

Job No. 1

Schedule of quantity						
Nature of Work:- Providing LWSS to PC habitation Baroona in Tehsil Nalagarh District Solan (HP). (SH: -Laying/ jointing & testing of GMS pipe of various dia in distribution system)					Estimate amount :- Rs. 411842.00 /-only	
					Earnest Money :- Rs. 8237.00 /-only	
Time : Three Months						
SCHEDULE OF WORKS						
Sl. No.	Description of work	No.or Qty.	Unit	RATES		AMOUNT
				Figures	Words	
1.00	Excavation in drains and channels etc. in all kinds of soil such as pick work, jumper work, blasting, soft and hard rock and through conglomerate rock upto all leads and lifts stacking the excavated soil not more than 3 meters clear from the edge of excavation and then returning the stacked soil in trenches consolidating each deposited layers by ramming and watering and then disposing of all surplus excavated material within all leads and lifts and like as directed by the Engineer-in-Charge including jungle clearance.	2469.38	Cum	Per Cum		
2.00	Laying, jointing and testing in trenches galvanised mild steel tube of medium grade complete including providing and fixing tube fitting such as union, tees, socket etc (excluding cost of bends and valves) for the following dia as per direction and to the entire satisfaction of Engineer in-charge.					
	a) 15mm dia (Light class)	500.00	Rmt.	Per Rmt		#NAME?
	b) 20mm dia (Light class)	350.00	Rmt.	Per Rmt		#NAME?
	c) 25mm dia (Light class)	580.00	Rmt.	Per Rmt		#NAME?
	d) 32mm dia (Light class)	1725.00	Rmt.	Per Rmt		#NAME?
	e) 40mm dia (Light class)	1950.00	Rmt.	Per Rmt		#NAME?
	f) 50mm dia (Light class)	1480.00	Rmt.	Per Rmt		#NAME?
Total in Figures						
Total in Words						#NAME?

TERMS AND CONDITIONS:-

1. The work will be got executed as per IPH specifications.
2. Security, GST, income tax, labour cess and other statutory deduction will be deducted as applicable.
3. In addition to normal security, 2% amount of each bill be withheld for want of testing.
4. The contractor is fully responsible for watch and ward of the material at site of work.
5. Nothing shall be paid for rejected work/material.
6. GI pipe shall be issued from IPH store Nalagarh free of cost.

Executive Engineer,
I&PH Divn., Nalagarh.

