



THE M.P. STATE AGRO INDUSTRIES DEVELOPMENT CORPORATION LTD.
PANCHANAN, 3RD FLOOR, MALVIYA NAGAR, BHOPAL-462003
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website : www.mpstateagro.nic.in - CIN No. U01119MP1969SGC001055

मुख्या / मार्केटिंग / Gem-Portal-79 / 2024-25 / 2704

दिनांक : 28.10.2024

प्रति,

क्षेत्रीय प्रबंधक (समस्त),
जिला प्रबंधक (समस्त),

विषय : जेम पोर्टल से सोलर उर्जा चलित स्ट्रीट लाईट हेतु तैयार प्राक्कलन की तकनीकी स्वीकृति बाबत।

संदर्भ : इस कार्यालय का पत्र क्रमांक मुख्या / मार्केटिंग / Gem-Portal-79 / 2024-25 / 2489
दिनांक : 09.10.2024

जिला कार्यालयों द्वारा मुख्यालय से जारी SOP के संदर्भ में विगत वर्षों से जैम पोर्टल के माध्यम से सोलर हाईमास्ट तथा सोलर स्ट्रीट लाईट का व्यवसाय किया जा रहा है, जिसकी दरें एवं स्पेसिफिकेशन भिन्न-भिन्न रहते हैं। दरें एवं स्पेसिफिकेशन में एकरूपता लाने के लिए तथा कार्य की बेहतर गुणवत्ता को दृष्टिगत मुख्यालय स्तर से ही कार्यपालन यंत्री, लोक निर्माण विभाग (ई. एण्ड एम.) भोपाल से निम्नानुसार तकनीकी मापदण्ड, ड्राईंग डिजाइन, स्पेसिफिकेशन तैयार कर प्राक्कलन की तकनीकी स्वीकृति प्राप्त की गयी :-

क्र०	सोलर उर्जा चलित स्ट्रीट लाईट का विवरण	दरें (समस्त कर एवं निगम मार्जिन सहित)
01	Estimate for installation of Solar Street Light 40W LED Lights on 6m Pole.	Rs. 28696.00
02	Estimate for installation of Solar Street Light 30W LED Lights on 6m Pole. All in One Integrated.	Rs. 31663.00
03	Estimate for installation of Solar Street Light 50W LED Lights on 6m Pole. Integrated Light.	Rs 34666.00
04	Estimate for installation of Solar Street Light 40W LED Lights for Solar Wind Hybrid VAWT 150m Watt on 6m Pole.	Rs 91568.00

अतः सोलर उर्जा चलित स्ट्रीट लाईट का जेम पोर्टल से व्यवसाय हेतु स्पेसिफिकेशन, ड्राईंग तथा तकनीकी स्वीकृति प्राप्त उपरोक्त प्राक्कलन की प्रति संलग्न प्रेषित कर लेख है कि जिला योजना शाखा द्वारा चाहे जाने पर उपरोक्त मॉडल के लिये ही प्राक्कलन सहित दरें उपलब्ध करायी जाए एवं उक्त अनुसार ही कार्य किया जावे। साथ ही मुख्यालय द्वारा जेम पोर्टल पर व्यवसाय हेतु जारी एस.ओ.पी. एवं समय-समय पर जारी दिशा-निर्देशों का पूर्णतः पालन किया जावे। वर्तमान में जिन सोलर उर्जा चलित स्ट्रीट लाईट की प्रशासकीय स्वीकृति (A.S.) जारी की जा चुकी है तथा कार्यादेश जारी नहीं किया गया है, उनके लिए कलेक्टर महोदय (जिला योजना) से संपर्क कर उपरोक्त विस्तृत तकनीकी प्राक्कलन प्रस्तुत कर संशोधित प्रशासकीय स्वीकृति हेतु यथाशीघ्र अनुरोध किया जावे।

जेम पोर्टल पर सोलर उर्जा चलित स्ट्रीट लाईट की बिड जारी करते समय आपके द्वारा निर्धारित किये जाने वाले शर्तों में निम्नानुसार शर्तें अवश्य शामिल किया जावे :-

01. प्रदायकर्ता एनएसआईसी / एमएसएमई में सोलर उर्जा विद्युतीकरण हेतु पंजीकृत हो।
02. प्रदायक को सोलर हाईमास्ट लाईट / सोलर स्ट्रीट लाईट कार्य हेतु एक वर्ष का अनुभव हो।

03. प्रदायकर्ता का म.प्र. में सर्विस सेंटर होना चाहिये। प्रदायकर्ता से सर्विस सेंटर का पूर्ण पता एवं संपर्ककर्ता का नाम, मोबाईल नम्बर आदि जानकारी भी ली जावे।
04. बिड़ में सोलर हाई मास्ट/सोलर स्ट्रीट लाईट का 05 वर्ष मेन्टेनेंस की शर्त रखी जावे।
05. अंतिम भुगतान के पूर्व प्रदायकर्ता से आदेशित राशि की 3 प्रतिशत के समतुल्य राशि की बैंक गारण्टी संधारण अवधि हेतु प्राप्त की जावे। इसका पांचवा हिस्सा प्रत्येक वर्ष के अंत में संतोषजनक संधारण के उपरांत ही जारी किया जावे।

उपरोक्त निर्देशों का कड़ाई से पालन किया जावे।

कार्य की बेहतर गुणवत्ता के दृष्टिगत प्राक्कलन के महत्वपूर्ण आईटम के संबंध में सुझाव स्वरूप प्रमुख मेक एवं वांछित प्रमाणीकरण तथा स्टैंडर्ड चार्ट भी संलग्न है जिसे बिडिंग प्रक्रिया में शामिल किये जाने का सुझाव है।

संलग्न : उपरोक्तानुसार (पृष्ठ - 21)

प्रतिलिपि :-

2705
28-10-24

01. माननीय अध्यक्ष महोदय, म.प्र. राज्य कृषि उद्योग विकास निगम, भोपाल।

02. प्रमुख सचिव, उद्यानिकी एवं खाद्य प्रसंस्करण विभाग, म.प्र.शासन, मंत्रालय, भोपाल

