

SCHEDULE OF QUANTITY									
Name of Work:- <b>Remodeling of LIS Bhalath in Tehsil Barsar Distt. Hamirpur.</b>							Estimated Cost Rs.,		651340.00
<b>(SH:-Supply &amp; erection of pumping machinery along with allied accessories &amp; P/L of risingmain . )</b>							Earnest Money Rs.		13026.80
							Time	3 Months	
Sr No.	Description of items.	Specifications offered.	Quantity.		Rates in Rs.		Unit		
					Figures /	Words			
1	Providing horizontal spindle horizontal split casing/end suction (back pull out arrangement) single/double multistage centrifugal pump or combination of pump in series of recommended make such as Mather and Platt/ KSB/ Kirloskar /Jyoti /Bareja Vogal as per <b>BIS-1520-1980</b> with up to date amendments, read with IS: 9137-1978 or latest edition suitable for lifting <b>raw</b> water for under mentioned characteristics with bronze impellers/priming funnels, casing ring and shaft sleeves of bronze, shaft of steel grade EN-8 with cast iron casing coupled directly through a flexible coupling on a MS/Cast steel base plate ( base plate to be from the manufacturers of the pumping unit only) to <b>Squirrel Cage SPDP ( screen protected drip proof) or TEFC( Totally enclosed fan cooled)</b> induction motor of standard make such as Kirloskar/Crompton/ NGEF/KSB ABB/ BHEL/GEC/Seimens/Jyoti and suitable for operation on <b>400 (+/-) 10%</b> volts, 50 cycles/second, 3 phase AC electric supply. The power of electric motor should be at least 10% in excess of the maximum power required by the pump in the operation range of <b>(+ 10% and -) 25%</b> of the duty point head. The motor should be as per IS: 325-1978 with up to date amendments read with IS: 900-1972. It should include the cost of bearing nuts, bolts and painting etc and should meet the following requirement.	<b>(a) pumps:</b> Specifications (i) Make (ii) Model (iii) No's of Stages (iv) Material (manufatures certificate to be appended ) Performances (i) Head (H) in meter (ii) Discharge (Q)in lps/m3/hr (iii) BHP absorbed (iv) Efficiency (n) (v) NPSH (K)	<b>2 Nos.</b>					Per set	
<b>(b) Motors: (Specification)</b>									
<b>Discahrge (Q) :-</b>		Total	<b>12.88</b>	LPS ( each )	(i) Make.	<b>2</b>	<b>Nos.</b>		
<b>Both the pump will work in</b>		Or	46.37	Cum/Hour					
<b>Total dynamic head :</b>			<b>105.53</b>	Mtr.	(ii) Model				
(a) LWL in sump well (h) :			<b>99.50</b>	Mtr.	(iii) Motor rating (KW)				
(b) Shaft level :			<b>102.50</b>	Mtr.	(iv) Speed :2900 (RPM)				
(c ) Level at discahrge point :			<b>179.00</b>	Mtr.	(v) Insulation				
(d) Suction lift :			<b>3.00</b>	Mtr.					
(e) Residual head :			<b>3.00</b>	Mtr.					
(f) Static head :			<b>76.50</b>	Mtr.					
(i) Rising Main :									

