

Detailed estimate for Electrical & Mechanical works to be carried out at various Water Supply Scheme of Awantipora Town (under AMURUT-2)

Estimated and Checked
Tally

S.No	Particulars of work	Qty	unit	rate	Amount
1	<p>Supply, installation, testing and commissioning of Horizontal pumping unit as per IS 1520 with following specification:-</p> <p>Pump:-</p> <p>1.Type:- Horizontal split casing</p> <p>Material of construction</p> <p>1.Impeller:- Bronze</p> <p>2.Shaft:- SS410</p> <p>3.Pump casing:- Cast Iron</p> <p>The pump shall confirm to IS-1520 code</p> <p>MOTOR:-</p> <p>A) Type:- Horizontal squirrel cage Induction Type</p> <p>B) No of phases: 3 phase 415 V+10%,50 Hz, AC supply</p> <p>C) Winding:-Copper wound squirrel cage</p> <p>D) Type of enclosure:-SPDP/TEFC</p> <p>E) Method of cooling:- Air cooled with fan mounted</p> <p>F)Method of Starting: star delta</p> <p>G) Speed : 1440 RPM</p> <p>The pump-motor should be mounted on a common base frame fabricated out of M.S channel of suitable size and duly fitted with T- type foundation bolts /nuts and washers to make the pumping unit vibration free. The pump and motor should be coupled through suitable coupling. The coupling faces checked for both angular and axial alignment with the help of tapered gauges/feeler gauges or dial indicator. Job includes testing and commissioning of pumping unit on full load at site.</p> <p>Note: Test certificate having the Serial No. of the Pumping Unit along with the performance curve in duplicate from the Manufacturer must be produced on delivery of the item and pumping unit is to be approved from the concerned Sub Divisional office before procuring.</p> <p>The main specifications of pumping unit are</p> <p>Discharge : 8000 GPH</p> <p>Head: 90 m</p> <p>Motor Capacity = 30 HP</p> <p>Speed = 1440 RPM</p>	1	job	290000	290000
2	<p>Supply, Installation, Testing & Commissioning of Submersible Pumping Unit as per IS 8034 with following specification are as under:</p> <p>PUMP:Efficiency = Not less than 50% Speed = 2900 RpmType of pump = Mixed flow.Type of fluid to be handled = Clear WaterMATERIAL OF CONSTRUCTION:Impeller = Stainless SteelPump Shaft = Stainless Steel SS 410.Pump Casing = Cast Iron/Stainless steelIMPELLER:Impeller is of the enclosed or semi - enclosed type and properly balanced. Enclosed Impellers equipped with seal rings on their hubs. COUPLING:A suitable coupling arrangement provided with pump set.Non Return Valve: - Non Return Valve of the suitable size provided above the pump discharge case.MOTOR:-Method of starting = Star - Delta/DOL (as specified)Speed = 3000 (Sync).Frequency = 50 ± 3 % Hz Working Voltage = 380-415 ± 15% V, 03 phaseEfficiency = Not less than 90%Class of insulation = F/Suitable for above parametersSubmersible motor should be water filled water lubricated squirrel cage type having capacity for above pumping parameters and working on 3 phase; AC supply ranging from 380 to 415 volts, 50Hz. The motor should be sealed by radial rings to avoid mixing of well water with motor filled water. a) The job includes providing and fitting of interlocking arrangement against any failure of coupling. It must be fabricated out of MS strips of suitable size and length.b) The job includes providing and fitting of appropriate size MS nipple 2 feet long threaded on one end and welded to same size MS flange of thickness (as per Table-17) at other end for column pipe as per site</p>				0

