anywhere on the applicable pump curve, and not only on the 60 MT/hr. operating point.

6. MOTOR HAZARDOUS AREA REQUIREMENT

The motor shall be suitable for installation in the LPG hazardous area at SLL Port Qasim Terminal. The bidder shall provide a valid certificate showing the actual protection concept and hazardous-area suitability. The motor shall preferably comply with recognized international hazardous-area standards such as:

- IEC 60079 series
- ATEX 2014/34/EU
- IECEx
- or equivalent internationally recognized certification acceptable to SLL.

The certificate shall clearly identify:

- Equipment protection type
- Gas group
- Temperature class
- Equipment category/EPL
- Certificate number
- Certifying authority
- Applicable standard

Important

The bidder shall not simply state "ATEX Ex II 2G" without providing the complete certification marking. The final hazardous-area classification shall be verified against the actual classified area at SLL Port Qasim Terminal.

7. MOTOR INSULATION AND TEMPERATURE RISE

The motor shall have:

- Class F insulation minimum
- Class B temperature rise preferred
- S1 continuous-duty rating
- IE3 minimum efficiency
- IP66 enclosure

Class F insulation shall be considered a thermal insulation requirement and shall not be considered a substitute for hazardous-area certification.

8. MECHANICAL SEAL

The pump shall be provided with a single balanced mechanical seal suitable for LPG service.

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The mechanical seal shall be:

- LPG compatible
- Suitable for minimum 20 bar(g) design pressure
- Suitable for the specified temperature range
- Suitable for continuous operation
- Self-cooled/uncooled where permitted by the manufacturer's design

The bidder shall state the seal:

- Manufacturer
- Model
- Face materials
- Elastomer material
- Spring material
- Pressure rating
- Temperature rating
- Recommended replacement interval

The seal arrangement shall minimize LPG leakage and shall be suitable for hazardous-area service.

9. DRY-RUN / LOW-SUCTION PROTECTION

The pump shall be provided with a dedicated dry-run / low-suction protection system. The system shall prevent the pump from starting or continuing to operate when adequate suction conditions are not available.

The protection system shall be integrated with the pump start/trip logic. The bidder shall propose the most suitable method, such as:

- Low suction pressure switch/transmitter
- Low tank level interlock
- Minimum flow protection
- Combination of suction pressure and tank level protection

The protection shall provide a positive trip signal to stop the pump under unsafe suction conditions. The bidder shall submit the proposed Cause & Effect / Interlock Logic for SLL approval.

10. OVERPRESSURE / BYPASS PROTECTION

The pump system shall be protected against excessive discharge pressure. The bidder shall provide an appropriate relief/bypass arrangement (for example pressure regulating valve) based on the selected pump type and actual hydraulic system.

For a centrifugal pump, the bidder shall demonstrate that the pump shut-off head does not exceed the allowable pressure of the downstream system. Where required, a suitable relief/bypass valve shall be provided.

Any LPG bypass/relief flow shall be safely routed back to the appropriate LPG system and shall not be discharged directly to atmosphere.

11. PUMP CASING AND PRESSURE CONTAINMENT

The pump shall have a minimum design pressure of:
20 bar(g)

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All pressure-containing components shall be rated accordingly.
The bidder shall submit

- Design pressure
- Hydrostatic test pressure
- Maximum allowable working pressure;
- Design temperature
- Casing material
- Pressure rating of flanges

The pump pressure rating shall be compatible with the existing LPG piping system.

12. CONNECTIONS

Final connection sizes shall be confirmed through the bidder's hydraulic design and site survey.
Indicative requirements:

Suction

Dia. 4-inch or Dia. 6-inch, Class 300

Discharge

Dia. 3-inch or Dia. 4-inch, Class 300

The bidder shall verify the existing SLL piping arrangement before finalizing the pump connections. Any reducer, spool piece, flange, gasket, bolt, support or other component necessary for proper installation shall be included in the scope.

13. COUPLING AND BASEPLATE

The pump and motor shall be mounted on a heavy-duty fabricated steel baseplate.
The baseplate shall be:

- Rigid
- Properly machined
- Suitable for continuous-duty operation
- Suitable for precise pump/motor alignment
- Provided with suitable anchor points

A flexible coupling shall be provided where applicable. The coupling shall be provided with a suitable protective guard. Final alignment shall preferably be performed using laser alignment equipment or as approved by SLL, and the alignment report shall be submitted to SLL.