 28/10/2024
प्रबंध संचालक

 28/10/2024
प्रबंध संचालक

TECHNICAL REPORT**Name of Work :-**Estimate for Estimate for Installation of
Street light 40 W LED lights on 6m pole**Estimated Cost :-**

₹ 28696=00

Department :-

M. P. AGRO. Industries development Corporation Limited Bhopal

Provision :-provision has been made for installation of 40 W LED light on 7 m high
mast, fully charged by solar PV modules.**Rates :-**

Rates in this estimate are as per P.W.D, S.O.R enforce from Januar

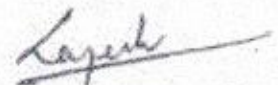
1, 2024 Sanction Estt No. 757/TS/EE E/M Dn.1 24-25

Amount of Rs. 24489=00/-only

Under the Head 8443

Specifications :-

The work will be carried out as per MPPWD (E/M) specifications

Executive Engineer
P.W.D. E/M Dn.No.-1, Bhopal
Executive Engineer
P.W.D. E/M Dn.No.1, Bhopal
अधीक्षण यंत्री (स. नि.)
सो.नि.वि. वि/यो. मण्डल
भोपाल (म.प्र.)

Estimate for Installation of 40 Watt LED light on 6 m High pole

S. no	Sor Item No	SOR	Description of item	Qty	Unit	Rate	Amount
1	41.12	G.I. pipe for protection of under ground cable	Supplying & installing G.I. pipe for protection of underground cable fixed on wall/support/in trench/fixed between two rigid existing support of wall/beam for erection of ceiling Fan/down rod for stiff pendent for light luminaries /fan/protective for earthing, lightening conductor down strip/overhead service line/for submersible cable or centrifugal pump for water supply with necessary iron clamp coupler, bend, tee, elbow, nuts and bolts etc. complete in an approved manner as required to complete excluding cost of excavation/dismantling & other finished masonry item complete.				
	41.12.1	For 'B' class pipe	For 'B' class pipe (SI marked (IS-1161-68)				
	41.12.1.7	65.00mm	65.00mm	6	Meter	693	4158
2	42.23	Erection of metallic street light pole length exceeding 3 meters but not exceeding 6 meters	Erection of metallic street light pole length 3 meters but not exceeding 6 meters in cement concrete M-10 (1cement:3coarse sand:6 graded stone aggregate 40mm nominal size) foundation with cement concrete collar of size 0.4 meters diameter x 0.5 meters height to accommodate the looping type cable end box including excavation and refilling etc. as required.	1	Each	2421	2421
3	Non SOR	Battery	Supply and installation of 12V 36 Ah capacity Lithium ferro Phosphate battery BIS approved having output voltage as 12.8 V and suitable battery management system for cell balancing, over charge and over temperature protection DOD 80% life cycle 2000	1	Each	9990	9990

Non SOR	Charge controller	Supply and installation inside the control panel ,Solar charge controller type PWM/MPPT type as per EN 51530 . Charge controller rating 10A.Module rating 110Wp @ 16.4 V plus minus 2V.Open circuit voltage >21V, Vmp 16.4 V	1	Each	699	699
Non SOR	PV module	Supply and installation of 80 Wp MNRE approved polycrystalline half cut PV module protected with toughened glass, open circuit voltage 21.4V minimum, conforming to IEC 61215 and IEC 61370, having terminal box as per standard practice and condition performance warranty min 25 yrs. Module efficiency must be more than 20%.	1	Each	4443	4443
42.39	19/20mm dia. M.S. pipe 1 meter in length for lights	Supplying and fixing of 19mm/20mm dia. M.S. pipe 1 meter in length for CFL/LED street light/bulkhead/water tight bracket including bending to shape and wiring with 1.5sqmm W.P./PVC wire etc. as required.	1	Each	279	279
19.1	Single core PVC insulated FRLS cable	Supplying and drawing Single core PVC insulated cable FRLS with copper multi strand conductor ISI marked in existing rigid PVC casing and capping/conduit in surface or concealed as per specification.				
19.3.1		1 X 4.00 sq. mm.	10	Meter	45	450