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	requirement. The threaded portion should be as per size of pumping out let for proper fixing. The job includes providing and fitting of R. I. cloth joints/rubber washers with nuts, bolts and washers for all joints of column pipe. The job also includes lowering of pumping unit in the well then proper testing and commissioning of pumping unit on full load at site. Note: Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned Sub Divisional office before procuring. The main specifications of pumping unit are Discharge : 6000 GPH Head: 70 m Motor Capacity = 15 HP				
2.01	Discharge : 6000 GPH Head: 90 m Motor Capacity = 12.5 HP	2	job	96921	193842
2.02	Discharge : 35000 GPH Head: 30 m Motor Capacity = 45 HP Size of pumping unit = Not less than V8 (200 mm)	1	job	144255	144255
2.03	Discharge : 15000 GPH Head: 80 m Motor Capacity = 30 HP Size of pumping unit = Not less than V8 (200 mm)	2	job	137300	274600
3	Supply, Installation, Testing & Commissioning of Non-clog Pumping Unit as per IS 5600 at Raw Water Stage. PUMP: - Type of pump : Non-clog Open well Submersible Vertical Pump • Solid Handling Capacity: 20mm (Minimum)/as specified. • Quality of water: Raw water to be handled with specific gravity 2.5 MATERIAL OF CONSTRUCTION: • Pump Casing : Cast Iron • Impeller : cast iron • Pump Shaft : Stainless Steel • Motor Body : Cast Iron • The bowl plate shall be provided with name plate depicting all specifications MOTOR: - • Type : Squirrel Cage 3-Phase Induction Motor • Method of starting: Star - Delta (as specified). • Frequency : 50Hz + 3% • Voltage : 415 ± 6 %, - 15% 3 phase • Class of insulation: Suitable for above rating. • Sealing : Dual mech. seal. Provided with thermal and overload protection The motor shall be made of corrosion resisting materials to resist corrosion under normal conditions and the motor shall have a name plate depicting all specifications. for each pumping unit. The job further includes P/F stater Panel alongwith protection devices required for the operation of the pumping units .Note: Test certificate having the Serial No. of the Pumping Unit along with the performance curve in duplicate from the Manufacturer must be produced on delivery of the item and pumping unit is to be approved from the concerned Sub Divisional office before procuring. The main specifications of pumping unit are Discharge : 10000 GPH Head: 20 m Motor Capacity = 20 HP	1	job	315000	315000
4	Design, supply, providing, installation, successful testing and commissioning of vertical turbine pumping unit as per IS 1710 driven by VT motor for pumping water from Nallah of following parameters. • Site Condition Altitude = 1580 Meters/Greater (AMSL) Ambient Temperature = +40°C to - 15°C Relative Humidity = 60% • Quality of water to be lifted = filtered water • Sump/liner Bed Level = 8m below from Machine floor level • Water column in liner/sump = 2 m above from sump/liner bed level A. PUMP 1. Discharge 35000 GPH 2. Type = Self water lubricated, VT pump, open line shaft 3. Liquid to be handled = Raw Water 4. RPM = 1460 5. Head = 96 m 6. Efficiency = Not less than 50% 7. Impeller = bronze/stainless steel 8. Line shaft/head shaft = Stainless steel 9. Length of each line shaft = 1.5 m maximum 10. Total length of line shaft = 10 m/as specified (excluding Head shaft) 11. Impeller shaft = Stainless steel 14. Suction Strainer = MS fabricated 17. Column pipe = Mild Steel of wall thickness not less than 8mm flanged type in assorted lengths 18. VT Pump to be designed with 8 No. of stages or less. B. Prime Mover 1. Type = Vertical shaft, AC squirrel cage induction motor 2. Power Supply = 03 Phase, 415V + 10% AC 3. Frequency = 50Hz + 3% 4. RPM = 1450 Synchronous 5. Efficiency = Not less than 90% 6. HP = 50 HP or Above 7. Class of insulation = F or above 8. Type of duty =	2	job	1435000	2870000

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	Continuous9. Type of rotor = suitable among single squirrel cage / double squirrel cage, single or double skewed squirrel cage. 11. Motor thrust bearing = Anti friction ball / roller bearing 12. Method of starting = star/deltaThe 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 proper stiffening box arrangement, non-reverse ratchet, coupling etc as per standard specification besides all other accessories required for satisfactory performance and mechanical works required for installation of pumping unit at site are included in the job .Note: Providing of test certificate & Characteristic Curve of pumping equipment is compulsory and pumping unit is to be approved from the concerned authority before procuring.				
5	Providing/supplying and fitting of G.I flanged Rising Main at site. The Pipe shall be hot dip Galvanized, class-C conforming to IS 1239. The job includes providing and fitting of M.S Flanges conforming to BIS 6392/1997 Table 17 (Rating PN16). 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 welding joint.Welding ElectrodeDC Arc Welding using welding electrode having diameter not less than 4mm.Nuts and BoltsNuts and Bolts (conforming to IS:1363 Part 1st)Rubber Insertion GasketsRubber Insertion Gaskets (conforming to IS: 638/79) to be used between flanged joints. The rising main is to be laid as per the instructions of the engineer in charge and site requirement.Size : DN150Class: C (Heavy)	18	m	3075	55350
5.01	Size : DN 100 , Class C				
6	Filling available excavated earth in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by reaming and watering, lead upto 50 m and lift upto 1.5m.	48 40	m cum	2189 218.4	105072 8736.00
7	Earth work in bulk excavation by manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 m2 on plan) including disposal of excavated earth lead upto 50 meters and lift upto 1.5 m, as directed by Engineer-in-Charge.1 All kinds of soil :	80	cum	592.9	47432
8	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked material in all kinds of soil	30	cum	89.75	2692.5
9	Extra for levelling & neatly dressing of disposed soil completely as directed by Engineer-in-charge.	40	cum	65.9	2636
10	providing and laying of stone soling including manual compaction	15	cum	740	11100
11	Centering and shuttering including strutting, propping etc. and removal of form work for Foundation, footings, bases for columns	85	Sqm	286.35	24339.75
12	Centering and shuttering including strutting, propping etc. and removal of form for: Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	60	sqm	628.95	37737
13	Providing and laying in position cement concrete of specified grade including curing but excluding the cost of centring and shuttering, all work upto plinth level with 1: 2 : 4 mix (1 cement, 2 coarse sand, 4 graded stone aggregate 20 mm nominal size)	50	cum	6591.3	329562.5
14	Providing and laying in position cement concrete of specified grade of reinforcement cement concreteincluding curing but excluding the cost of centring and shuttering, finishing and reinforcement all work upto plinth level with 1: 1.5 : 3mix (1 cement, 1.5 coarse sand, 4 graded stone aggregate 20 mm nominal size)	15	cum	8273.3	124098.8
15	12 mm thick cement plaster of mix 1:4 (1 cement, 4 fine sand)	130	sq.m	286	37180
16	Steel reinforcement for RCC work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermomechanically treated bars of grade FE-500D or more	1500	kg	96.55	144825
17	Fabrication, providing and fitting of split type MS clamps10 mm thick, 2 ft long and 3 inch wide for lowering and holding of pumping unit fitted. The job includes the cost of required size of nuts and bolts. Size: 150mm	2	Job	1801	3602
18	Fabrication ,Providing and fitting of long radius 90-120 degree	4	No	5728	22912

