Government of Jammu & Kashmir

Office of the Executive Engineer, Jal Shakti (PHE) Mechanical Division (North) Sopore Website: phekashmir.com Email ID: phe.mdns@gmail.com

No.: PHE/MDNS/DB/ 3860-67 Dated: 23 - 08 - 2013

Rs 70.905 Lacs

Rs 65.268 Lacs

M/s UEE Electrical Engineers Pvt. Ltd. Shradanand Marg Delhi - 110006

B/O: Main Bazaar, Kathua, J&K-184101

GST No: 01AAACU1624K1ZR

Cell No: 9899963794

Electro-mechanical works to be carried at WSS Chandergeer Pehlipora Stage 1st and 2nd Subject: under JJM.

This office e-NIT No.: e-NIT No. 13 of 2023-24, S. No. 02 issued under Reference: 1. endorsement No.: PHE/MDNS/DB/1455-60, dated: 10-06-2023.

Authorization awarded by Member Secretary DJJM Superintending Engineer Jal 2. Shakti (PHE) Hydraulic Circle Baramulla/Bandipore HQ at Sopore issued vide No. SE/Hyd/DB/4897-4900, dated: 01-08-2023. <

Adv. Cost:

Allotted Cost:

Dear Sir,

For and on behalf of Lt. Governor of J&K UT contract for execution of "Electro-mechanical works to be carried at WSS Chandergeer Pehlipora Stage 1st and 2nd under JJM" is hereby awarded to your firm on the quoted/negotiated rates, as per 'General Terms & Conditions' and 'Schedule of cost and quantities' annexed herewith as under:

Annexure A: General Terms & Conditions.

Annexure B: Schedule of cost and quantities.

Encl. leaves

Executive Engineer hakti PHE Mechanical Diyision (North) Sopore

Copy to the:

1. Chief Engineer Jal Shakti (PHE) Department Kashmir, Srinagar for favour of information.

2. District Development Commissioner

3. Superintending Engineer Jal Shakti (PHE) Mechanical Circle (North) Srinagar, for favour of

4. Superintending Engineer Jal Shakti (PHE) Hydraulic Circle ______ HQ at _____ favour of information.

5. Executive Engineer Jal Shakti (PHE) Division , for favour of information.

6. Provisional Head, TPIA JJM Kashmir, (WAPCOS Limited) Corporate Office 76-C Institutional area Sector-18 Gurugram-122015 (Haryana) for favour of information. for information &

7. Assistant Executive Engineer Jal Shakti (PHE) Mechanical Sub-Division necessary action.

8. File concerned.

Annexure "B" Schedule of cost and quantities to this office Allotment Order No: PHE/MDNS/DB/38 66-67-dated: >> 18 (102)

Name of work: Electro-mechanical works to be carried at WSS Chandergeer Pehlipora Stage 1st and 2nd under JJM

0.	Item Description	Qty	Units	Rate	Amount
. 1	T Pumping Units: Providing, installation, successful testing and				
C	commissioning of vertical turbine pumping unit for 1st stage as per IS 1710				
	friven by hollow shaft VT motor for pumping water from River Jehlum of				
f	ollowing parameters:				
	Site Condition:				
9	Ititude = 1580 Meters (AMSL)				
4	mbient Temperature = +40°C to - 15°C elative Humidity = 60%	-			
K	Levels of site				
B	ottom level of intake channel = Zero Meters				
	fachine Floor level from bottom level of sump = 8 Meters				
	ater column in liner/sump above the bed level = 2 Meters	,			
	Type of water = Raw water having specific gravity of unity average				
A.	PUMP				
1.					
2.					
3.					
4.	RPM = 1460	37			
5.	Head = 80 Meters with minimum stages.				
6.	Efficiency = Not less than 65-70%				
7.	Impeller = Enclosed/semi-enclosed mixed flow all bronze				
8.	Line shaft/Head Shaft = Stainless steel				
9.	Total length of line shaft = 10 m or as specified (excluding Head shaft)				
10.	. Impeller shaft = Stainless steel				
11.					
12.					
13.		2	Job	850000.0	1700000
14.			100	830000.0	0 1700000.0
15.		\$n			
16.		100			
	ry the weight of all rotating parts and the hydraulic down thrust. The				
	aring housing shall have suitable cooling mechanism.	100			
17.		1			
	ation.				
18.					
	pipe and, diffe				
	rosive and polished, of wall thickness not less than 12mm flanged type in				
	orted lengths. At least 8 Meters column pipes to be provided with	1			
	ximum length of 5 feet/length.				
	np bowl to be designed with minimum number of stages.	1			
	Prime Mover				
1.	Type = Vertical hollow shaft, AC squirrel cage induction motor	-/-		1814	
2.	Power Supply = 03 Phase, 41 5V± 10% AC			1,00	
3.	Frequency = 50Hz±3%	1			
4.	RPM = 1450 Synchronous	6/1			
5.	Efficiency = Not less than 85%	1.7			
6.	HP = Corresponding to Head and discharge but not less than 3	5			
	HP.			A E	
7.	Class of insulation = F or above		11.	· · · • · · · · · · · · · · · · · · · ·	
8.	Type of duty = Continuous				
9.				-	
5. 10.	Motor thrust bearing = Anti-friction ball bearing/roller bearing		-		
	Method of starting = star/delta		- 1		
ne ne	motor should be able to with stand fluctuations in voltage and should be				\Diamond
LUNT	forming to latest IS specifications.				[1]

Continue to the second of the second of the second second of the second	 C. Accessories Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. proper stiffening for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. 					
The Control of the Co	 Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMB/ISMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided 					
	with the material before installation. VT Pumping Units: Providing, installation, successful testing and	1				
2	commissioning of vertical turbine numping unit for stage-2nd as per IS 1710					
	driven by hollow shaft VT motor for pumping water from River Jehlum of					
	following parameters:	+ 1			4	7
	<u>Site Condition:</u> Altitude = 1580 Meters (AMSL)	,	100			
	Ambient Temperature = +40°C to - 15°C					
	Relative Humidity = 60%		1.			
	Levels of site					
	Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters					
	Water column in liner/sump above the bed level = 1 Meters				-	1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m
	Type of water = Raw water having specific gravity of unity average					
	A. PUMP					
	1. Discharge = 15000 GPH at 35M head	-				
	 Type = Self water lubricated, VT pump, open line shaft. Liquid to be handled = Raw Water 					1,11
	3. Liquid to be handled = Raw water 4. RPM = 1460					
	5. Head = 35 Meters with maximum of 4-5 stages.	1				
	6 Ffficiency = Not less than 65-70%		2	Job	615000.00	1230000.00
	7. Impeller = Enclosed/semi-enclosed mixed flow all bronze		2	100	613000.00	1250000.00
	8. Line shaft/Head Shaft = Stainless steel 8. Line shaft/Head Shaft = Stainless steel 8. Line shaft/Head Shaft = Stainless steel					
	 Total length of line shaft = 5 m or as specified (excluding Head shaft) Impeller shaft = Stainless steel 		1			
Man (America	C + lane who r/No apropa rupher				1 gr -	
PR (ARR)	 11. Line shaft bearing = Cut less rubber/Neophene rubber 12. Line shaft coupling = Stainless steel 					
no intramedan	13. Suction Strainer = MS fabricated					
STATE SECURITY	14. Suction Bowl/Bell mouth= Cast Iron					
OM COLCINS	15 Pump Rowl = Cast iron					
-	16. Bearing: Thrust bearing shall be suitable and of adequate capacity	The	-			
order to stone	carry the weight of all rotating parts and the hydraulic down thrust. T	ille	5			
Appropriate section of the section o	bearing housing shall have suitable cooling mechanism.	rse				
and the state of	17. Ratchet: Non-reversing ratchet shall be provide to prevent reve		-			
- Carlotte - Carlotte	rotation. 18. Column pipe = Mild Steel 150mm VT Pumping Unit dia, a	nti-				
Series Contraction	18. Column pipe = Mild Steel 150mm VI Pumping Onit dia, at corrosive and polished, of wall thickness not less than 12mm flanged type	e in				
-	assorted lengths. At least 4 Meters column pipes to be provided w	with				
and the same of	maximum length of 5 feet/length.					4
and the same of th	Pump bowl to be designed with minimum number of stages.					
- Andrewson	B. Prime Mover	4				
-	1. Type = Vertical hollow shaft, AC squirrel cage induction motor			<u></u>		

