

Estimated Cost Rs. 630000/-  
 Earnest Money: 12600  
 Time : 6 Months

**SCHEDULE OF QUANTITY**

**NAME OF WORK :- Augmentation of LWSS Maloun in Tehsil Nalagarh Distt. Solan**

**(SH: - Providing & installation OF CENTRIFUGAL PUMPING MACHINERY WITH ALLIED ACCESSORIES -(Stage-1 st)**

S.NO.	DESCRIPTION		QTY	RATE		UNIT	AMOUNT
				IN FIG	IN WORDS		
I.	Supply, erection, testing & commissioning of horizontal spindle, horizontal split casing, radial split Single/Multistages centrifugal pumps of standard make such as KSB/ Mather & Platt/ Jyoti /Kirloskar/ Beaconweir /BS & BE conforming to BIS 1520-1980 with upto date amendments read with BIS 9137-1978 or latest edition to handle clear water having turbidity up to 50 ppm. with impellers, casing ring, priming funnels & shaft sleeves of bronze, shaft of steel with cast iron casing of suitable capacity coupled directly through a flexible coupling on a common base plate of cast steel /Mild steel to BHEL /Kirlokar/ NGEF/ Crompton / Siemen/Jyoti /GEC make slip ring /squirrel cage screen protected drip proof induction electric motor suitable for operation on the data given below.		2 set			P/set	
a)	Tota Head	345.30	mts				
b)	Capacity	8.13	lps				
c)	Dia of R/Main	125	mm				
A)	<b>SITE CONDITIONS:-</b>						
i)	Location of Site:-	Ghambrola Khud					
ii)	The altitude of place in which the motor is intended to work in ordinary service (in metres) :-	Ghambrola Khud					
iii)	Humidity:-	Weather generally remains humid during monsoon season.					
iv)	Nature of atmosphere:-	As normally encountered in Shivalik Range					
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 (if any):-	500 PPM					
ix)	NPSH available:-	Positive Suction					
x)	Any other information or requirement:-						
B)	<b>OPERATING CONDITIONS:-</b>						
i)	Type of current:-	AC three/single phase					
ii)	Operating frequency:-	50 HZ					
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)	No. of working hours per day:-	8 hours					
vi)	Speed of revolution in RPM:-	To be quoted by tenderer					
vii)	Direction of rotation:-	To be quoted by tenderer					
viii)	The max. Temp. of cooling air & water in the place in which the motor is intened to work in ordinary service.	Uto 30 Degree					
<b>C) MOTOR:-</b>							
i)	Ref. to BIS code:-	BIS 325-1978 read with BIS 900-1992 (latest)with upto date ammendments					
ii)	Type of enclosure of motor:-	SPDP(as per BIS 4691-1985 (latest)					
iii)	Type of duty:-	Continuous as per IS-12824-1989 or latest with up to date ammendments					
iv)	Mechanical out put in KW:-	Suitable for driving centrifugal 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.permmissible temp.rise of motor reqd. if different from given in B(viii) above:-	---					
vii)	Particulars of test reqd. & where they are to be conducted:-	As per terms &					
viii)	Particulars as to whether voltage limiting device will be employed:-	ATS/star delta (NOTE:- Star					
ix)	Motor whether squirrel cage or slipring:-	Squirrel cage/slip- (Note:- Squirrel cage upto 65HP and slipring above 65HP)					

x)	Details of shaft extension reqd.:-	Just sufficient to provide direct drive by flexible coupling to pump.					
xi)	Type of slip-ring gear whether continously rated or for starting purposes only & whether to be fitted with brush lifting or short circuit arrangements or both if interlocks are required.:-	Continuously rated for Squirrel cage/Slipring motor					
xii)	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.					
xiii)	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 accelrated & No.of starts during a specified period.:-	Sufficient to work the pump offered					
xiv)	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)	PUMP :	BIS 1520-1980 read with BIS 9137-1978 both with up to date ammendments					

a)	Nos of pumps reqd.:-	2 no. pumps one to work at a time independently					
b)	Spare parts required:-	For two years normal maintenance as recommended by manufacturer.					
c)	Optional fittings reqd.:-	Air cock for exhausting air from each stage.					
E)	<b>PUMP OPERATING CONDITIONS:-</b>						
i)	Capacity (in LPS)	8.13					
ii)	Total head (in Mts):-	345.30					
	<b>If total head is not known then following details be provided:-</b>						
	i) Static head ( in mtrs)						
	ii) Minimum depth of water( in mtrs)						
	iii) Variation in water level ( in mtrs)						
	iv) Ground level to max. water level ( in mtrs)						
	v) Ground level to delivery point ( in mtrs)						
	vi) Pressure in the suction tank (in Kg/cm <sup>2</sup> )						
	vii) Pressure in the delivery tank (in Kg/cm <sup>2</sup> )						
iii)	Length of R/Main (in metres):-	1230					
iv)	Dia of R/Main (in mm):-	125					
v)	Drive arrangement:-	Direct through flexible coupling on a common base plate					
vi)	Drive type:-	Electric driven					
vii)	NPSH reqd.:-	To be quoted by					
viii)	Limits of total head in which the pump is reqd. to operate:-	(-) 15% to (+) 10% of total head.					
ix)	Suction/delivery size of pump:-	To be specified by the tenderer					
x)	Efficiency of pump at:-	To be specified by the tenderer					
	a) duty head						
	b) (+)10 % head						
	c) (-) 15 % head						
xi)	Material of construction:-	To be specified by the tenderer (manufacturer's certificate to be appended)					

