Lekhnath Damauli 220 kV Transmission Line Project Package B: Substations BMZ201667773/KfW508598

Amendment № B_2 November 12, 2022

Nº	Reference	Amendment					
1.	Part I Schedule I / II / IV Item 1.1.2.3	Part I Schedule I / II / IV Item 1.1.2.3 shall read "Surge arresters for the tertiary (<u>33</u> kV) side"					
2.	Part I Schedule I / II / IV Item 1.9.1 / 1.9.3 / 2.10.1	Part I Schedule I / II / IV shall be updated to read as follows: 1.9.1 220 kV OHL Protection Terminals <u>incl.</u> <u>POW control</u> and BCU (D04, D06) 1.9.3 300MVA 220 kV side autotransformer protection <u>incl. POW control</u> and BCU (D03, D07) 2.10.1 220 kV OHL Protection Terminals <u>incl.</u> <u>POW control</u> and BCU (D06, D07, D08, D13, D14, D15)					
3.		After Schedule III Item 2.2.12, the following items shall be added: TRAINING OF					
		3 EMPLOYER'S STAFF					
		3.1 <u>High voltage switchgear</u> <u>lot</u> <u>1</u>					
	Part I	3.2 Medium voltage switchgear lot 1					
	Schedule III	3.3 Auto and power transformers lot 1					
		3.4 LV auxiliary systems lot 1					
		3.5 Protection and control systems lot 1					
		3.6 <u>SCMS</u> <u>lot 1</u>					
		<u>3.7</u> <u>SCADA</u> <u>lot</u> <u>1</u>					
		3.8 <u>Telecommunication</u> <u>lot</u> <u>1</u>					
		<u>3.9</u> <u>CCTV System</u> <u>lot</u> <u>1</u>					
		3.10 Fire protection system lot 1					
4.	Part I Schedule IV	Schedule No IV: Installation & Other Services, Item no. 3. Training of Employer's Staff shall be updated to read "Training of Employer's Staff (On Site / In Nepal)"					

Nº	Reference	Amendment
5.	Part I Schedule IV	Schedule No. IV Installation and Other Services- Item 2.20.1.2.4 shall be disregarded / deleted.
6.	Part II VII-9 Annexes	The following Annexes are attached for reference: Annex D5-28 132kV AIS Lekhnath Exstg Layout Sections Annex D5-29 132kV AIS Lekhnath Exstg Layout Annex D5-30 Proposed Damauli boundary
7.		Revised Price Schedules covering Items 1 to 6 of this amendment are attached and shall be used for bidding. Updated line items are highlighted in yellow color for ease of reference.

	Substation Package B Kreditanstalt für Wiederaufbau (KfW)				
	Nepal Electricity Authority (NE Schedule No. I: Plant, and Mandatory Spare Parts	EA)	m Abroad			
Item	Description	Code	Unit	Quantity	Unit Price	Total Price
		(Country of origin)			CIP	CIP
		or origin)			(USD)	(USD)
				1	2	3=1x2
1	220kV Extension of the 132kV switchyard in Lekhnath					
1.1	Extension of existing 132kV Switchyard					
1.1.1	132kV Transformer Bays (E13, E14)		ant	2		
1.1.1.1	Set of 3-pole circuit breaker Sets of 3-pole disconnector with earthing switch		set set	4		
1.1.1.3	Set of 3-pole pantograph disconnector		set	2		
1.1.1.4	1-pole current transformer		nos	6		
1.1.1.5	1-pole voltage transformer		nos	6		
1.1.1.6	Gantries for busbar and feeders Busbar and feeder conductors		lot lot	1		
1.1.1.8	Insulators and fittings		lot	1		
	All other necessary equipment and materials to complete the supply and the					
1.1.1.9	installation		lot	1		
1.1.2	Transformer AIS equipment and auxiliary system for fast reconnection of the spare transformer unit					
1.1.2.1	Surge arresters for the 220 kV transformer side		nos	7		
1.1.2.2	Surge arresters for the 132 kV transformer side		nos	7	_	
1.1.2.3	Surge arresters for the tertiary (<u>33</u> kV) side		nos	7		
1.1.2.4	Gantries for 220 kV and 132 kV auxiliary busbar		lot	1		
1.1.2.5	OHL conductors for 220 kV and 132 kV auxiliary busbar for fast reconnection of the spare transformer unit		lot	1		
1.1.2.6	220 kV insulators and fittings		lot	1		
1.1.2.7	132 kV insulators and fittings Materials for the interconnection of the auto-transformers tertiaries with the		lot	1		
1.1.2.8	new 33 kV switchgear by means of busbar and cable including facility for fast reconnection of spare transformer		lot	1		
1.1.2.9	All other necessary equipment and materials to complete the supply and the installation		lot	1		
1.1.3	Additional extension and relocation works					
1.1.3.1	All necessary equipment and materials for relocation of existing lighting poles affected by the extension of the 132 kV switchyard		lot	1		
1.1.3.2	All necessary equipment and materials for relocation of two (2) existing lightning protection masts affected by the extension of the 132 kV switchyard		lot	1		
1.1.3.3	All necessary equipment and materials for relocation, within the substation's property, of an out-of-service transformer currently located in front of bay E14		lot	1		
1.2	220/132/33kV Autotransformer					
1.2.1	Single-phase autotransformers 220/132/33 kV 100 MVA/phase, equipped with on-load tap changer		nos	7		
1.2.2	Automatic voltage regulator, including the relevant software and integration in the SCMS		set	2		
1.2.3	Online transformer condition monitoring system, including the relevant software and integration in the SCMS		set	7		
1.2.4	All other necessary equipment and materials to complete the supply and the installation		lot	1		
1.3	220 kV Gas Insulated Switchgear			 		
1.3.1	Transformer bay (D03, D07) with GIB and SF6/air bushings		set	2		
1.3.2	Local control panel with bay cabling for feeder D03, D07		set	2		
1.3.3	OHL Bay (D04, D06) with GIB and SF6/air bushings		set	2		
1.3.4 1.3.5	Local control panel with bay cabling for feeder D04, D06 Measuring Bay (D05)		set set	2 1		
1.3.6	Bus Coupler Bay D05		set	1		
1.3.7	Local control panel with bay cabling for feeder D05 and (D05), including cable connections to bus bar measuring and bus bar earthing		set	1		
1.3.8	Sensors for partial discharge measurement		lot	1		
1.3.9	Provision (light sensor) for future arc detection		lot	1		
1.3.10	GIS steel supports for all bays and for GIB's, including wall bushings (material from GIS manufacturer for closing the wall openings)		lot	1		
1.3.11	Wall boards as specified (typical bay sections, single line diagram and gas compartment plan, gas density rules, gas temperature pressure curves etc.)		lot	1		

	Substation Package B					
	Kreditanstalt für Wiederaufbau (KfW)				
	Nepal Electricity Authority (NE	EA)				
	Schedule No. I: Plant, and Mandatory Spare Parts	Supplied fro	m Abroad	i		
Item	Description	Code (Country	Unit	Quantity	Unit Price	Total Price
		of origin)			CIP	CIP
		or origin)			(USD)	(USD)
				1	2	3=1x2
1.3.12	Key box including specified labelled keys and pad locks for 220kV GIS		lot	1		0
	All other necessary equipment and materials to complete the supply and the					
1.3.13	installation		lot	1		
1.4	220 kV AIS Equipment					
1.4.1	220kV OHL surge arresters		nos	6		
1.4.2	220kV capacitive voltage transformers		unit	6		
1.4.3	220 kV OHL gantry		lot	1		
1.4.4	220 kV insulators and fittings		lot	1		
1.4.5	All other necessary equipment and materials to complete the supply and the		lot	1		
	installation			-		
4.5	22 LV Switzhman					
1.5 1.5.1	33 kV Switchgear Outgoing feeder to auxiliary transformer (K02, K04)		sot	2		
1.5.1	Riser measurement panel (K01, K03)		set set	2		
	All other necessary equipment, accessories and materials to complete the		361			
1.5.3	supply and the installation		lot	1		
	supply and the installation					
1.6	Zig Zag Earthing Auxiliary Transformers					
	Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed			0		
1.6.1	type with off load tap changer, each of minimum 630 kVA		nos	2		
1.6.2	Tank mounted surge arresters for the primary (33 kV) side.		unit	6		
1.6.3	All other necessary equipment and materials to complete the supply and the		lot	1		
1.0.3	installation		IOL	1		
1.7	LV Auxiliary Power Supply System					
1.7.1	0.4 kV main switchgear, metal-clad type		set	1		
1.7.2	220 V DC switchgear with two bus sections		set	1		
1.7.3	220 V battery chargers 220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 Ah		set	2		
1.7.4	(10h discharge rate)		set	2		
1.7.5	48 V DC switchgear with two bus sections		set	1		
1.7.6	48 V battery chargers		set	2		
	, ,					
1.7.7	48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah		set	2		
	230 V AC UPS System All other necessary equipment and materials to complete the supply and the		set			
1.7.9	installation		lot	1		
	Installation					
1.8	Diesel generator unit (DGU)					
1.0	Diesei generator unit (DGO)					
	Diesel generator unit, minimum of 50 kVA, in a prefabricated container					
1.8.1	equipped with fire-detection system and exhaust gas evacuation system		set	1		
	including fuel tank					
400	All other necessary equipment and materials to complete the supply and the		1-4	4		
1.8.2	installation		lot	1		
1.9	Protection & Control					
1.9.1	220 kV OHL Protection Terminals <u>incl. POW control</u> and BCU (D04, D06)		set	2		
1.9.2	220kV Bus coupler (D05) and Busbar Protections and BCU		set	1		
1.9.3	300MVA 220 kV side autotransformer protection <u>incl. POW control</u> and BCU (D03, D07)		set	2		
101			sot	2		
1.9.4	300MVA 132kV side autotransformer protection and BCU (E13, E14)	 	set			
1.9.5	20MVA 33kV side autotransformer bay control and protection BCPU (K01,		set	2		
	K03) (installed in MV Switchgear)					
1.9.6	Auxiliary Earthing Tansformer bay control and protection BCPU (K02, K04)		set	2		
1.3.0						
1.3.0	(installed in MV Switchgear) Marshalling panel for the transformer control circuits for fast reconnection of					

spare transformer
All other necessary equipment and materials to complete the supply and the

1

1.9.8

installation

Item	Nepal Electricity Authority (N					
Item	Cabadula Na I. Dlaut and Mandatani Cuana Daut					
Item	Schedule No. I: Plant, and Mandatory Spare Parts	Supplied fro	m Abroa	d		
item	Description	Code	Unit	Quantity	Unit Price	Total Price
	Description	(Country	Ullit	Qualitity		
i		of origin)			CIP	CIP
					(USD)	(USD)
				1	2	3=1x2
0	Assessment Held (DMI)	+				
1.10 for monitoring vo	Measurement Unit (PMU) oltage and current as defined in the Scope, including ntation, cubicles, accessories	3	lot	1		
Joinnale, accame		†				
1.11 SCADA and SCM						
including all neces	S system for new 220/132/33/11 kV Substation sary cabling, cubicles, desks, chairs, equipment and lete the supply and the installation, The Contractor shall		set	1		
ensure that after h (hardware and so	nanding over, a minimum of 50% spare function capacity ftware, number of I/O to be handled by the SCMS) aterial for interfacing with NLDC/ECC					
1.11.2 including all neces	ssary cabling, cubicles, equipment and materials to oly and the installation		set	1		
1.11.3 Substation includi	aterial for interfacing with Existing Lekhnath 132 kV ng all necessary cabling, cubicles, equipment and lete the supply and the installation		set	1		
1.12 Telecommunicat	ion					
	C connections to the new 220/132/33/11kV GIS Damaul the existing 132/33/11kV Lekhnath Substation	i	lot	1		
1.12.2 Fibre optical cable	es and patch cords		lot	1		
	n Frame and accessories	1	lot	1		
	system, including appropriate telephone sets sary cubicles, software, equipment and materials to		lot	1		
1 12 5 1	bly and the installation		lot	1		
1.13 Metering						
1.13.1 Meter for 220kV C Main & Control			set	2		
Main & Control	/33 kV autotransformers (220 kV side and 132 kV side)		set	4		
Matar for auvilians	transformers		oot			
Main & Control	equipment (Ethernet Switches / Betch Benels / EO	/	set	4		
1.13.4 Main & Control Communication & Cables etc)	equipment (Ethernet Switches / Patch Panels / FOs	/	lot	1		
1.13.4 Main & Control Communication Cables etc) 1.13.5 GPRS-GSM comm		/	lot set	1		
1.13.4 Communication c Cables etc) 1.13.5 GPRS-GSM communication c Cabinet	nunication device	/	lot	1		
Main & Control	munication device uding related software for local access for meter reading ary, software, equipment and materials to complete the		lot set lot	1 1 1		
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	Substation Package B					
	Kreditanstalt für Wiederaufbau (Nepal Electricity Authority (Ni					
	Schedule No. I: Plant, and Mandatory Spare Parts		m Abroad			
Item	Description	Code	Unit	Quantity	Unit Price	Total Price
		(Country of origin)			CIP	CIP
		or origin)			(USD)	(USD)
				1	2	3=1x2
1.18	CCTV system					
1.18.1	Central unit		set	1		
1.18.2	Control panel		set	1		
1.18.3	Monitor		set	2		
1.18.4 1.18.5	Indoor Camera Outdoor Camera		lot	1		
1.18.6	All other necessary equipment and materials to complete the extension		lot lot	1		
1.10.0	All other necessary equipment and materials to complete the extension		101	'		
•	Company of the of 000/400/00/44 by only of the improveding the property of the original property					
2	Construction of 220/132/33/11 kV substation in Damauli					
2.1	220 kV Gas Insulated Switchgear					
2.1.1	OHL Bays with GIB and SF6/air bushings (D06, D07, D08, D13, D14, D15)		set	6		
2.1.2	Local control panel with bay cabling for feeder (D06, D07, D08, D13, D14, D15)		set	6		
2.1.3	220/132kV Transformer Bay with GIB and SF6/air bushings (D09 and D12)		set	2		
2.1.4	Local control panel with bay cabling for feeder (D09 and D12)		set	2		
2.1.4	Bus Coupler Bays (D05, D16)		set	2		
2.1.6	Local control panel with bay cabling for feeder (D05, D16)		set	2		
2.1.7	Measuring Bays ((D10) and (D11))		set	2		
2.1.8	Busbar Sectionalizers (D10, D11)		set	2		
2.1.9	Local control panel with bay cabling for feeder D10 and D11, including cable connections to bus bar measuring and bus bar earthing		set	2		
2.1.10	Sensors for partial discharge measurement		lot	1		
2.1.11	Provision (light sensor) for future arc detection		lot	1		
2.1.12	GIS steel supports for all bays and for GIB's, including wall bushings (material from GIS manufacturer for closing the wall openings)		lot	1		
2.1.13	Wall boards as specified (typical bay sections, single line diagram and gas compartment plan, gas density rules, gas temperature pressure curves etc.)		lot	1		
2.1.14	Key box including specified labelled keys and pad locks for 220kV GIS		lot	1		
	All other necessary equipment and materials to complete the supply and the					
2.1.15	installation		lot	1		
2.2	220 kV AIS Equipment					
2.2.1	220kV OHL surge arresters		nos	18		
2.2.2	220kV capacitive voltage transformers		nos	18		
2.2.3	220 kV OHL gantry		lot	1		
2.2.4	220 kV insulators and fittings All other necessary equipment and materials to complete the supply and the		lot			
2.2.5	installation		lot	1		
2.3	132 kV Gas Insulated Switchgear					
2.3.1	220/132kV Transformer Bays with GIB and SF6/air bushings (E02, E06)		set	2		
2.3.2	Local control panel with bay cabling for feeder E02, E06		set	2		
2.3.3	OHL Bays with GIB and SF6/air bushings (E03, E07)		set	2		
2.3.4	Local control panel with bay cabling for feeder E03, E07		set	2		
2.3.5	132/33kV Transformer Bay with cable conections (E01, E05)		set	2		
2.3.6	Local control panel with bay cabling for feeder E01, E05 Measuring Bay (E04)		set set	2		
2.3.7	Bus Coupler E04		set	1		
	Local control panel with bay cabling for feeder E04 and (E04), including					
2.3.9	cable connections to bus bar measuring and bus bar earthing		set	1		
2.3.10	Sensors for partial discharge measurement		lot	1		
2.3.11	Provision (light sensor) for future arc detection GIS steel supports for all bays and for GIB's, including wall bushings		lot	1		
2.3.12	(material from GIS manufacturer for closing the wall openings)		lot	1		
2.3.13	Wall boards as specified (typical bay sections, single line diagram and gas compartment plan, gas density rules, gas temperature pressure curves etc.)		lot	1		
2.3.14	Key box including specified labelled keys and pad locks for 132kV GIS		lot	1		
2.3.15	All other necessary equipment and materials to complete the supply and the installation		lot	1		