14. FACTORY ACCEPTANCE TESTING

Before dispatch, the complete pump shall undergo factory testing.
Minimum testing shall include:

Pump

- Hydrostatic pressure test
- Mechanical running test
- Performance test
- Capacity verification
- Differential pressure verification
- NPSH verification/data
- Vibration measurement

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- Noise measurement
- Mechanical seal inspection

Motor

- Routine electrical tests
- Insulation resistance
- Winding resistance
- No-load current
- Efficiency
- Power factor
- Temperature-rise verification, where applicable
- Hazardous-area certification verification

The FAT shall be conducted in accordance with the applicable manufacturer's standards and relevant international standards. SLL reserves the right to witness the FAT or appoint a Third-Party Inspection Agency.

15. SITE TESTING AND COMMISSIONING

After installation, the Contractor shall perform complete site commissioning.

- The following shall be verified:
- Correct pump rotation
- Pump/motor alignment
- Suction pressure
- Discharge pressure
- LPG flow
- Motor current
- Motor voltage
- Vibration
- Bearing temperature
- Mechanical seal condition
- Emergency stop
- Low-suction trip
- Dry-run protection
- High-pressure protection
- Interlocks
- Local/remote operation

The pump shall demonstrate stable operation at the required operating capacity.

16. PERFORMANCE GUARANTEE

The Contractor shall guarantee that the supplied pump shall achieve:
Minimum Capacity: 60 MT/hr.
Maximum Required Capacity: 70 MT/hr.
Differential Pressure: 8–10 bar(g)
NPSHR: ≤5 ft (1.52 m) at 60 MT/hr.
NPSHA: 9 ft (2.74 m)

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The equipment shall operate without unacceptable:

- Cavitation
- Vibration
- Noise
- LPG leakage
- Motor overload
- Bearing overheating

Failure to meet the guaranteed performance shall require the Contractor to rectify the equipment at no additional cost to SLL.

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Section: V

BIDDER'S QUALIFICATION CRITERIA

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

Bidder's Qualification Criteria-Supply, Installation and Commissioning of a New Bowser Filling Pump Package for SLL Port Qasim Terminal				
PART A				
Sr. #	**Parameter**	**Criterion**	**Requirement**	**Compliant (Y/N)**
1	Active FBR registration	Attach copy showing name/date from FBR website.	Mandatory	
2	Provincial Sales Tax registered	Attach copy showing name/date from Authority website.	Mandatory	
3	Endorse SLL complete tender document	Seal / sign all pages	Mandatory	
4	Site visit	Visit site to evaluate conditions, logistics & hardships.	Mandatory	
5	Not fulfilling commitments	Any past LOI/PO AO issued or ever been cancelled by SLL	Mandatory	
6	Presently the contractor is not blacklisted by any Govt. / Semi-Government / Private institution	Provide Affidavit for last 3 years	Mandatory	
7	Experience in supplying LPG pump package	Supply of min. one LPG pump package. Client's completion certificate or similar document to be submitted	Mandatory	
8	Bidder is registered with PEC	Provide color copy of the registration certificate	Mandatory	

PART B					
BIDDERS MEETING MANDATORY CRITERION SHALL BE EVALUATED FURTHER AS BELOW:					
Sr. #	**Parameter**	**Criterion**	**Min Points**	**Max Points**	**Bidder**
9	Experience in supplying LPG pump package	b) Supply of more than one LPG pump package.	20	25	
		b) Supply of min. one LPG pump package.			
10	Local partner/ agent of LPG pump manufacturer	a) Local partner/ agent of LPG pump manufacturer from Western Europe, USA, Japan or Canada	20	25	
		b) Local partner/ agent of LPG pump manufacturer other than Western Europe, USA, Japan or Canada			
11	Experience of supplying similar capacity LPG pump package	a) Experience of supplying equal to or more than 120 MT/Hr. capacity LPG pump package	20	25	
		b) Experience of supplying equal to or more than 60 MT/Hr. capacity LPG pump package			
		Total:	**60**	**75**	

PART-C: Financial Criteria	
Audited	10
Un-Audited	0
Cash in Hand/ Turnover/ Bank as per last Financial Statement	
Rs. 22 million	15
Rs. 20 million	10

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Section V

BIDDER'S QUALIFICATION CRITERIA

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

PART-C: Financial Criteria-Max. Marks 25. Min Marks 15

IMPORTANT NOTES FOR BIDDER'S QUALIFICATION CRITERIA:

1) Criterion 1 to 8 are Mandatory requirements.
2) Minimum marks (75) to be obtained in all above categories to pass Technical Qualification.
3) Bidders not scoring Minimum Marks (mentioned in each category) shall not qualify.
4) Bidders who have been disqualified by SLL in past or whose past awarded Contracts /LOI/WO/PO have ever been cancelled or withdrawn due to any reason shall not be evaluated.
5) Bidders to provide "viable documentary" evidence in support of their claim. Not providing same shall result in assigning minimum marks in that category.
6) Technical basis for "most advantageous Bidder" shall be higher marks scored.