2. Power Supply = 0.1Phase, 41 VM 10% AC 3. Frequency = 50H2.13% 4. RPM = 1450 Synchronous 5. Efficiency = Net less than 80% 6. HP = Corresponding to Net and discharge but not less than 15 HP. 7. Class of insulation = For above 8. Type of daty = Continuous 9. Motor thrust bearing = Anti Incition ball bearing/roller bearing 10. Method of staring = star/defa The motor should be able to with stand fluctuations in voltage and should be conforming to latest 15 septentiations. C. Accessories Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per shandral specifications bessels all other accessories required for satisfactory performance and mechanical works required for satisfactory performance and performanc				A Committee of the committee of	A APPLICATION OF THE PARTY OF T	description is the second
4. RPM = 1450 Synchronous 5. Efficiency = Not less than 85% 6. HP = Corresponding to Head and discharge but not less than 15 HP 7. Class of insulation = F or above 8. Type of daty = Continuous 9. Motor thrust bearing = a stayldella 10. Method of starting = stayldella 11. Method of starting = stayldella 12. A method of starting = stayldella 13. Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. a sper standard specifications. See the included in the job. 8. Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. a sper standard specifications besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site ein cludded in the job. 8. See Frame 8. Establication, providing and fitting of base frame for the installation of the pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. 9. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping with it to be approved from the concerned authority before procuring/dispatch. 9. Original Manufacturer's Test certificates in original to be provided with the material before installation. 10. VT Pumping Units: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per 15 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: 10. Sicc Condition: 11. Altitude = 1580 Meters (AMSL) 12. Ambient Temperature = +40°C to - 15°C 13. Relative Humidity = 60% 14. Evels of site 15. Bottom level of intalse channel = Zero Meters 16. Head = 45 Meters with maximum of 4-5 stages. 17. Type = Self water lubricated, VT pump, open line shaft. 18. Liquid to be handled = Raw Water 19. Type = Self water lubric		2. Power Supply = 03 Phase, 41 5V± 10% AC				
5. Efficiency = Not less than 85% 6. HP = Corresponding to bread and discharge but not less than 15 HP = Corresponding to bread and discharge but not less than 15 HP. 7. Class of insulation = For above 8. Type of daily = Continuous 9. Motor thrust beaning = Antifriction ball bearing/roller beating 10. Method of starting = star/felta 11. The motor should be able to with stand fluctuations in voltage and should be conforming to lates It specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. 8ase Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMA/ISMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any wibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation. 7. Y Pumping Units: Providing installation. 8. Y Pumping Units: Providing installation. 8. Y Pumping Units: Providing installation. 9. You for the pumping unit for existing stage.2nd as per 15 1710 driven by hollow shaft VT motor for pumping water from filver Jehlum of following parameters: 9. Size Condition: Altitude = 1560 Metres (AMSL) Ambient Temperature = 40°C to - 15°C Relative Humidity = 60% 1. Discharge = 15000 GPH at 45M head 2. Type = Seff water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65		3. Frequency = 50Hz±3%				
6 HP = Corresponding to Head and discharge but not less than 15 HP. 7. Class of insulation = F or above 8. Type of duty = Continuous 9. Motor thrust bearing = Anti-friction hall bearing/roller bearing 10. Method of starting = star/delta The motor should be able to with stand flictuations in voltage and should be conforming to lates it Specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for satisfaction of pumping unit at site are included in the job. 8ase Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame shall be of rollust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's fest certificates in original to be provided with the material aberior installation. 2. VT Pumping Units: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per 15 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • Site Condition: Altitude = 15800 Meters (AMSL) Ambient Temperature = 440°C to - 15°C Relative Humidity = 60% • Levels of site Bottom level of intake channel = Zero Meters Water column in liner/sump above the bed level = 1 Meters - Type of water = Raw water having specific gravity of unity average A_PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Seff water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65-70% 7. Impeller = Enclos		4. RPM = 1450 Synchronous				
HP. 7. Class of insulation = For above 8. Type of duty = Continuous 9. Motor thrust bearing = Antifiction ball bearing/roller bearing 10. Method of starting = star/delta The metor should be able to with stand fluctuations in voltage and should be conforming to latest It specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping units. The base frame and mechanical works required for installation of pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation, successful testing and commissioning of vertical turbine pumping unit for existing stage.2nd as per 15 1710 driven by hollow shaft VT motor for pumping water from filiver Jehlum of following parameters: • Size Condition: Altitude = 15800 Meters (AMSL) Ambient Temperature = 440°C to -15°C Relative Humidity = 60% • Levels of size Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters - Type of water = Raw water having specific gravity of unity average A.PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Seff water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65-70% 7. Impelier = Enclosed/semi-enclosed mixed flow all bronze 8. Line shaft Dead shaft = 5 m or as specified (exclu		5. Efficiency = Not less than 85%				
7. Class of Insulation = For above 8. Type of duty = Continuous 9. Motor thrust bearing = Anti-friction ball bearing/roller bearing 10. Method of starting = star/delta 11. Method of starting = star/delta 12. Method of starting = star/delta 13. Method of starting = star/delta 14. The metor should be able to with stand fluctuations in voltage and should be conforming to latest its specifications. C. Accessories • Each pump unit shall be provided with suitable discharge linad with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical wards required for installation of pumping unit a site are included in the job. 8. Base Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMA/ISMAC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of fest certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation, • Original Manufacturer's Test certificates in original to be provided with the material before installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per 15 1710 driver by hollows shalf VT motor for pumping water from River Jehlum of following parameters: • Site Condition: Altitude = 1580 Meters (MMSL) Ambient Temperature = +40°C to -15°C Relative Humidity = 60% • Levels of site Discharge = 15000 GPH at 45M head 2. Type of water = Raw water having specific gravity of unity average A PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Seff water fubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water						
8. Type of duty = Continuous 9. Method of starting = star/delta 10. Method of starting = star/delta 11. Method of starting = star/delta 12. The motor should be able to with stand fluctuations in voltage and should be conforming to latest IS specifications. C. Accessories • Each pump unit shall be provided with suitable discharge linad with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications sexibes all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. 8. Sex Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation. 7. YT Pumping Units: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for oxisting stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • Sec Gondition: Altitude = 1580 Meters (AMSL) Ambient Temperature = 440°C to - 15°C Relative Humidity = 60% • Levels of Site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters • Type of water = Raw water having specific gravity of unity average • Liquid to be handled = Raw Water • Type = Self water Univicated, VT pump, open line shaft. 1 Job 640000.00 640000.00 640000.00 640000.00 1 Job 640000.00 640000.00 1 Job 640000.00 640000.00 1 Job 640000.00 640000.00 640000.00 640000.00 640000.00 640000.00 640000.00 640000.00 640000.0		HP.				
9. Motor thrust bearing = Anti-friction ball bearing/roller bearing 10. Method of starting = start/delta The motor should be able to with stand fluctuations in voltage and should be conforming to latest it's specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. Base Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMB/ISMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • Site Condition: Altitude = 1580 Meters (AMSL) Ambient Temperature = +40°C to -15°C Relative Humidity = 60% • Levels of site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters • Type of water = Raw water having specific gravity of unity average A. PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Self water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65-70% 7. Impeller = Enclosed/semi-enclosed mixed flow all bro		7. Class of insulation = F or above				