	(a) Length	<b>840</b>	Mtr.	(c) Coupling:	<b>2</b>	<b>Nos.</b>				
	(b) Dia. :	<b>150</b>	mm	(d) Base plate.	<b>2</b>	<b>Nos.</b>				
	(iv) Pumping Hours :	<b>20</b>	Hours							
	(v) Altitude of installation above MSL :	<b>655.00</b>								
	(vi) Characteristics of water :	<b>Raw water</b>								
	(a) Temperature :	<b>20.00</b>	<sup>0</sup> C							
	(b) Ambient temperature	<b>42.00</b>	<sup>0</sup> C							
	(c) Turbidity		< than	<b>50.00</b>	NTU					
	(d) Alkalinity				Mg/C <sub>a</sub> Co <sub>3</sub>					
	(e) Size of the solids				mm					
	(f) Other									
<b>2 (a)</b>	Providing ICTP( Iron clad tripple pole) Main Switch with HRC fuses/Side handled operated L & T/Crompton/Standard/ Havells make Operational rating as per <b>IS: 4064 ( Part-II) -1978</b> with up to date amendments immediately after the power meter of HPSEB			<b>ICTP Switches :-</b> (i) Make (ii) Model (iii) Capacity : Suitable	<b>1</b>	<b>No.</b>				Each
<b>(b)</b>	Providing M.S. sheet, steel fabricated floor mounted closed ( Almirah type) switch board including angle iron post of suitable height and size ISA 40x40x6mm, duly painted, with steel sheet of <b>16</b> gauge comprising, capable of mounting the following accessories with all internal connections:-			<b>Panel/Switch Board:</b> (i) Drawing. (ii) Layout plan.	<b>1</b>	<b>No</b>				Each
<b>(i)</b>	<b>M.C.B. Kilburn / MEI / Jyoti</b> make of suitable capacity on incoming feeder with or without initial oil filling as the case may be with neutral linked under voltage releases as per <b>IS: 2516(Part-II) -1985</b> with up to date amendments with.			<b>MC.B.</b> (i) Make. (ii) Type (iii) Range: Suitable	<b>1</b>	<b>No.</b>				Each
<b>(ii)</b>	<b>E.L.C.B. of Havell/Inditec/ MDS/Standard</b> make as per <b>IS: 2516(Part-II)-1985</b> with upto date amendment which should have control box operating handle and trip/reset bush 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 tape etc. It should also be lifted with earth fault for tripping of breaker on occurrence of earth fault on off breaker load side end.			<b>E.L.C.B</b> (i) Make (ii) Type (iii) Range :63 Amp.	<b>1</b>	<b>No.</b>				Each.
<b>(iii)</b>	The voltage monitor relay of <b>L &amp; T/AE/ Diplomat</b> make three phase with all protection and usual indicator and electric siren against single phasing low voltage, high voltage, reverse phasing, over loading and phase voltage difference as per <b>IS: 3842 ( Latest edition).</b>			<b>Voltage relay monitor</b> (i) Make (ii) Type (iii) Range	<b>1</b>	<b>No.</b>				Each.
<b>iv)</b>	<b>100mm square type</b> A.C. supply voltmeter of <b>AE/ L&amp; T/Rishab</b> make with selector switches as per <b>IS: 4064-1978</b> with up to date amendments.			<b>Voltmeter.</b> (i) Type. (ii) Make	<b>1</b>	<b>No.</b>				Each

		(iii) Range 0-500					
v)	Power factor meter of <b>AE/ L&amp; T/Rishab</b> make square type as per relevant IS codes with up to date amendments of suitable rating.	<b>Power factor meter.</b>	1	<b>No.</b>			Each
		(i) Type.					
		(ii) Make					
vi)	Frequency meter of <b>AE/ L&amp; T/Rishab make square type</b> as per relevant IS: Codes with up to date amendments of suitable rating.	<b>Frequency meter.</b>	1	<b>No.</b>			Each
		(i) Type.					
		(ii) Make.					
		(iii)Range : Suitable rating					
vii)	Bus bar chamber with three copper strips having three bars of suitable rating for full length equal to the width of the board for three live phases and suitable for induced current, one copper bar of half the rating of full length for neutral phase as per <b>IS: 8084-1976</b> and <b>IS: 11353-1985</b> read with <b>BIS 5578-1985</b> with up to date amendments .	<b>Bus Bar chamber.</b>	1	set			Each
		(i) Type					
		(ii) Make.					
		(iii) Rating :suitable rating					
viii)	ICTP switches with HRC fuses of L & T/ Crompton/ Standard/ <b>Havells</b> make of suitable capacity as per IS: 4064-1978 with up to date amendments.	<b>ICTP Switches</b>	2	<b>Nos.</b>			Each
		(i) Type.					
		(ii) Make.					
		(iii)Range :suitable rating					
ix)	Three phase indicator lamps complete with toggle switches for individual motors as per IS: 3452 ( P-I&II) with up to date amendments.	<b>Three phase indicator:</b>	1	set			Each set.
		(i) Type					
		(ii) Make.					
		(iii) Range : suitable					
x)	100mm Square type AC supply Ammeter of <b>AE/ L&amp; T/Rishab</b> make with selector switches and CTS operated as per IS:1248 (P-II) 1983 with up to date amendments.	<b>Ammeter.</b>	2	<b>Nos.</b>			Each
		(i) Type.					
		(ii) Make.					
		(iii) Range. 0-500					