SCHEDULE OF QUANTITY

Job No. 2

* SCHEDULE OF QUANTITY *					
Name of work :- Aug. of LWSS to PC habitation Baroona in Tehsil Nalagarh Distt. Solan (HP)(SH:- Supply & erection of Pumping machinery with allied accessories)				Estimated cost :-	450000 /-only
				Earnest money :-	9000 /-only
S.No	Description of item.	Quantity.	Rate	Unit	Amount.
1	Supply, erection, testing & commissioning of submersible pumping set of reputed make such as KSB/Calama/BS/Johnston/ Kirloskar/ Amrut/Sabar/Oswal/Worthington conforming to latest relevent BIS code. The pump should be fitted with free flow impellers of bronze /suitable alloy as per BIS 5659 or latest with up to date ammendments suitable for raw/clear water having Charcterstics as mentioned in item No.1 (a) having greased packed bearings & shell with wound stator on motor side & with shaft protection sleeve on pump side ensuring better life for shaft conforming to BIS specifications. The pump shall be directly coupled to a submersible motor of Kirloskar/NGEF/Jyoti / Crompton make conforming to relevent BIS code with up to date ammendments totally dust & water proof for submersible duty isolated from the pump by intermediate casing with double mechanical seal in oil chamber chamber & grease packed lubricated bearings & provided with stainless steel thrust bearing plate to withstand non vertical loads with minimum wear & tear. It should also be fitted with a device to take up expansion of water with the heating of motor. The pump set should include water level guard, erection clamps, cable clips & depth gauge etc. & suitable for operation on data given below:-	2 set		Per Set	
	a). Total Head in mtrs (i/c depth of Column Pipe in case of t/well) : 96.85 mtr.				
	b). Capacity (in LPS) of each pump set : 10.69 LPS.				
	c). Dia of R/Main (in mm) : 125 mm.				
	d).Length of R/Main (in Mtrs) : 570 mtr.				
	e).Dia of Column pipe (in mm) : 125 mm.				
	f).Length of Column pipe (in Mtrs) : 60.50 mtrs.				
	A). SITE CONDITIONS:-				
	i). Location of Site :- Near Village Kartiru Majra				
	ii) The altitude of place in which the motor is intended to work :- 450.00 mtrs.				
	iii) Humidity :- Wheather generally remains humid during monsoon season.				
	iv). Nature of atmosphere :- As normally encountered in Shivalik Ranges.				
	v). Detail of quality of water :- Clear cold water				
	vi).Water free from sand or not :- Yes.				
	vii). Water corosive or not :- Not.				
	viii).Turbidity :- 50 PPM.				
	ix). Type of well :- Tubewell.				
	x). Inside Dia of Well :- 300/ 200 mm				
	xi). Depth of water during HFL in the pond :-				
	xii). Max. draw down :- 7.50 mtrs.				
	xiii). Depth of T/well well :- 128 mtrs.				
	xiv). Any other information or requirement :- ----				
	B). OPERATING CONDITIONS :-				
	i). Type of current :- AC three/single phase				
	ii). Operating frequency :- 50HZ.				
	iii). Rated voltage :- 400 (+/-) 10% volts				
	iv). System of earthing if any to be adopted :- Double loop earthing as per BIS 3043-1987 latest with upto date ammendments.				
	v). Speed of revolution :-To be quoted by tenderer.				
	vi). Direction of rotation :- To be quoted by tenderer.				
	vii). No. of working hours per day :- 8.00 hours.				
	viii).The max. Temp. of cooling air & water in the place in which the pumpset is intended to work in ordinary service :- 35 degree.(Generally warm).				
	C). MOTOR:-				
	i). Ref to BIS code :- BIS 9283-1979 or latest with upto date ammendments.				
	ii). Type of enclosure of motor :- As per BIS 4691-1985 or latest with up to date ammendments				
	iii). Type of duty :- "S1" i.e. Continuous duty type as per IS-12824-1989 or latest with up to date ammendments.				
	iv).Mechanical out put in KW :- Suitable for driving submersible pumps required for duties specified against pumps. To avoid overloading of motor a margin of about 15-20% may be kept in the rated out put of prime mover.				
	v). Class of insulation :- Class "B" .				
	vi).Max.permissible temp. rise of motor reqd. if different from that given in B (viii) above :- To be specified by the tenderer.				
	vii). Particulars of test reqd. & where they are to be conducted:- As per terms & conditions attached.				