10. Method of starting start/felta The motor should he able to with stand fluctuations in voltage and should be conforming to latest IS specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. Base Frame • Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation. J. VT. Pumping. Units: Providing. installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from filiver Jehlum of following parameters: Ste. Condition: Altitude = 1580 Meters (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% • Levels of Site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Type of water = Raw water having specific gravity of unity average A. PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Self water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65-70% 7. Impelier = Enclosed/semi-enclosed mixed flow all bronze Line shaft/Head Shaft = Stainless		8. Type of duty = Continuous				1
The motor should be able to with stand fluctuations in voltage and should be conforming to latest its specifications. C. Accessories Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for satisfactory performance and mechanical works required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. Base Frame Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMB/ISMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping units under the suitable of pumping units and support entire static and dynamic load of pumping unit at site are included in the job. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided with the material before installation. Jeps Providing installation. Jeps Providing and the providing water from River Jehlum of following parameters: Site Condition: Altitude =1580 Meters (AMSL) Ambient Temperature = +40°C to -15°C Relative Humidity = 60% Levels of site Bottom level of intake channel = Zero Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Liquid to be handled = Raw Water Type = Self water lubricated, VT pump, open line shaft. Liquid to be handled = Raw Water RPM = 1460 Type = Self water lubricated, VT pump, open line shaft. Liquid to be handled = Raw Water Type = Self		9. Motor thrust bearing = Anti-friction ball bearing/roller bearing				
conforming to latest its specifications. C. Accessories Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for satisfactory performance and shall support entire static and dynamic load of pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping units of pumping unit is to be approved from the concerned authority before procuring/dispatch. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided with the material before installation. **To Pumping Units:** Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per 15 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: **Site Condition:** Altitude = 1580 Meters (AMSL) Ambient Temperature = 440°C to - 15°C Relative Humidity = 60% **Levels of site Bottom level from bottom level of sump = 4 Meters Machine Floor level from bottom level of sump = 4 Meters **Water column in liner/sump above the bed level = 1 Meters **Jeps of water = Raw water having specific gravity of unity average **Device = 15000 GPH at 45M head **Type = Self water lubricated, VT pump, open line shaft. 1 Job 64	1	10. Method of starting = star/delta				
conforming to latest its specifications. C. Accessories • Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for satisfactory performance and satisfactory performance and satisfactory performance and satisfactory and pumping units in the provided construction and shall support entire static and dynamic load of pumping units. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. • Original Manufacturer's Test certificates in original to be provided with the material before installation. 7 **V**Pumping**Units**: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • **Site Condition** **Afficiency** In the pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • **Site Condition** **Afficiency** In the pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping unit for existing stage-2nd as per IS 1710 driven by		The motor should be able to with stand fluctuations in voltage and should be				
C. Accessories Each pump unit shall be provided with suitable discharge head with proper stiffening box arrangement, non-reverse ratchet, coupling etc. as per standard specifications besides all other accessories required for satisfactory performance and mechanical works required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job. Base Farme Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMB/ISMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided with the material before installation. MT Pumping Units. Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: Site Condition: Altitude = 1580 Meters (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% Levels of site Bottom level of intake channel = Zero Meters Machine floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed level = 1 Meters Water column in liner/sump above the bed lev						
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Fabrication, providing and fitting of base frame for the installation of the pumping units. The base frame to be fabricated out of suitable size ISMB/SMC members. The base frame shall be of robust construction and shall support entire static and dynamic load of pumping unit without any vibration. Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided with the material before installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: Site Condition: Altitude = 1880 Meters (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% Levels of site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters Type of water = Raw water having specific gravity of unity average A_PUMP Discharge = 15000 GPH at 45M head Type = Self water lubricated, VT pump, open line shaft. Liquid to be handled = Raw Water RPM = 1460 Head = 45 Meters with maximum of 4-5 stages. Efficiency = Not less than 65-70% Impeller = Enclosed/semi-enclosed mixed flow all bronze Line shaft/Head Shaft = Stainless steel Line shaft coupling = Stainless steel Suction Bowl/Bell mouth= Cast Iron Figure 1 for respective propers of pumping and dynamic load of pumping and the surface and pumping and the surface and pumping and to the provided with the surface and pumping and to the provided with the pumping and the provided with the pumping and to the pumping and the provided with the provided with the pumping and to the provided with the pumping and to the provided with the pum						
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Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch. Original Manufacturer's Test certificates in original to be provided with the material before installation. JYPumping Units: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: Site Condition; Altitude = 1580 Meters (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% Levels of site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters Type of water = Raw water having specific gravity of unity average PUMP Discharge = 15000 GPH at 45M head Liquid to be handled = Raw Water RPM = 1460 Head = 45 Meters with maximum of 4-5 stages. Efficiency = Not less than 65-70% Impeller = Enclosed/semi-enclosed mixed flow all bronze Eine shaft/Head Shaft = Stainless steel Total length of line shaft = 5 m or as specified (excluding Head shaft) Impeller shaft = Stainless steel Line shaft bearing = Cut less rubber/Neoprene rubber Line shaft coupling = Stainless steel Suction Strainer = M5 fabricated Suction Bowl/Bell mouth= Cast Iron Furnity displayed from the provided from the pr		construction and shall support entire static and dynamic load of				
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3. VT Pumping Units: Providing, installation, successful testing and commissioning of vertical turbine pumping unit for existing stage-2nd as per IS 1710 driven by hollow shaft VT motor for pumping water from River Jehlum of following parameters: • Site Condition: Altitude = 1580 Meters (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% • Levels of site Bottom level of intake channel = Zero Meters Machine Floor level from bottom level of sump = 4 Meters Water column in liner/sump above the bed level = 1 Meters • Type of water = Raw water having specific gravity of unity average A. PUMP 1. Discharge = 15000 GPH at 45M head 2. Type = Self water lubricated, VT pump, open line shaft. 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 45 Meters with maximum of 4-5 stages. 6. Efficiency = Not less than 65-70% 7. Impeller = Enclosed/semi-enclosed mixed flow all bronze 8. Line shaft/Head Shaft = Stainless steel 9. Total length of line shaft = 5 m or as specified (excluding Head shaft) 10. Impeller shaft = Stainless steel 11. Line shaft bearing = Cut less rubber/Neoprene rubber 12. Line shaft coupling = Stainless steel 13. Suction Strainer = MS fabricated 14. Suction Bowl/Bell mouth= Cast Iron 15. Pump Bowl = Cast iron						
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14. Suction Bowl/Bell mouth= Cast Iron 15. Pump Bowl = Cast iron	i					
15. Pump Bowl = Cast iron	į .		1			
	1					
16. Bearing : Thrust bearing shall be suitable and of adequate capacity to	1					
	16.	Bearing: Thrust bearing shall be suitable and of adequate capacity to			1	
		The second secon	ticine vice stratich as joins customer.	The second secon	1/	