	Substation Package B	IZBAN				
	Kreditanstalt für Wiederaufbau (Nepal Electricity Authority (NE					
	Schedule No. I: Plant, and Mandatory Spare Parts		m Abroad			
Item	Description	Code	Unit	Quantity	Unit Price	Total Price
Item	Description	(Country	Oilit	Quantity		
		of origin)			CIP	CIP
					(USD)	(USD)
2.4	132 kV AIS Equipment			1	2	3=1x2
2.4.1	132 kV OHL surge arresters		nos	6		
	132 kV capacitive voltage transformers		nos	6		
	132 kV OHL gantry		lot	1		
2.4.4	132 kV insulators and fittings		lot	1		
2.4.5	All other necessary equipment and materials to complete the supply and the installation		lot	1		
	Installation					
2.5	Power Transformers					
2.5.1	220/132 Power Transformer					
2.5.1.1	Three-phase power transformer 220/132 kV 50/63 MVA, equipped with on- load tap changer		nos	2		
2.5.1.2	line surge arresters for the primary (220 kV) side		nos	6		
	line surge arresters for the secondary (132 kV) side		nos	6		
2.5.1.4	automatic voltage regulator, including the relevant software and integration		set	2		
2.J.1. 4	in the SCMS		351			
2.5.1.5	All other necessary equipment and materials to complete the supply and the		lot	1		
	installation					
2.5.2	132/33 kV Power Transformer					
	Three-phase power transformer 132/33kV 24/30 MVA, equipped with on-					
2.5.2.1	load tap changer		nos	2		
2.5.2.2	Line surge arresters for the secondary (132 kV) side		nos	6		
2.5.2.3	Line surge arresters for the secondary (33 kV) side Automatic voltage regulator, including the relevant software and integration		nos	6		
2.5.2.4	in the SCMS		set	2		
0.505	All other necessary equipment and materials to complete the supply and the					
2.5.2.5	installation		lot	1		
2.5.3	33/11 kV Power Transformer					
2.5.3.1	Three-phase power transformer 33/11kV 6/8 MVA, equipped with on-load tap changer		nos	2		
2.5.3.2	Line surge arresters for the secondary (33 kV) side		nos	6		
2.5.3.3	Line surge arresters for the secondary (11 kV) side		nos	6		
2.5.3.4	Automatic voltage regulator, including the relevant software and integration		set	2		
	in the SCMS			_		
2.5.3.5	All other necessary equipment and materials to complete the supply and the installation		lot	1		
	Installation					
2.6	MV Metal Clad AIS Switchgear					
2.6.1	33 kV Switchgear					
2.6.1.1	Incomers for 132/33kV transformer connection (J02, J11)		nos	2		
2.6.1.2	Outgoing feeders (J04, J10)		nos	2		
	Outgoing feeder 33/11 kV transformer (J03, J12) Outgoing feeders to auxiliary transformer (J05, J09)		nos	2		
	Bus tie (J07)		nos	1		
	Riser measurement panel (J08)		nos	1		
2.6.1.7	Measurement panel (J06)		nos	1		
2.6.1.8	All other necessary equipment, accessories and materials to complete the		lot	1		
	supply and the installation			<u> </u>		
2.6.2	11 kV Switchgear					
2.6.2.1	Incomers for 33/11kV transformer connection (K03, K08)		nos	2		
	Outgoing feeders (K04, K05, K09, K11, K12)		nos	5		
	Bus tie (K07)		nos	1	_	
	Riser measurement panel (K06)		nos	1		
2.6.2.5	Measurement panel (K10)		nos	1		
2.6.2.6	All other necessary equipment, accessories and materials to complete the supply and the installation		lot	1		
	sapply and the modulation					
2.7	Auxiliary Transformers					
2.7.1	Three-phase auxiliary transformers 33/0.4 kV, hermetically sealed type with		nos	2		
	off load tap changer, each of minimum 630 kVA					
2.7.2	Tank mounted surge arresters for the primary (33 kV) side.		nos	6		<u> </u>

	Substation Package B					
	Kreditanstalt für Wiederaufbau (KfW)				
	Nepal Electricity Authority (NE					
	Schedule No. I: Plant, and Mandatory Spare Parts	Supplied fro	m Abroad			
	Barada Car	0.1.	11.26	10	11.24 B.2	T. (-1 B
Item	Description	Code (Country	Unit	Quantity	Unit Price	Total Price
		of origin)			CIP	CIP
		or origin)			(USD)	(USD)
				1	2	3=1x2
	All other necessary equipment and materials to complete the supply and the					O IXE
2.7.3	installation		lot	1		
2.8	LV Auxiliary Power Supply System					
2.8.1	0.4 kV main switchgear, metal-clad type		set	1		
2.8.2	220 V DC switchgear with two bus sections		set	1		
2.8.3	220 V battery chargers		set	2		
2.8.4	220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 Ah		set	2		
2.8.5	(10h discharge rate) 48 V DC switchgear with two bus sections		act	1		
2.8.6	48 V battery chargers		set set	2		
2.8.7	48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah		set	2		
2.8.8	230 V AC UPS System		set	2		
	All other necessary equipment and materials to complete the supply and the					
2.8.9	installation		lot	1		
2.9	Diesel generator unit (DGU)					
	Diesel generator unit, minimum of 100 kVA, in a prefabricated container					
2.9.1	equipped with fire-detection system and exhaust gas evacuation system		set	1		
2.3.1	including fuel tank		361	'		
	All other necessary equipment and materials to complete the supply and the					
2.9.2	installation		lot	1		
2.10	Protection & Control					
2.10.1	220 kV OHL Protection Terminals <u>incl. POW control</u> and BCU (D06, D07,		set	6		
	D08, D13, D14, D15)					
2.10.2	220kV Bus-sectionaliser and Busbar protection and BCU (D10, D11)		set	2		
	·					
2.10.3	220kV Bus-coupler and Busbar protection (D05, D16)		set	2		
	50/63 MVA 220/132 kV Transformer 220 kV side protection and BCU (D09,			-		
2.10.4	D12)		set	2		
	50/63 MVA 220/132/ kV Transformer 132 kV side protection and BCU (E02,					
2.10.5	E06)		set	2		
2.10.6	132 kV OHL Protection Terminals and BCU (E03, E07)		set	2		
2.10.7	42013 / Burn		4	4		
2.10.7	132kV Bus-coupler and Busbar protections and BCU (E04)		set	1		
2.10.8	132/33kV 24/30 MVA Transformer feeder protection 132 kV side and BCU		set	2		
۷. ۱۷.0	(E01, E05)		૩ ૦૧			
	132/33kV 24/30 MVA Transformer feeder bay control and protection					
2.10.9	(BCPU) 33 kV side (J02, J09)		set	2		
	(installed in 33 kV switchgear)					
2.10.10	33kV Bus-coupler bay control and protection (BCPU) (J07)		set	1		
2.10.10	(installed in 33 kV switchgear)		361	'		
2.10.11	33kV Feeder bay control and protection (BCPU) (J04, J08)		set	2		
,						
2.10.12	33/11kV 8/10MVA Transformer feeder bay control and protection (BCPU)		set	2		
	33 kV side (J03, J10) 33/11kV 8/10MVA Transformer feeder protection 11 kV side (K03, K08)					
2.10.13			set	2		
	(installed in 11 kV switchgear)					
2.10.14	11kV Feeder bay control and protection (BCPU) (K04, K05, K11, K12, K13, K14) (installed in 11 k) (putth goes)		set	5		
	K14) (installed in 11 kV switchgear)					
	144137 A					
2.10.15	11kV Auxiliary Transformer Feeder bay control and protection (BCPU) (K06,		set	2		
2.10.15	11kV Auxiliary Transformer Feeder bay control and protection (BCPU) (K06, K10) (installed in 11 kV switchgear)		set	2		
2.10.15 2.10.16			set set	2		

lot

set

1

1

All other necessary equipment and materials to complete the supply and the

Synchrophasor Measurement Unit (PMU) for monitoring voltage and current as defined in the Scope, including software, documentation, cubicles, accessories

2.10.17

2.11

installation

Schedule No. Plant and Minadatory Spare Parts Supplied From Abroval		Substation Package B Kreditanstalt für Wiederaufbau (KfW)				
Country Coun		Nepal Electricity Authority (NE	EA)	om Abroac	l		
Country Coun	lá a sa	Description	0-4-	11:4	0	Hait Dalas	Tatal Drias
SCADA and SCMS UISD UISD UISD	item	Description		Unit	Quantity		
SCADA and SCMS SCADA and SCMS system for new 2201/33/33/11 N/ Substitution SCADA and SCMS system for new 2201/33/33/11 N/ Substitution SCADA and SCMS system for new 2201/33/33/11 N/ Substitution SCADA and SCMS system for new 2201/33/33/11 N/ Substitution SCADA and SCMS system for new 2201/33/33/11 N/ Substitution ensure that after handing over, a minimum of 50% spare function capacity (handware and software number of 100 to be handled by the SCMS) Equipment and material for interfacing with NLDC/ECC Complete for substitution including all necessary cooling, cubicles, equipment and materials to complete the supply and the installation 2.13. Substitution including all necessary colling, cubicles, equipment and materials to complete the supply and the installation 3.501-12 (Substitution including all necessary colling, cubicles, supprend and materials to complete the supply and the installation 3.501-12 (Substitution including all necessary colling, cubicles, supprend and materials to complete the supply and the installation 3.501-12 (Substitution including appropriate to the substitution including all necessary colling, cubicles, supprend in a colling appropriate to the substitution including all necessary colling appropriate to the substitution including appropriate to the substitution to the substitution including appropriate to							CIP
2.12.1 SCADA and SCMS system for new 2201132/33/11 kV Substation including all necessary cabling, cubicles, desks, chairs, equipment and including all necessary cabling, cubicles, desks, chairs, equipment and materials to complete the supply and the installation, The Contractor shall ensure that after handing over, a minimum of 50% spare function capacity ensure that after handing over, a minimum of 50% spare function capacity ensure that after handing over, a minimum of 50% spare function capacity complete the supply and the installation. The Contractor shall be complete the supply and the installation of the complete the supply and the installation. The Contractor shall be completed the supply and the installation. 2.13. Telecommunication Equipment and material for interfacing with future New Damauil 400 kV complete the supply and the installation. 2.13. Equipment and material for interfacing with future New Damauil 400 kV complete the supply and the installation. 2.13. Soll indoor for Coronactions of new 220 kV GIS Lekhnath Substation, to I capacity and the shallow of the supply and the installation. 2.13. Equipment and patch cords. 2.13. First temporary system, including appropriate telephone sets. I cord. 2.14. Medical for 2000 VDH. All the Cord of Coronactions of the installation. 2.14. Medical for 2200 VDH. Medical for 1320 SNL Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2200 VDH. Medical for 1320 SNL V Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2301 kV Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2301 kV Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2301 kV Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2301 kV Transformers, (220 kV side and 132 kV side), set 4. 2.14. Medical for 2301 kV Transformers, (230 kV side and 132 kV side), set 4. 2.14. Medical for 2301 k							
SCADA and SCNAS system for new 220/13/23/311 KV Substation indicating all indexessary colling, cubicles, desis, chairs, equipment and materials to complete the supply and the installation, The Contractor shall ensure that after handing over, a minimum of 50% spare function capacity (hardware and software, number of 100 to be handled by the SCMS) 2.12.2 Indicating all necessary cabling, cubicles, equipment and materials to complete the supply and the installation Equipment and materials for interfacing with future New Damauli 400 kV Substation including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation and the state of the	0.40	COADA and COMO			1	2	3=1x2
Including all necessary cabling, cubicles, desks, chairs, sequipment and onsure that after handing over, a minimum of 50% spare function capacity (hardware and software, number of 10 to hash handled by the SCMS) 2.12.2 Complete and software, number of 10 to handled by the SCMS) Equipment and material for interfacing with NLDCECCO complete the supply and the installation Equipment and material for interfacing with NLDCECCO and the state of t	2.12						
2.12.1 materials to complete the supply and the installation. The Contractor shall ensure that after handing over, a minimum of 50% spare function capacity therdware and software, number of 10 to be handled by the SCMS) (herdware and software number of 10 to be handled by the SCMS) (herdware and software number of 10 to be handled by the SCMS) (herdware and software number of 10 to be handled by the SCMS) (herdware and software number of 10 to be handled by the SCMS) (herdware and software number of 10 to 1 t							
thatdware and software, number of I/O to be handled by the SCMS) Quipment and material for interfacing with NLOC/ECC Including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation 2.12.3 materials to complete the supply and the installation 2.13.1 Per complete the supply and the installation SDH Equipment Include a special sp	2.12.1			lot	1		
Equipment and material for interfacing with NLDC/ECC complete the supply and the installation deleted in the supply and the installation complete the supply and the installation inderfacing the supply and the installation complete the supply and the installation inderfacing the supply and the supply and the installation inderfacing the supply and the supply and the installation inderfacing the supply and the supply							
2.12.2 including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation of Equipment and material for interfacing with future New Damauli 400 kV 2.2.1.3 by the processory cabling, cubicles, equipment and materials to complete the supply and the installation of the supply and supply and the supply and							
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Equipment and malerial for interfacing with future New Damauli 400 kV 2.13. 3 Useful including all innecessary oathing, cubicles, equipment and materials to complete the supply and the installation 2.14. Telecommunication SDM Expipment SDM Expipment SDM Expipment Tanahu HPP, 200 kV Bharatpur Substation, Old Damauli and 132 kV Bharatpur. Flibre optical cables, including approach cable from splicing box to SDM lot 1 2.13. 49 Eyeth eighner yesterin, including approach cable from splicing box to SDM lot 1 2.13. 49 Eyeth Evelphone yesterin, including appropriate telephone sets lot 1 2.13. 40 PEX Belephone yesterin, including appropriate telephone sets lot 1 2.14. 41 Onter necessary cubicles, software, equipment and materials to control the installation 2.14. 42 Metering 2.14. 43 Metering 2.14. 44 Meter for 132 CV LV	2.12.2			101	'		
2.13. Substation including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation 2.13. Telecommunication SDH Equipment 2.13.1 Thou of for FOC connections of new 220 kV GIS Lekhnath Substation, to Tanahu HPP, 220 kV Bhararpur Substation, Old Damauli and 132 kV lot 1 anahu HPP, 220 kV Bhararpur Substation, Old Damauli and 132 kV lot 1 anahu HPP, 220 kV Bhararpur Substation, Old Damauli and 132 kV lot 1 equipment and patch cords equipment and patch cords and properly cables are properly and the installation lot 1 lot 2		Equipment and material for interfacing with future New Damauli 400 kV					
Telecommunication SDH Equipment SDH Equipment SDH Equipment SDH Equipment Thou hode for FOC Connections of new 220 kV GIS Lekhnath Substation, to Tanahu HPP, 220 kV Bharatpur Substation, Old Damauli and 132 kV Bharatpur. Fibre optical cables, including approach cable from splicing box to SDH equipment and patch cords 2.13.3 Optical Distribution Frame and accessories Optical Distribution Frame and accessories 1 of 1 2.13.4 PVEX Ideliphory system, including appropriate telephone sets 1 of 1 2.13.5 Optical Distribution Frame and accessories Int 1 2.14.1 Motering 2.14.1 Metering 2.14.1 Main & Control Main & Contr	2.12.3			lot	1		
SDH Equipment SOH Router for Connections of new 220 kV GIS Lekhnath Substation, to Tanahu HPP, 220 kV Bharatpur Substation, Old Damauli and 132 kV Bharatpur. 2.13.2 equipment and patch cords 2.13.3 (Pitca cables, including approach cable from splicing box to SDH equipment and patch cords 2.13.3 (Pitca Cables, including appropriate telephone sets lot 1 2.13.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.13.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.6 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.7 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.2 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.3 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.6 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.7 (PyEKz leipphony system systems sets 2 2 (PyEKz leipphony system sets sets sets 2 2 (PyEKz leipphony system sets sets sets sets sets sets sets		materials to complete the supply and the installation					
SDH Equipment SOH Router for Connections of new 220 kV GIS Lekhnath Substation, to Tanahu HPP, 220 kV Bharatpur Substation, Old Damauli and 132 kV Bharatpur. 2.13.2 equipment and patch cords 2.13.3 (Pitca cables, including approach cable from splicing box to SDH equipment and patch cords 2.13.3 (Pitca Cables, including appropriate telephone sets lot 1 2.13.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.13.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.6 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.7 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.1 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.2 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.3 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.4 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.5 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.6 (PyEKz leipphony system, including appropriate telephone sets lot 1 2.14.7 (PyEKz leipphony system systems sets 2 2 (PyEKz leipphony system sets sets sets 2 2 (PyEKz leipphony system sets sets sets sets sets sets sets	0.40	T					
2.13.1 Tanabu HPP, 220 KP Bharatpur Substation, Iod Damauli and 132 KV Bharatpur. 2.13.2 Proposed Substation (2014) Sharatpur Substation, Iod Damauli and 132 KV Bharatpur. 2.13.3 Optical Distribution Frame and accessories lot 1 2.13.4 IP-PEX telephomy system, including appropriate telephone sets lot 1 2.13.5 All Distribution Frame and accessories lot 1 2.13.5 All Distribution Frame and accessories lot 1 2.13.5 All Distribution Frame and accessories lot 1 2.14.1 Meter Individual Substation lot 1 2.14.1 Meter for 220 KV OHL Set 1 2.14.2 Meter for 132 OHL Set 1 2.14.3 Meter for 220 KV Transformers, (220 KV side and 132 KV side), set 4 2.14.4 Meter for 1220 KV Transformers, (220 KV side and 132 KV side), set 4 2.14.4 Meter for 1220 KV Transformers, (33 KV side and 132 KV side), set 4 2.14.5 Meter for 331 KV Transformers, (33 KV side and 11 KV side), set 4 2.14.6 Meter for 331 KV Transformers, (33 KV side and 11 KV side), set 4 2.14.7 Meter for 331 KV Transformers, (33 KV side and 11 KV side), set 4 3.14.8 Meter for 331 KV Fedeers set 2 3.14.9 Meter for 331 KV Fedeers set 2 3.14.9 Meter for 341 KV Transformers set 2 3.14.9 Meter for 341 KV Transformers set 2 3.14.1 Meter for 341 KV Transformers set 3 3.14 Meter for 341 KV Fedeers set 2 3.14.1 Meter for 341 KV Fedeers set 2 3.14.1 Meter for 341 KV Fedeers set 3 3.14.1 Meter for 341 KV Fedeers set 341 KV KV Fe Cables for the connection between secondary windings of 3273 KV LPE cables for the connection betwee	2.13						
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2.15.1 between the secondary windings of 220/132 kV transformers and the 132 kV switchgear MV cable systems comprising 33 kV XLPE cables for the connection between secondary windings of 132/33 kV transformers and 33 kV switchgear 2.15.3 MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of three 11 kV feeders between between 11 kV switchgear and distribution lot 1	2.15						
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MV cable systems comprising 33 kV XLPE cables for the connection between secondary windings of 132/33 kV transformers and 33 kV switchgear 2.15.3 MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers 2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution	2.15.1			101	'		
2.15.2 between secondary windings of 132/33 kV transformers and 33 kV switchgear 2.15.3 MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers 2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of three 11 kV feeders between between 11 kV switchgear and distribution					-		
switchgear 2.15.3 MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers 2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of three 11 kV feeders between between 11 kV switchgear and distribution lot 1	2 45 2	, ,		lot	4		
2.15.3 MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers 2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of three 11 kV feeders between between 11 kV switchgear and distribution lot 1	2.13.2	, ,		101	'		
between 33 kV switchgear and 33/11 kV transformers 2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution							
2.15.4 MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution Interval 1	2.15.3			lot	1		
between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution							
MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between 11 kV switchgear and distribution MV cable systems comprising 11 kV XLPE cables for the connection of 1 lot 1	2.15.4	, ,		lot	1		
2.15.5 between secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between 11 kV switchgear and distribution lot 1							
switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between 11 kV switchgear and distribution lot 1	2 15 5			lot	1		
MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between 11 kV switchgear and distribution lot 1	2.10.0			101	'		
2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution lot 1		=					
OHL pole location on the north side of the substation towards the river	2.15.6			lot	1		