	viii). Particulars as to whether voltage limiting device will be employed:- Star Delta starter, oil immersed,fully automatic to be installed between bus bar & motor. Shunt capacitor is also proposed to be installed for improving the power factor at site.				
	(NOTE:- Star delta starter upto 37.5 KW & ATS for 37.5 KW & above)				
	ix). Type of motor :- As per BIS 9283-1979 or latest with upto date amendments.				
	x). Details of shaft extension reqd :- To work with the pump offered satisfactorily.				
	xi). Breakway torque in terms of rated load torque & the corresponding breakway starting current which may be taken from the supply with the starting apparatus in circuit :- Breakway torque to be given by the tenderer but the starting current should not exceed 2.5 times of the full load current.				
	xii). Nature of load & any information regarding the driven machine which has a bearing upon the torque reqd. during the accelerated period, the kinetic energy of the moving parts to be accelarated & No.of starts during a specified period:- To work with the pump offered satisfactorily.				
	xiii) Where possible fault capacity of the system to which the motor is connected :- The motor should be able to withstand initial current of 2.5 times the rated current for two minutes without suffering damages or permanent deformations .				
	D). PUMPS:-				
	i) Nos of pumps required :- 2 Nos. Pump.				
	ii). Spare parts required :- For two years normal maintenance as recommended by manufacturer.				
	iii). Type of drive :- Electric induction motor.				
	iv). Optional fittings required :- -----				
	PUMP OPERATING CONDITIONS:-				
	i). Capacity of pump (in lps) :- 10.69 LPS.				
	ii). Total head (in Mtrs.) :- 96.85 Mtrs.				
	If total head is not known then following details be provided:-				
	a) Static head (in mtrs):-				
	b) Minimum depth of water (in mtrs) :-				
	c) Seasonal Variation in water level (in mtrs):-				
	d) Ground level to max. water level (in mtrs) :-				
	e) Ground level to delivery point (in mtrs):-				
	f) Pressure in the suction tank (in kg/cm^2)-				
	g) Pressure in the delivery tank (in kg/cm^2) :-				
	iii). Length of R/Main (in mtrs):- 570.00 mtrs.				
	iv). Dia of R/Main (in mm):- 125 mm.				
	v). Length of Column pipe (in mtrs) :- 60.50 mtrs.				
	vi). Dia of Column pipe (in mm) :- 125 mm				
	vii). Turbidity of water (in ppm) :- 50PPM				
	viii). Drive type :- Electric driven.				
	ix). Limits of total head in which the pump is reqd. to operate :- (-) 15% to (+) 10% of total head.				
	x) Suction/delivery size of pump :- To be specified by the tenderer.				
	xi). Efficiency of pump at :- To be specified by the tenderer.				
	a) duty head of as mentioned in in item No.47 (a) :- 96.85 mtrs.				
	b) (+) 10 % head of as mentioned in in item No.46 (a) :- 106.53 mtrs.				
	c) (-) 15 % head of as mentioned in in item No.46 (a) :- 83.32 mtrs.				
	xii). Material of construction :- To be specified by the tenderer (manufacturers certificate to be appended)				
2	Supplying and installation at site of suitable direct on line/oil immersed star delta/ATS/stator rotor starter of standard make such as MEI/Kilburn/Jyoti/ Siemens/Larson & Tubro conforming to BIS-8544-1979 latest with up to date amendments for squirrel cage/slip-ring motor (make to be specified by the tenderers) mounted on panel board with magnetic type over load release & dashpot time lag under voltage release with initial oil filling. Note:- Star - delta - starter upto 37.5 KW , ATS between 37.5 KW to 50 KW and stater rotor starter with slipring motor beyond 50 KW.	1	No.		Each
3	Providing M.S. sheet 16 SWG steel fabricated floor mounted closed almirah type switch board including angle iron post of suitable height and size ISA 40x40x6mm duly painted comprising and capable of mounting the following accessories including cost of P & F of these accessories with all internal electric connections. The drawing of panel board shall be subject to approval of Engineer in charge. (Each pannel board comprising below mentioned accessories) a). Ammeter AC supply,100 mm dia circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 1248-(P-II)1983 latest with up to date amendments. b). Voltmeter AC supply,100 mm dia circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 4064-1978 with up to date amendments. c). ICTP switches with HRC fuses of Kilburn/Larsen & Tubro/Standard/Siemens/Havells make and having capacity 30% extra of the operational rating of motor as per BIS 4064-1978 with upto date amendments immediatly after the power meter of HPSEB. d).Busbar chamber having three copper bars of suitable rating for full length equal to width of board of three live phases and one copper bar of half rating of full length for neutral conforming to BIS 8084-1976 and 11353-1985 read with 5578-1985 all latest with upto date amendments. e).ACB/MCB/Oil circuit breaker of suitable capacity of Kilburn/L. &T/MEI/GEC/Standard make on incoming feeder for motors offered by the tenderer conforming to BIS 2516-1985 latest with upto date amendments with initial oil filling whenever required & neutral linked under voltage release. f). Three phase indicating lamps complete with toggle switches for individual motors conforming to BIS 3452 part I & II latest with up to date amendments.	1	No.		Each
		1	No.		Each
		1	Set.		Each
		1	No.		Each
		1	Set.		Each

