

ADDENDUM / CORRIGENDUM NO.3**TENDER FOR "RE-CONSTRUCTION OF SOUTH COAL BERTH AT COCHIN PORT ON ENGINEERING,
PROCUREMENT AND CONSTRUCTION CONTRACT BASIS" (Tender No. T9/T-1919/2020-C)****EMPLOYER'S CLARIFICATIONS ON ADDITIONAL QUERIES FROM BIDDERS**

Sl. No.	Reference Clause to Bid Document	Description of Clause	Bidders' Queries	Employer's Clarification
BIDDER-1				
1.	Bid Document Vol-I, Section-1, ITT Cl. 1.6.1 (v), Page 6 of 20	Copy of Professional Indemnity Insurance Policy (PI) for minimum amount equal to the estimated project cost. The policy shall be effective till the completion of five (5) years after issue of Taking Over Certificate by the Employer.	<p>Bidder request to modify the mentioned clause to the effect that the same is applicable only to successful bidder.</p> <p>Bidder also requested to reduce the validity period of the 1 year from the date of completion of the project, especially when there is an additional submission of Contractors All Risk (CAR) policy covering the entire risk of the project for the estimated value.</p>	<p>The Sub clause 1.6.1 (v) under ITT stands replaced by the following .</p> <p>(v) An Undertaking to the effect that in case the Tenderer becomes <i>the Successful Bidder</i>, he shall, at his cost, procure and submit the Professional Indemnity Insurance Policy (PI) for a minimum amount equal to the estimated project cost or tendered cost, whichever is higher prior to entering into agreement. The policy shall be effective till the completion of five (5) years after issue of Taking Over Certificate by the Employer.</p> <p>Not acceptable.</p>

BIDDER – 2			
2.	Qualifying requirements (Vol.I, Section 1, ITT, clause 1.6)	To be eligible for Qualification, a Bidder shall fulfill the following Minimum Eligibility Criteria (MEC): (A) Technical Capacity (B) Financial Capacity For full text refer the relevant clause in Tender	The value of work done in the completion certificate issued to a JV firm shall be considered as the value of “One similar work” for meeting the Technical capacity/ qualification of that entity. Please confirm.
If the same entity/ JV, in whose name the completion certificate is issued, is participating in the captioned tender without any change in the composition of the entity/ JV, the completion certificate issued in the name of entity/ JV shall be considered subject to other provisions of the tender.			
BIDDER – 3			
3	Volume-II, Section 7B - Design Criteria, page 9 of 17 Cl. 2.6.7 Berthing Load	Table A.2 Parameters for calculation of Berthing Energy S No Description Vessel Size in DWT 35,000 1. Berthing velocity (m/sec) 0.15 2. Berthing angle (degrees) 10 3. Mass Coefficient 1.28 4. Displacement Tonnage (Tonne) 44,100 5. Eccentricity Coefficient 0.66 6. Softness Coefficient 0.9 7. Normal berthing Energy (Tonne.m) 17 8. Factor of Safety 2 9. Manufacturing Tolerance 10% 10. Abnormal berthing Energy (Tonne. m) 34 11. Design berthing Energy 38 12. Fender Selected SCN 950 F1.3(RPD) 13. Maximum Energy Absorption (Te.m) 39.1 14. Maximum Rated Reaction (Tonne) 69.17	As per above reference, parameters for calculation of berthing energy is given in table A.2. Using the data of tableA.2, calculated berthing energy derives to 38.491 T.m, which is almost double as given in table A.2 at Sr. No. 7 is 17 T.m .Variation in berthing energy varies its reaction also, reaction changes from 69.17 T to 124 T, which leads to change in size of Fender and affect the design significantly. Clarification on the above points needed.
Table A.2 Parameters for calculation of Berthing Energy S No Description Vessel Size in DWT 35,000 1. Berthing velocity (m/sec) 0.15 2. Berthing angle (degrees) 10. As per IS 4651-IV Clause 9.3 (e), it is recommended that a factor of safety of 2.0 should be applied over the ultimate energy absorption capacity of such fenders. The berthing energy has been calculated according to IS 4651-III. The estimated normal berthing energy is 17 T-m and abnormal berthing energy is 34 T-m. As per above requirements, the suitable fender has been selected to resist the abnormal energy with manufacturing tolerance. The selected cone fender absorption energy is 39.1T-m and corresponding reaction is 69.17T. The berthing structure is designed for only 69.17T of maximum rated reaction			