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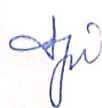
	bend/elbow to be fabricated out of G.I pipe, 1 m length and flanged on both ends a to make it leak proof. The flanges shall be M.S Flanges conforming to BIS 6392/1997 Table 17 (Rating PN16) and welded on both sides. The job includes nuts, bolts, gaskets etc as per site requirement. Size: DN 150 Class: C				
19	Cutting of hot dip galvanized G.I. pipe across the section by dint of pipe cutter/ gas cutter. The job also includes Providing and welding of M.S flanges to the two ends of pipe. The Thickness of flange shall conform to IS 6392 Part 1st Table-17. The flange welding shall be carried out in double layers using Advani/Esab/L&T- SS Bond make electrodes to form strong welding joint by dint of DC arc welding. The job further includes Providing and Fitting of nuts and bolts (conforming to IS:1363 Part 1st) and Rubber Insertion Gaskets (conforming to IS: 638/79) to be used between flanged joints. The size of the pipe is DN 150, Class-C	6	job	2059	12354
20	Fabrication, providing and fitting of washout Tee with arm length 1.2 feet each. The Tee shall be fabricated out of G.I pipe with M.S Flanges conforming to BIS 6392/1997 Table 17 (Rating PN16) fastened with weld joints on three ends. Size: 150mm Class: C class	1	Job	7036	7036
21	Providing and fitting of, Ductile Iron double flanged, non-rising spindle soft seated glandless gate/ sluice valves as per IS14846 for regulating the water supply outside the pumping units. The body and bonnet 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. Body/Wedge D.I GGG 40/50 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 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. Size: DN150 PN:1.6/16	2	No	25977	51954
21.0 1	SIZE : DN 200 PN 1.6/16	3	job	34310	102930
21.0 2	SIZE : DN 100 PN 1.6/16	4	job	19094	76376
21.0 3	SIZE : DN 80 PN1.6/16	2	job	15497	30994
22	Providing and fitting of Ductile Iron double flanged, Slanted seat swing check valve(NRV) as per IS 5312. The body shall be of ductile cast iron with fully encapsulated vulcanized EPDM rubber(Approved for drinking water). The 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. Body/Disc D.I GGG 40/50 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 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. Size: 150mm PN: 1.6/16	3	Job	32205	96615
22.0 1	SIZE : DN 100 PN1.6/16	4	job	20581	82324
22.02	SIZE : DN 80	2	job	17489	34978