Estimated Cost Rs. 540000/-

Earnest Money: 10800

Time : 6 Months

**SCHEDULE OF QUANTITY**

NAME OF WORK :- Augmentation of LWSS Maloun in Tehsil Nalagarh Distt. Solan

(SH: - Providing &amp; installation OF CENTRIFUGAL PUMPING MACHINERY WITH ALLIED ACCESSORIES -(Stage-2 nd)

S.NO.	DESCRIPTION	QTY	RATE		UNIT	AMOUNT
			IN FIG	IN WORDS		
1.	Supply, erection, testing & commissioning of horizontal spindle, horizontal split casing, radial split Single, / Multistages centrifugal pumps of standard make such as KSB/ Mather & Platt/ Jyoti / Kirloskar/ Beaconweir / BS & BE conforming to BIS 1520-1980 with upto date amendments read with BIS 9137-1978 or latest edition to handle clear water having turbidity up to 50 ppm. with impellers, casing ring, priming funnels & shaft sleeves of bronze, shaft of steel with cast iron casing of suitable capacity coupled directly through a flexible coupling on a common base plate of cast steel / Mild steel to BHEL / Kirlokar/ NGEF/ Crompton / Siemen/Jyoti /GEC make slip ring /squirrel cage screen protected drip proof induction electric motor suitable for operation on the data given below.	2 set			P/set	
a)	Tota Head		247.80	mts		
b)	Capacity		6.47	lps		
c)	Dia of R/Main		100	mm		
A)	<b>SITE CONDITIONS:-</b>					
i)	Location of Site:-		Maloun			
ii)	The altitude of place in which the motor is intended to work in ordinary service (in metres) :-		Maloun			
iii)	Humidity:-		Weather generally remains humid during monsoon season.			
iv)	Nature of atmosphere:-		As normally encountered in Shivalik Range			
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 (if any):-		<5 JTU			
ix)	NPSH available:-		Suction Lift =3.50 mtr.			
x)	Any other information or requirement:-					
B)	<b>OPERATING CONDITIONS:-</b>					
i)	Type of current:-		AC three/single phase			
ii)	Operating frequency:-		50 HZ			
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)	No. of working hours per day:-	8 hours					
vi)	Speed of revolution in RPM:-	To be quoted by tenderer					
vii)	Direction of rotation:-	To be quoted by tenderer					
viii)	The max. Temp. of cooling air & water in the place in which the motor is intended to work in ordinary service.	0to 30 Degree					
C)	<b>MOTOR:-</b>						
i)	Ref. to BIS code:-	BIS 325-1978 read with BIS 900-1992 (latest)with upto date ammendments					
ii)	Type of enclosure of motor:-	SPDP(as per BIS 4691-1985 (latest)					
iii)	Type of duty:-	Continuous as per IS-12824-1989 or latest with up to date ammendments					
iv)	Mechanical out put in KW:-	Suitable for driving centrifugal 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.permmissible temp.rise of motor reqd. if different from given in B(viii) above:-	---					
vii)	Particulars of test reqd. & where they are to be conducted:-	As per terms &					
viii)	Particulars as to whether voltage limiting device will be employed:-	ATS/star delta (NOTE:- Star					
ix)	Motor whether squirrel cage or slipring:-	Squirrel cage/slip- (Note:- Squirrel cage upto 65HP and slipring above 65HP)					

x)	Details of shaft extension reqd.:-	Just sufficient to provide direct drive by flexible coupling to pump.					
xi)	Type of slip-ring gear whether continously rated or for starting purposes only & whether to be fitted with brush lifting or short circuit arrangements or both if interlocks are rquired.:-	Continuously rated for Squirrel cage/Slipring motor					
xii)	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.					
xiii)	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 accelrated & No.of starts during a specified period.:-	Sufficient to work the pump offered					
xiv)	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)	PUMP :	<b>BIS 1520-1980 read with BIS 9137-1978 both with up to date ammendments</b>					
a)	Nos of pumps reqd.:-	2 no. pumps one to work at a time independently					
b)	Spare parts required:-	For two years normal maintenance as recommended by manufacturer.					
c)	Optional fittings reqd.:-	Air cock for exhausting air from each stage.					
E)	PUMP OPERATING CONDITIONS:-						
i)	Capacity (in LPS)	6.47					
ii)	Total head (in Mts).:-	247.80					
	If total head is not known then following details be provided:-						

	i) Static head ( in mtrs)						
	ii) Minimum depth of water( in mtrs)						
	iii) Variation in water level ( in mtrs)						
	iv) Ground level to max. water level ( in mtrs)						
	v) Ground level to delivery point ( in mtrs)						
	vi) Pressure in the suction tank (in Kg/cm <sup>2</sup> )						
	vii) Pressure in the delivery tank (in Kg/cm <sup>2</sup> )						
iii)	<b>Length of R/Main (in metres):-</b>	960					
iv)	<b>Dia of R/Main (in mm):-</b>	100					
v)	<b>Drive arrangement:-</b>	Direct through flexible coupling on a common base plate					
vi)	<b>Drive type:-</b>	Electric driven					
vii)	<b>NPSH reqd.:-</b>	To be quoted by					
viii)	<b>Limits of total head in which the pump is reqd. to operate.:-</b>	(-) 15% to (+) 10% of total head.					
ix)	<b>Suction/delivery size of pump:-</b>	To be specified by the tenderer					
x)	<b>Efficiency of pump at:-</b>	To be specified by the tenderer					
	a) duty head						
	b) (+)10 % head						
	c) (-) 15 % head						
xi)	<b>Material of construction:-</b>	To be specified by the tenderer					