4	Page No. 12 of Volume -Iv, Section -11, Geo-Technical Investigation Report	"Full Report will be hosted in the websites and the interested bidders may download the same."	On verifying it is not found on website. Kindly do needful to upload the same or mail us so that we can make study for design	The Updated Geo-Technical Investigation Report has been already provided as Appendix -I of Addendum / Corrigendum No.1. In addition, the Laboratory Test Results of UDS, recommendations for pile foundations, safe bearing capacity, uplift and lateral load capacity etc. are now provided at Appendix -I hereof.
BIDDER – 4				
5	Voume-I,Section-IV,Form-3, Sl. No. 11(c)	Name and address of companies who will be involved in the supply of bought out items a) Fenders, stainless steel chains and accessories b) Bollards, Ladders and Mooring Rings c) Tower Cranes	Please clarify whether Tower Crane Supply is included in the scope? If yes, details to be provided.	No. Tower crane supply is not under the scope of this Tender and the reference to this crane may be ignored.
6	Voume-I,Section-IV,Form-8	Equipment Characteristics 1. Mobile Crane 2. Double Drum Winch 3. Air Compressor 4. DG Set 5. Concrete Pump 6. Yard/Erection Gantry 7. Floating Barge / Pontoon 8. Transit Mixer	We may use few of the equipment plants and machinery mentioned in form-8, and also use other equipment related to work. Please clarify whether list of equipment is mandatory?	The list of Equipment, Plant and Machineries mentioned is only indicative and it is not mandatory to mobilize all these items unless they are required for proper and timely execution of the Project. However, it is the sole responsibility of the successful bidder (Contractor), to mobilize suitable type and number of the Equipment, plants and Machineries required for proper completion of the work within the stipulated time and also abide all instructions given by the Engineer-in-Charge in this regard without entitlement of any additional claims even at a future date.

7	Volume-II,Section-6A,Clause 3.1.3 under Temporary facilities and controls	The Contractor shall submit the proposed location and layout of the Contractor's Site Compound to the Employer for approval as part of his Site Establishment Plan.	Clarification on Work place /Office place whether it is given within the site or anywhere outside the site?	The Employer shall consider suitable area for Contractor's site office/ fabrication yard etc. near to the site of Work, subject to availability and in the event of non availability, the Employer may, at his sole discretion, allot any other suitable place within the Port premises for the above purpose. The decision of the Employer in this regard is final and binding on the Contractor and no claims on this account shall be entertained for reasons whatsoever.
8	---	---	Clarification on Labour Accommodation/Place?	The Successful Bidder has to make their own arrangements for labour accommodation and shall not hold CoPT responsible on this account.
9	Volume-I,Section-IV,Form-7	FORM-7: DETAILS OF PROPOSED APPROACH & METHODOLOGY The Bidder shall furnish a detailed method statement (Technical Note) for carrying out of the Works/Project, along with a construction programme [Preferably in MS project / Primavera] showing sequence of operation and the time frame for various segments of temporary and permanent works	No details were mentioned about the extent of design to be submitted at the time of bid.	The Clause is self-explanatory. However, the Contractor is advised to carry out the basic/ Preliminary design taking into account the Employer's Requirements and satisfy them about the reasonability of the Contract price offered. Only those details called for need to be submitted at the time of submission of the Tender.
10	Volume-I,Section-I,1.21.2 clause under Submission and opening of tenders	1.21.2 The Financial Proposal shall be uploaded separately in financial package in the BOQ format. Tenderers shall not quote/mention rates anywhere else in the Bid other than Financial Proposal; otherwise the Bid shall be summarily rejected.	Do we need to take SCB Tender Financial proposal (SECTION-II) or BOQ format mentioned in Volume 1 (Section-I) under Submission and Opening of Tenders for quoting tender.	The Bidders have to follow the procedure specified in the Tender Documents which is self-explanatory.