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22.03	PN1.6/16 SIZE : DN 200 PN1.6/16	3	job	45700	137100
22.04	SIZE : DN 300 PN1.6/16, The NRV it to be fitted in already laid 300 mm Dia. rising main . The job further includes arrangement of mechanical excavator and mechanical works required for fitting of NRV in rising main.	3	job	135000	405000
23	Providing, fitting, testing and commissioning of 50mm diameter ARV (Air Release valve) as per IS 14845 to be fitted to G.I rising Main. The ARV Shall have the following specifications: i. Valve type - single chamber, single orifice.ii. End connection - flanged ends to IS 1538 iii. Working temperature - 20°C to 45°C iv. Test pressure - body / seat 2.5 x PNv. Sealing ring - EPDMvi. Construction - ductile iron with stainless steel floats.vii. Coating - epoxy with corrosion resistance pressure rating = PN 1.6/16 Besides the above works, The job also cost on account of P/F R.I gasket, nuts and bolts required for installation of ARV and arrangement of gas cutter/ welding set at site. The job also includes cutting of 50 mm dia hole in rising main and P/F of 50 mm dia. M.S Pipe one feet long with one end flanged perfectly adaptable to Flange of ARV and other end welded to 50 mm dia hole of rising main.	5	job	19394	96970
24	Fabrication of platform to prevent the ingress of foreign matter into the well and to bear the load of pumping unit, column pipes etc by way of providing and fitting of Steel work welded in built up sections/framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. The job involves following steel details:				0
25	i. In stringers, treads, landings etc of stair cases including use of chequered plate wherever required, all complete	250	Kg	141.4	35350
26	Fabrication of gantry mechanism /sleeping bed by way of providing Structural 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	3560	Kg	138.2	491992
27	Steel work in built up tubular (round, square or rectangular hollow tubes 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	1030	kg	169.92	175017.6
28	Providing, installation and testing of manual type triple spur gear chain pulley block along with monorail geared travelling trolley 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 : Make = Reputed make Capacity = 3 ton No. Of load chain falls = 2 or above Min. Height of lift = 6 M	1	job	62972	62972
29	Supply, installation, commissioning and creation of pole mounted, outdoor type Electric Sub Station as per the technical specifications given here under -Specifications conforming to IS: 1180 (Part 1) 2014 with latest amendments.Type: HT/LT TransformerType of cooling: ONAN.Operating conditions:Input =11000 voltsOutput =433 volts AC supply in 3- phase.Terminals:Input=3 No. HT bush rods with insulators, washer, nuts etc.Output=4 No. LT bush rods switch insulators, washers, nuts etc.Core: The core shall be of high permeability to reduce core losses	1	Job	670548	670548

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	and the strips shall be of suitable size and gauge. Transformer Coils: Suitable number of HT and LT coils in each leg of the core. The transformer coils shall be fabricated out of superior quality copper wire/strips, properly wound. The HT transformer is completely filled with suitable grade transformer oil up to required level. The job includes carriage, and all leads and lifts involved. The HT transformer shall be of reputed make from an ISO certified company as per relevant standards and a test certificate shall be provided before installation. The transformer shall also be provided with breather fill with silica gel crystals, conservator with oil level indicator, explosion vet and adequate radiator fins/ Tubes. The impedance of transformer shall be as per IS: 1180 (Part 1) 2014 with latest amendments. NOTE: The scope of the work shall include obtaining of necessary inspection/clearance certificate from the concerned department for all the required equipment. The testing and commissioning shall be completed only after obtaining above certificate. Rating: 250 KVA HT Transformer, 3 phase (Level 2).				
29.0	Rating: 160 KVA HT Transformer, 3 phase (Level 2). With aluminum winding	1	Job	235000	235000
30	Providing and fitting G.I Channel /Angle/ Flat of sizes including clamps	800	Kg	123	98400
31	Supply, Installation, Testing and commissioning of Polymeric Gang operated Air break switch, outdoor type, triple pole, suitable for vertical installation, single break provided with locking arrangement at both ON and OFF position consisting of HT post double insulator, copper or copper alloy high pressure heavy contact assembly, rod with bearings, operating handle and 2 length of 32mm dia. GI pipe conforming to IS 1818 1961, 06 No. of insulators, rated voltage 11KV 200A complete as per IS specs.	4	Job	11730	46920
32	Supply, Installation, Testing and commissioning of 11KV polymer fuses Set Horn Gap 3-phase 200 A suitable for vertical installation.	2	Job	4983	9966
33	Supply, Installation, Testing and commissioning of Gapless Surge arrester station class, 10KA, 9KV, LA With polymer housing, Station Type.	2	Set	7754	15508
34	Supply and fitting of 11 KV polymeric composite pin Insulator 12 KV, 5KN, Lighting impulse 75KV Positive, and 80 KV Negative, creepage distance 320 mm	6	Job	347	2082
35	Supply, installation, erection of 9 mtrs long H.T pole of specifications ST-410 (sp-33). The job further includes drilling of holes for installation of various accessories wherever required. The job further includes GI wire earthing of pole as per REC standard.	4	No	20686	82744
36	P/F of Galvanized nuts, bolts of various sizes as per site requirement.	60	Kg	142	8520
37	P/F Danger Plate with clamps	4	No	153	612
38	Providing and fixing G.I Barbed wire for anti climbing	20	Kg	136	2720
39	Providing and fixing of anti climbing devices with clamps	4	No	421	1684
40	Painting of poles Red oxide	4	Lit	306	1224
42	Painting of poles Aluminum paint	4	Lit	510	2040
43	Providing and fitting of ACSR as per IS 398 (part-2) 1996 for 50 sq.mm ACSR (Galvanised steel reinforced) for fitment of various accessories	30	M	56	1680
44	Supply, Installation and Testing of 50 Sq mm XLPE Aluminum H.T cable (ABC type) of 11 KV grade with following specs. Size (cross sectional area in sq mm) = 3x35 with reinforced wire Phases: Red, Yellow, Blue	50	M	930	46500
45	Providing and fitting of Anchoring clamps comprising clamp body, plastic wedge, steel bill bracket, straps and buckles or nuts and bolts required for holding of 3 - Core, 50 Sq. mm H.T AB Cable.	4	Job	457	1828
46	P/F of 11 KV cable termination kit for connecting 50 Sq mm XLPE cable (ABC type) with the existing HT line near tapping point and 250 KVA HT transformer.	8	Job	8994	71952
47	Fabrication, Providing and fitting of Modular motor control panel of appropriate size fabricated out of 14 SWG sheet having required openings/vents and protection Class : IP-55 & fitted with accessories as under:a) Bus bar Chamber:The bus bar chamber shall be fitted at the top of the panel horizontally throughout the length. There shall be 3 Nos. of phase bus bar and 1 No neutral bus bar and 1 No earthing bus bar. The	1	Job	335600	335600