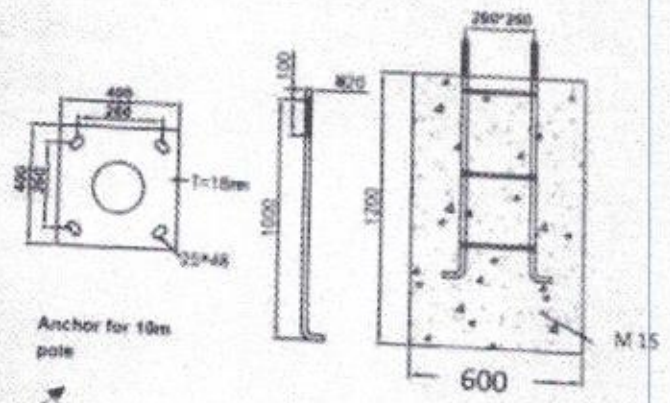
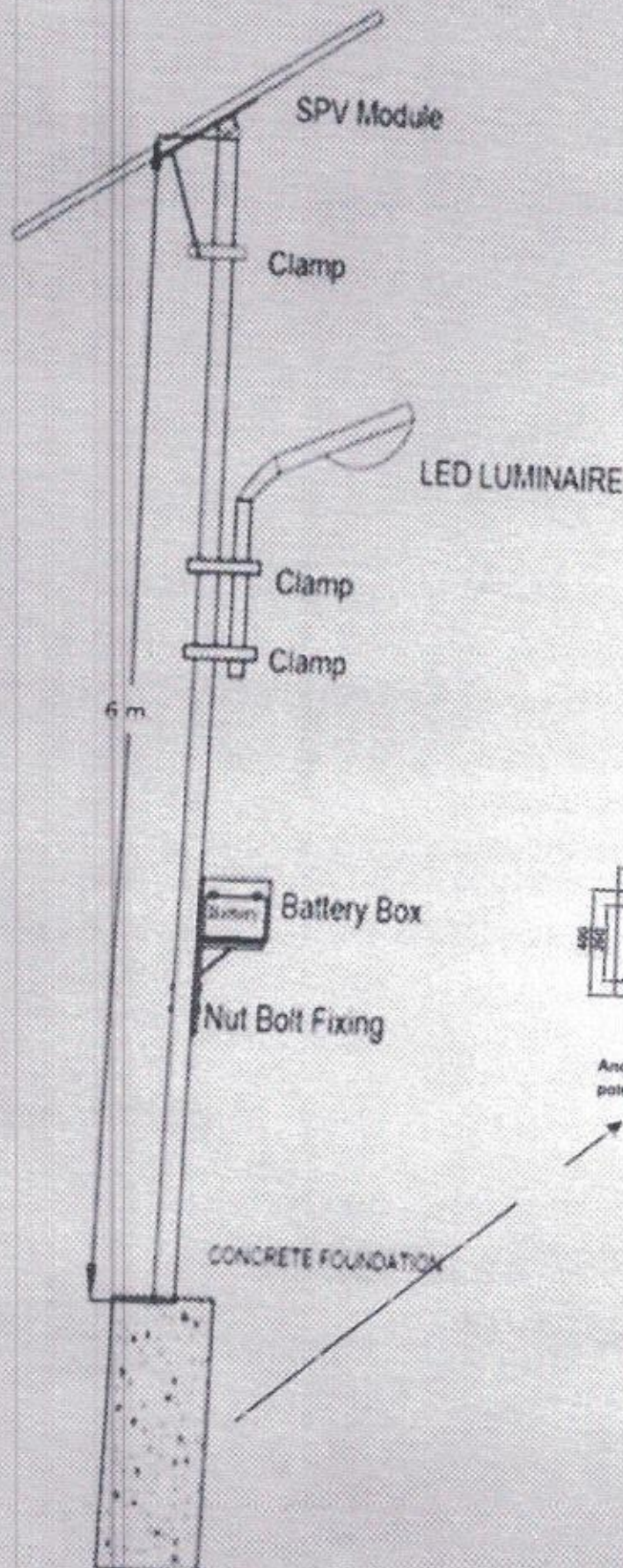
8	Non SOR	Light Source	White light emitting Diode (W-Led) 40 Watt , W-LED luminaire as required, dispersed beam, soothing to eyes with the use of proper optics and diffuser. LED Chip should be compliance to IEC (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to LM 70). Test report for same should be submitted.	1	N	1750	1750
9	Non SOR	LDR	Supply and fixing of AC Auto day/Night on off photocell sensor LDR switch for lighting waterproof IP 65 20A			299	299
			Total				24489
			Contingency and margin 3.5%				857
			Add GST 12% on solar Component :- (3+4+5+7+8+9) on 17631				2116
			Add GST 18% on solar Component :- (1+2+6)) on 6858				1234
			Net Total				28696

P/Sanction Estt No. 757 /TS/EE E/M Dn.1. 24-25
 Amount of Rs. 24,489 = 00 only
 Under the Head 8443
 Date 22-10-24

Executive Engineer
 P.W.D. E/M Dn.No.-1, Bhopal

अधीक्षण इंजी (से.नि.)
 ज्यो.नि.वि. वि/प्री. मण्डल
 भापाल (म.प्र.)

Drawing of 40 Watt LED light on 6 m High pole All in One, Integrated Light



MATERIAL LIST		
S.	Description	Qty
1	SPV Module 80 Watt (Branded)	1
2	LED 40 watt1(Branded) with box	1
3	Lithium Ferro Phosphate Battery 36 Ah (Branded)	1
4	G.I. round pole 6 m long	1
5	MPPT Charge Controller	1
6	Foundation	1

2/11/16

LIST OF APPROVED MATERIAL

S.NO.	NAME OF ITEMS	SUGGESTIVE MAKE	CERTIFICATION BY/SUGGESTIVE STANDARD
1	SOLAR PV MODULE	WAAREE, LOOM, TATA OR EQUIVALENT	MNRE
2	SOLAR BATTERY	LITPAX OR EQUIVALENT	AS PER BIS
3	CHARGE CONTROLLER	AMIEI SMART, OR EQUIVALENT	MNRE AT
4	POLYGONAL/SERCULAR HIGH MAST	SURYA, UTKARSH, BAJAJ OR EQUIVALENT	BIS
5	INVERTER	LUMINOUS, EXIDE, MICROTEK OR EQUIVALENT	BIS
6	LDR SENSOR	EYESENSE OR EQUIVALENT	
7	F.R.L.S (FIRE RATED LOW SMALL) COPPER CONDUCTOR	ANCHOR, HAVELLS, FINOLEX OR EQUIVALENT	BIS
8	MCB/ISOLATOR	HAVELLS, C&S, L&T, LEGENDS OR EQUIVALENT	BIS
9	SPN DB	HAVELLS, C&S OR EQUIVALENT	BIS
10	STREET LIGHT LED	PHILIPS, CROMPTON, WIPRO OR EQUIVALENT	BIS
11	G. I. PIPE	SWASTIK, SURYA OR EQUIVALENT	BIS
12	LIGHTING CONDUCTOR	AS PER STANDARD PRACTICE	BIS
13	G.I. WIRE	TATA, SAIL OR EQUIVALENT	BIS
14	G.I. STRIP	TATA, SAIL, OR EQUIVALENT	BIS
15	LT PANEL	FABRICATION ITEM	
16	HARDWARE	TATA, SAIL OR EQUIVALENT	BIS
17	STEEL FOR REINFORCEMENT	TATA, BANSAL, MOIRA OR EQUIVALENT	BIS
18	PERMANENT MEGNET GENERATOR MOTOR	STANDARD MAKE	STANDARD MAKE
19	WIND TURBINE	IYSERT, INVERTER, TULIP, IBIS OR	STANDARD MAKE

ESTIMATE-2
⑦

TECHNICAL REPORT

Name of Work :- Estimate for Estimate for Installation of Street light 30 W LED lights on 6m pole, All in One Integrated

Estimated Cost :- ₹ 31663=00

Department :- M. P. AGRO. Industries development Corporation Limited Bhopal

Provision :- provision has been made for Installation of 30 W LED light on 6 m high mast, fully charged by solar PV modules, All in One, Integrated.