TECHNICAL BID SUBMISSION

The technical bid shall include a completed compliance statement against every requirement of this specification. The bidder shall clearly state: "Comply / Deviate / Not Applicable" against each requirement. Any deviation shall be clearly identified and technically justified. Failure to disclose a deviation shall not relieve the Contractor from compliance with the tender requirements.

ACCEPTANCE CRITERIA

The equipment shall be accepted by SLL only after satisfactory completion of:

- Supply inspection.
- FAT.
- Site installation.
- Pre-commissioning.
- Commissioning.
- Performance testing.
- Demonstration of minimum 60 MT/hr capacity.
- Verification of safety interlocks.
- Verification of hazardous-area compliance.
- Submission of complete documentation.
- Training of SLL personnel.

MINIMUM TECHNICAL DATA TO BE PROVIDED BY BIDDER

S. No.	Parameter	Bidder's Offer
1	Manufacturer	
2	Model	
3	Pump Type	
4	Rated Capacity	
5	Maximum Capacity	
6	Differential Pressure	
7	Suction Pressure	
8	Discharge Pressure	
9	NPSHA	

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Section. V

BIDDER'S QUALIFICATION CRITERIA

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

10	NPSHR at Rated Flow	
11	Pump Speed	
12	Pump Efficiency	
13	Motor Rating	
14	Motor Voltage	
15	Motor Frequency	
16	Motor Speed	
17	Motor Efficiency	
18	Motor Power Factor	
19	Insulation Class	
20	Hazardous Area Certification	
21	Gas Group	
22	Temperature Class	
23	Mechanical Seal Type	
24	Pump Casing Material	
25	Shaft Material	
26	Pump Weight	
27	Overall Dimensions	
28	Noise Level	
29	Vibration Level	
30	Warranty	
31	Country of Origin	
32	Manufacturer's Reference	

IMPORTANT TECHNICAL REQUIREMENT

- The bidder shall not merely offer a pump having a nominal capacity of 60 MT/hr.
- The complete pump package shall be hydraulically checked against SLL's actual LPG system, including:
- Storage Tank → Suction Line → LPG Pump → Discharge Line → Bowser Filling System
- The bidder shall confirm that the proposed pump can reliably deliver minimum 60 MT/hr at the required discharge pressure while maintaining adequate NPSH margin.
- The supplier shall also confirm that the pump will not cause excessive pressure drop, cavitation or unacceptable operating conditions in the existing LPG system.

TURNKEY RESPONSIBILITY

- The successful Contractor shall be responsible for supplying a complete, safe and operational LPG Bowser Filling Pump system.

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- Any item necessary for safe and reliable operation but inadvertently omitted from the bidder's price shall be deemed included in the Contractor's scope where it is normally required for a complete installation.
- No additional payment shall be made for such items where they are necessary to achieve the specified performance and safe operation of the system.

Civil Foundation

- Construction of a suitable RCC foundation for the new pump-motor set.
- Foundation shall be designed to accommodate the pump, motor and base frame, including anchor bolts.
- Proper leveling, grouting and alignment provisions shall be provided.
- Existing foundation/site conditions shall be verified before execution.
- The contractor shall design, construct, and complete the required RCC civil foundations for the new LPG bowser filling pump package, including excavation, PCC/RCC works, reinforcement steel, formwork, anchor bolts, grouting, leveling, and finishing. The foundation shall be suitably designed to withstand the static and dynamic loads of the pump-motor package and shall be properly integrated with the existing floor/pavement level and drainage arrangement.
- All civil works shall be completed in accordance with the approved equipment foundation drawing and applicable engineering standards.