11	Voume-II, Sction-7A, Clause 2.4 and 2.5, Page No.8,9,10	<p>Group C – Electrical Distribution System</p> <p>(a) The 11 KV distribution/Feeder system already available at a distance of 300M may be modified by replacing old RMU and providing new 4 panel compact SF6 LBS RMU +cccc+ and Supply and laying of 300M, 3CX 300sqmm HT cable from the existing substation/feeder point to proposed substation to be installed near the load point/berth.</p>	<p>Construction of Sub Station is not mentioned in the tender document. Would like to know about the contractor's scope about the design and construction? If yes, please provide the reason criteria.</p>	<p>The scope of work mentioned in the clause is self-explanatory and the Bidders may follow the same. Construction of substation as per the CEA norms near berth as per location layout given is under the scope of work.</p>
12	Vol II, Sec. 6C, Specifications for MEP Works, Clause A, 1.3 / Page-3 of 58	<p>The equipment rating and SLD provided in the specification are to provide idea about the power distribution system to the contractor. However, the contractor shall carry out detailed load study and accordingly to prepare the SLD and to size the electrical equipment.</p>	<p>Tender indicates that SLD Provided in the specification is for idea of power distribution system but bidder could not find any Single Line diagram in the bid. Please provide the same.</p>	<p>There is no SLD for this tender application Bidder has to furnish the schematic diagram for the distribution of power as per line item. Approximate layout showing the location of the proposed electrical items/ equipments/ substation etc. at land area is given in the tender. Incoming fault current (Short circuit as per existing) shall be considered as 26kA for HT line.</p>
13	Vol II, Sec. 6C, Specifications for MEP Works, Clause A, 2.1 / Page-3 of 58	<p>2.1 Detailed scope of work</p>	<p>Bidder understands that existing substation is to be modified by putting new 4 Panel RMU in the substation. Client to confirm that space is available for the installation of new Panels in the existing Substation. Please provide the layout and Single Line Diagram of this substation. No other modification or new work is envisaged in this existing substation like lighting etc.</p>	<p>The first paragraph in this clause is self explanatory; the Bidders may follow the same.</p>
14	Vol II, Sec. 6C, Specifications for MEP Works, Clause A, 2.1 / Page-3 of 58	<p>Supply and laying of AL /Cu conductor LT cables to the berth for shore power, cope points, High Mast / Street light poles etc. including its termination with junction boxes, LT panels etc. as required and as per annexure.</p>	<p>Para 6 of Cl. 21. Indicates that Cable to be supplied as per annexure; however, no annexure is available. Please provide the referred annexure.</p>	<p>The Bidder shall decide the quantity of cables required as per the electrical layout, berth dimensions and in accordance with the cable specifications given in the tender Documents.</p>

15	Vol II, Sec. 7A, Clause 4.4, Group C / Page-12 of 14	4.4 Group C – Electrical Distribution System Scope of the electrical items	Scope of Electrical distribution system does not specify the requirement of DC Supply. Bidder understands that DC Supply is not required. Please clarify	DC supply is not required.
16	Vol II, Sec. 7A, Clause 4.4, Sub-clause 9) to 12) / Page - 13 of 14	<p>(9) Supply of 3C X 300 sq mm HT, Aluminium, Armoured (E),UG cable.</p> <p>(10) Supply of following LT, , AL, Armored UG cable.</p> <p>a. 3.5C X 400 SQMM LT AL cable. For LT connection of transformer.</p> <p>b. 3.5C X 150 SQMM LT AL cable.</p> <p>c. 3.5C X 25 SQ mm LT AL cable.</p> <p>d. 4C X 6SQmm CU , stranded cable for lights poles.</p> <p>(11) Laying of following LT, Armoured UG cable</p> <p>a. 3.5C X 400 SQMM LT AL cable</p> <p>b. 3.5C X 150 SQMM LT AL cable through the cable tray along the berth by clamping with Al/GI clamp etc.</p> <p>c. 3.5C X 25 SQ mm LT AL cable along the open trench at a depth of 60 CM including excavation etc.</p> <p>d. 4C X 6SQmm CU , stranded cable for lights poles through the cable tray along the berth by clamping with Al/GI clamp etc..</p> <p>e. 3.5C X 150 SQMM LT AL cable through the open trench etc.</p> <p>f. 4C X 6SQmm CU , stranded cable for lights poles through the open trench at a depth of 60 CM including excavation etc.</p>	Client has not specified the length of Cables or tentative Cable route layout to estimate the same. Please provide the same.	The Bidder can consider the quantity of cables required as per the electrical layout, berth dimensions, equipments etc. and in accordance with the cable specifications given in the tender documents.