Rates :- Rates in this estimate are as per P.W.D, S.O.R enforce from January 1, 2024

Specifications :- The work will be carried out as per MPPWD (E/M) specifications

758
T/Sanction Estt No. 758 /TS/EE EMD No. 1. 24-25
Amount of Rs. 27,058 = only
Under the Head 8443
Date 22-10-24

Executive Engineer
P.W.D. E/M Dn. No.-1, Bhopal

Kayak
अग्रशोधन वंत्री (ले. नि.)
जो. नि. वि. बि/प्री. मण्डल
भोपाल (म.प्र.)

Estimate for Installation of 30 Watt LED light on 6 m High pole All in One, Integrated Light

S. no	Sor Item No	SOR	Description of items	Qty	Unit	Rate	Amount
1	41.12	G.I. pipe for protection of under ground cable	Supplying & installing G.I. pipe for protection of underground cable fixed on wall/support/in trench/fixed between two rigid existing support of wall/beam for erection of ceiling Fan/down rod for stiff pendent for light luminaries /fan/protective for earthing, lightening conductor down strip/overhead service line/for submersible cable or centrifugal pump for water supply with necessary iron clamp coupler, bend, tee, elbow, nuts and bolts etc. complete in an approved manner as required to complete excluding cost of excavation/dismantling & other finished masonry item complete.				
	41.12.1	For 'B' class pipe	For 'B' class pipe ISI marked (IS-1161-68)				
	41.12.1.7	65.00mm	65.00mm	6	Meter	693	4158
2	42.23	Erection of metallic street light pole length exceeding 3 meters but not exceeding 6 meters	Erection of metallic street light pole length 3 meters but not exceeding 6 meters in cement concrete M-10 (1cement:3coarse sand:6 graded stone aggregate 40mm nominal size) foundation with cement concrete collar of size 0.4 meters diameter x 0.5 meters height to accommodate the looping type cable end box including excavation and refilling etc. as required.	1	Each	2421	2421
3	42.39	19/20mm dia. M.S. pipe 1 meter in length for lights	Supplying and fixing of 19mm/20mm dia. M.S. pipe 1 meter in length for CFL/LED street light/bulkhead/water tight bracket including bending to shape and wiring with 1.5sqmm W.P./PVC wire etc. as required.	1	Each	279	279

Non
SOR
Item

4	All in One Solar Integrated Light	110 Wp as required PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory Module efficiency should not be less than 14 %.
	Battery	LiFePo4 battery, System Voltage: 12.8 V 36 AH capacity for 110 Wp
	Light Source	White Light Emitting Diode (W-LED) 30 Watt with 110 Wp, W-LED luminaire as required, dispersed beam, soothing to eyes with the use of proper optics and diffuser. LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.
		The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification] For single light level: Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. For Multiple Light levels: The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at "High" illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred) The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like: 1) Total luminous flux (30 W/45 W): ≥ 4500 lm/6000 lm. 2) Luminous efficacy (i.e. system efficacy): ≥ 145 lm/W. 3) Color Temperature: Between 5500 K to 6500 K. 4) CRI ≥ 70 5) Luminous Intensity distribution should follow the batwing patterns in polar curves. 6) Require validation report using file, which is generated during luminous intensity distribution test and using maintenance factor 0.9 and pole height of 4m., Road width 5m and Pole span 15m. The average illuminance level and uniformity should comply with requirement as per IS 1944, wherever applicable The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards
	Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%
	Duty Cycle	Dusk to dawn: First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level. (Higher light output will be preferred)
	Autonomy	2 days or Minimum 24 operating hours per permissible discharge with fully charged Lithium Ferro Phosphate Battery.
	Total	
	Contingency and margin 3.5%	
	Add GST 12% on Solar equipment's Point 4 (On 20200)	

20200

Sanction Estt No. 756
Amount of Rs. 27,058 = 24,000
Under the Head 8443
Date 22-10-24