	Substation Package B Kreditanstalt für Wiederaufbau (KfW)				
	Nepal Electricity Authority (NE Schedule No. I: Plant, and Mandatory Spare Parts	EA)	m Abroad	1		
Item	Description	Code	Unit	Quantity	Unit Price	Total Price
item	Description	(Country	Oilit	Quantity	CIP	CIP
		of origin)			(USD)	(USD)
				1	2	3=1x2
2.15.7	LV Power and Control cables and accessories for auxiliary supply, protection, control, metering including accessories		lot	1		
2.15.8	All other necessary equipment and materials to complete the supply and the installation		lot	1		
2.16	Earthing and lightning protection systems		lot	1		
2.17	Lighting and small power system		lot	1		
2.18	Fire Protection system					
	Fire detection system		lot	1		
	Portable fire extinguishers Fire fighting system		lot	1		
	Containerised fire fighting pump system		lot	1		
	Fire fighting water tank		lot	1		
	Fire fighting water supply pump with well		lot	1	_	
	Transformer deluge systems for power transformers		set	6		
2.18.3.5	Fire hydrant network and interconnection piping		lot	1		
2.18.3.6	All accessories necessary for the satisfactory operation of the system but which are not separately listed		lot	1		
2.19	CCTV system					
	Central unit		set	1		
2.19.2	Control panel		set	1		
	Monitor		set	2		
2.19.4	Indoor Camera		lot	1		
	Outdoor Camera All other necessary equipment and materials to complete the extension		lot lot	1		
2.10.0	7 in other necessary equipment and materials to complete the extension		101			
3	Mandatory Spare Parts					
3.1	High Voltage GIS equipment					
3.1.1	For 220 kV GIS					
	Close coils (four of each type installed)		lot	1		
3.1.1.2	Trip coils (four of each type installed)		lot	1		
3.1.2	For 132 kV GIS					
3.1.2.1	Close coils (four of each type installed)		lot	1		
3.1.2.2	Trip coils (four of each type installed)		lot	1		
3.2	High Voltage AIS equipment					
3.2.1	For 220 kV equipment					
	1-ph capacitive voltage transformer 1-ph lighting arrester, including one counter		nos	2		
	1-ph lighting arrester, including one counter Tension insulator set		nos set	3		
3.2.1.4	Suspension insulator set		set	3		
	Clamps and fittings (five of of each type installed)		set	1		
3.2.2	For 132 kV circuit broakers					
	For 132 kV circuit breakers Single pole of circuit breaker		set	1		
3.2.2.2	Driving mechanism single-pole		set	1		
	Close coils (four of each type installed)		lot	1		
3.2.2.4	Trip coils (four of each type installed)		lot	1		
	For 132 kV disconnectors and earthing switches				_	
	Disconnector contacts		set	2		
	Earthing switch contacts Motor of disconnector drive		set set	1		
	Motor of earthing switch drive		set	1		
	Aux. contact block for disconnector and earthing switch		set	1		
	For other 132 kV equipment					
3.2.4.1	1-ph lighting arrester, including one counter		nos	1		
	Tension insulator set Suspension insulator set		set set	5 5		
	Clamps and fittings (ten of of each type installed)		set	1		
		i		• •		1

	Substation Package B					
	Kreditanstalt für Wiederaufbau (
	Nepal Electricity Authority (NE Schedule No. I: Plant, and Mandatory Spare Parts		m Abrose	1		
	Schedule No. I: Plant, and Mandatory Spare Parts	Supplied fro	m Abroac			
Item	Description	Code	Unit	Quantity	Unit Price	Total Price
10111	200011011	(Country	- Cilic	Quantity		
		of origin)			CIP	CIP
					(USD)	(USD)
				1	2	3=1x2
3.3	Autotransformers and Power Transformers					
3.3.1	Bushing (one of each type HV/MV/LV/Neutral) For 220/132/33 kV Autotransformers		lat	2		
3.3.1.1	For 220/132 kV Power Transformers		lot lot	1		
	For 132/33 kV Power Transformers		lot	1		
	For 33/11 kV Power Transformers		lot	1		
	Transformer oil					
3.3.1.5	set of drums with minimum 5% of total oil volume of all transformers installed		lot	1		
3.3.1.6	Air drying agent		lot	1		
0.0.1.0	sufficient quantity for 5 replacements for all transformers installed		.51	'		
• • •	For ANY quitables on					
3.4 3.4.1	For MV switchgear For 33 kV switchgear					
	33kV Withdrawable Circuit Breaker with breaker trolley		nos	1		
	33kV Surge arrester		nos	3		
3.4.1.3	33kV Fuse (six of each rating)		lot	1		
	(
3.4.2	For 11 kV switchgear					
	11kV Withdrawable Circuit Breaker with breaker trolley		nos	2	<u> </u>	
	11kV Surge arrester		nos	3		
3.4.2.3	11kV Fuse (six of each rating)		lot	1		
3.5	For LV Auxiliary Power Supply System					
3.5.1	For 0.4 kV main switchgear / 220 V DC switchgear / 48 V DC switchgear					
	Incoming Circuit Breaker					
3.5.1.1	5% of each type and rating totally installed but as a minimum 2 unit of each		lot	1		
	type and size					
	Outgoing Circuit Breaker					
3.5.1.2	5% of each type and rating totally installed but as a minimum 2 unit of each		lot	1		
	type and size					
3.5.1.3	Outgoing feeder terminal block (five complete three phase / PE / N blocks of		lot	1		
	each type and size)					
3.5.1.4	Surge arrester		lot	1		
3.5.2						
	Ratteries					
	Batteries 220 V battery cell Connector		nos	5		
	220 V battery cell Connector		nos	5 5		
3.5.2.1	220 V battery cell Connector 48 V battery cell Connector					
3.5.2.1 3.5.2.2 3.6	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU)			5		
3.5.2.1 3.5.2.2	220 V battery cell Connector 48 V battery cell Connector					
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter		nos set set	5 3 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter		set set set	5 3 5 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings)		set set set lot	5 3 5 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter		set set set	5 3 5 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type)		set set set lot	5 3 5 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment		set set lot lot	5 3 5 5 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type)		set set set lot	5 3 5 5		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment		set set lot lot	5 3 5 5 1 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type)		set set lot lot set set set	5 3 5 5 1 1		
3.5.2.1 3.5.2.2 3.6.1 3.6.2 3.6.3 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protetction relay (one of each type)		set set lot lot set set set set set set set set set se	5 5 5 1 1 1 1 1 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.3 3.7.4 3.7.5	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type)		set set lot lot set set set set set set set set set se	5 5 5 1 1 1 1 1 1 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5 3.7.6 3.7.7	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type) Combined protection and bay control for MV switchgear		set set lot lot set set set set set set set set set se	5 5 5 1 1 1 1 1 1 1 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5 3.7.6 3.7.7	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type) Combined protection and bay control for MV switchgear Lockout Relay		set	5 5 5 1 1 1 1 1 1 1 1 1 1 4		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5 3.7.6 3.7.7	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type) Combined protection and bay control for MV switchgear Lockout Relay Trip circuit supervision Relay		set set lot lot set set set set set set set set set se	5 5 5 1 1 1 1 1 1 1 1		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5 3.7.6 3.7.7	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type) Combined protection and bay control for MV switchgear Lockout Relay Trip circuit supervision Relay CT circuit test terminal block (complete for three phase circuit, ten of each		set	5 5 5 1 1 1 1 1 1 1 1 1 1 4		
3.5.2.1 3.5.2.2 3.6 3.6.1 3.6.2 3.6.3 3.6.4 3.6.5 3.7 3.7.1 3.7.2 3.7.3 3.7.4 3.7.5 3.7.6 3.7.7 3.7.8	220 V battery cell Connector 48 V battery cell Connector For Diesel generator unit (DGU) Air filter Oil filter Fuel filter Motor lube oil (three fillings) Gaskets (two of each type) For protection equipment Line differential protection relay (one of each type) Transformer differential protection relay (one of each type) Busbar differential protection relay decentral field unit (one of each type) Busbar differential protection relay entral unit (one of each type) Overcurrent protection relay (one of each type) HV Bay Control unit (one of each type) Combined protection and bay control for MV switchgear Lockout Relay Trip circuit supervision Relay		set	5 5 5 1 1 1 1 1 1 1 1 1 1 4 4		

	Substation Package B Kreditanstalt für Wiederaufbau ((KfW)				
	Nepal Electricity Authority (NI Schedule No. I: Plant, and Mandatory Spare Parts		m Abross	1		
	Schedule No. 1: Plant, and Mandatory Spare Parts	Supplied fro	m Abroac			
Item	Description	Code (Country	Unit	Quantity	Unit Price	Total Price
		of origin)			CIP	CIP
					(USD)	(USD)
				1	2	3=1x2
3.8	For SCMS and SCADA system					
3.8.1	Complete set of spare parts for the entire SCMS System of Lekhnath and Damauli substations, comprising at minimum 20% of each device applied		lot	1		
0.0.1	per system but as a minimum 1 pc of each item		101	·		
20	Fastalasamaniastinas austam					
3.9	For telecommunications system Complete set of spare parts for the entire Telecommunication System of					
3.9.1	Lekhnath and Damauli substations, comprising at minimum 20% of each		lot	1		
	device applied per system but as a minimum 1 pc of each item					
3.10	Metering system					
3.10.1	Meters (one of each type)		nos	2	_	
3.10.2 3.10.3	Communication equipment (Ethernet switches and Patch panels) GPRS-GSM communication device		set set	2		
3.10.0			301			
3.11	For LV Auxiliary System, Protection, Metering and Control Cubicles, etc. in General					
	Miniature Circuit Breaker (MCB)					
3.11.1	10% of each type and rating totally installed but as a minimum 2 units of		lot	1		
	each item Fuses					
3.11.2	10% of each type and rating totally installed but as a minimum six units of		lot	1		
	each type and rating					
3.11.3	LV surge arrestors 10% of each type and rating totally installed but as a minimum two units of		lot	1		
3.11.3	each type and rating totally installed but as a millimum two drills of		101	'		
	Control Switches, Selector Switches, Push buttons etc.					
3.11.4	5% of each type and configuration totally installed but as a minimum 2 units of each type and size		lot	1		
	Indicating lights					
3.11.5	10% of each type and color totally installed but as a minimum 5 units of		lot	1		
	each type and color Terminal block					
3.11.6	10% of each type and size/rating totally installed but as a minimum:		lot	1		
	50 terminals of each type and size up to and including 10 mm2 10 terminals of each type and size larger than 10 mm2					
3.12	For LV Installation Small power outlets					
3.12.1	10% of each type and rating installed but as a minimum 10 units of each		lot	1		
	type and rating					
3.12.2	Power outlets 5% of each type and rating installed but as a minimum 2 units of each type		lot	1		
J. 12.2	and rating		101	<u>'</u>		
2 40 2	Junction boxes		lot	1		
3.12.3	10% of each type and rating installed but as a minimum 5 units of each type and rating		lot	'		
0 : - :	Lighting Fixtures					
3.12.4	5% of each type and rating installed but as a minimum 2 units of each type and rating		lot	1		
	LED modules					
3.12.5	20% of each type and rating installed but as a minimum 10 units of each		lot	1		
	type and rating LED electronic control gear (ECG)					
3.12.6	10% of each type and rating installed but as a minimum 5 units of each type		lot	1		
	and rating					
3.13	Fire Protection System					
2 40 4	Fire detectors		la#			
3.13.1	5% of each type and rating installed but as a minimum 4 units of each type		lot	2		
0 10 0	Fire alarm break glass units					
3.13.2	5% of each type and rating installed but as a minimum 4 units of each type		lot	2		
3.13.3	Spare break glass for fire alarm break glass units		set	5		
	set with 10 break glasses	<u>l</u>				

	Substation Package Kreditanstalt für Wiederauf					
	Nepal Electricity Authori					
	Schedule No. I: Plant, and Mandatory Spare		m Abroad			
Item	Description	Code (Country of origin)	Unit	Quantity	Unit Price CIP	Total Price CIP
		Oi Origin)			(USD)	(USD)
				1	2	3=1x2
3.13.4	Fire Alarm horn		set	2		
3.14	For containerised fire fighting pump system					
3.14.1	Air filter		set	3		
3.14.2	Oil filter		set	5		
3.14.3	Fuel filter		set	5		
3.14.4	Motor lube oil (three fillings)		lot	1		
3.14.5	Gaskets (two of each type)		lot	1		
3.15	For deluges systems and hydrant network					
3.15.1	Gaskets (two of each type)		lot	1		
	F. W. C.					
3.16	For Water supply system		1.1	_		
3.16.1	Valve (one of each size and type)		lot	2		
3.16.2	Gaskets (five of each type)		lot	2		
3.16.3	Water filter		set	5		
3.17	For Airconditioning system					
3.17.1	Gaskets (five of each type)		set	2		
3.17.1	Air filter (three of each type)		set	4		
3.17.2	All filler (liflee of each type)		ડદા	4		
4.	Special Tools					
4.1	SF6 gas service cart		nos	1		
4.2	SF6 gas filling cart		nos	3		
4.3	Analyser for gas measurement		nos	1		
4.4	Portable SF6 gas leakage detector in a case		nos	3		
4.5	Density guard testing device in a case		nos	1		
4.6	Precision gauge with hose in transport case		nos	1		
4.7	Tool box with torque spanner for GIS (each type if different), etc		set	3		
4.8	SF6 bottle (each type, if different) 40 kg (with gas)		set	6		
4.9	Insulation resistance test set (range 0.5 –1.0 - 2.5 - 5 - 10 kV)		set	2		
4.10	Calibration instruments for the line type heat detection		set	2		
4.11	Tools and test equipmnet for fore detectors		set	2		
	TOTAL (As Cahadula Na VII Casad Carrers)			1		
	TOTAL (to Schedule No. VI Grand Summary)					
		No	ne of Bid	dor		
		Nar	ile OI BIQ	uer:		
		Signs	ture of B	idder:		
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	Substation Package B Kreditanstalt für Wiederaufbau (K-UV)			
	Nepal Electricity Authority (NE				
	Schedule No. II: Plant, and Mandatory Spare Parts Supplied fr		Employer's Cou	untry	
Item	Description	Unit	Quantity	Unit Price	Total Price
Item	Description	Onit	Quantity	EXW	EXW
				(NPR)	(NPR)
			1	2	3=1x2
1	220kV Extension of the 132kV switchyard in Lekhnath				
1.1	Extension of existing 132kV Switchyard				
1.1.1	132kV Transformer Bays (E13, E14)				
1.1.1.1	Set of 3-pole circuit breaker Sets of 3-pole disconnector with earthing switch	set set	4		
1.1.1.3	Set of 3-pole disconnector with earthing switch	set	2		
1.1.1.4	1-pole current transformer	nos	6		
1.1.1.5	1-pole voltage transformer	nos	6		
1.1.1.6	Gantries for busbar and feeders	lot	1		
1.1.1.7	Busbar and feeder conductors	lot	1		
1.1.1.8	Insulators and fittings	lot	1		
1.1.1.9	All other necessary equipment and materials to complete the supply and the installation	lot	1		
1.1.2	Transformer AIS equipment and auxiliary system for fast reconnection of the spare transformer unit				
1.1.2.1	Surge arresters for the 220 kV transformer side	nos	7		
1.1.2.2	Surge arresters for the 132 kV transformer side	nos	7		
1.1.2.3	Surge arresters for the tertiary (<u>33</u> kV) side	nos	7		
1.1.2.4	Gantries for 220 kV and 132 kV auxiliary busbar	lot	1		
	OHL conductors for 220 kV and 132 kV auxiliary busbar for fast				
1.1.2.5	reconnection of the spare transformer unit	lot	1		
1.1.2.6	220 kV insulators and fittings	lot	1		
1.1.2.7	132 kV insulators and fittings	lot	1		
	Materials for the interconnection of the auto-transformers tertiaries with				
1.1.2.8	the new 33 kV switchgear by means of busbar and cable including facility for fast reconnection of spare transformer	lot	1		
1.1.2.9	All other necessary equipment and materials to complete the supply and the installation	lot	1		
1.1.3	Additional extension and relocation works				
	All necessary equipment and materials for relocation of existing lighting				
1.1.3.1	poles affected by the extension of the 132 kV switchyard	lot	1		
1.1.3.2	All necessary equipment and materials for relocation of two (2) existing lightning protection masts affected by the extension of the 132 kV switchyard	lot	1		
1.1.3.3	All necessary equipment and materials for relocation, within the substation's property, of an out-of-service transformer currently located in	lot	1		
	front of bay E14				
1.2	220/132/33kV Autotransformer				
1.2.1	Single-phase autotransformers 220/132/33 kV 100 MVA/phase, equipped with on-load tap changer	nos	7		
1.2.2	Automatic voltage regulator, including the relevant software and integration in the SCMS	set	2		
1.2.3	Online transformer condition monitoring system, including the relevant software and integration in the SCMS	set	7		
1.2.4	All other necessary equipment and materials to complete the supply and the installation	lot	1		
4.6	200 IV Oca Incodeted Out				
1.3 1.3.1	220 kV Gas Insulated Switchgear Transformer bay (D03, D07) with GIB and SF6/air bushings	oot	2		
1.3.1	Local control panel with bay cabling for feeder D03, D07	set set	2		
1.3.3	OHL Bay (D04, D06) with GIB and SF6/air bushings	set	2		
1.3.4	Local control panel with bay cabling for feeder D04, D06	set	2		
1.3.5	Measuring Bay (D05)	set	1		
1.3.6	Bus Coupler Bay D05	set	1		
1.3.7	Local control panel with bay cabling for feeder D05 and (D05), including	set	1		
1.3.8	cable connections to bus bar measuring and bus bar earthing Sensors for partial discharge measurement	lot	1		
1.3.9	Provision (light sensor) for future arc detection	lot	1		
	GIS steel supports for all bays and for GIB's, including wall bushings				
1.3.10	(material from GIS manufacturer for closing the wall openings) Wall boards as specified (typical bay sections, single line diagram and gas	lot	1		
1.3.11	compartment plan, gas density rules, gas temperature pressure curves etc.)	lot	1		
1.3.12	Key box including specified labelled keys and pad locks for 220kV GIS	lot	1		