the Ven

Labo bydraulic down thrust. The				4
carry the weight of all rotating parts and the hydraulic down thrust. The bearing housing shall have suitable cooling mechanism. 17. Ratchet: Non-reversing ratchet shall be provide to prevent reverse and the hydraulic down thrust. The provide to prevent reverse the provide to p				10
17. Ratchet: Non-texts and Just dia, anti-				
rotation. 18. Column pipe = Mild Steel 150mm VT Pumping Ont table 18. Column pipe = Mild Steel 150mm VT Pu				
corrosive and polished, of wall thickness not less than 12mm hanged with assorted lengths. At least 4 Meters column pipes to be provided with assorted length of 5 feet/length.				
assorted lengths. At the state of the state				
Pump bowl to be designed with minimum name				
B. Prime Mover				\ \
1. Type = Vertical hollow shart, 70 s 10% AC 2. Power Supply = 03 Phase, 41 5V± 10% AC				
3. Frequency = 50Hz±3%	,	4		
4. RPM = 1450 Synchronous		-		
5. Efficiency = Not less than 85% 6. HP = Corresponding to Head and discharge but not less than 20				
6. HP = Corresponding to Head and discharge but not head and discharge but not head.				
7. Class of insulation = F or above				
8. Type of duty = Continuous		= 1,		
9. Motor thrust bearing = Anti-friction ball bearing/roller bearing	3.			
10. Method of starting = star/delta The motor should be able to with stand fluctuations in voltage and should be	,			
conforming to latest IS specifications.				
C. Accessories				
Each pump unit shall be provided with suitable discharge head with				
proper stiffening box arrangement, non-reverse ratchet, coupling etc.				
as per standard specifications besides all other accessories required		- 1		
for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job.		- 4	1	
Base Frame				
Fabrication, providing and fitting of base frame for the installation of		=		
the pumping units. The base frame to be fabricated out of suitable				
size ISMB/ISMC members. The base frame shall be of robust				
construction and shall support entire static and dynamic load of				
pumping unit without any vibration.				- 1
Providing of test certificate & Characteristic Curve of pumping				, ,
equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring/dispatch.				
Original Manufacturer's Test certificates in original to be provided				
with the material before installation.		- 1	3	
Delivery manifold/Y-junction: Providing/supplying and fitting of G.I flanged	,			
Rising Main at site for stage 1st and 2nd. The Pipe shall be hot dip Galvanized,				
class C confirming to IS 1239. The job includes providing and fitting of M.S				
Flanges conforming to BIS 6392/1997 Table 17 (Rating PN16) for fabrication of				
delivery manifold/Y-Junction as per site requirement. The flanges shall be				
double welded both from inside and outside of the pipe using standard				
electrode of reputed make.				,
Flanges (as per IS 6392/1997 Table:17)	,			
Thickness shall conform to IS 6392 Part 1st Table-17. The flange welding shall				
be carried out in double layers using reputed make electrodes to form strong	40	Meter	2189.00	87560.00
welding joint.				
Welding Electrode				
DC Arc Welding using welding electrode having diameter not less than 4mm.				
Nuts and Bolts				-
Nuts and Bolts (conforming to IS:1363 Part 1st)				
Rubber Insertion Gaskets				
Rubber Insertion Gaskets (conforming to IS: 638/79) to be used between	1			
flanged joints. The main technical specifications of the pipe are given here	2			
under:				

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	Size: 100 mm Class: C (Heavy) The job also includes providing fitting of 100mm dia washout connection in the delivery mainfold.				
	Size: DN100 PN:1.6/16 The body and bonnent of the valve shall be of ductile iron, wedge with fully vulcanized EPDM rubber (Approved for drinking water) and NBR seal. The Gate/Sluice valve shall be compatible for buried applications and shall be safe to install in both horizontal and vertical positions It shall have electrostatic epoxy coating(approved for drinking water) both inside and outside of the valve. The valve shall be supplied along with hand wheel. Cost on account of Nuts, bolts, gaskets, etc required for the job is included in the scope of work. The job includes providing and fitting of 02 nos. M.S flanges (Table flanges) perfectly adaptable to the inbuilt flanges of the valve which shall be fitted with rising main of the pumping unit at appropriate spots as per site requirement. The job includes the cost on account of P/F of nuts, bolts and gasket required for the job.	6	No.	19094.00	114564.00
6	to the second se	6	No.	20581.00	123486.00
7.	Providing, fitting, testing and commissioning of voltage stabilizer for stage 1st and 2nd as per specifications below: Rating:: 50KVA Type of voltage controller: Manually operated copper wound, 3-phase, AC power supply multi step. Type of Regulator : Double plate type with electrolytic copper contacts. Input voltage : 250-400 volts.(3 phase) Output voltage : 400 ±10% volts. Frequency : 50 ±3 C/S. Windings : Electrolytic grade copper of adequate section, vacuum impregnated and Oven-dried. Insulation : Fiber glass insulations to tested parameters. Cooling : Naturally, Oil cooled Temp. Rise (Max): 30°C above ambient Mounting : On Uni-directional wheels. Correction rate : 30 volts per step Wave form distortion : virtually nil Duty cycle : 100% continuous. Enclosure : MS sheet enclosure in pressed CGR Sheet powder	3	No.	107401.0	322203.00