LPG Suction and Discharge Piping

- Supply, fabrication and installation of all required LPG suction and discharge piping to connect the new pump with the existing LPG piping network.
- Scope shall include all required pipe spools, flanges, gaskets, bolts, supports, reducers, valves and other fittings.
- Piping shall be suitable for LPG service and compatible with the existing piping pressure class.
- Final pipe sizes and routing shall be verified at site based on the pump manufacturer's requirements and existing network.
- All piping modifications shall be hydrostatically/pneumatically tested, as applicable and in accordance with approved safety procedures, before commissioning.
- Existing LPG system shall not be modified without prior approval of SLL.
- The contractor shall prepare a detailed and itemized Bill of Quantities (BOQ) for the pump suction and discharge piping spools, based on the approved piping isometric drawings.
- The BOQ shall include all required pipes, elbows, tees, reducers, flanges, gaskets, bolts/nuts, valves, strainers, supports, fittings, welding consumables, fabrication, NDT/testing, painting/coating, installation, and associated accessories.
- All materials shall be suitable for LPG service and shall comply with the approved piping material specification and applicable standards.
- The contractor shall be responsible for the complete fabrication, supply, installation, testing, and commissioning of the piping spools.

Note: Details of welding, painting and sandblasting procedures is attached.

Electrical Power Supply

- Supply and installation of appropriately sized electrical cable from the designated power source to the new pump motor.
- Cable sizing shall be based on motor rated current, starting method, voltage drop, installation conditions and applicable electrical standards.
- Supply and installation of suitable cable glands, lugs, termination kits, conduits, trays and other accessories.

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- Complete earthing and bonding of the motor, pump skid and associated metallic components shall be provided.

Motor Starting and Control System

- Provision of a suitable motor starter/control arrangement for the new pump.
- The system shall include:
- Start/Stop facility;
- Local/Remote selector, where required;
- Emergency Stop;
- Motor overload protection;
- Short-circuit protection;
- Phase failure/reversal protection;
- Under/over-voltage protection, where applicable;
- Running indication;
- Trip/fault indication.
- The starting method shall be selected considering the motor rating and existing electrical system.

Soft Starter:

- The electric motor shall be provided with a suitable electronic soft starter for controlled starting of the LPG pump.
- Soft starter shall be properly sized and rated for the motor's full-load current and starting duty.
- The soft starter shall provide adjustable voltage/current ramp-up to ensure smooth acceleration of the pump and minimize starting current and mechanical/electrical stresses.
- Soft starter shall include, as a minimum, overload protection, phase-loss protection, over/under-voltage protection, and motor thermal protection.
- The soft starter shall be housed in a suitable IP-rated electrical panel/enclosure and shall be suitable for the applicable hazardous/non-hazardous area installation requirements.
- The system shall include suitable bypass contactor arrangement, where applicable, to allow the motor to operate on full voltage after starting and reduce losses during normal operation.
- Necessary start/stop controls, indication, interlocking, emergency stop and interface with the existing control system shall be provided.
- Complete supply, installation, cabling, termination, testing and commissioning of the soft starter shall be included in the contractor's scope.

The LPG pump motor shall be started through a suitably rated electronic Soft Starter. The Soft Starter shall be selected based on the motor's rated current and starting characteristics and shall provide controlled acceleration, reduced starting current and protection against electrical and motor-related faults. Complete Soft Starter panel, bypass arrangement, protection, control, indication, cabling, installation, testing and commissioning shall be included in the scope of supply.

Safety Interlocks

The new pump shall be integrated with the required safety interlocks, including low suction pressure/dry-run protection.
Pump shutdown shall be initiated automatically under unsafe operating conditions.
Emergency shutdown functionality shall be provided in accordance with the existing LPG terminal safety system.

Hazardous Area Requirements

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All electrical equipment, junction boxes, cable glands, switches and other equipment installed within the classified LPG area shall be suitable for the applicable hazardous-area classification.
The Contractor shall provide valid hazardous-area certificates for applicable equipment.

Isometric and P&I Drawings

The contractor shall prepare and submit detailed Piping Isometric and Piping & Instrumentation (P&I) Drawings for the new LPG bowser filling pump installation.
The drawings shall clearly indicate the pump suction and discharge piping, valves, fittings, strainers, instruments, pressure gauges, safety devices, drains/vents, tie-in points with the existing LPG piping network, pipe sizes, specifications, flow direction, and relevant equipment identification numbers.
Drawings shall be submitted for SLL review and approval prior to commencement of fabrication and installation.

Testing and Commissioning

Complete testing of civil, mechanical, piping and electrical installations shall be carried out before commissioning.
Pump rotation, motor insulation, cable continuity, earthing, protection settings, interlocks and emergency shutdown shall be verified.
The contractor shall commission the complete pump system and demonstrate the required 60–70 MT/hr. LPG filling capacity under the specified operating conditions.