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity Unit Price Total Price EXW **EXW** (NPR) (NPR) 3=1x2 All other necessary equipment and materials to complete the supply and 1.3.13 lot 1 the installation 220 kV AIS Equipment 1.4 1.4.1 220kV OHL surge arresters nos 6 1.4.2 220kV capacitive voltage transformers unit 6 1.4.3 220 kV OHL gantry lot 1 4 4 220 kV insulators and fittings lot 1 All other necessary equipment and materials to complete the supply and 1.4.5 lot 1 the installation 33 kV Switchgear 1.5 Outgoing feeder to auxiliary transformer (K02, K04) 1.5.1 set Riser measurement panel (K01, K03) 1.5.2 set 2 All other necessary equipment, accessories and materials to complete the 1.5.3 1 lot supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed 1.6.1 2 type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side unit 6 All other necessary equipment and materials to complete the supply and 1.6.3 1 lot the installation LV Auxiliary Power Supply System 1.7 1.7.1 0.4 kV main switchgear, metal-clad type set 220 V DC switchgear with two bus sections set 1 1.7.3 220 V battery chargers 2 set 220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 1.7.4 2 set Ah (10h discharge rate) 48 V DC switchgear with two bus sections 1.7.5 set 1.7.6 48 V battery chargers set 1.7.7 48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah set 2 1.7.8 230 V AC UPS System set 2 All other necessary equipment and materials to complete the supply and 1.7.9 lot 1 the installation 1.8 Diesel generator unit (DGU) Diesel generator unit, minimum of 50 kVA, in a prefabricated container 1.8.1 equipped with fire-detection system and exhaust gas evacuation system 1 set including fuel tank All other necessary equipment and materials to complete the supply and 1.8.2 lot 1 the installation 1.9 **Protection & Control** 2 1.9.1 220 kV OHL Protection Terminals <u>incl. POW control</u> and BCU (D04, D06) set 220kV Bus coupler (D05) and Busbar Protections and BCU 1.9.2 1 set 300MVA 220 kV side autotransformer protection incl. POW control and 1.9.3 set 2 1.9.4 300MVA 132kV side autotransformer protection and BCU (E13, E14) 2 set 20MVA 33kV side autotransformer bay control and protection BCPU (K01, 1.9.5 set 2 K03) (installed in MV Switchgear) Auxiliary Earthing Tansformer bay control and protection BCPU (K02, 2 1.9.6 set K04) (installed in MV Switchgear) Marshalling panel for the transformer control circuits for fast reconnection 2 197 set of spare transformer All other necessary equipment and materials to complete the supply and 1.9.8 lot 1 the installation Synchrophasor Measurement Unit (PMU) 1.10 for monitoring voltage and current as defined in the Scope, including lot 1 software, documentation, cubicles, accessories

	Substation Package B	ZAAD				
	Kreditanstalt für Wiederaufbau (k Nepal Electricity Authority (NE					
	Schedule No. II: Plant, and Mandatory Spare Parts Supplied fro		Employer's Cou	untry		
Item	Description	Unit	Quantity	Unit Price	Total Price	
				EXW (NPR)	EXW (NPR)	
			1	2	3=1x2	
1.11	SCADA and SCMS				0 17.2	
1.11.1	SCADA and SCMS system for new 220/132/33/11 kV Substation including all necessary cabling, cubicles, desks, chairs, equipment and materials to complete the supply and the installation, The Contractor shall ensure that after handing over, a minimum of 50% spare function capacity (hardware and software, number of I/O to be handled by the SCMS)	set	1			
1.11.2	Equipment and material for interfacing with NLDC/ECC including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	set	1			
1.11.3	Equipment and material for interfacing with Existing Lekhnath 132 kV Substation including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	set	1			
1.12	Telecommunication					
1.12.1	SDH Equipment SDH node for FOC connections to the new 220/132/33/11kV GIS Damauli Substation and to the existing 132/33/11kV Lekhnath Substation	lot	1			
1.12.2	Fibre optical cables and patch cords	lot	1			
1.12.3	Optical Distribution Frame and accessories	lot	1			
1.12.4	IP-PBX telephony system, including appropriate telephone sets	lot	1			
1.12.5	All other necessary cubicles, software, equipment and materials to complete the supply and the installation	lot	1			
1.13	Metering					
1.13.1	Meter for 220kV OHL Main & Control	set	2			
1.13.2	Meter for 220/132/33 kV autotransformers (220 kV side and 132 kV side) Main & Control	set	4			
1.13.3	Meter for auxiliary transformers Main & Control	set	4			
1.13.4	Communication equipment (Ethernet Switches / Patch Panels / FOs / Cables etc)	lot	1			
1.13.5	GPRS-GSM communication device	set	1			
1.13.6	Cabinet	lot	1			
1.13.7	Notebook PC including related software for local access for meter reading All other necessary, software, equipment and materials to complete the	set lot	1			
	supply and the installation		·			
1.14 1.14.1	Power and Control Cables 33 kV Cables, sealing ends, terminals and accessories for 33 kV auxiliary	lot	1			
1.14.2	system including accessories LV Power and Control cables and accessories for auxiliary supply, protection, control, metering, fire protection, including accessories	lot	1			
1.14.3	All other necessary equipment and materials to complete the supply and the installation	lot	1			
1.15	Earthing and lightning protection systems	lot	1			
1.16	Lighting and small power system	lot	1			
1.17	Fire Protection system					
1.17.1 1.17.2	Fire detection system Portable fire extinguishers	lot lot	1			
1.17.2	Fire fighting system	IUL	<u> </u>			
1.17.3.1	Containerised fire fighting pump system	lot	1			
1.17.3.2	Fire fighting water tank	lot	1			
1.17.3.3 1.17.3.4	Fire fighting water supply pump with well Transformer deluge systems for power transformers	lot	7			
1.17.3.4	Fire hydrant network and interconnection piping	set lot	1			
1.17.3.6	All accessories necessary for the satisfactory operation of the system but which are not separately listed	lot	1			
1.18	CCTV system					
1.18.1	Central unit	set	1			
1.18.2	Control panel	set	1			
1.18.3	Monitor	set	2			
1.18.4	Indoor Camera	lot	1			
1.18.5	Outdoor Camera	lot	1		<u> </u>	

	Substation Package B Kreditanstalt für Wiederaufbau (I Nepal Electricity Authority (NE				
	Schedule No. II: Plant, and Mandatory Spare Parts Supplied fro		Employer's Cou	intry	
Item	Description	Description Unit Quantity			Total Price EXW
				EXW (NPR)	(NPR)
			1	2	3=1x2
1.18.6	All other necessary equipment and materials to complete the extension	lot	1		
2	Construction of 220/132/33/11 kV substation in Damauli				
2.1	220 kV Gas Insulated Switchgear				
2.1.1	OHL Bays with GIB and SF6/air bushings (D06, D07, D08, D13, D14, D15)	set	6		
2.1.2	Local control panel with bay cabling for feeder (D06, D07, D08, D13, D14, D15)	set	6		
2.1.3	220/132kV Transformer Bay with GIB and SF6/air bushings (D09 and D12)	set	2		
2.1.4	Local control panel with bay cabling for feeder (D09 and D12)	set	2		
2.1.5	Bus Coupler Bays (D05, D16)	set	2		
2.1.6	Local control panel with bay cabling for feeder (D05, D16)	set	2		
2.1.7	Measuring Bays ((D10) and (D11))	set	2		
2.1.8	Busbar Sectionalizers (D10, D11)	set	2		
2.1.9	Local control panel with bay cabling for feeder D10 and D11, including cable connections to bus bar measuring and bus bar earthing	set	2		
2.1.10	Sensors for partial discharge measurement	lot	1		
2.1.11	Provision (light sensor) for future arc detection	lot	1		
2.1.12	GIS steel supports for all bays and for GIB's, including wall bushings (material from GIS manufacturer for closing the wall openings) Wall boards as specified (typical bay sections, single line diagram and gas	lot	1		
2.1.13	compartment plan, gas density rules, gas temperature pressure curves etc.)	lot	1		
2.1.14	Key box including specified labelled keys and pad locks for 220kV GIS	lot	1		
2.1.15	All other necessary equipment and materials to complete the supply and the installation	lot	1		
2.2	220 kV AIS Equipment				
2.2.1	220kV OHL surge arresters	nos	18		
2.2.2	220kV capacitive voltage transformers	nos	18		
2.2.3	220 kV OHL gantry	lot	1		
2.2.4	220 kV insulators and fittings All other necessary equipment and materials to complete the supply and	lot	1		
2.2.5	the installation	lot	1		
2.3	132 kV Gas Insulated Switchgear				
2.3.1	220/132kV Transformer Bays with GIB and SF6/air bushings (E02, E06)	set	2		
2.3.2	Local control panel with bay cabling for feeder E02, E06	set	2		
2.3.3	OHL Bays with GIB and SF6/air bushings (E03, E07)	set	2		
2.3.4	Local control panel with bay cabling for feeder E03, E07	set	2		
2.3.5	132/33kV Transformer Bay with cable conections (E01, E05)	set	2	-	
2.3.6	Local control panel with bay cabling for feeder E01, E05	set	2		
2.3.7	Measuring Bay (E04)	set	1		
2.3.8	Bus Coupler E04 Local control panel with bay cabling for feeder E04 and (E04), including	set set	1		
	cable connections to bus bar measuring and bus bar earthing				
2.3.10	Sensors for partial discharge measurement Provision (light sensor) for future arc detection	lot	1		
2.3.11	GIS steel supports for all bays and for GIB's, including wall bushings	lot lot	1		
2.3.13	(material from GIS manufacturer for closing the wall openings) Wall boards as specified (typical bay sections, single line diagram and gas compartment plan, gas density rules, gas temperature pressure curves	lot	1		
	etc.)				
2.3.14	Key box including specified labelled keys and pad locks for 132kV GIS All other necessary equipment and materials to complete the supply and	lot lot	1		
2.0.10	the installation	IOL	'		
2.4	132 kV AIS Equipment				
2.4.1	132 kV OHL surge arresters	nos	6		
2.4.2	132 kV capacitive voltage transformers	nos	6		
2.4.3	132 kV OHL gantry	lot	1		
2.4.4	132 kV insulators and fittings	lot	1		
2.4.5	All other necessary equipment and materials to complete the supply and the installation	lot	1		

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity Unit Price Total Price EXW **EXW** (NPR) (NPR) 3=1x2 2.5 Power Transformers 220/132 Power Transformer 2.5.1 Three-phase power transformer 220/132 kV 50/63 MVA, equipped with on 2 2.5.1.1 nos load tap changer line surge arresters for the primary (220 kV) side 2.5.1.2 nos 6 line surge arresters for the secondary (132 kV) side 2.5.1.3 nos 6 automatic voltage regulator, including the relevant software and 2.5.1.4 set 2 integration in the SCMS All other necessary equipment and materials to complete the supply and 2.5.1.5 lot 1 the installation 2.5.2 132/33 kV Power Transformer Three-phase power transformer 132/33kV 24/30 MVA, equipped with on-2.5.2.1 2 nos load tap changer Line surge arresters for the secondary (132 kV) side 2.5.2.2 6 nos 2.5.2.3 Line surge arresters for the secondary (33 kV) side 6 nos Automatic voltage regulator, including the relevant software and 2.5.2.4 set 2 integration in the SCMS All other necessary equipment and materials to complete the supply and 2.5.2.5 lot 1 the installation 33/11 kV Power Transformer 2.5.3 Three-phase power transformer 33/11kV 6/8 MVA, equipped with on-load 2.5.3.1 nos 2 tap changer 2.5.3.2 6 Line surge arresters for the secondary (33 kV) side nos 2.5.3.3 Line surge arresters for the secondary (11 kV) side nos 6 Automatic voltage regulator, including the relevant software and 2 2.5.3.4 set integration in the SCMS All other necessary equipment and materials to complete the supply and 2.5.3.5 lot 1 the installation 2.6 **MV Metal Clad AIS Switchgear** 2.6.1 33 kV Switchgear Incomers for 132/33kV transformer connection (J02, J11) 2.6.1.1 nos 2 Outgoing feeders (J04, J10) Outgoing feeder 33/11 kV transformer (J03, J12) 2.6.1.2 nos 2.6.1.3 nos 2.6.1.4 Outgoing feeders to auxiliary transformer (J05, J09) nos 2615 Bus tie (J07) nos 1 2.6.1.6 Riser measurement panel (J08) 1 nos 2.6.1.7 Measurement panel (J06) nos All other necessary equipment, accessories and materials to complete the 2.6.1.8 lot 1 supply and the installation 2.6.2 11 kV Switchgear 2.6.2.1 Incomers for 33/11kV transformer connection (K03, K08) 2 nos Outgoing feeders (K04, K05, K09, K11, K12) 5 2.6.2.2 nos 2.6.2.3 Bus tie (K07) nos 2.6.2.4 Riser measurement panel (K06) nos 2.6.2.5 Measurement panel (K10) nos All other necessary equipment, accessories and materials to complete the 2.6.2.6 lot 1 supply and the installation 2.7 **Auxiliary Transformers** Three-phase auxiliary transformers 33/0.4 kV, hermetically sealed type 2.7.1 2 nos with off load tap changer, each of minimum 630 kVA 272 Tank mounted surge arresters for the primary (33 kV) side. nos 6 All other necessary equipment and materials to complete the supply and 2.7.3 lot 1

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity Unit Price Total Price EXW **EXW** (NPR) (NPR) 3=1x2 2.8 LV Auxiliary Power Supply System 2.8.1 0.4 kV main switchgear, metal-clad type set 2.8.2 220 V DC switchgear with two bus sections set 2.8.3 220 V battery chargers 2 set 220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 2.8.4 set 2 Ah (10h discharge rate) 285 48 V DC switchgear with two bus sections set 1 48 V battery chargers 2.8.6 2 set 2 287 48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah set 2.8.8 230 V AC UPS System 2 set All other necessary equipment and materials to complete the supply and 2.8.9 lot 1 the installation 2.9 Diesel generator unit (DGU) Diesel generator unit, minimum of 100 kVA, in a prefabricated container 2.9.1 equipped with fire-detection system and exhaust gas evacuation system 1 set including fuel tank All other necessary equipment and materials to complete the supply and 2.9.2 lot 1 the installation 2.10 **Protection & Control** 220 kV OHL Protection Terminals <u>incl. POW control</u> and BCU (D06, D07 2.10.1 set 6 D08, D13, D14, D15) 2.10.2 220kV Bus-sectionaliser and Busbar protection and BCU (D10, D11) set 2 2.10.3 220kV Bus-coupler and Busbar protection (D05, D16) set 50/63 MVA 220/132 kV Transformer 220 kV side protection and BCU 2 2.10.4 set (D09, D12) 50/63 MVA 220/132/ kV Transformer 132 kV side protection and BCU 2.10.5 set 2 (E02, E06) 2.10.6 2.10.7 132 kV OHL Protection Terminals and BCU (E03, E07) set 2 132kV Bus-coupler and Busbar protections and BCU (E04) set 132/33kV 24/30 MVA Transformer feeder protection 132 kV side and BCU 2.10.8 2 set 132/33kV 24/30 MVA Transformer feeder bay control and protection (BCPU) 33 kV side (J02, J09) 2 10 9 2 set (installed in 33 kV switchgear) 33kV Bus-coupler bay control and protection (BCPU) (J07) 2.10.10 set 1 (installed in 33 kV switchgear) 2.10.11 33kV Feeder bay control and protection (BCPU) (J04, J08) set 2 33/11kV 8/10MVA Transformer feeder bay control and protection (BCPU) 2.10.12 33 kV side (J03, J10) 2 set (installed in 33 kV switchgear) 33/11kV 8/10MVA Transformer feeder protection 11 kV side (K03, K08) 2.10.13 2 set (installed in 11 kV switchgear) 11kV Feeder bay control and protection (BCPU) (K04, K05, K11, K12, 2.10.14 5 K13, K14) set (installed in 11 kV switchgear) 11kV Auxiliary Transformer Feeder bay control and protection (BCPU) 2.10.15 (K06, K10) set 2 (installed in 11 kV switchgear) 2.10.16 11kV Bus-coupler protection (K07) set All other necessary equipment and materials to complete the supply and 2.10.17 lot 1 the installation Synchrophasor Measurement Unit (PMU) 2.11 for monitoring voltage and current as defined in the Scope, including 1 software, documentation, cubicles, accessories 2.12 SCADA and SCMS SCADA and SCMS system for new 220/132/33/11 kV Substation including all necessary cabling, cubicles, desks, chairs, equipment and 2.12.1 materials to complete the supply and the installation, The Contractor shall lot 1 ensure that after handing over, a minimum of 50% spare function capacity (hardware and software, number of I/O to be handled by the SCMS)

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity Unit Price Total Price EXW **EXW** (NPR) (NPR) 3=1x2Equipment and material for interfacing with NLDC/ECC 2.12.2 including all necessary cabling, cubicles, equipment and materials to lot 1 complete the supply and the installation Equipment and material for interfacing with future New Damauli 400 kV 2.12.3 Substation including all necessary cabling, cubicles, equipment and lot 1 materials to complete the supply and the installation 2.13 **Telecommunication** SDH Equipment SDH node for FOC connections of new 220 kV GIS Lekhnath Substation 2.13.1 lot 1 Tanahu HPP, 220 kV Bharatpur Substation, Old Damauli and 132 kV Fibre optical cables, including approach cable from splicing box to SDH 2.13.2 lot 1 equipment and patch cords 2.13.3 Optical Distribution Frame and accessories lot 1 IP-PBX telephony system, including appropriate telephone sets 2.13.4 lot All other necessary cubicles, software, equipment and materials to 2.13.5 lot 1 complete the supply and the installation Metering Meter for 220kV OHL 2.14 6 2.14.1 set Main & Control Meter for 132 OHL 2.14.2 2 set Main & Control Meter for 220/132 kV Transformers, (220 kV side and 132 kV side), 2.14.3 4 set Main & Control Meter for 132/33 kV Transformers, 132 kV side and 33 kV side), 2.14.4 4 set Main & Control Meter for 33/11 kV Transformers, (33 kV side and 11 kV side), 2.14.5 set 4 Main & Control Meter for 33 kV Feeders 2.14.6 set 2 Main & Control Meter for 11 kV Feeders 2.14.7 5 set Main & Control Meter for auxiliary transformers 2.14.8 2 set Main & Control Communication equipment (Ethernet Switches / Patch Panels / FOs 2.14.9 1 lot Cables etc..) 2.14.10 GPRS-GSM communication device lot 1 2.14.11 Cabinet lot 1 2.14.12 Notebook PC including related software for local access for meter reading 1 set All other necessary, software, equipment and materials to complete the 2.14.13 lot 1 supply and the installation **Power and Control Cables** 2.15 HV cable systems comprising 132 kV XLPE cables for the connection between the secondary windings of 220/132 kV transformers and the 2.15.1 1 Int 13<u>2 kV switchgear</u> cable systems comprising 33 kV XLPE cables for the connection 2.15.2 between secondary windings of 132/33 kV transformers and 33 kV 1 lot switchgear MV cable systems comprising 33 kV XLPE cables for the connection 2.15.3 1 lot between 33 kV switchgear and 33/11 kV transformers MV cable systems comprising 33 kV XLPE cables for the connection 2.15.4 lot 1 between 33kV switchgear and auxiliary transformers MV cable systems comprising 11 kV XLPE cables for the connection between secondary windings of 33/11 kV transformers and 11 kV 2.15.5 lot 1 switchgear MV cable systems comprising 11 kV XLPE cables for the connection of 2.15.6 three 11 kV feeders between between 11 kV switchgear and distribution lot 1 OHL pole location on the north side of the substation towards the river LV Power and Control cables and accessories for auxiliary supply, 2.15.7 lot 1 protection, control, metering including accessories