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Lettern Ster	- 4			
coated with radiators. Core laminates: High grade, low eddy loss, grain oriented silicon steel	- 100			
Core laminates : High grade, ton Con				
laminations.		18,100		
laminations. Load : Three phase induction motor load.				
Load Amperes (continuous) Overload in 24-hours operation: 10% above continuous Ampere rating. Overload in 24-hours operation: 10% above continuous Ampere rating.	- 1	1 1 1 1	A PROPERTY.	
Overload in 24-hours operation: 10% above gauge preferably glass type			A Transfer	
The voltage stabilizer shall have a	1 100			
tube or otherwise visible to make a pulse Luckmeters (0-500V) along with a	1111			
display panel for housing 02 numbers Digital Volumeers of			7837. Th	
display panel for housing 02 numbers Digital Voltmeters to way selector switch and set of neon indicators for incoming and outgoing			7 73	
phases (06 No's).	1			o late
phases (06 No's). Insulating media (T. Oil) of 11 KVA grade to be provided and filled up to top				ă l
The voltage Stabilizer shall be accepted with manufacturers duty starting			1.1	
certificate and shall have name plate with specifications.				
Manufacturers test certificate to be appended .	-			
8. Providing, fitting, testing and commissioning of voltage stabilizer for stage 1st				
and 2 nd as per specifications below:				
Rating:: 75KVA		1	12-315 1	571
Type of voltage controller: Manually operated copper wound, 3-phase, AC	d		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
power supply multi step.				
Type of Regulator : Double plate type with electrolytic copper				7 1 4 1 1 1
contacts.				
Input voltage : 250-400 volts.(3 phase)				
Output voltage : 400 ±10% volts.			2 2 2	
Frequency : 50 ±3 C/S.				
Windings : Electrolytic grade copper of adequate section,				
vacuum impregnated and Oven-dried.				1.0
Insulation : Fiber glass insulations to tested parameters.				
Cooling : Naturally, Oil cooled				1 4
Temp. Rise (Max): 30°C above ambient			- 1 - 1 - 1 · 1 · 1	
Mounting : On Uni-directional wheels.				
Correction rate : 30 volts per step				
Wave form distortion : virtually nil				
Duty cycle : 100% continuous.	2	No.	163721.00	327442.00
Enclosure : MS sheet enclosure in pressed CGR Sheet powder		. –		, <u>1</u>
coated with radiators.			,	14
Core laminates : High grade, low eddy loss, grain oriented silicon steel				
laminations.				
Load : Three phase induction motor load.				
Load Amperes (continuous)				
Overload in 24-hours operation: 10% above continuous Ampere rating.				
The voltage stabilizer shall have T-oil level indicator gauge preferably glass type				
tube or otherwise visible to naked eye. The top of the container to have a				
display panel for housing 02 numbers Digital voltmeters (0-500V) along with 4-				
way selector switch and set of neon indicators for incoming and outgoing				
phases (06 No's).				
Insulating media (T. Oil) of 11 KVA grade to be provided and filled up to top				
level, with dielectric strength of 5 KV at 4m air gap. The T-Oil of specific grade				
should be provided in separate barrels and filled at site up to top level.			2	
The voltage Stabilizer shall be accepted with manufacturers dully stamped test				
certificate and shall have name plate with specifications.				
Manufacturers test certificate to be appended .			-	
Design, manufacturing ,providing , fitting, testing & commissioning of Star-				
delta Motor control Panel				
The Star-delta Motor control Panel shall be fabricated out of 2 mm CRCA				
	01	Job	330000.00	330000.00
Sheets Modular, compartmentalized, Free Standing, Floor Mounting, Front				
hinged doors for indoor use, removable bottom gland plates for incoming cables, dust and vermin proof (IP:42 protection) with TP Aluminum Buses,				
Capies dust and vermin proof (ID://) protection) with TD Aliverton	1			

complete with connection, internal wiring, neon indicators for each phase starter buttons, name plates, painting ,vents etc. All panel compartments shall be provided with suitable cable alley and vertical bus bar alley. Suitable segregation shall be provided in between bus bar chamber and adjoining compartments. The bus bar shall be PVC sleeved with color strips of red, yellow, blue and black and the same be arranged in accordance with IS-375 specs. Electrical clearances shall be maintained between phases, neutral and body as per standards.

The control panel shall be furnished as per detail given below:

Rated Voltage of the Panel ---- 440 Volts

Frequency ---- 50 HZ

No of Phases ---- Three

Enclosure Details ----- Free Standing, Floor mounted,

Compartmentalized Design.

Material ---- CRS

Thickness of sheet steel used ---- 02mm

Application ---- Indoor

Cable Entry ---- Bottom

Painting ---- Shade Siemens grey.

a) Main Circuit Breaker (Incomer MCCB)

Type ---- Front Operated micro processor release type on load 4 pole

Qty ---- 1 Nos

No. of poles ---- 4

Current Rating..... 200 Amp

Rated operational voltage---- 415 V AC ± 15%

Rated frequency ---- 50 ± 3% Hz

Ultimate S.C Breaking cap

at (415 volt A C, 50 Hz) ---- 50kA

Type ---- Microprocessor control

b) Distribution bus bar

Type -----Electric grade AL with red, blue & yellow tapings of adequate section.

Rating ---- 160 Amp

c) Change over Switch

Qty ---- One

Type ----- Front Operated on load 4 pole (open execution)

Rating ---- 200 Amp

d) Motor protection Circuit Breaker units

Type ---- MPCB

Qty ---- 2 Nos

No. of poles----3

Rated current -----84-125 Amp

Rated operational voltage---- 415 V ± 15%

Rated frequency ---- 50 ± 3% Hz

Ultimate S.C Breaking capacity at (415 volt A C, 50 Hz) -----36kA

e) Starters (FASD) 40HP

Power Specification ----3 phase, 415 ± 15% v & 50 Hz

Contactors: MNX / Schneider

Line Contactor ---- AC3 95 A

Delta Contactor --- AC3 95 A

Star Contactor ---- AC3 70 A

Timer ---- Star Delta Electronic

Overload relay – direct/CT operated (35-75A range)

Coil Voltage: 220/240V

Qty ---- 2 No's

f) Aux. panel for heating and lighting

Circuit breaker---MCCB

Qnty---01 no.

No. of poles---04

A Ken

Thermal release range63-80 A Rated operational Voltage415±15% Ultimate S.C. Breaking Capacity35 KA at (415AC,50 Hz) g) Stabilization unit Qnty01 no Rating 1 KvA single phase automatic voltage stabilizer				
Ultimate S.C. Breaking Capacity35 KA at (415AC, 30 has)				
Ultimate S.C. Breaking Cope		• 1		1
a) Ctabili7ation univ				
a) Ctabili7ation univ		11 9		
Rating 1 KvA single phase automatic voltage stabilizes			THE STATE OF	
Rating I NVA SIIIB				-
Input :90V-300		, E	A STATE OF THE STA	
Input:90V-300 Out Put: 220/240 (as per coil voltage of contractors) Enclosure to be housed within the cubical panel in separated chamber			THE PLANE	
		100		
with additional meter, LED fitted outer side				
MCB DP10A1nos				
h) Protection Details:	e			
			A Property of	2. ja 🔐 27
Motor Protection Relay including other related debate preventer relay, timer relay, overload-under load, phase difference etc.				
Display LED/LCD				all arisingly the
Compact motor protection relay	11			
Note: all setting is to be controlled at display.			La la Caraciana	4
Qnty :01 nos)				
Protections:	(m)			Maria Para
Flush Mounting with display				
Last trip data recording				
Protections:				T. KILL
- Thermal Overload with pre- alarm				
- Short Circuit			1	h
- Earth fault				
- Phase loss, Unbalance, Phase reversal				
- Under Current, Over Load				
- Prolong starting, Locked Rotor.	,			2 2 2
-Single phase protection- Single Phasing condition- Phase Reversa	'			
condition- Phase Unbalance condition-Modes of Operation				1 A
i) Auxiliary Protection				
Earth Fault Relay3 phase Earth fault, ground fault module				
TypeGF				
Range 100-200A			-	
MCB MCB SP , 10A (10 Ka)				
j) Metering Details:				
Incomers (Panel Mounted)			,	
(a) Multi-Function Meters LCD Display (1 No) Voltage of each phase				- 5
Current of each phase 3ø power (Active, Apparent) , 3ø Power factor				
Frequency , Energy			4	
(b) Analog voltmeter S/S operated (1 No)				
• (b) Outgoing				
(Analog voltmeter (0-500) S/S operated (1Nos).				
Analog Ammeters 0-100 Amp (2Nos) for both starters				
Analog Ammeters 0-100 Amp (21105)				
Each outgoing with S/S CT operated. Design, manufacturing ,providing , fitting, testing & commissioning of Star-				1
Design, manufacturing , providing , litting, testing & commissioning or star				
delta Motor control Panel				
he Star-delta Motor control Panel shall be fabricated out of 2 mm CRCA			- 2	
heets Modular, compartmentalized, Free Standing, Floor Mounting, Front	6.2			
nged doors for indoor use, removable bottom gland plates for incoming	1			
ables, dust and vermin proof (IP:42 protection) with TP Aluminum Buses,				
omplete with connection, internal wiring, neon indicators for each phase	02	Job	335000.00	670000.00
tarter buttons, name plates, painting ,vents etc. All panel compartments shall	02	100	30000	
e provided with suitable cable alley and vertical bus bar alley. Suitable	12.			
gregation shall be provided in between bus bar chamber and adjoining				
gregation shall be provided in between bus bar chamber and adjoining				
mpartments. The bus bar shall be PVC sleeved with color strips of red,			- 1 - 1, - 2	ľ
llow, blue and black and the same be arranged in accordance with IS-375				
	1	1		
ecs. Electrical clearances shall be maintained between phases, neutral and dy as per standards.		1	1	i,