FINAL DELIVERABLE

The final installation shall be handed over to SLL as a fully operational LPG Bowser Filling Pump Package, tested and commissioned, with all required documentation, certificates, drawings, spare parts, training and performance guarantees. The Contractor/ bidder shall remain responsible for rectification of any defects identified during commissioning and the warranty period.

Welding Procedure & Standard (WPS & WPQ)

Welders to be employed by the Bidder may undergo a test as per ASME SEC IX and ASME/ANSI B16.3; welders declared qualified by the Company Site Representatives can only be employed on the job. Welding of joints will be carried out by SMAW procedures. All welding works to be done with E7018 welding electrode with mobile or DC welding machine. Root joint to be welded with 6010/E7018 or as advised by SLL electrode and with argon welding method. The welding electrodes should be preheated as per standard in oven. Cost of welder's qualification, through OGRA approved hired TPIA or as advised by SLL Site Representative, to be borne by the Bidder. 100% radiography of all weld joints is in bidder's scope.

Sandblasting Procedure

Sandblasting complete setup to be used along with hopper, hose pipes, relief valve must have a valid fitness certificate approved from reputable inspection agency.
Sandblasting operator shall wear special coverall, eye and face protection, shoes and gauntlet gloves for the protection of re-bounding abrasives. Positive pressure respirator helmet shall be used.
Earthing of sandblast pot and nozzle shall be done.
The sandblast pot must be provided with automatic safety shut down valve.
The sandblasting pot must have safety relief valve.
The breathing air should be supplied from screw type or oil free compressor or BOC synthetic air cylinders. In case oil lubricated compressor is to be used then it must be equipped with calibrated carbon mono oxide detection unit.
Sandblasting nozzles shall be equipped with dead man switch.

Piping Cleaning Procedure

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Section-V

BIDDER'S QUALIFICATION CRITERIA

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for
SLL Port Qasim Terminal
Under Single Stage Two Enveloped Bidding Procedure
Tender Enquiry # SSGC/LPG/SC/PT/1480

All piping spools as well as completed piping shall be thoroughly cleaned by blowing high pressure air through the spools leaving no welding leftover, dust or other unwanted material in the piping before connecting on locations. Piping top steel surfaces to be free of oil, grease, dirt, dust, mill scale, rust and paint.

Painting Procedure

- Apply paint when the surface is completely dry & to be witnessed by SLL Site Engineer/ representative.
- Soon after sandblasting, apply two coats of Zinc rich epoxy primer paint (60% sold content) on the pipeline, pipe supports and associated steel structure.
- Apply two coats of high build epoxy intermediate paint (surface tolerant paint, 80 to 90% solid content)
- Apply finish two coats of Polyurethane paint (solid content 60%), white color.
- Apply color code (different colors of piping & structure) as per SLL prevailing color scheme.
- Overall thickness of the applied paint should be over 300 microns. Bidder to arrange calibrated paint thickness meter to determine paint thickness.
- Piping color code to be followed for different services as per SLL engineer instruction before paint.
- Hand brush/ roller paint shall be acceptable.
- Calibrated paint thickness meter is to be provided by the Bidder & used to verify paint thickness.
- All underground piping to be double wrapped; before wrapping and soon after sandblasting, apply two coats of zinc rich epoxy primer paint followed equal number coats of high build epoxy intermediate paint.

Note: Sandblasting and welding works to be carried out in the designated area, outside the LPG tank area, as advised by SLL

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Section:VI

DOCUMENTATION TO BE SUBMITTED WITH TECHNICAL BID

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Tender Enquiry # SSGC/LPG/SC/PT/1480

DOCUMENTATION TO BE SUBMITTED WITH TECHNICAL BID

The bidder shall submit:

1. Manufacturer and model.
2. Pump datasheet.
3. Certified pump performance curve.
4. NPSH curve.
5. Power consumption curve.
6. Efficiency curve.
7. GA drawing.
8. Pump sectional drawing.
9. Foundation/baseplate drawing.
10. Motor datasheet.
11. Motor performance data.
12. Hazardous-area certificate.
13. Mechanical seal datasheet.
14. Coupling details.
15. Material specifications.
16. Hydrostatic test procedure.
17. FAT procedure.
18. Installation requirements.
19. Recommended spare-parts list.
20. O&M requirements.
21. Previous relevant installation references.
22. Complete technical compliance statement.