		(12) Laying of HT Cable a. Construction of open trench at a depth of 1M and width of 600 mm along the road side in hard surface, loose sand etc and refilling the trench after laying of HT cables including RCC slab cover ,sand crushing, etc. b. Laying of HT cables through build in trench , open trench , HDD, clamping along wall , pipes etc.		
17	---	---	Client is requested to provide the list of approved vendors or manufacturers for the major Electrical equipment, if any.	The list of approved vendors or manufacturers for electrical items is uploaded as Appendix-II . Wherever such lists are not furnished, the Bidder shall approach the authorised manufacturer & vendors and procure the equipment/ materials, which satisfy the tender specification and relevant codal provisions.

Sd/-
CHIEF ENGINEER

APPENDIX – I(1)

Table 1

UDS - Laboratory test results

Depth (m)	Type of Soil	Grain Size Analysis (%)				Atterberg Limits (%)			Swell Index (%)	NMC (%)	Swell Pressure (kg/cm ²)	Sp.Gr	Shear Parameters		CBR Value (%)	Soil Classification	Poison Ratio	
		Coarse Sand (%)	Medium Sand (%)	Fine Silty Sand (%)	Silt & Clay (%)	LL	PL	PI					Friction Angle Ø	C (kg/cm ²)				
MBH 1	9.50	Very loose silty clay with sea shells	0.00	0.00	2.63	97.37	70.5	14.2	56.3	75.80	14.20	1.22	2.37	0	0.334	2.32	OH	0.54
	15.50	Blackish silty clay with sea shells	0.00	0.00	4.18	95.82	65.4	18.7	46.7	73.20	16.70	1.19	2.40	0	0.402	2.39	CH	0.53
MBH 2	9.50	Very loose silty clay with sea shells	0.00	0.00	2.53	97.47	69.8	13.5	56.3	70.60	13.29	1.16	2.37	0	0.341	2.31	OH	0.47
	15.50	Blackish silty clay with sea shells	0.00	0.00	2.61	97.39	64.7	16.4	48.3	63.10	14.54	1.08	2.41	0	0.387	2.35	CH	0.52
MBH 3	9.50	Very loose silty clay with sea shells	0.00	0.00	2.72	97.28	71.6	14.7	56.9	75.60	13.45	1.21	2.36	0	0.327	2.37	OH	0.39
	15.50	Blackish silty clay with sea shells	0.00	0.00	3.54	96.46	64.8	17.5	47.3	72.3	12.94	1.18	2.38	0	0.408	2.40	CH	0.40

APPENDIX – I(2)

1.0 FOUNDATION DESIGN RECOMMENDATIONS**1.1 Pile Foundation**

Piles transfer loads from a structure to competent subsurface strata having adequate load bearing capacity. Piles transfer axial loads either substantially by friction along its shaft and/or by the end bearing.

Pile foundations should be designed in such a way that load from structure can be transmitted to the sub-surface with adequate factor of safety against shear failure of subsurface and without causing differential or total settlement, which may cause structural damage or functional distress under permanent/ transient loading. The pile shaft should have adequate structural capacity to withstand loads and moments which are to be transmitted to the subsoil.