Rated Voltage of the Panel ---- 440 Volts Frequency ---- 50 HZ No of Phases ---- Three Enclosure Details ---- Free Standing, Floor mounted, Compartmentalized Design. Material ---- CRS Thickness of sheet steel used ---- 02mm Application ---- Indoor Cable Entry ---- Bottom Painting ---- Shade Siemens grey. a) Main Circuit Breaker (Incomer MCCB) Type ---- Front Operated micro processor release type on load 4 pole Qty ---- 1 Nos No. of poles ---- 4 Current Rating..... 160-200 Amp Rated operational voltage---- 415 V AC ± 15% Rated frequency ---- 50 ± 3% Hz Ultimate S.C Breaking cap at (415 volt A C, 50 Hz) ---- 50kA Type ---- Microprocessor control b) Distribution bus bar Type -----Electric grade AL with red, blue & yellow tapings of adequate section. Rating ----160 Amp c) Change over Switch Qty ---- One Type ---- Front Operated on load 4 pole (open execution) Rating ---- 100 Amp d) Motor protection Circuit Breaker units Type ---- MPCB Qty ---- 2 Nos No. of poles----3 Rated current -----84-125 Amp Rated operational voltage----- 415 V ± 15% Rated frequency ---- 50 ± 3% Hz Ultimate S.C Breaking capacity at (415 volt A C, 50 Hz) -----36kA e) Starters (FASD) 30HP Power Specification ----3 phase, 415 ± 15% v & 50 Hz Contactors: MNX / Schneider Line Contactor ---- AC3 70 A Delta Contactor --- AC3 70 A Star Contactor ---- AC3 70 A Timer ---- Star Delta Electronic Overload relay - direct/CT operated (35-75A range) Coil Voltage: 220/240V Qty ---- 2 No's f) Aux. panel for heating and lighting Circuit breaker---MCCB Qnty---01 no. No. of poles---04 Thermal release range -----63-80 A Rated operational Voltage---415±15% Ultimate S.C. Breaking Capacity---35 KA at (415AC,50 Hz) g) Stabilization unit Qnty---01 no Rating---- 1 KvA single phase automatic voltage stabilizer Input:90V-300 Out Put: 220/240 (as per coil voltage of contractors) Enclosure--- to be housed within the cubical panel in separated chamber

The control panel shall be furnished as per detail given below:

1 Xen

			1 10	1
Grad outer side				
with additional meter, LED fitted outer side		1	(C)	
MCB DP10A1nos h) Protection Details: Motor Protection Relay including other related accessories like single phase Motor Protection Relay including other load, phase difference etc.	100		and the same	
h) Protection Details: h) Protection Details: h) Protection Details: h) Protection Details:				
h) Protection Details: Motor Protection Relay including other related accessories and the Motor Protection Relay including other related accessories and the Motor Protection Relay including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other related accessories and the Motor Protection Relationship including other relatio	1 1 1 1			
Wotor relay, overload-under load, p				
Display LED/LCD	3:	1.44		
	4, 1			
Note: all setting is to be controlled at display.				
Note: all setting is to be				
Qnty:01 nos)				
Protections:				
Flush Mounting with display				
Last trip data recording				
Protections: I and with prografum		-		
- Thermal Overload with pre- alarm				
- Short Circuit				
- Earth fault				
- Phase loss, Unbalance, Phase reversal			1	
- Under Current, Over Load				
- Prolong starting, Locked Rotor.	1			
-Single phase protection- Single Phasing condition- Phase No.				
condition- Phase Unbalance condition-Modes of Operation				1
i) Auxiliany Protection		11 11 11		7 6
Earth Fault Relay3 phase Earth fault, ground fault module				
TypeGF				
Range 100-200A				l l
MCB MCB SP , 10A (10 Ka)				
				1.21
j) Metering Details:				
 Incomers (Panel Mounted) (a) Multi-Function Meters LCD Display (1 No) Voltage of each phase 				
(a) Multi-Function Meters LCD Display (1 No. Voltage of Participant of each phase 3ø power (Active, Apparent) , 3ø Power factor				
Frequency , Energy				
(b) Analog voltmeter S/S operated (1 No)				
• (b) Outgoing				
(Analog voltmeter (0-500) S/S operated (1Nos) .				
Analog Ammeters 0-100 Amp (2Nos) for both starters				
Each outgoing with S/S CT operated.				
The state of the s				
Latellation testing of multi-stranded copper conductor PVC				
the same unchasthed 35mm sq. Copper capie for internal				
distribution wiring for stage 1st and 2nd conforming to IS: 7098(part -1) 1988	450	450 Meter	er 630.00	283500.00
with latest amendments. The job includes providing and fitting of suitable	450	Merei	030.00	200000
with latest amendments. The job includes providing and many by hydraulic				
thinkles duly crimped and faned at conductor elius by hydraulic				
crimping tool. The job includes earth work in excavation wherever required for				
loving of cable underground.		-		
Braviding and Fitting of 70 samm 3.5 core LT 1.1 KV, XLPE Armoured				
Aluminium Cable conforming to IS: 7089 part 1st as service lille from the fr				
transformer/DG set to control panel including necessary thimbling, crimping,				
	100	Meter	668.00	66800.00
taping etc.				
NOTE:- The cable terminal ends for connection to switchgear at various				
requisite points shall be Al. Thimbles of appropriate size and connected by				
hydraulic crimp tool only for stage 1st				
Providing and Fitting of 50 sqmm 3.5 core LT 1.1 KV, XLPE Armoured				
Providing and Fitting of 50 squitti 5.5 core of 1.12 kV / Act of 1.10 from the HT				
Aluminium Cable conforming to IS: 7089 part 1st as service line from the HT	-			
transformer/DG set to control panel including necessary thimbling, crimping,	450	Matar	497.00	74550.00
taping etc.	150	Meter	497.00	,4330.00
NOTE:- The cable terminal ends for connection to switchgear at various				
requisite points shall be Al. Thimbles of appropriate size and connected by				
	1	1	1	1
hydraulic crimp tool only for stage 2nd		1		