BIDDER TECHNICAL COMPLIANCE

The bidder shall provide a detailed compliance statement against every requirement of this specification.
Each item shall be marked:

COMPLY / DEVIATION / NOT APPLICABLE

Any deviation shall be clearly identified and technically justified.
Silence or failure to identify a deviation shall not be considered acceptance of a deviation.

RECOMMENDED SPARES

The bidder shall submit a separate price schedule for recommended commissioning and two-year operational spare parts, including as applicable:

- Mechanical seal
- Bearings
- O-rings
- Gaskets
- Coupling element
- Wear rings
- Seal components
- Instrument spares
- Motor bearings
- Other critical pump components

KEY TECHNICAL REQUIREMENTS-MANDATORY

The following shall be considered mandatory technical requirements:

1. Pump shall be specifically suitable for LPG service.

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2. Horizontal multistage centrifugal pump.
3. Minimum capacity: 60 MT/hr.
4. Required operating range: 60–70 MT/hr.
5. Differential pressure: 8–10 bar(g).
6. Maximum differential pressure: ≥12 bar.
7. NPSHA: 9 ft (2.74 m).
8. NPSHR: ≤5 ft (1.52 m) at 60 MT/hr.
9. Minimum NPSH margin: 4 ft (1.22 m).
10. Pump design pressure: minimum 20 bar(g).
11. Motor: 415 V, 3-phase, 50 Hz.
12. Motor: S1 continuous duty.
13. Motor efficiency: IE3 minimum.
14. Motor insulation: Class F minimum.
15. Motor enclosure: IP66 minimum.
16. Motor shall be certified for the applicable LPG hazardous area.
17. Motor shall be non-overloading throughout the specified operating range.
18. Dry-run/low-suction protection shall be provided.
19. Complete pump performance and NPSH curves shall be submitted.
20. Factory performance and mechanical tests shall be conducted.
21. Site performance test shall demonstrate the specified duty.
22. Complete hazardous-area certificates shall be submitted.
23. Pump shall be suitable for continuous operation at SLL Port Qasim Terminal.
24. All equipment shall be suitable for the existing LPG system and site conditions.

IMPORTANT BIDDER CONFIRMATION

The bidder shall provide the following explicit statement in the technical offer: "We confirm that the proposed LPG pump-motor set has been selected based on the specified operating conditions of 60–70 MT/hr capacity, 8–10 bar(g) differential pressure and NPSHA of 9 ft (2.74 m). We further confirm that the pump NPSHR at 60 MT/hr. shall not exceed 5 ft (1.52 m), and that the selected motor is adequately sized and shall not overload anywhere over the specified pump operating range, including maximum absorbed power conditions."

FINAL TECHNICAL NOTE

The final pump selection shall be based on the actual hydraulic conditions of the SLL Port Qasim Terminal, including suction pressure, discharge pressure, static head, pipe friction losses, LPG density/composition and available NPSH.

The bidder shall not finalize the pump solely on the basis of the nominal capacity. The successful bidder shall verify the complete system during the site survey and shall be responsible for supplying a pump-motor set capable of safely and reliably achieving the specified bowser filling duty.

STRAINER / FILTER

A suitable LPG-compatible suction strainer shall be provided where required by the pump manufacturer. The strainer shall be sized so that pressure drop is minimized and adequate NPSH is maintained.

The bidder shall state:

- Mesh size.
- Filtration area.
- Pressure rating.
- Material.
- Pressure drop at rated flow.

The arrangement shall permit safe cleaning and maintenance.

VALVES

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All valves associated with the pump package shall be suitable for LPG service and shall have appropriate pressure and temperature ratings. The following shall be provided as required:

- Suction isolation valve.
- Discharge isolation valve.
- Check valve.
- Bypass valve.
- Relief valve.
- Drain valve.
- Vent valve.

Valve material and pressure class shall be stated.

EARTHING AND BONDING

The complete pump skid, motor, piping and associated metallic components shall be properly electrically bonded and connected to the existing plant earthing system. The Contractor shall provide all necessary:

- Earth lugs
- Bonding jumpers
- Earthing conductors
- Connection hardware

The earthing arrangement shall be tested and documented during commissioning.

PAINTING / CORROSION PROTECTION

All external carbon-steel surfaces shall be properly prepared and coated with a suitable industrial coating system for the Port Qasim environment. The coating system shall be suitable for:

- Marine atmosphere
- Humidity
- LPG terminal environment
- Outdoor installation

The bidder shall provide the proposed coating specification.

SITE INSTALLATION

The Contractor shall be responsible for complete installation of the supplied pump package.