Executive Engineer
P.W.D. E/M Dn. No. 1, Bhagal

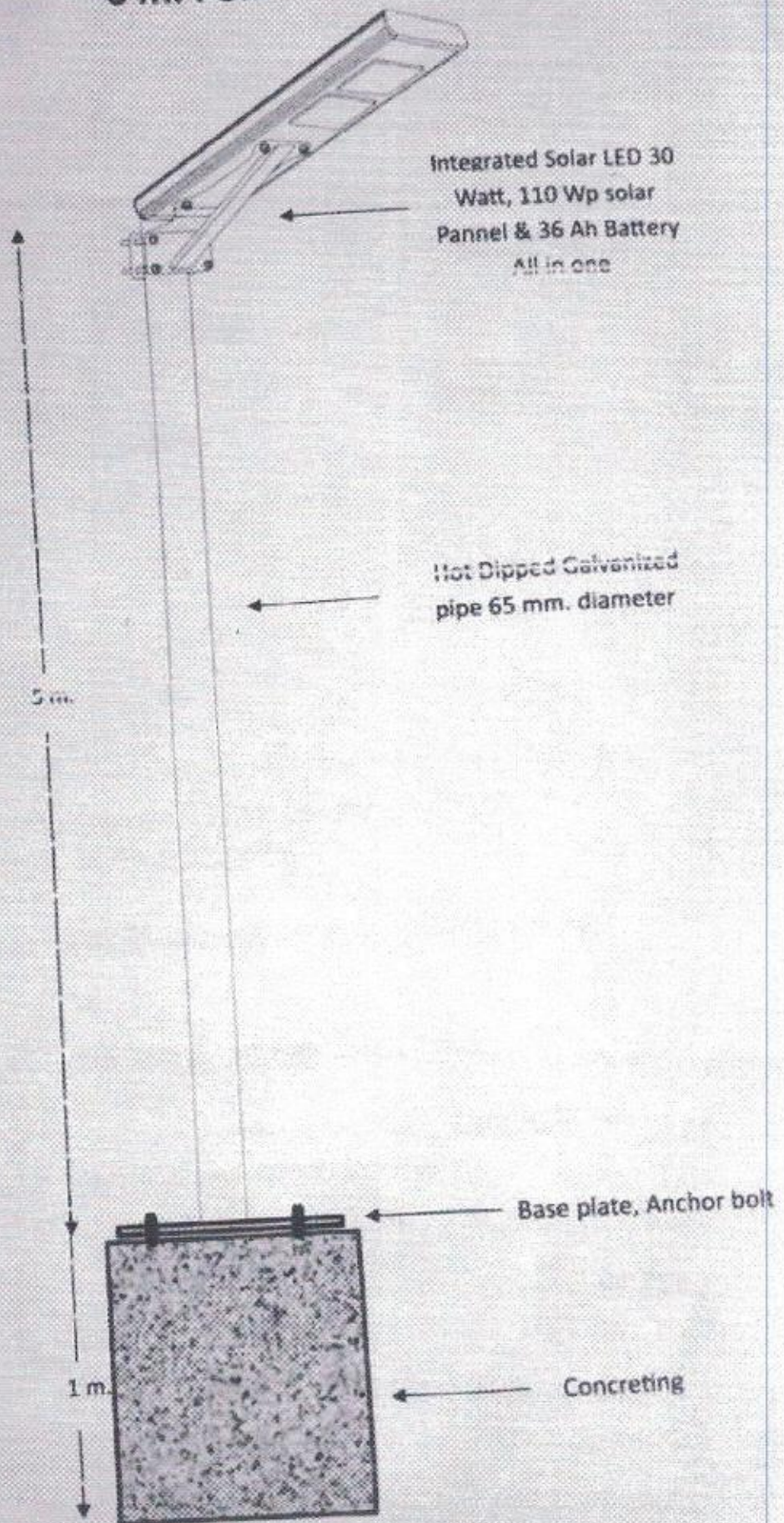
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27058

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2424

(10)
**Drawing of All in One Street Light 30 watt with 110 p solar
Pannel & 36 Ah Lithium Ferro Phosphate Battery mounted on
6 m. Pole**



LIST OF APPROVED MATERIAL

23/12/11

S.NO.	NAME OF ITEMS	SUGGESTIVE MAKE	CERTIFICATION BY/SUGGESTIVE STANDARD
1	SOLAR PV MODULE	WAAREE, LOOM, TATA OR EQUIVALENT	MNRE
2	SOLAR BATTERY	LITPAX OR EQUIVALENT	AS PER BIS
3	CHARGE CONTROLLER	AMIEI SMART, OR EQUIVALENT	MNRE AT
4	POLYGONAL/SERCULAR HIGH MAST	SURYA, UTKARSH, BAJAJ OR EQUIVALENT	BIS
5	INVERTER	LUMINOUS, EXIDE, MICROTEK OR EQUIVALENT	BIS
6	LDR SENSOR	EYSENSE OR EQUIVALENT	
7	F.R.L.S (FIRE RATED LOW SMALL) COPPER CONDUCTOR	ANCHOR, HAVELLS, FINOLEX OR EQUIVALENT	BIS
8	MCB/ISOLATOR	HAVELLS, C&S, L&T, LEGENDS OR EQUIVALENT	BIS
9	SPN DB	HAVELLS, C&S OR EQUIVALENT	BIS
10	STREET LIGHT LED	PHILIPS, CROMPTON, WIPRO OR EQUIVALENT	BIS
11	G. I. PIPE	SWASTIK, SURYA OR EQUIVALENT	BIS
12	LIGHTING CONDUCTOR	AS PER STANDARD PRACTICE	BIS
13	G.I. WIRE	TATA, SAIL OR EQUIVALENT	BIS
14	G.I. STRIP	TATA, SAIL, OR EQUIVALENT	BIS
15	LT PANEL	FABRICATION ITEM	
16	HARDWARE	TATA, SAIL OR EQUIVALENT	BIS
17	STEEL FOR REINFORCEMENT	TATA, BANSAL, MOIRA OR EQUIVALENT	BIS
18	PERMANENT MEGNET GENERATOR MOTOR	STANDARD MAKE	STANDARD MAKE
19	WIND TURBINE	IYSERT, INVERTER, TULIP, IRIS OR	STANDARD MAKE

9

ESTIMATE-3

T2

TECHNICAL REPORT

Name of Work :-	Estimate for Estimate for Installation of Street light 50 W LED lights on 6m pole, Integrated Light.
Estimated Cost :-	₹ 34666=00
Department :-	M. P. AGRO. Industries development Corporation Limited Bhopal
Provision :-	provision has been made for installation of 50 W LED light on 6 m high mast, fully charged by solar PV modules, Integrated Light.
Rates :-	Rates in this estimate are as per P.W.D, S.O.R enforce from January 1, 2024
Specifications :-	The work will be carried out as per MPPWD (E/M) specifications

(Sanction Esti No. 759 TS/EE E/M Dn.1 24-25
Amount of Rs. 29,650 = only
Under the Head 8443
Date 22-10-24

Executive Engineer
P.W.D. E/M Dn. No. 1, Bhopal

R

Laxmi
श्रीमती वंशी (सं. नि.)
मो. नि. वि. वि/पा. मण्डल
भोपाल (म.प्र.)