~	and the second	T		
14. Steel structural work in built up tubular (round, square or rectangular hollow tubes, ISMC, ISMB, ISA etc.) trusses, construction of liner etc. including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. The drawings and Dimensions for Gantry/Transformer Bed/Pumping Equipment Base will be provided by Site In Charge at the time of execution of job.	3200	Kg.	135.00	432000.00
Providing, installation and testing of manual type triple spur gear chain pulley block along with monorail geared travelling trolley for stage 1st having following features Gears:- The hoist shall have precision machine case Hardened alloy steel gear mounted on bearings and housed in a dust proof gear box. The lubrication of gears should be of high viscosity and temperature for longer life of gears. Load Chain:- The load chain be made of high tensile alloy steel having wear resistance and greatest mobility. The chain should be accurately collaborated, tested and have adequate in-built factor of safety for safer operation. Load chain wheel:- the load chain well should be double ball bearing supported and Specially designed, perfectly machined wheel providing correct grip of load chain to makes the hoist most safe and reliable against any failure. The main specifications of C.P Block are given below: i. Make = Reputed make ii. Capacity = 3 ton (P) iii. No. Of load chain falls = 2 or above iv. Min. Height of lift = 6 M	2	Job	62970.00	125940.00
Illumination of Premises for stage 1 st and 2nd: Providing and erection of 9 Mtr long Hot Dip Galvanized Octagonal pole (single Section) with bottom 150mm, top 75mm wide, thickness 3mm with 70 Microns Zinc coating having inside arrangement for providing of power connection along with following items. 1) 3 Way Terminal Connector 20 Amp. 2) 3 No MCB 8 Amp. The job includes fabrication, providing and fitting of three arm GI structure at the top having 120° angle between arms and each arm having 15° inclination with respect to horizontal plane. Each arm should be of 2' length and size and shape appropriate as per requirement of the luminary. The job also includes providing and fitting of required length of flexible multi strand 2 mm copper wire from each terminal connector to each holding arm. The pole is mounted on 1:2:4 Cement concreting of size not less than 2'x2'x6" (cost of concreting not included in the job) using 04 No anchor bolts of required size not less than 7" in length: The complete job includes earthing in	2	Job	22226.00	44452.00
GI Electrode as per relevant IS Code. Providing, installation, testing and commissioning of area lighting 120 Watt LED (Street Light Type) on top of octagonal pole vide item No.27 for stage 1st and 2nd Having following specs: Input: 90-240 V 50 Hz Power Factor: >0.9 Colour Temperature: 4K - 6.5K Beam Angle: 120* - 170* Lumens: >12000 Operating Temperature: -20*C to 60*C The LED is pressure die cast aluminum housing with power coated finish and having Ingress Protection up to IP-68. The LED is properly fitted on the arm of the pole and connected to the copper wire as provided in the high mast note.		Job	9486.00	0 75888.0
wire as provided in the high mast pole. Providing and installation of Junction Box with DP 32 A MCB to serve as Main switch for LED Lighting. The job includes making of electric connection to the circuit.		Job	2227.0	00 4454.

alen.	2 idiaa	Installation and	testing of 2KVA fully	automatic voltage stabilizer for stage 1 st and 2nd. The lectric circuit as per location	2	Job	8154.00	1630,
	stabilizer si provided b	hall be installed a y site in charge. tallation, Testing	& commissioning of 10	000VA Full Sine wave power V, 180AH Tubular inverter	2	Job	34053.00	68106 0 ₀
21	requiremer plugs etc of Providing, I material or mechanical possible leasurface shal & moisture following sp Composition	at along with other reputed make for aying & fixing of a the floor of the machinery for salkage of current libe made good of free. The mats ecifications:	r proper fitment and in shock proof rubber in he pump house, cover feguarding the life & large with the short circuit for stands and the shall be free from distance to the shall be as per IS 15 tic mats for electrical property.	istallation of the item. nats with adhesive/bonding area around electro- imb of the workmen due to age 1st and 2nd. The floor ust, grease, foreign material 652:2006 & shall have the ourpose)	20	Meter	1205.00	24100.00
22 IT T a a P P D D D A A I C C e a L O N C Sid O 2 Insi Black In n S O 75 100 125 150 200 300 viii. H ix. He x. Elec xi. Dig xii. Dig xiii. Ha xiv. S-1	The rubber r TOOL KIT For The Tool Kit is mentioned roviding of the ouble ended ouble ended lien key set ombination ich – 02 No. ing nose plie oulated screve de length inm Itammer wit travy duty pi ctric Multim gital Clamp ick saw fran 16 MXL, S-1	mats shall be access Maintenance for maintenance of the below shall be accessed below shall be accessed spanner (Chrorod Ring spanners of black finish 02 separated with the lier insulated with lier insu	r stage 1st and 2nd: r stage 1st and 2nd: shall comprise of the of: if following items ne plated) 02 sets come hrome plated 02 sets its complete with thick C.A sleeve; thick C.A sleeve; size if the thick C.A sleeve; size if the thick C.A sleeve; size if Tip dimensions in mm 1.6 x 0.4 1.6 x 0.4 3 x 0.5 3.5 x 0.5 4 x 0.6 5 x 0.8 02 04 x 0.6 05 x 0.8 05 05 measure up to 4006 05 w blade - 01 no. 05 tet (19 sockets + 6 Ac	plete complete size in mm 165, 210, 255 n mm 165, 205 each – 02 ze in mm 165, 205 make – Quantity 02 02 02 02 02 02 02 04 600 gm –each – 1No	1	Job	28840.00	28840.00
for stag a) Prov i) Matti ii) Quilt iii) Pillov iv) Singl The fillir o) The jo	ge 1st and 2 riding of gooress with warm ws with cover bed warn ng material ob also incl	od quality beddi arm cover size 6 cover size 5'x8 vers - 02 No's n blankets with for mattress, quudes providing	ng for night stay/Shif 5'x3' (6Kg)- 02 No's (6Kg)- 02 No's one sided Fur- 02 No uilt and pillow shall b of pressure cooker 5		2	Job	39619.00	79238.00