bus bars shall be air insulated and made-up of high conductivity COPPER having size (10 mtrx (total length) .02 mtrx 0.003 mtr with current density of suitable rating for 200 Ampere. 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.

b) Main Circuit Breaker (Incomer MCCB) type : D-sine , DN2-250N Qty. = 02

No. of poles = 4 Pole

Current Rating = 160-200 A

Rated operational voltage = 415 V + 15 %

Rated frequency = 50 +/- 3%Hz

Ambient temperature = 40C°

Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 50 KA

Type of release = Thermal-magnetic

Change over Switch:

Qty. = 01 No.

Rating = 200 A

Type = Front operated, on load, 4 pole, 400 +15%V, 50 + 3%Hz.d)

Motor Back-up Protection MCCB: Type: D sine MCCB Dz1-160 D

Qty = 2 No

No. of poles = 3P

Current Rating = 84-125 A

Rated operational voltage = 415 V +15 %

Rated frequency = 50 + 3%

Ambient temperature = 40C°

Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 36 KA

type of release = thermal-magnetic

f. Submersible starters:- Fully automatic star delta

Capacity = Mug-50 .

Relay range- 45-75 A thermal release.

ii. Voltage : 415 ± 10 % , 3 Phase , 50 Hz ± 3 %

iii. iv. protection = single phasing , phase

Reversal, phase unbalance (55 ± 5 V) ,

iv. Rated insulation voltage = 690V

v. Terminal capacity = 120 Sq. mm with lug Or above Conformity to standard = IS/IES 60947-4-1

vi. Qty. = 2 No's

g) Auxiliary MCCB for Heating/Lighting:

Circuit Breaker = MCCB Qty. = 1 No.

No. of poles = 4P

Current Rating = 63 A

Rated operational voltage = 415 V + 15 %

Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 16 KA. g) Motor

Protection Relay: Digital Motor Protection Relay with LCD Display for 3-phase supply with following protections suitable for the Modular Control

Panel:- Protections = Thermal Overload with pre-alarm, Short Circuit,

Phase Loss, Unbalance, Phase reversal, Under Current, over current,

Prolong starting, Locked Rotor, Under voltage, over voltage & Earth fault

i. M-power module for mobile starter for submersible PUMP 1P/3P 3 wire

IVRS Languages - English , Hindi, Suitable Region- North India The

panel shall be provided with phase indicators (03 NO) and digital ammeter

of range 0-200 A, digital voltmeter of range 0-500 V, and digital frequency

meter. The enclosure of the panel shall be of excellent fit and finish,

corrosion resistant and powder coated gliding hinges for smooth and

noiseless movement of windows and advanced locking arrangements.