xi)	Capacitor of <b>L &amp; T/ Bajaj/ Assian/ Crompton</b> make as per <b>IS:2834-1986</b> with up to date amendments to raise the power factor at site to 0.95 for direct connections to induction motor individually according to HP offered including cables as per relevant ISI code ( of Siemens/Glocter/IEC make) from bus bar chamber to capacitor and also including ICTP switches of appropriate range as per IS: 4064-1978 with upto date amendments	<b>Capacitor:</b> (i) Type (ii) Make (iii) Range : 7 KVAR	2	<b>Nos.</b>			Each	
xii)	Providing <b>Oil Immersed Star delta</b> starter of <b>MEI/ Kilburn</b> make as per <b>IS: 8544-1979</b> with up to date amendments for <b>Squirrel Cage</b> motor mounted on panel board with magnetic type overload release and dashpot time lag, under voltage release initial oil filling with single phase preventor as per <b>IS 8544 ( Part-II) 1987</b> with up to date amendments .	<b>Starter:</b> (i) Type.Oil Immersed (ii) Make.	2	<b>Nos.</b>			Each	
		<b>Single Phase Preventor.</b> (i) Type. (ii) Make.	2	<b>Nos.</b>			Each	
xiii)	Providing Hour run meter of recommended make of suitable capacity as per <b>IS: 722 (Latest edition)</b> 0-9999 hours .	<b>Hour Rrun meter :</b> (i) Type. (ii) Make. (iii) Range. 0-9999 hours .	2	<b>Nos.</b>			Each	
3	Providing double flanged <b>cast iron</b> foot valve of <b>Kirloskar/ Leader / BHEL /Gled/Pelican/ Kartar</b> make of 150 <b>mm dia</b> for the suction pipe and capable of with standing the normal seat pressure and as per <b>relevant IS Code with upto date ammendments.</b>	<b>Foot valve.</b> (i) Make. (ii) Class P.N. 1 (iii)Seat Pressure 10.20 <b>Kg/cm<sup>2</sup></b> (iv) Material. C.I.	2	<b>Nos.</b>			Each	
4	Providing double flanged <b>Cast Steel</b> sluice valve of <b>Kirloskar/ Leader / BHEL /Gled/Pelican/ Kartar</b> make and size <b>one dia higher than pump</b> for the delivery line of the pump and capable of with standing the normal seat pressure and as per relevant <b>IS code</b> with up to date amendments.	<b>Sluice valve.</b> (i) Make. (ii) Class ASA-150 (iii)Seat Pressure 21.00 Kg Cm2 (iv) Material. CS.	2	<b>Nos.</b>			Each	
5	Providing double flanged (Swing type) <b>Cast Steel</b> reflux valve of <b>Kirloskar/ Leader / BHEL /Gled/Pelican/ Kartar</b> make one <b>dia higher than pump size</b> having bye pass arrangement on the delivery line of pump and capable of with standing normal seat pressure as <b>per relevant IS code</b> with up to date amendments .	<b>Reflux valve valve.</b> (i) Make. (ii) Class ASA-150	2	<b>Nos.</b>			Each	