Pile Capacity Calculations as per IS 2911 Part 1/ Sec 2

In Cohesive Soil

$$Q_u = A_p N_c C_p + \sum_{i=1}^n \alpha_i c_i A_{si}$$

Where,

A_p - cross-sectional area of pile tip (m²)

N_c - bearing capacity factor

C_p - average cohesion at pile tip (kN/m²)

$\sum_{i=1}^n$ - Summation for layers 1 to n in which the pile is installed and which contribute to positive skin friction

α_i - adhesion factor for the i^{th} layer depending on the consistency of soil,

c_i = average cohesion for the i^{th} layer (kN/m²)

A_{si} = surface area of pile shaft in the i^{th} layer (m²)

APPENDIX – I(3)

Table 2

Calculated Bearing Capacity of MBH – 1 as per IS 2911 (Part 1/ Sec 1) : 2010

MBH 1			
SPT Value		100	100
Diameter of Pile (mm)	D	800	1000
Bearing Capacity factor	N _c	9	9
Length of the Pile from Sea Bed Level (m)	L	50.0	50.0
Reduction factor	α	0.4	0.4
Shear strength of soft rock below the base of pile (kN/m ²)	C _p	162.4	162.4
Average shear strength of socketed length (kN/m ²)	C	143.1	143.1
End Bearing Resistance (Qu1)		734.3	1147.4
Skin Friction Resistance (Qu2)		7189.3	8986.7
Total Bearing resistance Qu (kN)		7923.7	10134.0
F.O.S		2.5	2.5
Safe Bearing Capacity of Single Pile (Q _s) kN		3169.5	4053.6
Uplift Capacity of Pile ----> (Skin Friction /FOS + Self Weight of Pile)		2875.7	3594.7
Lateral Capacity of Pile (kN)		507.5	580.0

APPENDIX – I(4)

Table 3

Calculated Bearing Capacity of MBH – 2 as per IS 2911 (Part 1/ Sec 1) : 2010

MBH 2			
SPT Value		100	100
Diameter of Pile (mm)	D	800	1000
Bearing Capacity factor	N_c	9	9
Length of the Pile from Sea Bed Level (m)	L	50.0	50.0
Reduction factor	α	0.4	0.4
Shear strength of soft rock below the base of pile (kN/m^2)	C_p	157.4	157.4
Average shear strength of socketed length (kN/m^2)	C	142.5	135.6
End Bearing Resistance (Q_{u1})		711.7	1112.0
Skin Friction Resistance (Q_{u2})		7159.2	8515.7
Total Bearing resistance Q_u (kN)		7870.9	9627.7
F.O.S		2.5	2.5
Safe Bearing Capacity of Single Pile (Q_s) kN		3148.4	3851.1
Uplift Capacity of Pile ----> (Skin Friction /FOS + Self Weight of Pile)		2863.7	3406.3
Lateral Capacity of Pile (kN)		524.0	552.0

APPENDIX – I(5)

Table 4

Calculated Bearing Capacity of MBH – 3 as per IS 2911 (Part 1/ Sec 1) : 2010

MBH 3			
SPT Value		100	100
Diameter of Pile (mm)	D	800	1000
Bearing Capacity factor	N _c	9	9
Length of the Pile from Sea Bed Level (m)	L	50.0	50.0
Reduction factor	α	0.4	0.4
Shear strength of soft rock below the base of pile (kN/m ²)	C _P	167.4	158.6
Average shear strength of socketed length (kN/m ²)	C	134.5	136.8
End Bearing Resistance (Qu1)		756.9	1120.5
Skin Friction Resistance (Qu2)		6757.3	8591.0
Total Bearing resistance Qu (kN)		7514.2	9711.5
F.O.S		2.5	2.5
Safe Bearing Capacity of Single Pile (Qs) kN		3005.7	3884.6
Uplift Capacity of Pile ----> (Skin Friction /FOS + Self Weight of Pile)		2702.9	3436.4
Lateral Capacity of Pile (kN)		532.0	548.0

APPENDIX – I(6)

Table 5

Pile Capacity for MBH 1 as per IS 2911 (Part 1/ Sec 1) : 2010

Description	Dia of Pile (mm)	Safe Vertical Pile Load Capacity (Ton)	Safe Uplift/Pullout Pile Load Capacity (Ton) + Pile Wt	Lateral Load Pile Capacity (Ton)
MBH 1	800	315.0	285.0 +Pile Wt	50.0
	1000	400.0	355.0+Pile Wt	58.0