48	Fabrication, Providing and fitting of Modular motor control panel of appropriate size fabricated out of 14 SWG sheet having required openings/vents and protection Class : IP-55 & fitted with accessories as	1	job	385800	385800
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under: a) Bus bar Chamber: The bus bar chamber shall be fitted at the top of the panel horizontally throughout the length. There shall be 3 Nos. of phase bus bar and 1 No neutral bus bar and 1 No earthing bus bar. The bus bars shall be air insulated and made-up of high conductivity COPPER having size (10 mtrx (total length) .02 mtrx 0.003 mtr with current density of suitable rating for 200 Ampere. 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. b) Main Circuit Breaker (Incomer MCCB) type : D-sine , DN2-250N Qty. = 02 No. of poles = 4 Pole Current Rating = 160-200 A Rated operational voltage = 415 V + 15 % Rated frequency = 50+/-3% Hz Ambient temperature = 40°C Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 50 KA Type of release = Thermal-magnetic Change over Switch: Qty. = 01 No. Rating = 200 A Type = Front operated, on load, 4 pole, 400 +15%V, 50 + 3% Hz. d) Motor Back-up Protection MCCB: Type: D sine MCCB Dz1-160 D Qty = 2 No. No. of poles = 3 P Current Rating = 84-125 A Rated operational voltage = 415 V +15 % Rated frequency = 50 + 3% Hz Ambient temperature = 40°C Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 36 KA Type of release = thermal-magnetic f. Submersible starters:- Fully automatic star delta Capacity = Mug-75 . Relay range- 66-110 A thermal release. ii. Voltage : 415 ±10 % , 3 Phase , 50 Hz ±3 % iii. iv. protection = single phasing , phase Reversal, phase unbalance (55 ± 5 V) , iv. Rated insulation voltage = 690Vv. Terminal capacity = 120 Sq. mm with lug Or above Conformity to standard = IS/IES 60947-4-1 vi. Qty. = 2 No's f) Auxiliary MCCB for Heating/Lighting: Circuit Breaker = MCCB Qty. = 1 No. No. of poles = 4 P Current Rating = 63 A Rated operational voltage = 415 V + 15 % Ultimate S.C Breaking Cap. at (415V AC, 50 Hz) = 16 KA. g) Motor Protection Relay: Digital Motor Protection Relay with LCD Display for 3-phase supply with following protections suitable for the Modular Control Panel:- Protections = Thermal Overload with pre-alarm, Short Circuit, Phase Loss, Unbalance, Phase reversal, Under Current, over current, Prolong starting, Locked Rotor, Under voltage, over voltage & Earth fault i. M-power module for mobile starter for submersible PUMP 1P/3P 3 wire IVRS Languages - English , Hindi, Suitable Region- North India The panel shall be provided with phase indicators (03 NO) and digital ammeter of range 0-200 A, digital voltmeter of range 0-500 V, and digital frequency meter. The enclosure of the panel shall be of excellent fit and finish, corrosion resistant and powder coated gliding hinges for smooth and noiseless movement of windows and advanced locking arrangements.

49

Providing, fitting, testing and commissioning of voltage stabilizer as per specifications below: 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 coated with radiators. 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

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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. The voltage Stabilizer shall be accepted with manufacturers dully stamped test certificate and shall have name plate with specification					
49.01	i. Rating= 75 kva	1	Job	195721	195721
49.02	ii. Rating 50 KVA	1	Job	127401	127401
49.03	ii Rating = 150 KVA	1	Job	462000	462000
50	Providing and fitting of 3-Core flat submersible copper cable conforming to IS: 694 (Part 1st) - 1964 & IS: 694 (Part 2nd) - 1964 for Submersible Pumping Unit and other electrical Equipments. The cable connections terminal shall be fitted with copper thimbles of required size.				0
50.0 1	Size: 16 sq.mm	180	M	711	127980
51	Providing and Fitting of 3 /3.5/2-Core, XLPE Armoured Aluminium /copper Cable conforming to IS: 7089 part 1st as service line from the HT transformer to control panel including necessary thimbling, crimping, taping etc. NOTE:- The cable terminal ends for connection to switchgear at various requisite points shall be Al. Thimbles of dowel's make and of appropriate size and connected by hydraulic crimp tool only.				0
51.0 1	i) 95 sqmm, 3.Score, LT, 1.1 KV alluminum cable	50	M	837	41850
51.0 2	ii. 95 sq.mm single core LT, 1.1 KV Copper cable	90	m	1350	121500
51.0 3	ii) 10sqmm, 2 core, LT, 1.1 KV alluminum cable	90	M	162	14580
52	P/I of earthing station for substation, LT panel, DG set and stabilizer comprising of company fabricated earthing electrode as per IS: 3043. The job includes Auguring of bore of required dia/depth for installation of electrode along with backfill compound mixed with soil and all other items required thereof for achieving the best result. The job includes connecting of electric gadgets through GI strip as per relevant standards. Safe earthing electrode size : 80 mm dia, Length : 2000 mm Back fill compound : 30 kg	4	No	10462	41848
53	Illumination of Premises: 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 to be 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 GI Electrode as per relevant IS Code.	2	Job	22226	44452
54	Providing, installation, testing and commissioning of area lighting 120 Watt LED (Street Light Type) on top of octagonal pole vide item No.36 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	6	Job	9486	56916