	g). Earth leakage circuit breaker/relay of recommended make such as Kilburn/L&T/MET/GEC conforming to BIS-2516-1977 with upto date amendments and of suitable range which should have control box, oprating handel and trip/reset push button, on/ off indicators, re-indicating off spring condition of the circuit breaker for over current protection. The circuit should be equipped with magnet thermal release with metallic tap CTS. It should also be fitted earth fault for tripping of breaker on occurrence of earth fault on/ of breaker load side.	1	No.		Each	
	h).Hour run meter of reputed make of four digit capacity conforming to BIS-722 (latest edition)/recommendations.	1	No.		Each	
	i). Suitable three phase voltage monitor relay with all protections & usual indicators with electric sirens against single phasing, low voltage, high voltage & overloading & phase voltage difference as per IS-3842 with up to date amendments.	1	No.		Each	
	j). Single phase preventor of reputed make & suitable capacity conforming to IS:1248 (P-V)-1983 with up to date amendments	1	No.		Each	
4	a). Providing and fixing at site of Kirloskar/Leader/ KSB/ Fouress make of suitable dia cast iron double flanged sluice valve of 125 mm dia of class PN 1.0 having size one size larger than the nominal dia of delivery of the pump or equal to dia of column pipe (in case of Tube well) and capable of withstanding nominal seat pressure as mentioned in item No. 1-(a) (+) surge pressure conforming to standards BIS with up to date ammendments for delivery line of pump.	1	No.		Each	
	b). Providing and fixing at site of Kirloskar/Leader make of suitable size cast iron double flanged swing check type reflux valve of 125 mm dia class PN 1.0 having bye pass arrangement & size one size larger than the nominal dia of delivery size of pump or equal to dia of column pipe (in case of tube well) and capable of withstanding nominal seat pressure as mentioned in item No.1 -(a) (+) surge pressure & conforming to standards BIS with up to date ammendments for delivery line of pump .	1	No.		Each	
5	a). Providing, laying, jointing & testing at site suitable size copper PVC insulated armoured power three & half core cable (for supply side) conforming to BIS 1554 (Part I) -1988 or latest with up to date amendments of Siemen/Gloster/ICC/ EICO/National /IEC make from meter of HPSEB to circuite breaker & from circuite breaker to bus bar switch & starter (one cable carrying all three phases) including all other electrical equipment/accessories such as thimbles, flexible pipe, solder, nuts & bolts, cable glands etc. laid in pipes or trenches under floor The type, size & make will be subject to approval of HPSEB authorities. In case of non acceptance by HPSEB authorities it shall have to be replaced by the tenderer free of cost. (20 Rmt.)	1	Job		Job	
	b). Providing, laying, jointing & testing at site PVC jointless flat water proof cable (for Motor Side) as per BIS 694-1990 (latest with up to date ammendments) suitable for the pump sets offered from circuite breaker to motor & motor to starter including all other electrical equipments such as thimbles, flexible pipes, solder, nuts & bolts, cable glands etc. laid in pipes or trenches. The type, size & make will be subject to approval of HPSEB authorities. In case of non acceptance by HPSEB authorities it shall have to be replaced by the tenderer free of cost. (130 Mtr.)	1	Job		Job	
	c) Providing and laying at site double loop earthing with Copper/G.I plate 600x600x3mm thick electrode complete with material such as charcoal, common salt, GI pipes, thimbles, nuts & bolts, digging of pits, GI wiring & 25x5mm copper strips of required capacity conforming to BIS 3043-1987 latest with up to date ammendments suitable for above motors & other electrical equipments.	1	Job		Job	
	d). Supply & errectionst at site of floor/wall mounted power factor shunt capacitor conforming to BIS 2834-1986 or latest with upto date amendments of BHEL/GEC/Machneil/ Mager/Bajaj/L&T make to raise the prevailing power factor at site to 0.95 for direct connection to induction motor individually, of required KVAR according to HP of motor offered including cable Siemens/Gloster/ICC make from busbar chamber to capacitor & also including L&T/Kilburn/Standard/Siemen/Havells make ICTP switches conforming to BIS 4064-1978 or latest with HRC fuses (Range to be specified by the tenderer).	1	Job		Job	
6	Supplying and fixing at site of 100mm dia circular dial pressure gauge of suitable range & standard make such as Fiebeg/Bourden/Precision/PREGA with all accessories such as stop cock, copper tubing etc. conforming to BIS 3624-1987 or latest with up to date ammendments.	1	No.		Each	
7	lowering of GMS pipe (MG) column pipe assembly of size 125 mm dia as indicated in item 1 (e) including MS Flanges of table -5 capable to withstanding nominal pressure as mentioned in item no. 1(a) & confirming to IS 6392-1971 with up to date ammendments including the cost of rubber /asbestos gasket of maximum 3 mm thickness as per IS: 2712 -1979 and required numbers of nuts and bolts as per IS 1364 -1983. The column pipe should be provided & lowered as per the direction of engineer in charge. The same shall be of suitable thickness, grade & specification capable of withstanding minimum 1.5 times the total presure as indicated in item no. 1(a) unless otherwise specified properly jointed at every three mtrs including all necessary accessories like increaser/ reducer , flanges ,tees, bends etc. including supporting clamps (2 Nos) at the top of assembly and i/c cost of jointing of column pipe with R/Main as per the direction of engineer-in charge (63.50 Mtr.)(60.50 Mtr. column pipe + 3 Mtr. delivery pipe)	1	Job		Job	
	(In case source is T/well)				Total	
	* TERMS AND CONDITIONS *					
1	The work will be executed as per IPH/PWD specification and as per the directions of the Engineer-in-charge.					
2	Security, GST, income tax, labour cess and other statutory deduction will be deducted from each bill of the contractor as per clause of agreement and as per rules prevalent at the time of payment.					
3	The rate shall be tendered by the contractor / inclusive of all carriage of material and taxes etc.					
4	The contractor is fully responsible for watch and ward of the materials at site of work & nothing shall be paid extra for this purpose.					
5	GI pipe shall be supplied by the Deptt. free of cost from IPH store Nalagarh.					
Executive Engineer I & PH Division Nalagarh.						