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity **Unit Price** Total Price EXW **EXW** (NPR) (NPR) 3=1x2 All other necessary equipment and materials to complete the supply and 2.15.8 1 lot Earthing and lightning protection systems 2.16 lot 2.17 Lighting and small power system lot 1 2.18 Fire Protection system 2.18.1 Fire detection system lot 2.18.2 Portable fire extinguishers lot 1 Fire fighting system 2.18.3 2.18.3.1 Containerised fire fighting pump system lot 2.18.3.2 Fire fighting water tank lot 1 2.18.3.3 Fire fighting water supply pump with well lot 1 2.18.3.4 Transformer deluge systems for power transformers set 6 2.18.3.5 Fire hydrant network and interconnection piping lot 1 All accessories necessary for the satisfactory operation of the system but 2.18.3.6 lot 1 which are not separately listed CCTV system 2.19 2.19.1 Central unit set 1 2.19.2 Control panel set 1 2.19.3 Monitor set 2.19.4 Indoor Camera lot 2.19.5 Outdoor Camera lot 1 All other necessary equipment and materials to complete the extension 2.19.6 lot 3 **Mandatory Spare Parts** High Voltage GIS equipment 3.1 3.1.1 For 220 kV GIS 3.1.1.1 Close coils (four of each type installed) lot 3.1.1.2 Trip coils (four of each type installed) lot For 132 kV GIS 3.1.2 Close coils (four of each type installed) 3.1.2.1 lot Trip coils (four of each type installed) 3.1.2.2 1 lot 3.2 High Voltage AIS equipment For 220 kV equipment 1-ph capacitive voltage transformer nos 3.2.1.2 1-ph lighting arrester, including one counter nos 3.2.1.3 Tension insulator set 3 set 3.2.1.4 Suspension insulator set set 3 Clamps and fittings (five of of each type installed) 3.2.1.5 set 3.2.2 For 132 kV circuit breakers Single pole of circuit breaker 3.2.2.1 set 1 3.2.2.2 Driving mechanism single-pole set 1 Close coils (four of each type installed) lot 1 3.2.2.4 Trip coils (four of each type installed) lot For 132 kV disconnectors and earthing switches 3.2.3 3.2.3.1 Disconnector contacts set 3.2.3.2 Earthing switch contacts set 3.2.3.3 Motor of disconnector drive set Motor of earthing switch drive set 3.2.3.5 Aux. contact block for disconnector and earthing switch set 1 For other 132 kV equipment 3.2.4 3.2.4.1 1-ph lighting arrester, including one counter nos 3.2.4.2 Tension insulator set set

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. II: Plant, and Mandatory Spare Parts Supplied from within the Employer's Country Item Description Unit Quantity Unit Price Total Price EXW **EXW** (NPR) (NPR) 3=1x2 5 Suspension insulator set set 3.2.4.4 Clamps and fittings (ten of of each type installed) set 1 **Autotransformers and Power Transformers** 3.3 Bushing (one of each type HV/MV/LV/Neutral) For 220/132/33 kV Autotransformers 3.3.1 3.3.1.1 lot 2 For 220/132 kV Power Transformers 3.3.1.2 lot 1 3.3.1.3 For 132/33 kV Power Transformers lot 1 3.3.1.4 For 33/11 kV Power Transformers lot 1 Transformer oil 3.3.1.5 set of drums with minimum 5% of total oil volume of all transformers 1 lot installed Air drying agent 3.3.1.6 lot 1 sufficient quantity for 5 replacements for all transformers installed 3.4 For MV switchgear 3.4.1 For 33 kV switchgear 3.4.1.1 33kV Withdrawable Circuit Breaker with breaker trolley nos 33kV Surge arrester 3412 3 nos 3.4.1.3 33kV Fuse (six of each rating) lot 1 3.4.2 For 11 kV switchgear 3.4.2.1 11kV Withdrawable Circuit Breaker with breaker trolley nos 3.4.2.2 11kV Surge arrester nos 11kV Fuse (six of each rating) 3.4.2.3 lot 1 For LV Auxiliary Power Supply System 3.5 For 0.4 kV main switchgear / 220 V DC switchgear / 48 V DC 3.5.1 switchgear Incoming Circuit Breaker 3.5.1.1 5% of each type and rating totally installed but as a minimum 2 unit of lot 1 each type and size Outgoing Circuit Breaker 3.5.1.2 5% of each type and rating totally installed but as a minimum 2 unit of lot 1 each type and size Outgoing feeder terminal block (five complete three phase / PE / N blocks 3.5.1.3 1 lot of each type and size) 3.5.1.4 lot 1 Surge arrester 3.5.2 **Batteries** 220 V battery cell Connector nos 5 3.5.2.2 48 V battery cell Connector 5 nos 3.6 For Diesel generator unit (DGU) 3.6.1 Air filter set 3.6.2 Oil filter set 5 3.6.3 Fuel filter set 5 Motor lube oil (three fillings) lot 3.6.5 Gaskets (two of each type) lot 1 3.7 For protection equipment Line differential protection relay (one of each type) 3.7.1 set 3.7.2 Transformer differential protection relay (one of each type) set 1 3.7.3 Busbar differential protection relay decentral field unit (one of each type) set 1 Busbar differential protection relay entral unit (one of each type) set 3.7.5 Overcurrent protetction relay (one of each type) set HV Bay Control unit (one of each type) set 3.7.7 Combined protection and bay control for MV switchgear 1 set 3.7.8 Lockout Relay set 4 Trip circuit supervision Relay 4 set CT circuit test terminal block (complete for three phase circuit, ten of each 2 3.7.10 lot type and size) VT circuit test terminal block (complete for three phase circuit, ten of each 3.7.11 lot 2

type and size)

	Substation Package B Kreditanstalt für Wiederaufbau (Nepal Electricity Authority (NE				
	Schedule No. II: Plant, and Mandatory Spare Parts Supplied fr		Employer's Cou	ıntry	
Item	Description	Unit	Quantity	Quantity Unit Price	
			1	(NPR) 2	(NPR) 3=1x2
3.8	For SCMS and SCADA system				
3.8.1	Complete set of spare parts for the entire SCMS System of Lekhnath and Damauli substations, comprising at minimum 20% of each device applied per system but as a minimum 1 pc of each item	lot	1		
3.9	For telecommunications system				
3.9.1	Complete set of spare parts for the entire Telecommunication System of Lekhnath and Damauli substations, comprising at minimum 20% of each device applied per system but as a minimum 1 pc of each item	lot	1		
3.10	Metering system				
3.10.1	Meters (one of each type)	nos	2		
3.10.2	Communication equipment (Ethernet switches and Patch panels)	set	2		
3.10.3	GPRS-GSM communication device	set	1		
3.11	For LV Auxiliary System, Protection, Metering and Control Cubicles, etc. in General Miniature Circuit Breaker (MCB)				
3.11.1	10% of each type and rating totally installed but as a minimum 2 units of each item	lot	1		
3.11.2	Fuses 10% of each type and rating totally installed but as a minimum six units of each type and rating	lot	1		
3.11.3	LV surge arrestors 10% of each type and rating totally installed but as a minimum two units of each type and rating	lot	1		
3.11.4	Control Switches, Selector Switches, Push buttons etc. 5% of each type and configuration totally installed but as a minimum 2	lot	1		
3.11.5	units of each type and size Indicating lights 10% of each type and color totally installed but as a minimum 5 units of	lot	1		
3.11.6	each type and color Terminal block 10% of each type and size/rating totally installed but as a minimum: 50 terminals of each type and size up to and including 10 mm2	lot	1		
	10 terminals of each type and size larger than 10 mm2				
3.12	For LV Installation				
	Small power outlets				
3.12.1	10% of each type and rating installed but as a minimum 10 units of each type and rating	lot	1		
3.12.2	Power outlets 5% of each type and rating installed but as a minimum 2 units of each type and rating	lot	1		
3.12.3	Junction boxes 10% of each type and rating installed but as a minimum 5 units of each type and rating	lot	1		
3.12.4	Lighting Fixtures 5% of each type and rating installed but as a minimum 2 units of each type and rating	lot	1		
3.12.5	LED modules 20% of each type and rating installed but as a minimum 10 units of each	lot	1		
3.12.6	type and rating LED electronic control gear (ECG) 10% of each type and rating installed but as a minimum 5 units of each	lot	1		
	type and rating		1		
3.13	Fire Protection System		1		
3.13.1	Fire detectors 5% of each type and rating installed but as a minimum 4 units of each	lot	2		
	type				
3.13.2	Fire alarm break glass units 5% of each type and rating installed but as a minimum 4 units of each	lot	2		
	Itype				
3.13.2	type Spare break glass for fire alarm break glass units set with 10 break glasses	set	5		

	Substation Package B				
	Kreditanstalt für Wiederaufbau				
	Nepal Electricity Authority (N		Francisco de Cor		
	Schedule No. II: Plant, and Mandatory Spare Parts Supplied f	rom within the	Employer's Col	untry	
Item	Description	Unit	Quantity	Unit Price	Total Price
Item	Description	Oilit	Quantity	EXW	EXW
				(NPR)	(NPR)
			1	2	3=1x2
3.14	For containerised fire fighting pump system				0 1/12
3.14.1	Air filter	set	3		
3.14.2	Oil filter	set	5		
3.14.3	Fuel filter	set	5		
3.14.4	Motor lube oil (three fillings)	lot	1		
3.14.5	Gaskets (two of each type)	lot	1		
3.15	For deluges systems and hydrant network				
3.15.1	Gaskets (two of each type)	lot	1		
			-		
3.16	For Water supply system				
3.16.1	Valve (one of each size and type)	lot	2		
3.16.2	Gaskets (five of each type)	lot	2		
3.16.3	Water filter	set	5		
			-		
3.17	For Airconditioning system				
3.17.1	Gaskets (five of each type)	set	2		
3.17.2	Air filter (three of each type)	set	4		
			-		
	On a sight To a la				
4.	Special Tools				
4.1	SF6 gas service cart	nos	1		
4.2	SF6 gas filling cart	nos	3		
4.3	Analyser for gas measurement	nos	1		
4.4	Portable SF6 gas leakage detector in a case	nos	3		
4.5	Density guard testing device in a case	nos	1		
4.6	Precision gauge with hose in transport case	nos	1		
4.7	Tool box with torque spanner for GIS (each type if different), etc	set	3		
4.8	SF6 bottle (each type, if different) 40 kg (with gas)	set	6		
4.9	Insulation resistance test set (range 0.5 –1.0 - 2.5 - 5 - 10 kV)	set	2		
4.10	Calibration instruments for the line type heat detection	set	2		
4.11	Tools and test equipmnet for fore detectors	set	2		
	TOTAL (to Schedule No. VI Grand Summary)				
	N	lame of Bidde	r:		
	Sig	nature of Bid	der:		
		İ			

Substation Package B Kreditanstalt für Wiederaufbau (KfW) Nepal Electricity Authority (NEA) Schedule No. III: Design Services

	Schedule No. III: Design Se	rvices			
	5		1 0 1		
Item	Description	Unit	Quantity	Unit Price (USD)	Total Price
			1	(USD) 2	(USD) 3=1x2
			'	2	J- 1X2
1	Construction of 220kV Extension of the 122kV switchward in Lakhnoth				
<u> </u>	Construction of 220kV Extension of the 132kV switchyard in Lekhnath				
	Flood to 1 Works				
1.1	Electrical Works	lot	1		
1.1.1 1.1.2	Electrical System Design	lot	1		
1.1.3	Protection system design including PMU and metering SCADA and SCMS design	lot	1		
1.1.3.1	SCADA and SCMS system for new 220 kV Substation	lot	1		
1.1.3.2	Design for interfacing with NLDC/ECC	lot	1		
1.1.3.3	Design for interfacing with Existing Lekhnath 132 kV Substation	lot	1 1		
1.1.4	Telecommunication design	lot	1		
	-				
1.1.5	Electical installation design, including power and control cable systems, earthing and lightning protection systems, lighting and small power system, fire detection system	lot	1		
1.1.6	Other design items		1		
1.1.6.1	Earthing resistance test, earthing study and earthing system test	lot	1		
1.1.6.2	Insulation Coordination Study	lot	1 1		
1.1.6.3 1.1.6.4	Protection Settings Study and Adjustments 132 kV Cable System Studies	lot lot	1 1		
1.1.6.5	Transport study for large and heavy equipment	lot	1		
1.1.0.0	Transport study for large and fleavy equipment	IUL	 		
1.2	Civil Works		1		
1.2.1	Topographical surveys soil investigations	lot	1		
1.2.2	Document Preparation and Submission for Permits	lot	1		
1.2.3	Building design	lot	1		
1.2.4	Transformer and equipment foundation design	lot	1		
1.2.5	Design of channels, ducts etc. for cables	lot	1		
1.2.6	Design of roads, paving, landscaping, fencing, gates	lot	1		
1.2.7	Design of site preparation, leveling and compacting, temporary facilities	lot	1		
1.2.8	Design of water supply system	lot	1		
1.2.9	Design of drainage and sewage systems	lot	1		
1.2.10	Design of air-conditioning, ventilation and heating systems	lot	1		
1.2.11	Design of overhead Traveling Crane	lot	1		
1.2.12	Design of fire protection system	lot	1		
2	Construction of 220/132/33/11 kV Substation in Damauli				
2.1	Electrical Works	lot	1		
2.1.1	Electrical Works Electrical System Design	lot	1		
2.1.2	Protection system design including PMU and metering	lot	1		
2.1.3	SCADA and SCMS design		·		
2.1.3.1	SCADA and SCMS system for new 220 kV Substation	lot	1		
2.1.3.2	Design for interfacing with NLDC/ECC	lot	1		
2.1.3.3	Design for interfacing with future New Damauli 400 kV	lot	1		
2.1.4	Telecommunication design	lot	1		
2.1.5	Electical installation design, including power and control cable systems, earthing and lightning protection systems, lighting and small power system, fire detection system	lot	1		
2.1.6	Other design items				
2.1.6.1	Earthing resistance test, earthing study and earthing system test	lot	1		
2.1.6.2	Insulation Coordination Study	lot	1		
2.1.6.3	Protection Settings Study and Adjustments in Other Substations	lot	1		
2.2	Civil Works		+		
2.2.1	Topographical surveys soil investigations	lot	1		
2.2.2	Document Preparation and Submission for Permits	lot	1		
2.2.3	Building design	lot	1		
2.2.4	Transformer and equipment foundation design	lot	1		
2.2.5	Design of channels, ducts etc. for cables	lot	1		
2.2.6	Design of roads, paving, landscaping, fencing, gates	lot	1		
2.2.7	Design of site preparation, leveling and compacting, temporary facilities	lot	1		
2.2.8	Design of flood protection works	lot	1		
2.2.9	Design of water supply system	lot	1		
2.2.10	Design of drainage and sewage systems	lot	1		
2.2.11	Design of air-conditioning, ventilation and heating systems	lot	1		
2.2.12	Design of overhead Traveling Crane	lot	1		
2.2.12	Design of fire protection system	lot	1		
2	TRAINING OF EMPLOYED'S STAFF (Abreed)				
<u>3</u> 3.1	TRAINING OF EMPLOYER'S STAFF (Abroad) High voltage switchgear	lot	1		
3.2	Medium voltage switchgear	lot	1		
3.3	Auto and power transformers	lot	1		
	porror namero	101			1

		ion Package B			
		ir Wiederaufbau (KfW)			
	•	city Authority (NEA)			
	Schedule No.	III: Design Services			
Item	Description	Unit	Quantity	Unit Price	Total Price
Item	Description	Onit	Quantity	(USD)	(USD)
			1	2	3=1x2
3.4	LV auxiliary systems	lot	1		, <u>-</u>
3.5	Protection and control systems	lot	1		
3.6	SCMS	lot	<u>1</u>		
3.7	SCADA	lot	<u>1</u>		
<u>3.8</u>	<u>Telecommunication</u>	<u>lot</u>	<u>1</u>		
<u>3.9</u>	CCTV System	lot	<u>1</u>		
<u>3.10</u>	Fire protection system	<u>lot</u>	1		
	TOTAL (to Schedule No. III Grand Summary)				
	•				
		Name of Bidde	r:		
		Signature of B	idder:		