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	and having Ingress Protection up to IP-68. The LED is to be properly fitted on the arm of the pole and connected to the copper wire as directed.				
58	Providing, Installation and testing of 2KVA fully automatic voltage stabilizer with input voltage 70-240 V and output 220 V. The stabilizer shall be installed and connected to the electric circuit as per location provided by site incharge.	1	Job	8154	8154
59	Supply, installation, Testing & commissioning of 1000VA Full Sine wave power inverter (Make: Microtek/Luminous) including Providing / Installation of 12V, 180AH Tubular inverter Battery with trolley and cover (Make: Amaron/Exide) with 2-core 6mm ² Cu wiring as per site requirement along with other accessories like SS-Combine (02 No's), 3-pin plugs etc of reputed make for proper fitment and installation of the item.	1	job	34053	34053
57	Providing, laying & fixing with adhesive/bonding material of insulation rubber mats on the floor of the pump house, covering area around electro-mechanical machinery for safeguarding the life & limb of the workmen due to possible leakage of current & short circuit. The floor surface shall be made good & shall be free from dust, grease, foreign material & moisture free. The mats shall be as per IS 15652:2006 & shall have the following specifications: -Composition: Rubber (synthetic mats for electrical purpose) Thickness: - 2.5mm Size: - 1M wide. The rubber mats shall be accepted with manufacturers test certificate.	20	M	1205	24100
58	TOOL KIT For Maintenance: - The Tool Kit for maintenance shall comprise of the following and all the items as mentioned below shall be of : Providing of tool kit consists of following items i. Double ended Spanner (Chrome plated) of size in mm 6/7,8/9,10/11,12/13,14/15,16/17,18/19,20/22,21/23,24/26,25/28, 24/27, 30/32 each - 02 no. ii. double ended Ring spanners chrome plated of size in mm 6/7,8/9,10/11,12/13,14/15,16/17,18/19,20/22,21/23,24/26,25/28, 24/27, 30/32 each - 02 no. iii. Allen key set black finish of size in mm 1.5, 2, 2.5, 3, 4,5,6,8,10 each - 2 NO. iv. Combination Pliers insulated with thick C.A sleeve ; size in mm 165, 210, 255 each - 02 No. v. Long nose plier insulated with thick C.A sleeve ; size in mm 165, 205 each - 02 No. vi. Side cutting plier insulated with thick C.A sleeve ; size in mm 165, 205 make - taparia each - 02 No. vii. Insulated screw Drivers Blade length in mm Blade dia. in mm Tip dimensions in mm Quantity 50 3 1.6 x 0.4 02 75 3 1.6 x 0.4 02 100 3 3 x 0.4 02 125 3.5 3.5 x 0.5 02 150 3.5 3.5 x 0.5 02 200 4 4 x 0.6 02 300 5 5 x 0.8 02 viii. Hammer with handle weight - 110 mg , 340 gm , 600 gm -each - 1No.. ix. Heavy duty pipe Wrench length in mm - 200, 300, 600 each - 01 No.. x. Electric Multimeter=1No xi. Digital multimeter - 1No.(Fluke/Meco/scemens/Mastech) xii. Digital Clamp tester capable to measure up to 400A - 1 No. xiii. Hack saw frame with hack saw blade - 01 no. xiv. S-16 MXL, S- 16 H X L Socket Set(19 sockets + 6 Accessories) - 01 No.	1	Job	28840	28840
59	Providing and fitting of 19 mm thick multilayered ply sheet of size 6 x 3 feet , 2 nos including cutting , fixing all complete including painting of the play sheet by one coat of primer and two coats of enamel paint	36	sft	140	5040
60	a) Providing of good quality bedding for night stay/Shift consisting of: -i) Mattress with warm cover size 6'x3' (6Kg)- 02 No'sii) Quilt with warm cover size 5'x8' (6Kg)- 02 No'siii) Pillows with covers - 02 No'siv) Single	2	Job	39619	79238