Name of Work:- Aug. of LWSS to PC habitation Baroona in Tehsil Nalagarh Distt. Solan Distt. (HP). (SH:- Supply & erection of pumping machinery with allied accessories)

TERMS AND CONDITIONS FOR PUMPING MACHINERY.

- 1 The bidder shall give the name of manufacturer/ authorized dealer from whom he shall arrange the pumping machinery . An arrangement with manufacturer/ authorized dealer shall be entered into by the bidder in which manufacturer/ authorized dealer shall remain responsible for repair / replacement of pumping machinery during the warranty period.
- 2 The firm shall forward a copy of supply order /indent placed by it, for the supply of pumps and motors to the manufacturers/authorized dealers of the pumps and motors to the consignee within 30 days after issue of the letter of intent/award by the Engineer In-charge. The copy of supply order/intent to the consignee should also accompany the dealership certificate of the dealer for the pumping machinery in case the pumps and motors are arranged from the authorized dealer.
- 3 *The firm shall arrange dispatch of offered pumps and motors to the consignee direct from the manufacturers/their authorized dealer of the pumping machinery for which the supply order/indent has been placed by the firm. The packing slip should indicate the details of materials in the package and material of construction of pumps and motors.*
- 4 The shop test for the pumps and motors shall be carried out at manufacturer's works in the presence of representative of the department as per IS: 325-1978. The test performance certificate of the pumping machinery shall be arranged by the firm from the manufacturers and get it approved from the Engineer In-charge before actual dispatch of the pumping machinery.
- 5 The firm shall supply the recommended list of spares and quantities required for normal working of pumping machinery (2 years) from the manufacturers of the aforesaid equipment at the time of quoting rates and shall quote item rates for the same also.
- 6 The firm shall supply the manufacturer's manuals for the operation and maintenance of the pumping equipment.
- 7 The firm shall arrange operation and maintenance training to the operating staff for the pumping machinery without extra cost for a period of 7 days i.e. during the testing period.
- 8 The characteristic curves/performance curve chart in original of the offered pumping equipments shall be up loaded with the tender by the participating firms failing which the tender shall be rejected.
- 9 The firm shall supply & get the same approved from Engineer In- charge, the layout drawing in respect of various components, such as suction pipes, valves, cable, trenches, control panel etc. from the foot valves location to the common header which shall extend up to 5 meter from the outer wall of the pump house towards rising main. The details of foundations required for various components shall also be supplied by the firm within 30 days of the letter of intent/award.
- 10 The installation of pumping machinery above 100HP shall be inspected by the technical representative of the manufacturer of rank not less than that of a service engineer, at the work site and inspection certificate shall be supplied to the Engineer In-charge. This inspection shall be in addition to the test report and nothing extra shall be paid on this account.
- 11 The wiring and installation of electric equipment shall be as per HPSEB rules and regulations and subject to the approval of the Chief Electrical Inspector and or his authorized officer. Any defect pointed out shall be rectified by the firm without any extra cost. The wiring and installation of all electric equipment shall be done by licensed contractor of approved class of HPSEB and test report shall be got accepted from the HPSEB authorities on their approval format (Form-D) for release of power connection by the firm without extra cost.
- 12 The temporary electrical connection, if required during installation shall be arranged by the firm at its own cost and energy charges shall also be paid directly by the firm to the HPSEB.