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Been Description United Description Description Description Description Description 1 2000 Extension of the 12000 switchayard in Leahmanth 1 4 Terminals and Facility (1900 Seal Seal Seal Seal Seal Seal Seal Seal		Schedule No. IV: Installation and 0	Other Services				
1 200 Personal Control	Item	Description	Unit	Quantity	Inland	Installation and	Total Price
1.10 Contained on a disting 1520V switchyard in Lebroard 1.11 Contained on a disting 1520V Switchyard On a disting 1520				1			
1.1 Distriction of existing 1320V Periodicines Boy, IES, E49 1.1.1 (1320) Yearseformer Roy, IES, IES, IES, IES, IES, IES, IES, IES				1	2	3	4=1x(2+3)
1.1.1 1 20 art 2 policy process of Process o	1	220kV Extension of the 132kV switchyard in Lekhnath					
1.1.1.1.2 Set of Spote recreat treater 1.1.1.2 Set of Spote accordance treater 1.1.1.3 Set of Spote accordance treater 1.1.1.4 South cut rest transference metals. 1.1.1.5 Set of Spote accordance treater 1.1.1.6 Set of Spote accordance treater 1.1.1.7 Set of Spote accordance treater 1.1.1.7 Set of Spote accordance treater 1.1.1.7 Set of Spote accordance treater 1.1.1.1 Set of Spote accordance treater 1.1.1 Set of Spote accordance treater treat							
1.1.1.2 See of 2-pole absorburged with earthring particle 1.1.1.3 See of 2-pole absorburged with earthring particle 1.1.1.3 See of 2-pole absorburged with earthring and the 1-pole absorburged with earthring and the 1-pole absorburged earthring and the 1-pole and 1-pole absorburged earthring and the 1-pole and 1-pol and 1-pole and 1-p			set	2			
1.1.1.1 Soleto control transformer 1.1.1 Soleto control transformer 1.1.1 Soleto control transformer 1.1.1 Control transformer				4			
1.1.1.0 Governo to backer and related in 1.1.1.0 Governor of the search transformer AIS equipment and auxiliary system for fast reconnection of the search transformer AIS equipment and auxiliary system for fast reconnection of the search transformer AIS equipment and auxiliary system for fast reconnection of the search transformer AIS equipment and auxiliary system for fast reconnection of the search transformer AIS equipment and auxiliary system for fast reconnection of the search transformer and the search transformer and the search transformer and the search transformer and transform							i
1.1.1.1.2 Guerteen for bushard and feeder confections 1.1.1.2 Guerteen and feeder confections 1.1.1.2 Guerteen and feeder confections 1.1.1.3 Guerteen and feeder confections 1.1.1.4 Guerteen and the state of t							
1.1.1.5 Months can defenge the recessive yeapprent and materials to complete the supply and the last 1 months of the recessive yeapprent and auxiliary system for fast reconnection of the year between the supply and the last 1 months of the last 2 months of the		Gantries for busbar and feeders					-
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1.2. 220132/11KV Autotransformer 1.2.1 Incomplete phase autotransformers 220/132/3 kV 100 MVA/phase, equipped with onlast significance of the phase autotransformers 220/132/3 kV 100 MVA/phase, equipped with onlast significance of the phase autotransformers 220/132/3 kV 100 MVA/phase, equipped with onlast significance of the phase autotransformers 220/132/3 kV 100 MVA/phase, equipped with onlast significance of the phase autotransformers 220/132/3 kV 100 MVA/phase, equipped with onlast significance of the phase autotransformer condition monitoring system, including the relevant software and integration in the SCMS. 1.2.4 All other necessary equipment and malerials to complete the supply and the integration in the SCMS. 1.3.3 Local common panel with sup cabiling for feeder D03, D07 1.3.4 Local common panel with sup cabiling for feeder D03, D07 1.3.5 Local common panel with sup cabiling for feeder D04, D06 1.3.6 Sus Couplet Bay D05 1.3.7 Local common panel with sup cabiling for feeder D04, D06 1.3.8 Use Couplet Bay D05 1.3.9 Dute measuring and bus bar earthing 1.3.10 measuring switch controling system for all 5 bays, including the relevant software and integration in the SCMS. 1.3.10 measuring switch soft of 5 bays, including the relevant software and integration in the SCMS. 1.3.10 measuring switch switch switching switch bar local displays and past switching with switching switching switching switching switching switching for led system switching with switching	1.1.3.2	Relocation of two (2) existing lightning protection masts affected by the extension of the 132 kV switchyard	lot	1			
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1.4.2 220 kV capacitive voltage transformers 1.4.3 220 kV OHL gantry lot 1 1.4.4 220 kV insulators and fittings lot 1 1.4.5 All other necessary equipment and materials to complete the supply and the installation 1.5 33 kV switchgear 1.5.1 Outgoing feeder to auxiliary transformer (K02, K04) set 2 1.5.2 Riser measurement panel (K01, K03) set 2 1.5.3 All other necessary equipment, accessories and materials to complete the supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers 1.6.1 Tank mounted surge arresters for the primary (33 kV) side. unit 2 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. unit 6 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type 1.7.2 220 V DC switchgear with two bus sections occupied the supply and the lot 1 1.7.2 220 V DC switchgear with two bus sections							
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1.4.4 220 kV insulators and fittings All other necessary equipment and materials to complete the supply and the installation 1.5 33 kV Switchgear 1.5.1 Outgoing feeder to auxiliary transformer (K02, K04) 1.5.2 Riser measurement panel (K01, K03) 1.5.3 All other necessary equipment, accessories and materials to complete the supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers 1.6.1 Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.6 Insulation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type 1.7.2 220 V DC switchgear with two bus sections 1.7 LV Switchgear with two bus sections 1.7 LV Switchgear with two bus sections							
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1.5.1 Outgoing feeder to auxiliary transformer (K02, K04) 1.5.2 Riser measurement panel (K01, K03) 1.5.3 All other necessary equipment, accessories and materials to complete the supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers 1.6.1 Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type 1.7.2 220 V DC switchgear with two bus sections set 2 2 3 4 4 5 6 7 6 7 7 8 8 7 8 8 7 8 8 7 8 8	1.4.5		lot	1			
1.5.2 Riser measurement panel (K01, K03) 1.5.3 All other necessary equipment, accessories and materials to complete the supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers 1.6.1 Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type set 1 1.7.2 220 V DC switchgear with two bus sections							
1.5.3 All other necessary equipment, accessories and materials to complete the supply and the installation 1.6 Zig Zag Earthing Auxiliary Transformers 1.6.1 Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type 1.7.2 220 V DC switchgear with two bus sections							
1.6.1 Three-phase zig zag auxiliary transformers 33/0.4 kV, hermetically sealed type with off load tap changer, each of minimum 630 kVA 1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type set 1 1.7.2 220 V DC switchgear with two bus sections set 1		All other necessary equipment, accessories and materials to complete the supply					
1.6.2 Tank mounted surge arresters for the primary (33 kV) side. 1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type 1.7.2 220 V DC switchgear with two bus sections							
1.6.3 All other necessary equipment and materials to complete the supply and the installation 1.7 LV Auxiliary Power Supply System 1.7.1 0.4 kV main switchgear, metal-clad type set 1 1.7.2 220 V DC switchgear with two bus sections set 1		off load tap changer, each of minimum 630 kVA					
1.7		All other necessary equipment and materials to complete the supply and the					
1.7.1 0.4 kV main switchgear, metal-clad type set 1 1.7.2 220 V DC switchgear with two bus sections set 1							
1.7.2 220 V DC switchgear with two bus sections set 1			ect	1			

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

				Unit Price	Unit Price	
Item	Description	Unit	Quantity	Inland Transportation		Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
	220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 Ah (10h					
1.7.4	discharge rate)	set	2			
1.7.5	48 V DC switchgear with two bus sections	set	1			
1.7.6	48 V battery chargers	set	2			
1.7.7	48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah	set	2			
1.7.8	230 V AC UPS System	set	2			
1.7.9	All other necessary equipment and materials to complete the supply and the installation	lot	1			
1.8	Diesel generator unit (DGU)					
1.0	-					
1.8.1	Diesel generator unit, minimum of 50 kVA, in a prefabricated container equipped with fire-detection system and exhaust gas evacuation system including fuel tank	set	1			
1.8.2	All other necessary equipment and materials to complete the supply and the installation	lot	1			
1.9	Protection		+	 	 	
			_	1		
1.9.1	220 kV OHL Protection Terminals <u>incl. POW control</u> and BCU (D04, D06)	set	2			
1.9.2	220kV Bus coupler (D05) and Busbar Protections and BCU	set	1			
1.9.3	300MVA 220 kV side autotransformer protection <u>incl. POW control</u> and BCU (D03, D07)	set	2			
1.9.4	300MVA 132kV side autotransformer protection and BCU (E13, E14)	set	2			
	20MVA 33kV side autotransformer bay control and protection BCPU (K01, K03)					
1.9.5	(installed in MV Switchgear)	set	2			
1.9.6	Auxiliary Earthing Tansformer bay control and protection BCPU (K02, K04)	set	2			
1.9.7	(installed in MV Switchgear) marshalling panel for the transformer control circuits for fast reconnection of spare	set	2			
1.9.7	transformer	Set	2			
1.9.8	All other necessary equipment and materials to complete the supply and the installation	lot	1			
	O					
1.10	Synchrophasor Measurement Unit (PMU) for monitoring voltage and current as defined in the Scope, including software, documentation, cubicles, accessories	lot	1			
1.11	SCADA and SCMS					
1.11	SCADA and SCMS system for new 220 kV Substation					
1.11.1	includiong all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	set	1			
	Equipment and material for interfacing with NLDC/ECC					
1.11.2	including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	set	1			
1.11.3	Equipment and material for interfacing with Existing Lekhnath 132 kV Substation including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	set	1			
1.12	Telecommunication		 	 	 	
1.14	SDH Equipment		†	+		
1.12.1	SDH node for FOC connections to the new 220/132/33/11kV GIS Damauli Substation and to the existing 132/33/11kV Lekhnath Substation	lot	1			
1.12.2	Fibre optical cables and patch cords	lot	1			
1.12.3	Optical Distribution Frame and accessories	lot	1			-
1.12.4	IP-PBX telephony system, including appropriate telephone sets	lot	1			
1.12.5	All other necessary cubicles, software, equipment and materials to complete the supply and the installation	lot	1			
1.13	Metering		 	 	 	
	Metering Meter for 220kV OHL		+	1		
1.13.1	Main & Control	set	2			
1.13.2	Meter for 220/132/33 kV autotransformers (220 kV side and 132 kV side) Main & Control	set	4			
1.13.3	Meter for auxiliary transformers Main & Control	set	2			
	IVIAIII & COITIUI		1	1	1	

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
1.13.4	Communication equipment (Ethernet Switches / Patch Panels / FOs / Cables etc)	lot	1			
1.13.5	GPRS-GSM communication device	set	1			
1.13.6	Cabinet	lot	1			
1.13.7	Notebook PC including related software for local access for meter reading	set	1			ļ
1.13.8	All other necessary, software, equipment and materials to complete the supply and the installation	lot	1			
1.14	Power and Control Cables					
1.14.1	33 kV Cables, sealing ends, terminals and accessories for 33 kV auxiliary system	lot	1			
1.14.2	including accessories LV Power and Control cables and accessories for auxiliary supply, protection,	lot	1			
1.14.3	control, metering including accessories All other necessary equipment and materials to complete the supply and the	lot	1			
	installation					1
1.15	Earthing and lightning protection systems	lot	1			
1.16	Lighting and small power system	lot	1			
		101	i i			
1.17	Fire Protection system	-				
1.17.1	Fire detection system	lot	1			
1.17.2	Portable fire extinguishers	lot	1			<u> </u>
1.17.3 1.17.3.1	Fire fighting system Containerised fire fighting pump system	lot	1			1
1.17.3.1	Fire fighting water tank	lot	1			
1.17.3.3	Fire fighting water supply pump with well	lot	1			
1.17.3.4	Transformer deluge systems for autotransformers	set	7			
1.17.3.5	Fire hydrant network and interconnection piping	lot	1			ļ
1.17.3.6	All accessories necessary for the satisfactory operation of the system but which are not separately listed	lot	1			
4.40	COTVt					<u> </u>
1.18 1.18.1	CCTV system Central unit	set	1			
1.18.2	Control panel	set	1			
1.18.3	Monitor	set	2			
1.18.4	Indoor Camera	lot	1			
1.18.5	Outdoor Camera	lot	1			
1.18.6	All other necessary equipment and materials to complete the extension	lot	1			
1.19	Civil Works					
1.19.1	Site Development Works	lot	1			1
1.19.1.1 1.19.1.2	General Site Development works Removal and disposal of existing building	lot lot	1			
1.13.1.2	Tromoval and disposal of existing ballang	101				
1.19.2	Site installation and temporary works	lot	1			
1.19.3	Temporary Site Facilities					i
1.19.3.1	Temporary site facilities and accommodations, including office containers, sanitary	lot	1			
1.19.3.2	containers, rest rooms, etc., for Contractor's own staff Office container for Employer / Engineer	lot	1			
1.19.3.2	отпов отпатиет пот стирноует / стідтеет	IUL				
1.19.4	Buildings					
1.19.4.1	220 kV GIS Building	lot	1			
1.19.4.2	Overhead travelling crane in 220kV GIS room	unit	1			ļ
1.19.4.3	Ventilation system for 220kV GIS room	lot	1			1
1.19.4.4 1.19.4.5	Control Building Airconditioning and ventilation for Control Building	lot lot	1			
1.19.4.6	Storage shelter	lot	1			
1.19.4.7	Furniture as defined in VII-6 Technical Requirements Civil Works	lot	1			
1.19.5 1.19.5.1	Transformer Foundations 220/132/33 kV 100 MVA single phase auto-transformer foundations with oil catch	lot	1			
	and pits and fire separation walls for seven (7) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2)					
1.19.5.2	transformers	lot	1			-
1.19.5.3	Common oil collection pit with oil separator	lot	1			1
1.19.6	Outdoor foundations - HV equipment					
1.19.6.1	220 kV gantry foundations	lot	1			
1.19.6.2	220 kV AIS equipment foundations for voltage transformers and surge arrestors	lot	1			
1.19.6.3	220 kV GIB and SF6/air termination foundations	lot	1			
1.19.6.4	132 kV gantry foundations	lot	1			
1.19.6.5 1.19.6.6	132 kV AIS AIS equipment foundations for switchgear extension 132 kV GIB and SF6/air termination foundations	lot lot	1			
1.19.7	Outdoor foundations - other equipment					
1.19.7.1	Foundation for the diesel generator and fuel storage	lot	1			ļ
1.19.7.2	Foundation for the containerised fire fighting pump system	lot	1			ı

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
1.19.7.3	Foundation for the fire water tank	lot	1			
1.19.8	Channels, ducts etc. for:					
1.19.8.1	33 kV power cables from 220/132/33 kV autotransformers to 33 kV switchgear	lot	1			
1.19.8.2	33 kV power cables from 33 kV switchgear to auxiliary transformers	lot	1			
1.19.8.3	LV power and control cables from 220 kV GIS building to autotransformer and outdoor equipment	lot	1			
1.19.8.4	LV power and control cables from 220 kV GIS building to existing132 kV switchyard	lot	1			
	and control building					
1.19.9	Roads, paving and gravel bed surfacing					
1.19.10	Site Preparation, leveling and compacting					
1.19.11	Water supply system					
1.19.11	Water treatment plant	lot	1			
1.19.11.2	Internal water supply system	lot	1			
1.19.12	Drainage and sewage systems					
1.19.12.1	Storm water drainage system	lot	1			
1.19.12.2	Sanitary sewage drainage system	lot	1			
1.19.13	Landscaping	lot	1			
1.19.14	Fencing and gates	lot	1			
1.20	Communication and Visibility	lot	1			
1.20	Onlineation and Visibility	iot	'			
2	Construction of 220/132/33/11 kV substation in Damauli					
2.1 2.1.1	220 kV Gas Insulated Switchgear OHL Bays with GIB and SF6/air bushings (D06, D07, D08, D13, D14, D15)	set	6			
		Set				
2.1.2	Local control panel with bay cabling for feeder (D06, D07, D08, D13, D14, D15)	set	6			
2.1.3	220/132kV Transformer Bay with GIB and SF6/air bushings (D09 and D12)	set	2			
2.1.4	Local control panel with bay cabling for feeder (D09 and D12)	set	2			
2.1.5	Bus Coupler Bays (D05, D16)	set	2			
2.1.6	Local control panel with bay cabling for feeder (D05, D16)	set	2			
2.1.7 2.1.8	Measuring Bays ((D10) and (D11)) Busbar Sectionalizers (D10, D11)	set set	2			
2.1.9	Local control panel with bay cabling for feeder D10 and D11, including cable	set	2			
	connections to bus bar measuring and bus bar earthing Online switchgear monitoring system for all 6 bays, including the relevant software					
2.1.10	and integration in the SCMS.	lot	1			
2.1.11	PD UHF measuring system for periodical measurement on site GIS steel supports for all bays and for GIB's, including wall bushings (material from	lot	1			
2.1.12	GIS manufacturer for closing the wall openings) Wall boards as specified (typical bay sections, single line diagram and gas	lot	1			
2.1.13	compartment plan, gas density rules, gas temperature pressure curves etc.)	lot	1			
2.1.14	Key box including specified labelled keys and pad locks for 220kV GIS	lot	1			
2.1.15	All other necessary equipment and materials to complete the supply and the installation	lot	1			
2.2	220 kV AIS Equipment	. mit	40			
2.2.1	220kV OHL surge arresters 220kV capacitive voltage transformers	unit unit	18 18			
2.2.2	220 kV OHL gantry	lot	1			
2.2.4	220 kV insulators and fittings	lot	1			
2.2.5	All other necessary equipment and materials to complete the supply and the installation	lot	1			
2.3	132 kV Gas Insulated Switchgear		 			
2.3.1	220/132kV Transformer Bays with GIB and SF6/air bushings (E02, E06)	set	2			
2.3.2	Local control panel with bay cabling for feeder E02, E06	set	2			
2.3.3	OHL Bays with GIB and SF6/air bushings (E03, E07)	set	2			
2.3.4	Local control panel with bay cabling for feeder E03, E07	set	2			-
2.3.5	132/33kV Transformer Bay with cable conections (E01, E05)	set	2			
2.3.6	Local control panel with bay cabling for feeder E01, E05	set	2			
2.3.7 2.3.8	Measuring Bay (E04) Bus Coupler E04	set set	1			
2.3.9	Local control panel with bay cabling for feeder E04 and (E04), including cable	set	1			
2.3.10	connections to bus bar measuring and bus bar earthing Online switchgear monitoring system for all bays, including the relevant software	lot	1			
2.5.10	and integration in the SCMS.	.51	<u> </u>			