		(iii) Seat Pressure 21.00 Kg/cm <sup>2</sup>					
		(iv) Material. CS.					
6	Providing double flanged <b>Cast Steel non return valve</b> of <b>Kirloskar/ Leader / BHEL /Gled/Pelican/ Kartar</b> make and of <b>150</b> mm dia having bye pass arrangement for rising main and capable of with standing normal seat pressure as per <b>per relevant IS code</b> up to date amendments .	<b>Non return valve.</b> (i) Make. (ii) Class ASA-150 (iii) Seat Pressure 21.00 Kg/cm <sup>2</sup> (iv) Material. CS.	1	No.			Each
7	Providing <b>100mm dia.</b> circular dial pressure gauge of Fiebig make complete with all accessories such as stop cock, copper tubing etc. as per <b>IS: 3624-1987</b> with up to date amendments range 0.16 Kg/cm <sup>2</sup>	<b>(Pressure gauge)</b> (i) Make. (ii) Range :0.21 Kg/cm <sup>2</sup>	2	Nos.			Each
8	Providing <b>100mm dia.</b> circular dial vaccum gauge of Fiebig make complete with all accessories such as stop cock, copper tubing etc. as per <b>IS: 3624-1987</b> with up to date amendments range 0.16 Kg/cm <sup>2</sup>	<b>( Vaccum gauge)</b> (i) Make. (ii) Range : 0.21 Kg/cm <sup>2</sup>	2	Nos.			Each
9	Installation of all the items appearing at Serial No. <b>1 to 8</b> as per the systematic drawing attached with the tender documents		1	Job			Job.
10	Providing and fixing double flanged piping work layout to be approved by the Engineer-in-Charge for suction and delivery pipes suitable to pump(s) offered and common header as per the rising main respectively complete with all specials such as bends ,tees reducers/ increasers with companion flanges matching with the relevant specifications of the accessories as indicated in the drawing No.2 including rubber/asbestos gasket of minimum 3mm thickness as per IS 2712-1979 and required number of nuts and bolts as per IS: 1364-1983. The pipes shall be as per relevant IS Code and to withstand 1.5 times total head stipulated under item No.1.	<b>Suction pipe.</b> (i) Make (ii) Grade (iii) Thickness (iv) Flange table		<b>1 Job</b>			Job.
The size of the various components to be as under:-		<b>Delivery pipe.</b>			<b>GMS Pipe Conforming to IS: 1239 -1979 flanged with M.S. flanges of Table - 5/17 in</b>		
(i) Suction pipe 150 mm dia Min. length = 15 mtr.		(i) Make					
(ii) Delivery pipe 125 mm dia -do- = 5 mtr.		(ii) Grade					

	(iii) Common Header <b>150</b> mm dia -do- = <b>10</b> mtr.	(iii) Thickness (iv) Flange table	<b>delivery side &amp; common header.</b>				
	And will extend up to 5 meters from the outer wall of the pump house in the direction to be jointed.	<b>Common header</b> (i) Make (ii) Grade (iii) Thickness					
<b>11</b>	Providing and laying copper PVC insulated armoured power cable ( one cable carrying all the three phases) of suitable size and capacity to and all other electrical equipments as per IS: 1554 (P-I)1988 or latest with upto date amendments of Siemens/ IEC/ICC/GICO/Grandly/National make including all other accessories such as thimbles, flexible, pipes solder, nuts and bolts, cable glands etc. laid in pipes or trenches under floor.		1	Job			Job.
	Motor side: 10 mm <sup>2</sup> Min length = 20 mtrs.						
	Supply side: 50.00mm <sup>2</sup> Min. length = 10 mtrs.						
<b>12</b>	Providing and fixing double loop earthing and <b>G.I. plate 600mmx600mmx3mm</b> thick electrode complete with material such as thimbles, nuts and bolts, charcoal and common salt, 25mmx3mm <b>G.I. strips &amp; G.I. wire</b> as per <b>IS: 3043-1987</b> with up to date amendments for motors and other electrical equipments and digging of pits etc. complete in all respect.		1	Job			Job.
<b>13</b>	Excavation in foundations and trenches etc.(for pipes and pits in all depths etc.) in all lifts and in all kinds of soils such as pick work, jumper work, blasting in soft/hard rock, chiseling/wedging out of rock (where blasting is prohibited)and saturated soils, stacking the excavated earth within all leads and lifts, clear from the edge of excavation and then returning the stacked soil in 15 cm layers when required into plinths, sides of foundation and trenches etc., consolidating each deposited layer by ramming and watering and then disposing of all surplus excavated earth as directed by Engineer-in-charge within all leads and lifts including uprooting of trees, dressing of beds and sides and preparation of sub-grade, restoration of unmetalled /metalled/paved surfaces to its original conditions including soring, strutting, timbering and dewatering , where ever required, providing diversion for traffic, fixing night signals, fixing caution boards, crossing over trenches for access to houses complete and to the entire satisfaction of the Engineer-in-charge.		848.25	cum			Per cum