- 13 Prices of all the items shall be FOR site of work inclusive of all leads and lifts and shall be inclusive of all charges of transportation. Insurance, packing, taxes and duties such as sales tax, excise duty and local taxes extra.
- 14 The rates shall be quoted only on the format of schedule of quantities uploaded on line giving all specified data so desired there in.
- 15 The rates offered for, the specified makes in the schedule of quantities only shall be considered. Rates quoted for part of non specified makes shall lead to rejection of the tender.
- 16 The site of works are located at Kartiru Majra. The rates quoted by the firm shall be inclusive of all mechanical and manual transport within all leads and lifts.
- 17 All the equipments /material shall conform to the relevant BIS specifications wherever applicable and in its absence to any accepted national/International standards.
- 18 All the equipment shall be guaranteed against any manufacturing defect including metallurgy and its performance for a period of 12(twelve) months from the date of commissioning. Any defect if noticed within the stipulated period shall be rectified by the firm at its own cost within 15 days of bringing the same to its notice. The guarantee clause shall be substantiated by a guarantee bond of a Nationalized Bank for an amount equal to the cost of pumping and electric equipment (accessories included) pledged in the name of the Executive Engineer in-charge at the time of applying for refund of security deposits. The guarantee bond shall be released after the expiry of the guarantee period. The Pumping machinery shall be supplied after completing all civil works etc.
- 19 The installed pumping machinery and other allied accessories shall be tested daily for stipulated pumping hours in the NIT for a period of seven days without extra cost. However, the cost of electricity and water shall be borne by the deptt.
- 20 During the guarantee period efficiency of the pumping and the electric equipment should not vary beyond the range of (+/-) 2.5% .If during guarantee period, the efficiency falls beyond 2.5% to a maximum of 5%, 1% cost of the pump set for 1% fall of the efficiency shall be deducted. In case of fall of efficiency beyond 5% the pump set shall be rejected and cost of the defected pump set recovered from the pledged Bank guarantee & or from the security deposit as the case may be.
- 21 80% (eighty percent) payment of the cost of pumping machinery and equipment less 10% security and other statutory recovery shall be made after receipt of complete pumping machinery i.e. pump and motor received together at site of work in good condition. The balance 20% cost after deduction of the security and other recoveries shall be released after successful and satisfactory installation, testing of the entire equipment. Ten percent security deposit shall be released as stipulated in the agreement.
- 22 80% (eighty percent) installation charges shall be released after satisfactory installation of all the pumping and electrical equipment. Remaining 10% of installation charges shall be released after testing of the entire equipment.
- 23 The installation of pumping machinery shall be inspected by the technical representative of manufacturer of rank not less than that of service Engineers at site of work and inspection certificate shall be supplied by to the engineer in charge. This inspection shall be in addition to the test report and nothing extra be paid on this account.
- 24 Unless otherwise specified delivery pipe and pipe for common header shall be of same specification as of Rising Main in initial R.D,s near pump house.
- 25 Only manufacturers or their authorized dealers shall be eligible to participate in the tender process. They shall have to provide certificate from principal manufacturers.
- 26 Those firms/persons having sub-dealership of any approved make of pump shall be allowed to participate in tender process if and only if they are authorized dealer of any one of the approved make of pump.
- 27 Documentary proof of dealership/sub-dealership for supplying pumping machinery of NIT make must be uploaded with the tender by the participating firms/ contractors.
- 28 In case a principal manufacturer or authorized dealer offers a Pump of which he is not a manufacturer or an authorized dealer, he must at least have sub dealer-ship of the pump "make" offered by him .
- 29 Any authorized dealer participating in the tender process of the given work shall not be allowed to give authority to any individual/firm for the same work.

**Executive Engineer,
IPH Divn. Nalagarh.**