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
2.3.11	PD UHF measuring system for periodical measurement on site	lot	1			
	GIS steel supports for all bays and for GIB's, including wall bushings (material from					
2.3.12	GIS manufacturer for closing the wall openings)	lot	1			
0.0.40	Wall boards as specified (typical bay sections, single line diagram and gas	1-4	4			
2.3.13	compartment plan, gas density rules, gas temperature pressure curves etc.)	lot	1			
2.3.14	Key box including specified labelled keys and pad locks for 132kV GIS	lot	1			
2.3.15	All other necessary equipment and materials to complete the supply and the	lot	1			
	installation		· ·			
2.4	132 kV AIS Equipment					
2.4.1	132 kV OHL surge arresters	unit	6			
2.4.2	132 kV capacitive voltage transformers	unit	6			
2.4.3	132 kV OHL gantry	lot	1			
2.4.4	132 kV insulators and fittings	lot	1			
2.4.5	All other necessary equipment and materials to complete the supply and the	lot	1			
2.4.5	installation	Ю	'			
2.5	Power Transformers 220/132 Power Transformer		1			
2.5.1	Three-phase power transformer 220/132 kV 50/63 MVA, equipped with on-load tap		 			
2.5.1.1	changer	unit	2			
2.5.1.2	Line surge arresters for the primary (220 kV) side	unit	6	<u> </u>		
2.5.1.3	Line surge arresters for the secondary (132 kV) side	unit	6			
0.5.4.4	Automatic voltage regulator, including the relevant software and integration in the		2			
2.5.1.4	SCMS	set	2			
2.5.1.5	All other necessary equipment and materials to complete the supply and the	lot	1			
2.0.1.0	installation	101				
	400,000 LV D					
2.5.2	132/33 kV Power Transformer Three-phase power transformer 132/33kV 24/30 MVA, equipped with on-load tap					
2.5.2.1	changer	unit	2			
2.5.2.2	Line surge arresters for the secondary (132 kV) side	unit	6			
2.5.2.3	Line surge arresters for the secondary (132 kV) side	unit	6			
	Automatic voltage regulator, including the relevant software and integration in the					
2.5.2.4	SCMS	set	2			
2.5.2.5	All other necessary equipment and materials to complete the supply and the	lot	1			
2.3.2.3	installation	101	'			
2.5.3	33/11 kV Power Transformer					
2.5.3.1	Three-phase power transformer 33/11kV 6/8 MVA, equipped with on-load tap	unit	2			
2.5.3.2	changer Line surge arresters for the secondary (33 kV) side	unit	6			
2.5.3.3	Line surge arresters for the secondary (35 kV) side	unit	6			
	Automatic voltage regulator, including the relevant software and integration in the					
2.5.3.4	SCMS	set	2			
2.5.3.5	All other necessary equipment and materials to complete the supply and the	lot	1			
2.3.3.3	installation	lot	!			
2.6	MV Metal Clad AlS Switchgear		 			
2.6.1 2.6.1.1	33 kV Switchgear Incomers for 132/33kV transformer connection (J02, J11)	unit	2			
2.6.1.1	Outgoing feeders (J04, J10)	unit unit	2			
2.6.1.3	Outgoing feeders (304, 310) Outgoing feeder 33/11 kV transformer (J03, J12)	unit	2	<u> </u>		
2.6.1.4	Outgoing feeders to auxiliary transformer (J05, J09)	unit	1			
2.6.1.5	Bus tie (J07)	unit	1			
2.6.1.6	Riser measurement panel (J08)	unit	1			
2.6.1.7	Measurement panel (J06)	unit	1			
2.6.1.8	All other necessary equipment, accessories and materials to complete the supply	lot	1			
-	and the installation		1			
2.6.2	11 kV Switchgear		 			
2.6.2.1	Incomers for 33/11kV transformer connection (K03, K08)	unit	2			
2.6.2.2	Outgoing feeders (K04, K05, K09, K11, K12)	unit	5			
2.6.2.3	Bus tie (K07)	unit	1			
2.6.2.4	Riser measurement panel (K06)	unit	1			
2.6.2.5	Measurement panel (K10)	unit	1			
2.6.2.6	All other necessary equipment, accessories and materials to complete the supply	lot	1			
2.0.2.0	and the installation	.50	·			
27	Auviliant Transformers		1			
2.7	Auxiliary Transformers Three-phase auxiliary transformers 33/0.4 kV, hermetically sealed type with off load		1			
2.7.1	tap changer, each of minimum 630 kVA	unit	2			
2.7.2	Tank mounted surge arresters for the primary (33 kV) side.	unit	6			
	All other necessary equipment and materials to complete the supply and the					
2.7.3	installation	lot	1			
		-				-
	LV Auxiliary Power Supply System	·	1			
2.8 2.8.1	0.4 kV main switchgear, metal-clad type	set				

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
2.8.2	220 V DC switchgear with two bus sections	set	1			
2.8.3	220 V battery chargers	set	2			
	220 V DC batteries of Ni-Cd type, each with a minimum capacity of 600 Ah (10h					
2.8.4	discharge rate)	set	2			
2.8.5	48 V DC switchgear with two bus sections	set	1			
2.8.6	48 V battery chargers	set	2			
2.8.7	48 V DC batteries of Ni-Cd type, each with a minimum capacity of 150 Ah	set	2			
2.8.8	230 V AC UPS System	set	2			
2.8.9	All other necessary equipment and materials to complete the supply and the installation	lot	1			
2.9	Diesel generator unit (DGU)					
2.9.1	Diesel generator unit, minimum of 100 kVA, in a prefabricated container equipped with fire-detection system and exhaust gas evacuation system including fuel tank	set	1			
2.9.2	All other necessary equipment and materials to complete the supply and the installation	lot	1			
<u> </u>						
2.10	Protection & Control 220 kV OHL Protection Terminals incl. POW control and BCU (D06, D07, D08,					
2.10.1	D13. D14. D15)	set	6			
2.10.2	220kV Bus-sectionaliser and Busbar protection and BCU (D10, D11)	set	2			
2.10.2	220kV Bus-sectionaliser and Busbar protection (D05, D16)	set	2			
	50/63 MVA 220/132/11 kV Transformer 220 kV side protection and BCU (D09,					
2.10.4	D12) 50/63 MVA 220/132/11 kV Transformer 132 kV side protection and BCU (E02, E06)	set set	2			
	,					
2.10.6	132 kV OHL Protection Terminals and BCU (E03, E07)	set	2			
2.10.7	132kV Bus-coupler and Busbar protections and BCU (E04) 132/33kV 24/30 MVA Transformer feeder protection 132 kV side and BCU (E01,	set	1			
2.10.8	132/33kV 24/30 MVA Transformer feeder protection 132 kV side and BCU (EUT, E05) 132/33kV 24/30 MVA Transformer feeder bay control and protection (BCPU) 33 kV	set	2			
2.10.9	side (J02, J09) (installed in 33 kV switchgear)	set	2			
2.10.10	33kV Bus-coupler bay control and protection (BCPU) (J07)	set	1			
2.10.11	(installed in 33 kV switchgear) 33kV Feeder bay control and protection (BCPU) (J04, J08)	set	2			
2.10.12	33/11kV 8/10MVA Transformer feeder bay control and protection (BCPU) 33 kV side (J03, J10) (installed in 33 kV switchgear)	set	2			
2.10.13	33/11kV 8/10MVA Transformer feeder protection 11 kV side (K03, K08) (installed in 11 kV switchgear)	set	2			
2.10.14	11kV Feeder bay control and protection (BCPU) (K04, K05, K11, K12, K13, K14) (installed in 11 kV switchgear)	set	5			
2.10.15	11kV Auxiliary Transformer Feeder bay control and protection (BCPU) (K06, K10) (installed in 11 kV switchgear)	set	2			
2.10.16	11kV Bus-coupler protection (K07)	set	1			
	All other necessary equipment and materials to complete the supply and the					
2.10.17	installation	lot	1			
2.11	Synchrophasor Measurement Unit (PMU) for monitoring voltage and current as defined in the Scope, including software, documentation, cubicles, accessories	set	1			
2.12	SCADA and SCMS					
2.72	SCADA and SCMS SCADA and SCMS system for new 220/132/33/11 kV Substation					
2.12.1	including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	lot	1			
2.12.2	Equipment and material for interfacing with NLDC/ECC including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	lot	1			
2.12.3	Equipment and material for interfacing with future New Damauli 400 kV Substation including all necessary cabling, cubicles, equipment and materials to complete the supply and the installation	lot	1			
	- 1					
2.13	Telecommunication			 		
2.13.1	SDH Equipment SDH node for FOC connections of new 220 kV GIS Lekhnath Substation, to Tanahu HPP, 220 kV Bharatpur Substation, Old Damauli and 132 kV Bharatpur.	lot	1			
	Fibre optical cables, including approach cable from splicing box to SDH equipment					
2.13.2	and patch cords	lot	1			
2.13.3	Optical Distribution Frame and accessories	lot	1			
						1

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	Total Price
			1	(NPR) 2	(NPR) 3	(NPR) 4=1x(2+3)
			· · · · · · · · · · · · · · · · · · ·	2	3	4-18(2+3)
2.13.4	IP-PBX telephony system, including appropriate telephone sets	lot	1			
2.13.5	All other necessary cubicles, software, equipment and materials to complete the supply and the installation	lot	1			
2.14	Metering					
2.14.1	Meter for 220kV OHL	set	6			
2.14.2	Main & Control Meter for 132 OHL	set	2			
	Main & Control Meter for 220/132 kV Transformers, (220 kV side and 132 kV side),					
2.14.3	Main & Control Meter for 132/33 kV Transformers, 132 kV side and 33 kV side),	set	2			
2.14.4	Main & Control Meter for 33/11 kV Transformers, (33 kV side and 11 kV side),	set	2			
2.14.5	Main & Control Meter for 33 kV Feeders	set	2			
2.14.6	Main & Control	set	2			
2.14.7	Meter for 11 kV Feeders Main & Control	set	7			
2.14.8	Meter for auxiliary transformers Main & Control	set	2			
2.14.9	Communication equipment (Ethernet Switches / Patch Panels / FOs / Cables etc)	lot	1			
2.14.10	GPRS-GSM communication device	lot	1			
2.14.11	Cabinet	lot	1			
2.14.12	Notebook PC including related software for local access for meter reading All other necessary, software, equipment and materials to complete the supply and	set	1			
2.14.13	the installation	lot	1			
2.15	Power and Control Cables					
2.15.1	HV cable systems comprising 132 kV XLPE cables for the connection between the secondary windings of 220/132 kV transformers and the 132 kV switchgear	lot	1			
2.15.2	MV cable systems comprising 33 kV XLPE cables for the connection between secondary windings of 132/33 kV transformers and 33 kV switchgear	lot	1			
2.15.3	MV cable systems comprising 33 kV XLPE cables for the connection between 33 kV switchgear and 33/11 kV transformers	lot	1			
2.15.4	MV cable systems comprising 33 kV XLPE cables for the connection between 33kV switchgear and auxiliary transformers	lot	1			
2.15.5	MV cable systems comprising 11 kV XLPE cablesfor the connection between	lot	1			
2.15.6	secondary windings of 33/11 kV transformers and 11 kV switchgear MV cable systems comprising 11 kV XLPE cables for the connection of three 11 kV feeders between between 11 kV switchgear and distribution OHL pole location on	lot	1			
2.15.7	the north side of the substation towards the river LV Power and Control cables and accessories for auxiliary supply, protection,	lot	1			
2.15.8	control, metering including accessories All other necessary equipment and materials to complete the supply and the	lot	1			
	installation					
2.16	Earthing and lightning protection systems	lot	1			
2.17	Lighting and small power system	lot	1			
2.18	Fire Protection system			 		
2.18.1	Fire detection system	lot	1			
2.18.2	Portable fire extinguishers	lot	1			•
2.18.3	Fire fighting system			ļ		
2.18.3.1	Containerised fire fighting pump system	lot	1			
2.18.3.2	Fire fighting water tank	lot	1			
	Fire fighting water supply pump with well	lot	<u>1</u>	 		
2.18.3.3				1		
2.18.3.3 2.18.3.4	Transformer deluge systems for autotransformers	set				
2.18.3.3		lot lot	1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed	lot	1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system	lot	1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19 2.19.1	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system Central unit	lot lot set	1 1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19 2.19.1 2.19.2	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system Central unit Control panel	lot lot	1 1 1 1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19 2.19.1 2.19.2 2.19.3	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system Central unit Control panel Monitor	lot lot set set set	1 1 1 1 2			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19 2.19.1 2.19.2 2.19.3 2.19.4	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system Central unit Control panel Monitor Indoor Camera	set set set lot	1 1 1 1 2 1			
2.18.3.3 2.18.3.4 2.18.3.5 2.18.3.6 2.19 2.19.1 2.19.2 2.19.3	Transformer deluge systems for autotransformers Fire hydrant network and interconnection piping All accessories necessary for the satisfactory operation of the system but which are not separately listed CCTV system Central unit Control panel Monitor	lot lot set set set	1 1 1 1 2			

Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

Item	Description	Unit	Quantity	· ·	Unit Price Installation and other Services	Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
2.20	Civil Works					
2.20.1	Site Development Works	lot	1			
2.20.1.1	Phase 1					
2.20.1.1.1 2.20.1.1.2	General Site Development works	lot	1			
2.20.1.1.2	Temporary bridge from existing access road over Chabdi river for temporary access during site development works and enhancement of xisting access road	lot	1			
2.20.1.1.3	Removal and disposal of existing building	lot	1			
2.20.1.1.4	External drainage collector 1 (hill side south of substation)	lot	1			
2.20.1.1.5 2.20.1.1.6	External drainage collector 2 (400 kV side east of substation) Development of the 220kV substation platform (excavation, filling and compaction,	lot	1			
2.20.1.1.0	flood protection works). The temporary access road and temporary bridge may be used for these works.	lot	1			
2.20.1.1.7	Permanent access road, including related rainwater protection works	lot	1			
2.20.1.1.8	Inner fencing surrounding the substation area with main access gate and					
	maintenance access gates to area between the 220kV substation platform and the riverbed	lot	1			
2.20.1.1.9	Access road (3 m wide) from maintenance access gates to area between the 220kV substation platform and the riverbed	lot	1			
2.20.1.2	Phase 2		ļ <u>. —</u>			·
2.20.1.2.1	Removal and disposal of temporary access bridge Levelling of the area between the 220kV substation platform and the riverbed (no filling required for the area between the 220kV substation platform and the riverbed)	lot	1			
2.20.1.2.2	and development of a drainage system to drain water from this area					
2.20.1.2.3	Development flood retaining wall and external chain link fence	lot	1			
2.20.1.2.4	Flood retaining wall north-west, adjacent to the riverbed	lot	1			
2.20.1.2.5	Low wall along external drainage collector on south side Low wall along east side of substation platform (towards future 400 kV substation	lot	1			
2.20.1.2.6	Low wall along east side of substation platform (towards future 400 kV substation	lot	1			
2.20.2	Site installation and temporary works	lot	1			
	The meaning and temperary works					
2.20.3	Temporary Site Facilities					
2.20.3.1	Temporary site facilities and accommodations, including office containers, sanitary	lot	1			
2.20.3.2	containers, rest rooms, etc., for Contractor's own staff Office container for Employer / Engineer	lot	1			
2.20.4	Buildings	1-4	1			
2.20.4.1 2.20.4.2	220 kV GIS Building Overhead travelling crane for 220kV GIS room	lot unit	1			
2.20.4.2	Ventilation System for 220kV GIS room	unit	1	-		
2.20.4.4	132 kV GIS Building	lot	1			
2.20.4.5	Overhead travelling crane for 132kV GIS room	unit	1			
2.20.4.6	Ventilation System for 132kV GIS room	unit	1			
2.20.4.7	Control Building	lot	1			
2.20.4.8	Airconditioning and Ventilatiopn for Control Building Separate strore building	lot lot	1 1			
2.20.4.9	Guard house	lot	1			
2.20.4.11	Airconditioning for Guard House					
2.20.4.12		lot				
	Furniture as defined in VII-6 Technical Requirements Civil Works	lot lot	1			
	Furniture as defined in VII-6 Technical Requirements Civil Works		1			
			1			
2.20.5	Furniture as defined in VII-6 Technical Requirements Civil Works Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and	lot	1 1			
2.20.5 2.20.5.1	Transformer Foundations	lot	1 1 1			
2.20.5 2.20.5.1 2.20.5.2	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers	lot lot	1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers	lot lot lot	1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers foundations with oil catch pits for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers	lot lot lot lot	1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch pits for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator	lot lot lot	1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment	lot lot lot lot lot	1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations	lot lot lot lot	1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1 2.20.6.2	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment	lot lot lot lot lot	1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1 2.20.6.2 2.20.6.3	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV AIS equipment foundations for voltage transformers and surge arrestors	lot lot lot lot lot lot lot lot	1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1 2.20.6.2	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV GIB and SF6/air termination foundations 132 kV gantry foundations	lot lot lot lot lot lot lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1 2.20.6.2 2.20.6.3	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV AIS equipment foundations for voltage transformers and surge arrestors	lot lot lot lot lot lot lot lot	1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6 2.20.6.1 2.20.6.2 2.20.6.3 2.20.6.4	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV GIB and SF6/air termination foundations 132 kV gantry foundations	lot lot lot lot lot lot lot lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.5.5 2.20.6.1 2.20.6.2 2.20.6.3 2.20.6.4 2.20.6.5 2.20.6.6	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformers 33/11 kV 8/10 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV AIS equipment foundations for voltage transformers and surge arrestors 220 kV GIB and SF6/air termination foundations 132 kV gantry foundations	lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.6.1 2.20.6.1 2.20.6.2 2.20.6.3 2.20.6.4 2.20.6.5	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV GIB and SF6/air termination foundations 132 kV gantry foundations 132 kV AIS equipment foundations for voltage transformers and surge arrestors	lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.6.1 2.20.6.1 2.20.6.2 2.20.6.3 2.20.6.4 2.20.6.5 2.20.6.6	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV GIB and SF6/air termination foundations 132 kV gantry foundations 132 kV GIB and SF6/air termination for voltage transformers and surge arrestors Outdoor foundations - the equipment foundations	lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
2.20.5 2.20.5.1 2.20.5.2 2.20.5.3 2.20.5.4 2.20.6.1 2.20.6.1 2.20.6.2 2.20.6.4 2.20.6.5 2.20.6.6	Transformer Foundations 220/132 kV 50/63 MVA power transformer foundations with oil catch and pits and fire separation walls for two (2) transformers 132/33 kV 24/30 MVA power transformer foundationswith oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformer foundations with oil catch and pits and fire separation walls for two (2) transformers Auxiliary transformer foundations with sunshade and oil catch pits for two (2) transformers Common oil collection pit with oil separator Outdoor foundations - HV equipment 220 kV gantry foundations 220 kV GIB and SF6/air termination foundations 132 kV ans equipment foundations for voltage transformers and surge arrestors 132 kV GIB and SF6/air termination foundations 132 kV GIB and SF6/air termination foundations Outdoor foundations - other equipment Foundation for the diesel generator and fuel storage	lot	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			

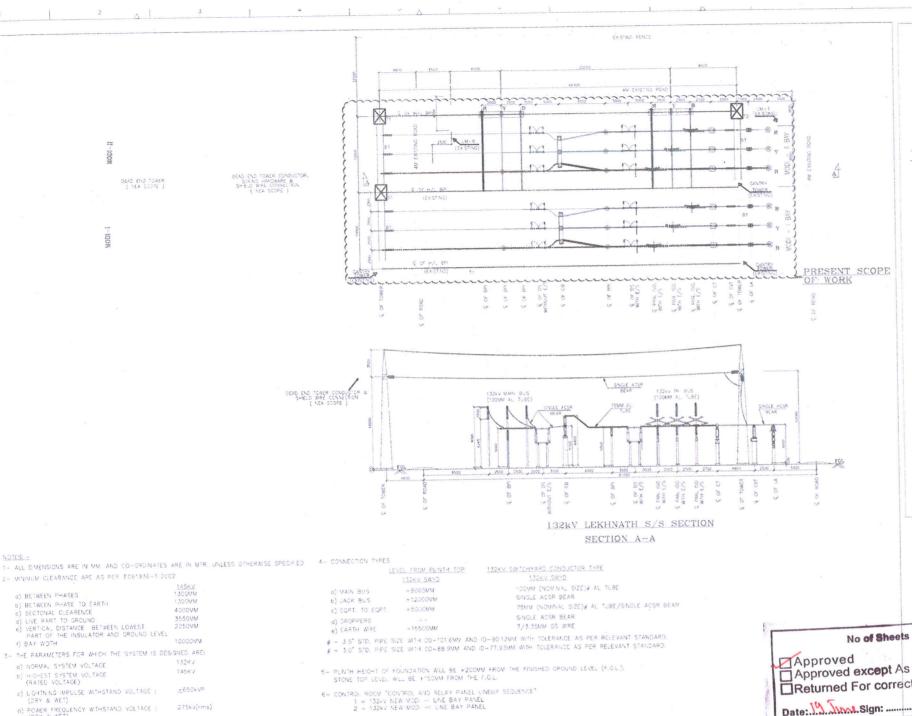
Substation Package B
Kreditanstalt für Wiederaufbau (KfW)
Nepal Electricity Authority (NEA)
Schedule No. IV: Installation and Other Services