Estimate for Installation of 50 Watt LED light on 6 m High pole All in One, Integrated Light

S. no	Sor Item No	SOR	Description of item	Qty	Unit	Rate	Amount
1	41.12	G.I. pipe for protection of under ground cable	Supplying & installing G.I. pipe for protection of underground cable fixed on wall/support/in trench/fixed between two rigid existing support of wall/beam for erection of ceiling Fan/down rod for stiff pendent for light luminaries /fan/protective for earthing, lightening conductor down strip/overhead service line/for submersible cable or centrifugal pump for water supply with necessary iron clamp coupler, bend, tee, elbow, nuts and bolts etc. complete in an approved manner as required to complete excluding cost of excavation/dismantling & other finished masonry item complete.				
	41.12.1	For 'B' class pipe	For 'B' class pipe ISI marked (IS-1161-68)				
	41.12.1.7	65.00mm	65.00mm	6	Meter	693	4158
	42.23	Erection of metallic street light pole length exceeding 3 meters but not exceeding 6 meters	Erection of metallic street light pole length 3 meters but not exceeding 6 meters in cement concrete M-10 (1cement:3coarse sand:6 graded stone aggregate 40mm nominal size) foundation with cement concrete collar of size 0.4 meters diameter x 0.5 meters height to accommodate the looping type cable end box including excavation and refilling etc. as required.	1	Each	2421	2421
3	42.39	19/20mm dia. M.S. pipe 1 meter in length for lights	Supplying and fixing of 19mm/20mm dia. M.S. pipe 1 meter in length for CFL/LED street light/bulkhead/water tight bracket including bending to shape and wiring with 1.5sqmm W.P./PVC wire etc. as required.	1	Each	279	279

4	Non SOR Item	All in One Solar Integrated Light	110 Wp as required PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory Module efficiency should not be less than 14 %.
		Battery	LiFePo4 battery, System Voltage: 12.8 V 54 AH for 120 W p system
		Light Source	White Light Emitting Diode (W-LED) 50 Watt with 110 W p, W-LED luminaire as required, dispersed beam, soothing to eyes with the use of proper optics and diffuser. LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.
			The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification] For single light level: Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. For Multiple Light levels: The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at "High" illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred) The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like: 1) Total luminous flux (30 W/45 W): ≥ 4500 lm/6000 lm. 2) Luminous efficacy (i.e. system efficacy): ≥ 145 lm/W. 3) Color Temperature: Between 5500 K to 6500 K. 4) CRI ≥ 70 5) Luminous intensity distribution should follow the batwing patterns in polar curves.

22800

Sanction Estt No. 759 ITS/EE/B/M Dn No. 2423
 Amount of Rs. 29,658 = 00 Require validation report using file, which is generated during luminous intensity distribution test and using maintenance factor 0.9 and pole height of 4m., Road width 5m and Pole span 15m. The average illuminance level and uniformity should comply with requirement as per IS 1944, wherever applicable
 Under the Head 8443
 Date 22-10-24

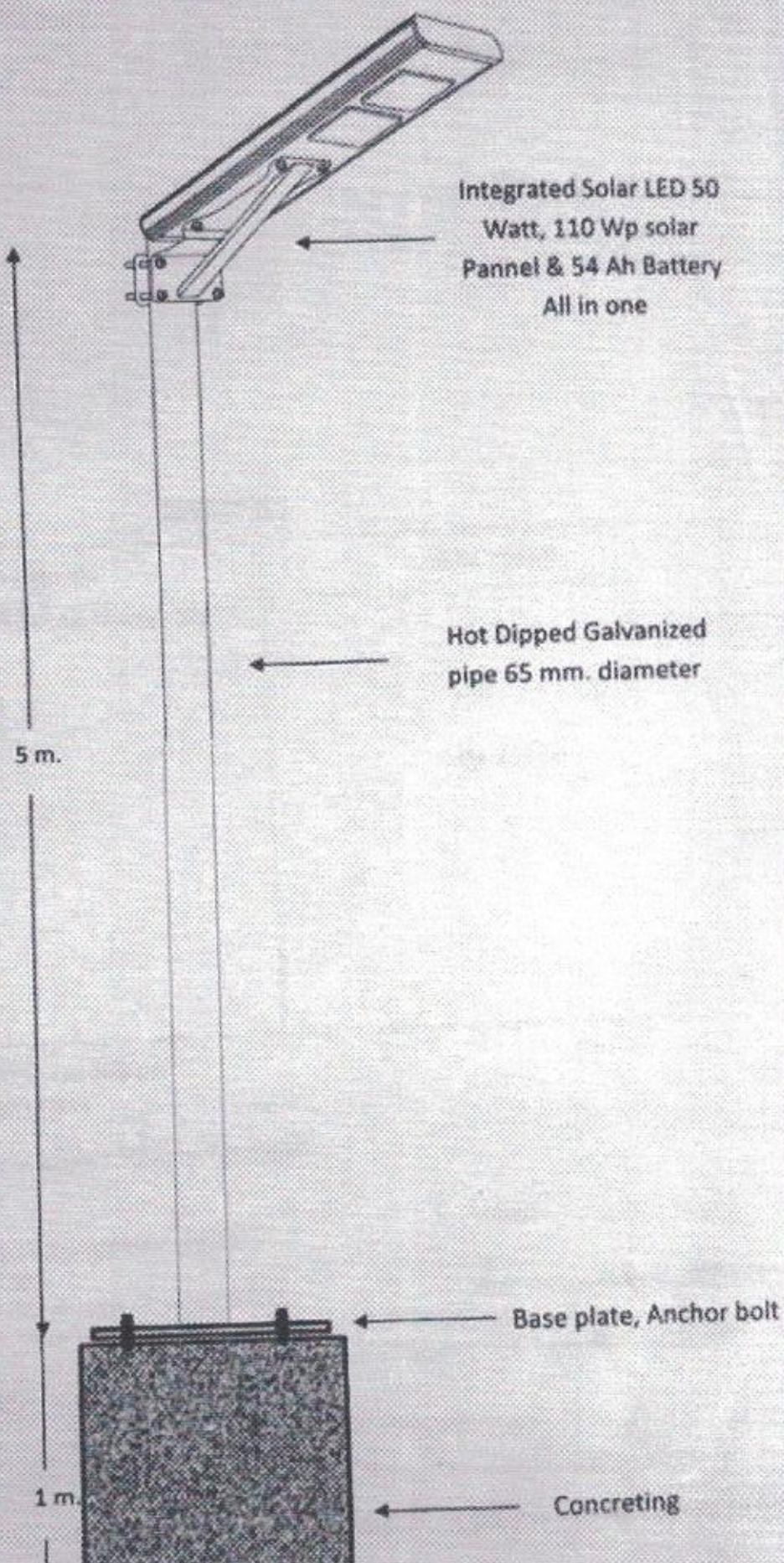
Executive Engineer 71 The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards
 P.W.D. E/M Dn No. 1, Bhopal

Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%
Duty Cycle	Dusk to dawn: First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level. (Higher light output will be preferred)
Autonomy	2 days or Minimum 24 operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate Battery.