	bed warm blankets with one sided Fur- 02 No's The filling material for mattress, quilt and pillow shall be of good quality cottonb) The job also includes providing of pressure cooker 5ltr 02 No's, Steel patila(utensil) 5ltrs 02 No's, cooking heater 01 No., room heater 01 No., steel 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 No's each, Cup and Saucer set (01 No. Set) and, 5kg Gas cylinder with burner/ stove. The job also includes providing of thermo-cool 15'x12' along with excel matting of 15'x12' size. 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')				
60	Providing of solar/ electrical lantern chargeable on both solar & electrical 220v supply.	2	Job	1911	3822
61	Providing of bamboo ladders 18 feet long along with 15 feet long Link rods and HT Glove pair (01 No each)	2	Job	7350	14700
62	Providing of 1 KW heat convector for operators for winter season.	2	Job	1205	2410
63	Providing and fitting of 01 No. LED (scroll type) sign board fabricated out of stainless steel and metal showing the names of water supply scheme and the Department. Size: 6'x1'6"	18	Sft	3998	71964
64	Providing and fitting of 01 No. angle iron/sheet metal board duly painted showing various specifications of the mechanical and electrical equipments installed at site.	72	sft	240	17280
65	Carriage of sand , stone aggregate by mechanical transport including loading , unloading and stacking (average distance-5km)	125	cum	198.06	24757.5
66	Carriage of soling stone by mechanical transport including loading , unloading and stacking (average distance-5km)	15	cum	233.01	3495.15
67	Carriage of cement/steel/CGI sheet/GI pipes 100mm dia and other heavy materials by mechanical transport including loading , unloading and stacking (average distance -25Km)	20	Ton	409.2	8184
68	Carriage of GI pipes 125mm dia. by mechanical transport including loading , unloading and stacking (average distance -25Km)	600	m	13.58	8148
69	Providing and fitting of 11 KV polymeric Disc insulator 12KV, Min. Falling load 45 KN , Lighting impulse 75 KV Positive and 80 Kv Negative , Creepage distance 320 mm	3	job	700	2100
70	Providing and fitting of G.I earthing rod for earthing of H.T Poles as per REC Standard	4	job	659	2636
71	Providing, installation, Testing & commissioning of 415 ±10%V (output), 3 phase Diesel Generator set as per IS 8528 (2018) and ISO 3046 (2002) for engine and IEC/IS 60034-1 for alternator suitably assembled and fitted in a pollution free acoustic enclosure / canopy of required size as per Ministry of Environment protection rule 1986 read with latest amendments . the D.G set must Adhere to emission standards set fourth by the central pollution control board as per CPCB-4 Norms . The DG Set is required to be fitted and tested on load at site. Besides the above works the D.G set shall be provided with 12 V, 180 AH Lead acid battery of reputed make fitted inside the D.G set Canapy along with necessary accessories and battery charger of required capacity. The job also includes the cost on account of HSD and skilled operator required for operation of D.G set for a period of 10 hours continuously during its testing and commissioning of D.G set at site. the capacity of the D.G set is given below				0
71.0 1	i. capacity of D.G set = 40 KVA Air cooled/water cooled	1	job	870000	870000
71.0 2	ii. capacity of D.G set = 100 KVA water cooled.	1	job	1650000	1650000
72	Providing corrugated G.S Sheet roofing including vertical/ curved surface fixed with polymer coated J or L Hooks , bolts and nuts 8 mm dia. diameter with bitumen and G.I limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (upto any pitch in horizontal /vertical or	75.5	sq.m	913.27	68951.89

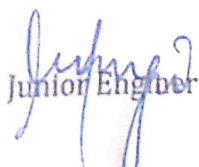
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	curved surface) excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required. 0.50 mm thick with zinc coating not less than 275 gram/m ²				
73	Providing, cutting, fitting of welded wire fence with Square mesh -2 and 14 Gauge wire diameter to be fitted on all open vertical sides of the D.G Set shed. The job includes cutting, welding, hoisting etc as per site requirement. The job further include applying of one coat of primer red oxide and two coats of enamel paint over the fence	1600	sqf	70	112000
74	Supply, installation testing and commissioning of MNX-140 FASD starter of L & T Make having following specifications i. Type: MNX-140 FASD ii. Relay range- 90-150 A thermal release. iii. Voltage: 415 \pm 10 %, 3 Phase, 50 Hz \pm 3 % iv. Contactor Assemblies (Star, delta and main contactors) = MNX-140 The job includes P/F of nut bolts, washers and fitting of same on panel board/wall. The job includes minor wiring i.e. connecting of main incoming and outgoing connection leads duly crimped with copper thimbles and testing on full load at site. The enclosure of the starter should be made of sheet metal and shall be of excellent fit and finish, corrosion resistant and powder coated gliding hinges for smooth and noiseless movement of window and advanced locking arrangements.	2	job	145000	145000
75	Providing and fitting of 11 KV polymeric Disc insulator 12KV, Min. Falling load 45 KN, Lighting impulse 75 KV Positive and 80 Kv Negative, Creepage distance 320 mm	6	job	700	4200
76	Providing and fitting of G.I earthing rod for earthing of H.T Poles as per REC Standard	4	job	659	2636
	Total				13609653.64


Report:

The above detailed estimate amounting to Rs 13609653.64/= has been framed to cover the cost on account of various Mechanical and Electrical works to carried out at various Water Supply Schemes of Awantipora Town. The design of electromechanical equipments has been carried out as per existing technical data and hydraulic parameters of water supply schemes of Awantipora Town.

Submitted for check and further necessary action at your end please.


Junior Engineer


Assistant Engineer


Assistant Executive Engineer
J/S (PHE) Mechanical S/D
Pampore