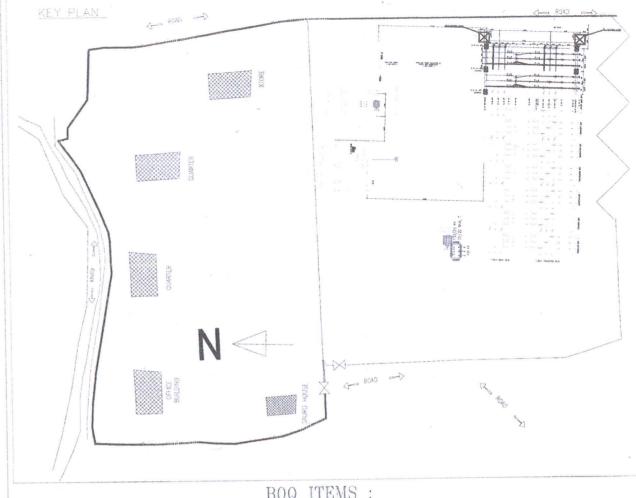
Item	Description	Unit	Quantity	Unit Price Inland Transportation	Unit Price Installation and other Services	Total Price
				(NPR)	(NPR)	(NPR)
			1	2	3	4=1x(2+3)
2.20.8	Channels, ducts etc. for:					
2.20.8.1	220 kV cables from the 220 kV GIS up to the fence towards the future 400 kV	1-4	4			
2.20.8.1	Substation	lot	1			
2.20.8.2	220 kV cables from the 220 kV GIS up to the fence towards the future 220 kV	lot	1			
2.20.8.3	gantries	lot	1			
	132 kV cables from the 220/132 kV transformers to the 132 kV switchgear 33 kV cables from 132/33 kV transformers to 33 kV switchgear and from 33 kV					
2.20.8.4	switchgear to 33/11 kV transformers	lot	1			
	33 kV cables from and 33 kV switchgear to auxiliary 33/0.4 kV transformer	lot	1			
	11 kV power cables from 132/11 kV transformers to 11 kV switchgear	lot	1			
2.20.8.7	11 kV power cables from 11 kV switchgear to auxiliary transformers	lot	1			
2.20.8.8	11 kV outgoing feeder cables between between 11 kV switchgear and distribution OHL pole location on the north side of the substation towards the river	lot	1			
2.20.8.9	33 kV outgoing feeder cables between between 33 kV switchgear and distribution OHL pole location on the north side of the substation towards the river	lot	1			
2.20.8.10	LV power and control cables from 220 kV GIS building to autotransformer and outdoor equipment	lot	1			
2.20.8.11	LV power and control cables from 132 kV GIS building to power transformer and outdoor equipment	lot	1			
2.20.8.12	LV power and control cables from 220 kV GIS building to 132 kV building	lot	1			
2.20.9	Roads, paving and gravel bed surfacing					
2.20.9.1	Concrete roads and surfacing inside subststion as indicated in the Substtation	lot	1			
2.20.9.2	Layout drawing Car Park with roof shade as indicated in the Substtation Layout drawing	lot	1			
2.20.9.3	Crushed rock surfacing inside subststion as indicated in the Substation Layout					
	drawing	lot	1			
	Water supply system					
	Water treatment plant	lot	1			
2.20.10.2	Internal water supply system	lot	1			
2.20.11	Drainage and sewage systems					
2.20.11.1	The storm water drainage system inside substation area	lot	1			
	Sanitary sewage drainage system inside substation area	lot	1			
2.20.12	Landscaping	lot	1			
2.20.12.1	Plantations using low to medium-high growing plants and grass along the main roads and buildings, as indicated on the layout drawings	lot	1			
2.21	Communication and Visibility	lot	1			
3	TRAINING OF EMPLOYER'S STAFF (On Site / In Nepal)					
3.1	High voltage switchgear	lot	1	ļ		
3.2 3.3	Medium voltage switchgear Auto and power transformers	lot lot	1	 		
3.4	LV auxiliary systems	lot	1	+		
3.5	Protection and control systems	lot	1			
3.6	SCMS	lot	1			
3.7 3.8	SCADA Telecommunication	lot lot	1	 		
3.8	CCTV System	lot	1	 		
3.10	Fire protection system	lot	1	1		
-						•
	TOTAL (to Schedule No. VI Grand Summary)			1		
		Name of Bidder				
						-
		0:		 		
		Signature of Bio	iaer:	<u> </u>		

	Substation Package B		
	Kreditanstalt für Wiederaufbau (KfW)		
	Nepal Electricity Authority (NEA)		
	Schedule No. V: ESHS Requirements		
Item	Description	Unit	Total
			(NPR)
1	ESHS Requirements		
1.1	Resources allocated to ESHS management as per the ESMP requirements	Lump sum	
1.2	Required tools, equipment, facilities (toilets/cabin/tents/security), and transportation for Archaeological Clerk of Works for any archaeological excavations required	Lump sum	
1.3	Required tools, equipment, facilities (toilets/cabin/tents/security), and transportation for Biodiveristiy Clerk of Work to sites required (Biodiversity Clerk of Work appointed by NEA)	Lump sum	
1.4	Drafting and updating the ESHS documentation, reporting, inspections as per the ESMP requirements	Lump sum	
1.5	Implementation of the Health and Safety Plan: meetings, health care center, medical check-ups, emergencies and evacuations, safety protective equipment, hygiene as per the ESMP requirements	Lump sum	
1.6	Accommodation, drinking water, meals and transportation of staff(*) as per the ESMP requirements (*): The Bidder shall detail the financial conditions of the supply of accommodation, meals and transport to its staff.		
1.6.1	- Accommodation	Lump sum	
1.6.2	- Meals	Lump sum	
1.6.3	- Transport	Lump sum	
1.7	Local recruitment and training management costs	Lump sum	
1.8	Biodiversity studies, surveys and related activites as per ESMP requirements	-	
1.9	Temporary access rights, land take and compensation as per the ESMP requirements	Lump sum	
1.10	Vegetation and tree removal as per ESMP requirements	Lump sum	
1.11	Protection of the biodiversity, adjacent areas, prevention of erosion at work sites and access tracks as per the ESMP requirements	Lump sum	
1.12	Traffic, noise and atmospheric emissions management as per the ESMP requirements	Lump sum	
1.13	Contamination studies, wastewater, waste and hazardous products mangement as per the ESMP requirements	Lump sum	
1.14	Site reinstatement as per the ESMP requirements	Lump sum	
1.15	Other material, equipment or studies not specifically mentioned but deemed necessary based on ESMP requirements	Lump sum	
1.15.1	River training structures	Lump sum	
1.15.2	Culvert for Chaabdi Khola (near substation)	Lump sum	
	TOTAL (to Schedule No. VI Grand Summary)		
		Name of Bidder:	
		Signature of Bidder	

	Substation Package B		
	Kreditanstalt für Wiederaufbau (KfW	')	
	Nepal Electricity Authority (NEA)		
	Schedule No. VI: Grand Summary		
			T
Schedule	Description	Total	Total
		(USD)	(NPR)
1	Plant, and Mandatory Spare Parts supplied from abroad		
2	Plant, and Mandatory Spare Parts supplied from within the Employer's Country		
3	Design Services		
4	Installation and Other Services		
5	ESHS Requirements		
6	TOTAL (to Bid Form)		
	Name of Bidder:		
	Hame of Blader.		
	Signature of Bidder:		

	Subs	station Packa	ige B			
	Kreditanstal	t für Wiedera	ufbau (Kf\	W)		
	Nepal Ele	ctricity Autho	rity (NEA)			
	Schedule No. VII: Red	ommended S	Spare Part	s and Tools		
Item	Description	Country of Origin	Unit	Quantity	Unit Price	Total
					CIP	CIP
					(USD)	(USD)
				1	2	3 = 1 x 2
					Name of Bidder:	
					Signature of Bide	der:



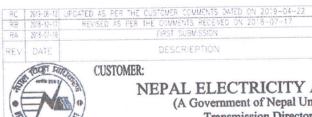


BOQ ITEMS:

SL.	TYPE	PATICULAR	BOQ ITEMS
		LIST OF LATTICE STRUCTURES	
01	81	132kV BEAM	03
02	TI	132kV TOWER WITH PEAK	03
03	1HPi	SUPPORT FOR HIGH LEVEL 132KV BPI, FOR MAIN BUS	06
04		SUPPORT FOR LOW LEVEL 132XV BPI, FOR EQUIPMENT BUS	08
05	1CT	SUPPORT FOR 132kV CT	06
06.	1SA	SUPPORT FOR 132kV LA	06
07.	MANAGEMENT, N	SUPPORT FOR 132kV PT/CVT	06
08	3150	SUPPORT FOR 132kV ISO (WITH / WITHOUT EARTH SWITCH)	04
09	1PIS	SUPPORT FOR 132kV PANTO ISO (WITH EARTH SWITCH)	02
		OTHER ITEMS	
10		STRING INSULATORS & HARDWARE	12 SETS
11	1	SUSPENSION INSULATORS & HARDWARE	06 SETS
12	1	STRING ACSR CONDUCTOR	300MTRS

SL.	TYPE	PATICULAR	
		LIST OF LATTICE STRUCTURES	
01	81	132kV BEAM	03
02	T1	132kV TOWER WITH PEAK	03
03	1HPi	SUPPORT FOR HIGH LEVEL 132KV BPI, FOR MAIN BUS	06
04	191	SUPPORT FOR LOW LEVEL 132kV BPI, FOR EQUIPMENT BUS	08
05.	101	SUPPORT FOR 132XV CT	06
06.	1SA	SUPPORT FOR 132XV LA	06
07.	IVI.	SUPPORT FOR 132kV PT/CVT	06
08	3150	SUPPORT FOR 132kV ISO (WITH / WITHOUT EARTH SWITCH)	04
09	-	SUPPORT FOR 132xV PANTO ISO (WITH EARTH SWITCH)	02
		OTHER ITEMS	
10		STRING INSULATORS & HARDWARE	12 SETS
11	1	SUSPENSION INSULATORS & HARDWARE	06 SETS
12	1	STRING ACSR CONDUCTOR	300MTRS

Annex D5-28 Page 1 of 2

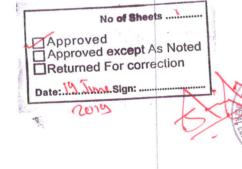


NEPAL ELECTRICITY AUTHORITY
(A Government of Nepal Undertaking) Transmission Directorate Grid Development Department

NOA LETTER IFB NO : ML/SS/074/75-01.

Prepared 2018-02-28 Checked 2018-03-01 DESIGN & ENGINEERING BY: 2018-03-10 Resp. (division/depar IN PGGI-2882

NEW MODI LEXHNATH 132KV TRANSMISSION LINE PROJECT PLAN AND SECTION LAYOUT FOR 132kV LEKHANTH SS 3VIN 18 0652 X 0 052 01/01 2018-07-03



DATE

REFERENCE DRAWNGS :

EXISTING BAY EQUIPMENTS ____ PRESENT SCOPE OF SUPPLY

LECENDS:

- 1- SINGLE LINE CLAGRAM FOR 132KV S/S AT LEKHNATH SS. DRG. NO 3VIVI80652C001_RA
- 2- LAYOUT PLAN OF LEXHNATH SUBSTATION, VOLUME-II , DRG . NO -6
- 3- 13247 LEKNATH SUBSTATION CHNA INTERNATIONAL WATER AND ELECTRIC CORP- DRAWING NUMBER SHSDC02J-71-10-2_RB
- 5- 132XY LEKNATH SUBSTATION EQUIPMENT FOUNDATIONS TPH/2033/5602/N/C25 REV C (TATA INTERNATIONAL LTD)
- 4- 132KY LEKNATH SUBSTATION LAYOUT OF EQUIPMENT FOUNDATIONS TPH/2033/5602/N/027 REV B (TATA INTERNATIONAL LTD)

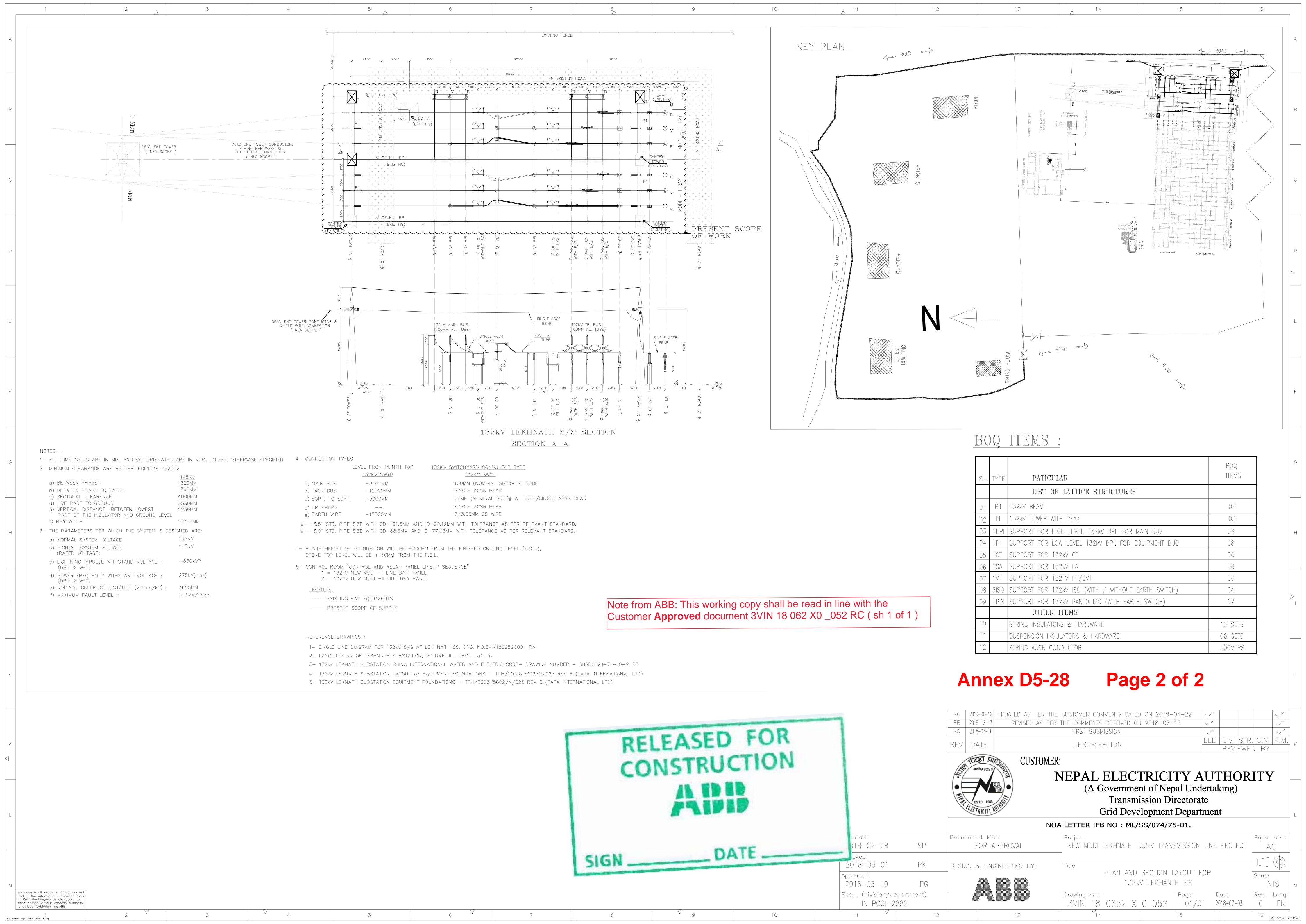
RELEASED FOR CONSTRUCTION

SIGN

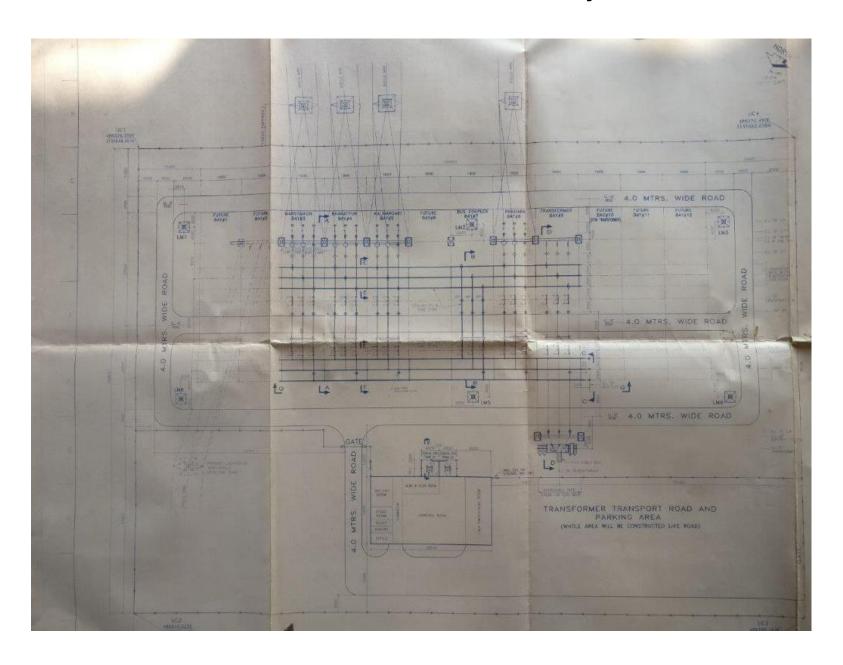
d) POWER FREQUENCY WITHSTAND YOUTAGE : (DRY & WET)

e) NOMINAL CREEPAGE DISTANCE (25mm/kV) :

3625VM 31.5kA/1Sec



Annex D5-29 Lekhnath 132kV Substation Layout





NOTES

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DRAWING REFERENCE

DRG. No.

NDM-200-1

LEGEND

TITLE: DAMAULI PROPOSED SUBSTATION 400/220kV BOUNDARIES ADJUSTED

SCALE: 1:2000 GEOREF: UTM 45 N, WGS84

FICHTNER