14	Laying jointing and testing of 150 mm dia galvanized mild steel tube ( medium class) fully jointed with circumferencial butt welding joints in requisite number of weld run so as to achive minimum throat thickness of weld conforming to IS 816-1969 specifications by using welding electrodes conforming to IS 814-1991 at site of work etc. manual & mechanical handling of pipes in all leads and lifts & to the entire satisfaction of the Engineer-in-Charge. (Cost of excavation in trenches etc. to be measured and paid for separately)	1232.00	Rmt			Per Rmt	
15	Laying and testing of galvanized mild steel tube in trenches of 150 mm dia ( medium class) including tube fittings and to the entire satisfaction of the Engineer-in-charge as per IS:1239 (Part-I)-1979 fully jointed with M.S.flanges of table 17 as per IS 6392-1971 including welding in two layers on both faces as per IS:816-1965,gasket sheet not less than 3mm in thickness,nuts and bolts etc at site of work etc. manual & mechanical handling of pipes in all leads and lifts & to the entire satisfaction of the Engineer-in-Charge. (Cost of excavation in trenches etc. to be measured and paid for separately)	218.00	Rmt			Per Rmt	
						<b>Total</b>	
<b><u>Terms &amp; Conditions of Pumping machinery</u></b>							
1	The firm shall forward a copy of supply order/indent placed by it for the supply of pumps and motors on 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/indent 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.						
2	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.						
3	The shop test for the pumps and motors shall be carried out at contractors 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.						
4	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.						
5	The firm shall supply the manufacturers manuscripts for the operation and maintenance of the pumping equipment.						
6	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.						

7	The <b>characteristic curves</b> of the pumping equipment shall be supplied with the offer other wise the tender shall be rejected.
8	The firm shall supply layout drawing in respect of various components, such as suction pipes, valves, cable, trenches, control panel etc. from the foot valve location to the common header, which shall extend upto 5 metre 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.
9	The installation of pumping machinery above 100 HP shall be inspected by the technical representative of the manufacturers of rank not less than that of a services 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.
10	All the civil work shall be constructed by the department.
11	The wiring and installation of electric equipment shall be as per HPSEB rules and regulations & subjected 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 a licensed contractor of approved class of HPSEB and test report shall be got accepted from the HPSEB authorities on their approved 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 etc.
14	The rates shall be quoted only on the format of schedule of quantities which is attached with the tender document 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 and or non-specified makes shall lead to rejection of the tender.
16	The site of work is located at ___Km on road _____ km from nearest raod _____ & head load is involved. The site is located _____ km from the nearest railhead Una. The rates quoted by the firm shall be inclusive of all mechanical and manual transport within all leads and lifts.
17	All the equipment material shall conform to the relevant BIS specifications wherever applicable and in its absence to any accepted National/International standards.

18	The general specifications of work shall conform to PunjabPWD/HPPWD specifications as per direction of the Engineer-in-charge.
19	The validity of the tender shall be not less than 120 days other-wise the tender shall be summarily rejected.
20	All the equipments shall be guaranteed against any manufacturing defect including metallurgy and its performance for a period of 12 (twelve) months from the date of commissioning/ 15 (fifteen) months from the date of supply which ever is earlier. 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..
21	The installed pumping machinery and other allied accessories shall be tested daily for 16 hours for a period of seven days without extra cost. However the cost of electricity and water shall be borne by the department. 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 effected pump set recovered from the pledged Bank guarantee & or from the security deposit as the case may be.
22	90%( Ninety 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 along with accessories received together at site of work in good condition. The balance 10% 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.
23	90% (Ninety- 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.
24	In absence of performance curve, no offer will be entertained.
	<b><u>Terms &amp; Conditions of Rising main</u></b>
1	The work shall be carried out as per IPH specification and to the entire satisfaction of the Engineer-In-charge.
2	10% security 2% sale tax& 2% income tax shall be deducted from each bill.
3	Final payment shall be released after successful testing of pipe line.
4	The contractor is fully responsible for watch & ward of his material at site of work during exection . Nothing shall be paid for rejected work .
5	The GMS pipe will be issued to the contractor free of cost from Divisional store .

6	The bend shall be provided to required degree and dia duly manufactured by the parent tube only conforming to ISI mark.
7	No payment shall be made to the contractor in case the bend being made by way of bending the pipe.
8	Any damage caused to metalled/ mecadam road street, path and existing structure during excution of work will be restored by the controctor /firm at its own cost.Alignment of pipe line can be shifted/ changed asper site condition for which nothing extra shall be paid beyond the approved rates.
9	All machinery/ equipment required for laying of pipe line will be arranged by the contractor/ firm.
10	Pipe laying shall be done asper ISI standard and asper water supply mannual & no deviation is allowed without prior approval of the undersigned.
11	The testing of pipe line will be carried out by the firm at its own cost for which 5% amount will be withheld and same should be relesead after successful commissioning/ functioning.
12	All the joints shall be leak proof, air tight and smoke proof.

Executive Engineer,  
I&PH Divn. Barsar.