Table 6

Pile Capacity for MBH 2 as per IS 2911 (Part 1/ Sec 1) : 2010

Description	Dia of Pile (mm)	Safe Vertical Pile Load Capacity (Ton)	Safe Uplift/Pullout Pile Load Capacity (Ton) + Pile Wt	Lateral Load Pile Capacity (Ton)
MBH 2	800	310.0	280.0 +Pile Wt	52.0
	1000	380.0	340.0 +Pile Wt	55.0

Table 7

Pile Capacity for MBH 3 as per IS 2911 (Part 1/ Sec 1) : 2010

Description	Dia of Pile (mm)	Safe Vertical Pile Load Capacity (Ton)	Safe Uplift/Pullout Pile Load Capacity (Ton) + Pile Wt	Lateral Load Pile Capacity (Ton)
MBH 3	800	300.0	270.0 +Pile Wt	53.0
	1000	380.0	340.0 +Pile Wt	54.0

Appendix-II

APPROVED MAKES (ELECTRICAL)

APPROVED MAKES		
1	POWER & DISTRIBUTION TRANSFORMER - OIL & CRT	KEL / TELK / INTRANS/ MEGAWIN/ C&G / UNIPOWER / RAYCHEM/ SCHNEIDER / TELWANE/ ABB/ SIEMENS / UNIPOWER.
2	11 KV VCB PANEL	ABB / SCHNEIDER/ SIEMENS /CG / L&T / AREVA
3	11 KV SF6 LBS RMU	ABB / SCHNEIDER/ SIEMENS /CG
4	11 KV CMU+LBS (AIR-BREAK)	INTRANS/ MEGAWIN / UNIPOWER /RESITECH
5	CMU PANELS	ABB / SCHNEIDER/ SIEMENS /CG/ INTRANS/MEGAWIN / UNIPOWER /RESITECH
6	UNITISED SUB-STATION	ABB / SCHNEIDER/ SIEMENS /CG/ INTRANS/MEGAWIN / UNIPOWER /RESITECH
7	11 KV XLPE CABLE	CCI / INCAB / UNIVERSAL / RPG / NICCO/ TORRENT / POLYCAB / PARAMOUNT / KEI / HAVELLS /PRIMECAB
8	1.1 KV XLPE CABLE	CCI / INCAB/ UNIVERSAL/ RPG/ NICCO/ TORRENT / POLYCAB / PARAMOUNT/ KEI / HAVELLS / FINOLEX / V-GUARD/ L&T / PRIMECAB / RR KABEL / GLOSTER
9	CABLE TERMINATION KIT	RAYCHEM /MAHINDRA / DENSON/3M/CCI / CABSEAL
10	TOD ENERGY METER	L&T/ ENERCON/GENUS
11	ENERGY METER / AMMETER / VOLTMETER	SIMCO / MECO/ L&T/ HPL/ AE / RISHAB / SCHNEIDER / SECURE /SOCOMEK / CONZERVE /SIEMENS/ABB/C&S
12	RELAYS	ABB/ L&T/ SIEMENS / RISHAB / GE /SCHNEIDER / ALSTOM / EASUN REYROLLE / C&S
13	CURRENT / POTENTIAL TRANSFORMER	INTRANS/ KAPPA/ INDUS/ CG/ CYRO/ABB/BHEL/CG/ MEGAWIN/TRANSDELTA / KEL
14	MCCB / MCB / CONTACTOR / TIMER	LEGRAND / MERLIN GERIN / MK / ABB/ INDOASIAN / L &T / SIEMENS /SCHNEIDER /
15	LT ACB	LEGRAND / ABB/ L &T /SIEMENS /SCHNEIDER
16	INDUSTRIAL PLUG WITH MCB	ABB / HAGER / HAVELLS / INDOASIAN / CROMPTON / LEGRAND / SCHNEIDER / L& T / HPL
17	PLUG SOCKETS -IP66	MENNEKES / HENSEL / MERLIN GERIN / L&T / ABB / WALTHER / CAPE
18	STREET LIGHT POLE	BAJAJ / GE / ASTER / CG / PHILIPS / K LITE / UNIQUE POLES
19	LED STREET / FLOOD LIGHT FITTINGS	OSRAM / BAJAJ/ CG/ PHILIPS / WIPRO/ GE
20	LED LIGHT FITTINGS	OSRAM / BAJAJ/ CG/ PHILIPS / WIPRO/ GE /POLYCAB / LIGHTING TECHNOLOGIES
21	BATTERY	EXIDE / AMARON / PRESTOLITE / AMCO / STANDARD FURUKAWA
22	BATTERY CHARGER	WAVES ELECTRONICS / DUBAS / AMAR RAJA / TATA LIEBERT / NUMERIC /SAFE POWER /APC / GE / DELTA / ELNIX / DB POWER