Executive Engineer
 P.W.D. E/M Dn No 1, Bhopal

	Total	29658
	Contingency and margin 3.5%	1038
	Add GST 12% on Solar component Point 4 (22800)	2736
	Add GST 18% on Solar component Point 1+2+3 (6858)	1234

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Drawing of All in One Street Light 50 watt with 110 Wp solar Pannel &
54 Ah Lithium Ferro Phosphate Battery mounted on 6 m. Pole



LIST OF APPROVED MATERIAL

S.NO.	NAME OF ITEMS	SUGGESTIVE MAKE	CERTIFICATION BY/SUGGESTIVE STANDARD
1	SOLAR PV MODULE	WAAREE, LOOM, TATA OR EQUIVALENT	MNRE
2	SOLAR BATTERY	LITPAX OR EQUIVALENT	AS PER BIS
3	CHARGE CONTROLLER	AMIEI SMART, OR EQUIVALENT	MNRE AT
4	POLYGONAL/SERCULAR HIGH MAST	SURYA, UTKARSH, BAJAJ OR EQUIVALENT	BIS
5	INVERTER	LUMINOUS, EXIDE, MICROTEK OR EQUIVALENT	BIS
6	LDR SENSOR	EYESENSE OR EQUIVALENT	
7	F.R.LS (FIRE RATED LOW SMALL) COPPER CONDUCTOR	ANCHOR, HAVELLS, FINOLEX OR EQUIVALENT	BIS
8	MCB/ISOLATOR	HAVELLS, C&S, L&T, LEGENDS OR EQUIVALENT	BIS
9	SPN DB	HAVELLS, C&S OR EQUIVALENT	BIS
10	STREET LIGHT LED	PHILIPS, CROMPTON, WIPRO OR EQUIVALENT	BIS
11	G. I. PIPE	SWASTIK, SURYA OR EQUIVALENT	BIS
12	LIGHTING CONDUCTOR	AS PER STANDARD PRACTICE	BIS
13	G.I. WIRE	TATA, SAIL OR EQUIVALENT	BIS
14	G.I. STRIP	TATA, SAIL, OR EQUIVALENT	BIS
15	LT PANEL	FABRICATION ITEM	
16	HARDWARE	TATA, SAIL OR EQUIVALENT	BIS
17	STEEL FOR REINFORCEMENT	TATA, BANSAL, MOIRA OR EQUIVALENT	BIS
18	PERMANENT MEGNET GENERATOR MOTOR	STANDARD MAKE	STANDARD MAKE
19	WIND TURBINE	IYSERT, INVERTER, TULIP, IRIS OR	STANDARD MAKE

Technical Report

1 Name of the work

Estimate for Installation of Street light 40 W
LED lights for solar wind hybrid VAWT 150m
Watt on 6m pole

2 Amount of Estimate

₹ 91568

3 Department

MP AGRO Industries development Corporation
Limited MP

4 Provision

provision has been made for installation of 40
W LED light on 6 m high mast, partially
charged by solar PV modules & partially by
150 Watt VAWT system.

5 Rate

As per current MPPWD SOR in force
01.01.2024

Sanction Est. No. 760/TS/EE/EM/Dn. 24-2
Amount of Rs. 76,287 = 8% only
Under the Head 2216
Date 22-10-24

6 Specification

The work will be carried out as per MPPWD
(E/M) specifications

Executive Engineer
P.W.D. E/M Dn. No. 1

Executive Engineer
P.W.D. E/M Dn. No. 1, Bhopal

अधीक्षक यंत्री (से. वि.)
श्री. नि. वि. वि/यौ. मण्डल
भोपाळ (म.प्र.)

Estimate for Installation of Hybrid street light 40 W LED light with 150 Watt Vertical axis Wind Turbine on 6m Pole

S.No	SOR ITEM No	SOR	Description of item	Quantity	Unit	Rate	Amount
1	Non SOR	PV module	Supply and installation of 110 W p MNRE approved poly crystalline half cut PV module protected with toughened glass, open circuit voltage 21.4V minimum, conforming to IEC 61215 and IEC 61370, having terminal box as per standard practice and condition performance warranty min 25 yrs. Module efficiency must be more than 20%.	1	Each	6000	6000
2	Non SOR	Battery	Supply and installation of 12V 36 Ah capacity Lithium ferro Phosphate battery BIS approved having output voltage as 12.8 V and suitable battery management system for cell balancing, over charge and over temperature protection	1	Each	9990	9990
3	Non SOR	Charge controller	Supply and installation inside the control panel ,Solar charge controller type PWM/ MPPT type as per EN 51530 . Charge controller rating 10A.Module rating 110Wp @ 16.4 V plus minus 2V.Open circuit voltage >21V, Vmp 16.4 V	1	Each	699	699
4	10.15	Steel Structure	Design, supply, fabrication, transportation and erection of structural steel/mild steel built-up sections for steel building in column, rafter, truss, floor joist, wind bracing s, tie beam, foundation bolts, fasteners etc. Including two coats of Epoxy paint and one coat of primer. These structural steel/built-up sections shall be manufactured using advanced CNC Plasma/Oxy Acetylene cutter and H Beam Welding line. Welding shall be in full depth on both sides of the plate adopting relevant I.S Code.		Kg.		
	10.15	ISMC 75 x 75 x 5	Steel structure for pole made of ISMC 75 x 75 x 5 mm. with mountings of wind turbine clamp and fittings.	92	Kg	132	12144
5	NON SOR	Hot dip Galvanizing	Whole structure is coated by hot dip galvanizing by prior cleaning, acid wash.	92	Kg	17	1564
6	42.23	Erection of metallic street light pole length exceeding 3 meters but not exceeding 6 meters	Erection of metallic street light pole length 3 meters but not exceeding 6 meters in cement concrete M-10 (1cement:3coarse sand:6 graded stone aggregate 40mm nominal size) foundation with cement concrete collar of size 0.4 meters diameter x 0.5 meters height to accommodate the looping type cable end box including excavation and refilling etc. as required.		Each	2421	2421