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buckets 10 litre capacity 01 No., Plastic bucket 10 litre capacity with Mug 02 No's each, steel glasses 06 No's, steel Plates with large spoons and bowls 03 stove. The job also includes providing of thermo-cool 15'x12' along with excel chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of unbreakable Plastic chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of good quality safety Door locks (03 No's), Link locks, Fabrication of 6' x 6' angle iron bed by way of providing and fitting of Structural steel in built up sections, trusses and framed work, including cutting, hoisting,	400.50	V-	114.00	21603.00
complete welded for stage 1st and 2nd Providing and fitting of 19 mm thick multi-layered ply sheet of size 6 x 3 feet. 2			150.00	5400.00
Providing of solar/ electrical lantern chargeable on both solar & electrical 220v	2	Job	1911.00	3822.00
Providing of 1 KW heat convector for operators for winter season for stage 1st and 2 nd	2	Job	1205.00	2410.00
Providing and fitting of 01 No. LED (scroll type) sign board fabricated out of	18	Sft	3998.00	71964.00
Providing & fitting of lighting points for (machine room, operators room,) as per site requirement in 1.5 mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit pipe by way, switches, socket modules, regulators, indicators, 08/10 watt LED lampsIncluded is cost on account of modular switch boards with the wooden frames as per site	16	Job ,	1680.00	26880.00
Providing fitting of heating points in 2.5mm ² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit by way of p / f of 15 Amp switches, 6 pin socket on modular fitting as per site requirements. Heating points are to be connected from main control panel. All accessories	4	dol	1470.00	5880.00
Providing and fitting of 01 No. angle iron/sheet metal board duty painted showing various specifications of the mechanical and electrical equipments		Sft	250.00	12000.00
Providing and fitting of 3-Core, 16 Sq mm flat submersible copper cashe conforming to IS: 694 (Part 1st)–1964 & IS: 694 (Part 2nd)- 1964 for Pumping Unit and other electrical Equipment for stage 1st and 2 nd . The cable unit and other electrical Equipment for stage 1st and 2 nd .	90	Meter	711.00	63990.00
Fabrication, providing and fitting of split type ivis clamps to min thick, 2 revenue		Job	1801.00	7204.00
100	1			7090584.00
Estimated / advertised amount.				-7.95%
Porcentage quoted by £1 tirm		6.6		-
	No's each, Cup and Saucer set (01 No. Set) and, 5kg Gas cylinder with burner/matting of 15'x12' size. The job also includes providing of thermo-cool 15'x12' along with excel Chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of unbreakable Plastic also includes providing of good quality safety Door locks (03 No's), Link locks, steel in built up sections, trusses and framed work, including cutting, hoisting, tising in position and applying a priming coat of approved steel primer all complete welded for stage 1st and 2nd Providing and fitting of 19 mm thick multi-layered ply sheet of size 6 x 3 feet, 2 no's including cutting, fixing all complete including painting of the play sheet by one coat of primer and two coats of enamel paint for stage 1st and 2nd Providing of solar/ electrical lantern chargeable on both solar & electrical 220v supply for stage 1st and 2nd Providing of 1 KW heat convector for operators for winter season for stage 1st and 2nd Providing and fitting of 01 No. LED (scroll type) sign board fabricated out of stainless steel and metal for stage 1st and 2nd Providing & fitting of lighting points for (machine room, operators room,) as per site requirement in 1.5 mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit pipe by way, switches, socket modules, regulators, indicators, 08/10 watt LED lamps. Included is cost on account of modular switch boards with the wooden frames as per site requirements for stage 1st and 2nd Providing fitting of heating points in 2.5mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit by way of p / f of 15 Amp switches, 6 pin socket on modular fitting as per site requirements. Heating points are to be connected from main control panel. All accessories required is to be provided by the firm for stage 1st and 2nd Providing and fitting of 01 No. angle iron/sheet metal board duly painted showing various specifications of the mechanical and	No's each, Cup and Saucer set (01 No. Set) and, Skg Gas cylinder with burner/matting of 15'x12' size. The job also includes providing of thermo-cool 15'x12' along with excel Chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of unbreakable Plastic also includes providing of good quality safety Door locks (03 No's), Link locks, steel in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete welded for stage 1st and 2nd Providing and fitting of 19 mm thick multi-layered ply sheet of size 6 x 3 feet, 2 no's including cutting, fixing all complete including painting of the play sheet by one coat of primer and two coats of enamel paint for stage 1st and 2nd Providing of solar/ electrical lantern chargeable on both solar & electrical 220v supply for stage 1st and 2nd Providing of 1 kW heat convector for operators for winter season for stage 1st and 2nd Providing shifting of 1No. LED (scroll type) sign board fabricated out of stainless steel and metal for stage 1st and 2nd Providing & fitting of lighting points for (machine room, operators room,) as per site requirement in 1.5 mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit pipe by way, switches, socket modules, regulators, indicators, 08/10 watt LED lamps. Included is cost on account of modular switch boards with the wooden frames as per site requirements for stage 1st and 2nd Providing fitting of heating points in 2.5mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit by way of p / f of 15 Amp switches, 6 pin socket on modular fitting as per site requirements. Heating points are to be connected from main control panel. All accessories required is to be provided by the firm for stage 1st and 2nd Providing and fitting of 01 No. angle iron/sheet metal board duly painted showing various specifications of the mechanical and electrical	No's each, Cup and Saucer set (OI No. Set) and, Skg Gas cylinder with burner/ matting of 15'x12' size. The job also includes providing of thermo-cool 15'x12' along with excel Chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of unbreakable Plastic also includes providing of good quality safety Door locks (03 No's), Link locks, steel in built up sections, trusses and framed work, including auf fitting of Structural fixing in position and applying a priming coat of approved steel primer all complete welded for stage 1st and 2nd Providing and fitting of 19 mm thick multi-layered ply sheet of size 6 x 3 feet, 2 no's including cutting, fixing all complete including painting of the play sheet by one coat of primer and two coats of enamel paint for stage 1st and 2nd Providing of solar/ electrical lantern chargeable on both solar & electrical 220v supply for stage 1st and 2nd Providing of 1 KW heat convector for operators for winter season for stage 1st and 2nd Providing and fitting of 01 No. LED (scroll type) sign board fabricated out of stainless steel and metal for stage 1st and 2nd Providing & fitting of lighting points for (machine room , operators room,) as per site requirement in 1.5 mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit pipe by way, switches, socket modules , regulators ,indicators, 08/10 wat LED lamps. Included is cost on account of modular switch boards with the wooden frames as per site requirements for stage 1st and 2nd Providing fitting of heating points in 2.5mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit by way of p / f of 15 Amp switches, 6 pin socket on modular fitting as per site requirements. Heating points are to be connected from main control panel. All accessories required is to be provided by the firm for stage 1st and 2nd. Providing and fitting of 3-Core, 16 Sq mm flat submersible copper cable volving and fitting of 3-Core, 16 Sq mm flat subme	No's each, Cup and Saucer set (01 No. Set) and, 5kg Gas cylinder with burner/ matting of 15'x12' size. The job also includes providing of thermo-cool 15'x12' along with excel Chair table set consisting of chairs 04 No's, extra heavy Table 01 No. The job also includes providing of good quality safety Door locks (03 No's), Link locks, steel in built up sections, trusses and framed work, including cutting, hoisting, complete welded for stage 1st and 2nd Providing and fitting of 19 mm thick multi-layered ply sheet of size 6 x 3 feet, 2 no's including cutting, fixing all complete including painting of the play sheet by one coat of primer and two coats of enamel paint for stage 1st and 2nd Providing of 1 kW heat convector for operators for winter season for stage 1st and 2nd Providing and fitting of 1 No. LED (scroll type) sign board fabricated out of stainless steel and metal for stage 1st and 2nd Providing and fitting of 10 No. LED (scroll type) sign board fabricated out of stainless steel and metal for stage 1st and 2nd Providing & fitting of lighting points for (machine room, operators room,) as per site requirement in 1.5 mm² multistranded single core 1100 volts, pvc insulated copper conductor through pvc conduit pipe by way, switches, socket modules , regulators , indicators, 08/10 watt LED lamps. Included is cost on account of modular switch boards with the wooden frames as per site requirements for stage 1st and 2nd Providing and fitting of 10 No. angle iron/sheet metal board duly painted showing various specifications of the mechanical and electrical equipments. Amp switches, 6 pin socket on modular fitting as per site requirements. Fabrication, providing and fitting of 3-Core, 16 Sq mm flat submersible copper cable conforming to 1S: 694 (Part 1st)-1964 & IS: 694 (Part 2nd)-1964 for Pumping Unit and other electrical Equipment for stage 1st and 2nd. Providing and fitting of 3-Core, 16 Sq mm flat submersible copper cable connections terminal shall be fitted with copper trimbles of required size. Providing

Executive Engineer
Makti PHE Mechanical Division (North)
Sopore