Installation shall include:

- Removal of existing equipment where specified.
- Positioning of new pump.
- Foundation preparation/modification, if required.
- Pump/motor installation.
- Alignment.
- Piping connections.
- Valve installation.
- Electrical connections.
- Instrumentation.
- Earthing.
- Control wiring.
- SCADA/control system interface.
- Painting/touch-up.
- Testing.

All installation work shall be carried out by qualified and experienced personnel.

PRE-COMMISSIONING

The Contractor shall conduct complete pre-commissioning checks, including:

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- Mechanical inspection.
- Piping inspection.
- Flange inspection.
- Valve operation.
- Bolt tightening.
- Pump rotation check.
- Motor insulation resistance test.
- Cable continuity test.
- Earthing test.
- Instrument calibration.
- Control logic verification.
- Emergency shutdown verification.
- Interlock verification.
- Lubrication check.
- Seal inspection.

COMMISSIONING AND PERFORMANCE TEST

The Contractor shall commission the pump in the presence of SLL representatives. The performance test shall demonstrate that the pump can achieve the specified operating capacity under actual site conditions. The minimum demonstrated capacity shall be: 60 MT/hr LPG.

The Contractor shall record:

- LPG flow rate.
- Suction pressure.
- Discharge pressure.
- Differential pressure.
- Motor current.
- Motor voltage.
- Pump speed.
- Vibration.
- Bearing temperature.
- Seal condition.
- Operating duration.

The pump shall operate smoothly without abnormal vibration, noise, overheating or LPG leakage.

PERFORMANCE GUARANTEE

The bidder shall guarantee:

1. Minimum rated capacity of 60 MT/hr.
2. Suitable NPSH performance.
3. Pump efficiency.
4. Motor power consumption.
5. Mechanical integrity.
6. No unacceptable LPG leakage.
7. Vibration within manufacturer's/API applicable limits.
8. Reliable continuous-duty operation.

Failure to achieve the guaranteed performance shall require the bidder to rectify or replace the equipment at no additional cost to SLL.

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VIBRATION AND NOISE

Pump vibration shall be measured during commissioning. The measured vibration shall be within the manufacturer's specified limits and applicable international standards. The bidder shall provide the allowable vibration limits with the technical offer. Abnormal noise, vibration or resonance shall be considered unacceptable.

SPARE PARTS

The supplier/ bidder shall quote separately for recommended commissioning and two-year operational spare parts. The recommended spare parts shall include, as applicable:

- Mechanical seal.
- O-rings.
- Gaskets.
- Bearings.
- Wear rings.
- Coupling elements.
- Pump shaft components.
- Relief valve spares.
- Motor bearings.
- Instrument spares.
- Other critical consumables.

A complete spare-parts list with part numbers and quantities shall be submitted.

SPECIAL TOOLS

All special tools required for operation and maintenance of the pump shall be identified and quoted separately. Where manufacturer-specific special tools are required, these shall be included in the supply unless otherwise agreed by SLL.

DOCUMENTATION

The Contractor shall provide complete technical documentation, including:

Before Supply

- Technical datasheet.
- Pump performance curve.
- NPSH curve.
- GA drawing.
- Foundation drawing.
- Piping connection details.
- Motor datasheet.
- Hazardous-area certificates.
- Material specifications.
- Seal datasheet.
- Electrical drawings.
- Control philosophy.
- Cause & Effect Matrix.
- Installation requirements.

After Supply

- As-built drawings.
- Operation & Maintenance Manual.
- Spare parts list.
- Recommended maintenance schedule.
- Test certificates.

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- FAT report.
- Hydrostatic test certificate.
- Material certificates.
- Calibration certificates.
- Motor test certificate.
- Hazardous-area certificates.
- Site commissioning report.
- Performance test report.

All documents shall be provided in English.

TRAINING

The Contractor shall provide operational and maintenance training to SLL personnel.

Training shall cover:

- Pump operation.
- Start-up/shutdown procedure.
- Emergency shutdown.
- Routine inspection.
- Mechanical seal monitoring.
- Lubrication.
- Troubleshooting.
- Preventive maintenance.
- Spare-parts replacement.
- Safety precautions.

Training shall be conducted at SLL Port Qasim Terminal after commissioning.

SAFETY REQUIREMENTS

All work shall be carried out in accordance with SLL safety requirements and applicable statutory regulations. The Contractor/ bidder shall comply with:

- Permit-to-work system.
- Gas testing requirements.
- Hot-work restrictions.
- Electrical safety requirements.
- Lock-out/tag-out requirements.
- PPE requirements.
- LPG safety procedures.
- Emergency response requirements.