7	42.39	19/20mm dia. M.S. pipe 1 meter in length for lights	Supplying and fixing of 19mm/20mm dia. M.S. pipe 1 meter in length for CFL/LED street light/bulkhead/water tight bracket including bending to shape and wiring with 1.5sqmm W.P./PVC wire etc. as required.	1	Each	279	279
8	NON SOR ITEM	Light Source	White light emitting Diode (W-Led) 40 Watt, W-LED luminaire as required, dispersed beam, soothing to eyes with the use of proper optics and diffuser. LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.	1	Each		2000
8	NON SOR ITEM	VAWT	Wind turbine vertical 150 W/12/24 VDC/8 AMPS rotor diameter flower shape shall be mounted on the top of the post by means of stand made of galvanized iron structure. Arrangement shall be provided to up & down turbine during maintenance. Hybrid systems comprising of vertical axis wind turbine and Solar PV panels are required with the following configurations: Rated speed 150W @ 300RPM 250W @150 RPM (a) 40% wind and 60% solar capacity The total indicative capacity & Details of technical specifications are given below: (i) Design Criteria in accordance with Standards set by MNRE/BIS Vertical Savones wind turbines 150 W, type tested by NIWE Solar PV Modules Power conditioning Unit with Charge Controller and Inverter Battery Bank (LiFePO4) - 4.8 Vah per Watt. Battery housing insulated cover with suitable steel frame for battery mounting DC and AC distribution boxes (ii) Vertical Axis Wind Turbine The type of wind turbine shall be small wind vertical axis turbine. A single wind turbine shall be of 500 W capacity. The cover material shall be UV resistant HDPE/PPE, Turbine material should be galvanized G-90 steel and rotor type should be vertical axis. Wind turbine should be type tested by NIWE. (iii) Certification: NISE/NIWE/BIS/IEC/relevant NABL (as applicable)	1	Each	19800	19800

9	Permanent Magnet Generator Low RPM	Permanent magnet type of motor shall have capacity .150 KW with increase gear box. Warrantee 5 Years Output AC single phase Weight 10.5 Kg. Rated Power 300 Watt Rated RPM 350 RPM Frequency 58.3 Hertz. Rated Voltage 12V/24V Start Torque 1 N/m Struct ion Outer Rotor Generator shell Material Aluminum Alloy Material of axis Carbon Steel Specifications 320 x 320 x 300	Each	18190	1	18190
10	Wind Controller	Wind Controller (AC/DC Rectifier) Protection :- Overcharge, over discharge, reverse connection of batteries, over loading, lighting, current control, automatic braking Function :- MPPT Charging Unloading Way :- PWM Electroless and noiseless unloading. Working Temperature :- -20~+60°C 35~85%RH Dimensions :- 100*80*15mm Net Weight :- .4 Kg.	Each	3200	1	3200
		Total				76287
		Contingency and margin 3.5%				2670
		Add GST 12% on Solar Component on point (1+2+3+7) :-				2243
		18689				
		Add GST 18% on Mechanical, Civil & Wind turbine Component on point(4+5+6+7+8+9+10) :-				10368
		57598				
		Net Total				91568

I/Sanction Est No. 760 ITS/EE E/M Dn.1 24-25
 Amount of Rs. 76,287 = Only
 Under the Head 8443
 Date 22-10-24

Executive Engineer
 P.W.D. E/M Dn. No. - 1, District

Digitized
 श्रीमान श्री (से.प्र.)
 श्री.वि.वि. वि/प्र. मण्डल
 श्रीवास्तव (म.प्र.)

LIST OF APPROVED MATERIAL

21

S.NO.	NAME OF ITEMS	SUGGESTIVE MAKE	CERTIFICATION BY/SUGGESTIVE STANDARD
1	SOLAR PV MODULE	WAAREE, LOOM, TATA OR EQUIVALENT	MNRE
2	SOLAR BATTERY	LITPAX OR EQUIVALENT	AS PER BIS
3	CHARGE CONTROLLER	AMIEI SMART, OR EQUIVALENT	MNRE AT
4	POLYGONAL/SERCULAR HIGH MAST	SURYA, UTKARSH, BAJAJ OR EQUIVALENT	BIS
5	INVERTER	LUMINOUS, EXIDE, MICROTEK OR EQUIVALENT	BIS
6	LDR SENSOR	EYESENSE OR EQUIVALENT	
7	F.R.L.S (FIRE RATED LOW SMALL) COPPER CONDUCTOR	ANCHOR, HAVELLS, FINOLEX OR EQUIVALENT	BIS
8	MCB/ISOLATOR	HAVELLS, C&S, L&T, LEGENDS OR EQUIVALENT	BIS
9	SPN DB	HAVELLS, C&S OR EQUIVALENT	BIS
10	STREET LIGHT LED	PHILIPS, CROMPTON, WIPRO OR EQUIVALENT	BIS
11	G. I. PIPE	SWASTIK, SURYA OR EQUIVALENT	BIS
12	LIGHTING CONDUCTOR	AS PER STANDARD PRACTICE	BIS
13	G.I. WIRE	TATA, SAIL OR EQUIVALENT	BIS
14	G.I. STRIP	TATA, SAIL, OR EQUIVALENT	BIS
15	LT PANEL	FABRICATION ITEM	
16	HARDWARE	TATA, SAIL OR EQUIVALENT	BIS
17	STEEL FOR REINFORCEMENT	TATA, BANSAL, MOIRA OR EQUIVALENT	BIS
18	PERMANENT MEGNET GENERATOR MOTOR	STANDARD MAKE	STANDARD MAKE
19	WIND TURBINE	IYSERT, INVERTER, TULIP, IRIS OR	STANDARD MAKE

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