24	PVC CONDUIT PIPES / CASING & CAPPING	BALCO/ ATUL/ GEO/ CLIPSAL/ PRECISION/ AVONPLAST/ KONSEAL
25	HDPE PIPE/ FLEXIBLE HOSE	KONDOOR or any other make with BIS
26	WIRING CABLE	FINOLEX/ QFLEX/ RR KABEL/ RPG CABLES/ LAPP KABEL/ V-GUARD/ HAVELLS/ L&T/ RALLISON
27	INSTRUMENTATION / TELEPHONE CABLES	TRACO / HINDUSTAN CABLES / DELTON / FINOLEX / USHA BELTRON / PRIMECAB / VIDYA
28	MODULAR SWITCHES/ PLUG SOCKETS/ CEILING ROSE	ANCHOR/ MK/ LEADER / CRABTREE/SIEMENS/ FINOLEX/LEGRAND/ABB / INDOASIAN
29	MV PANEL / DISTRIBUTION BOARD	ABB/ INTRANS/ MEGAWIN/HESSEL/ WAVES/POWER CONTORLS / ABB /L&T/ SIEMENS/SCHNEIDER /HENSEL/MENNEKAS/HAGGER/ IMPERIAL
30	CEILING/ WALL MOUNTED / EXHAUST FAN	CROMPTON / BAJAJ / USHA / KHAITAN / HAVELLS / ORIENT / ALMONARD
31	UPS	DB POWER/ TATA LIEBERT / NUMERIC/ SAFE POWER/ APC/ GE / DELTA/ SOCOMEC / VGUARD / EMERSON
32	AIR-CONDITIONER	VOLTAS / BLUE STAR / CARRIER / LG / HITACHI / DAIKIN
33	DIESEL ENGINE	CUMMINS / ASOK LEYLAND / GREAVES COTTON / CATTER PILLAR / MITSUBISHI/ VOLVO / KIRLOSKAR / MAHINDRA
34	ALTERNATOR	CROMPTON GREAVES / STAMFORD / LEROYSOMER / KIRLOSKAR / KEL / BHEL
35	FRP CABLE TRAY	PUSTRON/ SUMIP/ ERCON OR FIRM HAVING ISO AND CERTIFICATES AS PER THE TENDER SPECIFICATION .
36	GI CABLE TRAY	PUSTRON/ SUMIP/ ERCON/L&T OR REPUTED MAKE WITH ISO CERTIFICATION.
37	COPE POINT FEEDER PILLAR BOXES	ABB/ HESSEL/ WAVES/POWER CONTROLS EQUIPMENTS/ABB /L&T/ SIEMENS / SCHNEIDER /BCH/ /HENSEL/MENNEKES/IMPERIAL ENGG. COMPANY/ CAPE. THE FIRM SHALL HAVE ISO 9001-2008 or EQUIVALENT WITH CPRI APPROVAL.
38	SS LOOP-IN-LOOP OUT BOXES	WAVES/POWERCONTORLSEQUIPMENTS/ ABB/ SIEMENS/ SCHNEIDER/ BCH/ /HENSEL/ MENNEKS/HESSEL/ IMPERIAL ENGG. COMPANY OR . THE FIRM SHALL HAVE ISO AND CPRI APPROVAL .

Note:

1. For all other materials where the make is not specified, the samples shall be got approved by the Engineer-in-charge before procurement.
2. In the cases where products of specified manufacturers are approved, their standard accessories are also acceptable, subject to obtaining prior sanction from the Engineer-in-charge