No hot work or modification in the LPG system shall be undertaken without written approval from SLL.

HAZARDOUS AREA COMPLIANCE

All electrical and instrumentation equipment installed within classified hazardous areas shall be certified for the applicable hazardous-area classification. The bidder shall submit valid certificates from recognized certification bodies. Certificates shall clearly identify the applicable:

- Zone/Class
- Gas group
- Temperature class
- Equipment protection level/category
- Certification standard

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SLL reserves the right to reject any equipment for which hazardous-area certification is incomplete, invalid or not applicable to the installation area.

CODES AND STANDARDS

The equipment shall comply with the latest applicable editions of recognized international standards, including, where applicable:

- ASME B16.5 – Pipe flanges and flanged fittings.
- ASME B31.3 – Process Piping.
- NFPA 58 – Liquefied Petroleum Gas Code, where applicable.
- Applicable local statutory and regulatory requirements.
- SLL engineering and safety standards.

SITE SURVEY

Before finalizing the pump selection, the successful bidder shall conduct a detailed site survey.
The survey shall verify:

- Existing pump arrangement.
- Pump foundation.
- Existing suction piping.
- Existing discharge piping.
- Pipe sizes.
- Flange ratings.
- Suction pressure.
- Discharge pressure.
- Static head.
- NPSHA.
- Electrical supply.
- Hazardous-area classification.
- Existing control system.
- Available space.
- Access for maintenance.
- Existing bowser filling arrangement.

The Contractor/ bidder shall be responsible for ensuring that the supplied equipment is physically and technically compatible with the existing installation.

WARRANTY

The complete pump-motor package shall have a minimum warranty of:
12 months from commissioning or 18 months from delivery, whichever occurs earlier. A longer warranty period offered by the bidder shall be considered favorably.

- The warranty shall cover defects in:
- Pump
- Motor
- Mechanical seal
- Bearings
- Coupling
- Baseplate
- Instruments
- Electrical/control equipment supplied under the contract
- Workmanship

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FINANCIAL PROPOSAL

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Section:VIII

Scheduled of Requirement (BOQ)

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

S. No.	Description	Quoted Amount-PKR
1	Supply of LPG Pump-Electric Motor Set complete with Base frame/skid, Coupling and coupling guard, Mechanical seal etc.	
2	Construction and modification of the pump-motor set Civil Foundation	
3	Installation, testing and commissioning of LPG Pump-Electric Motor Set	
4	Supply of pipes, fittings, valves, Relief/bypass system for pump's suction and discharge system.	
5	Construction and modification of suction and discharge piping according to the site conditions and with respect to the proposed pump-motor set.	
6	Supply, installation, testing and commissioning of Instrumentation and Control system.	
7	Supply, installation, testing and commissioning of associated Electrical equipment.	
8	Supply, installation, testing and commissioning of Control panel/interface.	
9	Supply, installation, testing and commissioning of soft starter for the LPG pump's motor	
10	To provide Safety Interlocks	
11	Recommended two years and commissioning spare parts	
12	FAT.	
13	Training of SLL operations team at SLL Port Qasim Terminal.	
14	Special tools, if any.	
15	Any other additional required item or services, which did not mention above.	
16	Final testing, commissioning and satisfactory hand over of the entire New LPG Bowser Filling Pump Package to SLL operations team at SLL Port Qasim Terminal.	
		Grand Total

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Section:VIII

Scheduled of Requirement (BOQ)

Supply, Installation and Commissioning of a New LPG Bowser Filling Pump Package for SLL Port Qasim Terminal

Under Single Stage Two Enveloped Bidding Procedure

Note:

- **Mode of Payment:** Payment shall be made upon successful completion of the work in all respects, subject to the work being executed at the site and duly inspected and certified by SLL.

- **Utilities:** All utilities required for the execution of the work, including compressed air, el, diesel, all consumables etc., shall be arranged and provided by the Contractor at its own cost. Electricity and water will be provided by SLL.

- **Submission of Bid:** Bidders are required to quote their rates strictly on the prescribed Bid Form. Rates quoted on any other document or format shall not be entertained.

- **Completion Period: 34 weeks** The work shall be completed (including the supply of imported items) within the period specified in the Bid Form (BOQ), commencing from the date of issuance of the Work Order or as otherwise stipulated by SLL.

Signature & Stamp:-_____

Person Name:-_____

Company's Name:-_____

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