

SLD FOR 765/400/220kV AIS SUBSTATION AT KALAMB (TALEGAON PUNE)

800KV, 8800pF CVT CORE DETAILS (TABLE-IA)				800 KV CT (3000A) CORE DETAILS (TABLE - IIA)								
PARTICULARS	SECONDARY-1	SECONDARY-2	SECONDARY-3	CORE NO.	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(VA)	ACCURACY CLASS	MIN. KNEE POINT VOLT. (V)	MAX. CT S.W.R (ohm)	MAX. EXCITING CURRENT AT KVP (mA)	I.S.F.
RATED SECONDARY VOLTAGE (V)	110√3	110√3	110√3	01	BUS DIFFERENTIAL CHECK	3000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
APPLICATION	PROTECTION	PROTECTION	METERING	02	BUS DIFFERENTIAL MAIN	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
ACCURACY	0.5/3P	0.5/3P	0.2	03	METERING	3000 / 2000 / 500/1	20 20 20	0.2S	-	-	-	<10
OUTPUT BURDEN(MIN)	50 VA	50 VA	50 VA	04	METERING	3000 / 2000 / 500/1	20 20 20	0.2S	-	-	-	<10
VOLTAGE RATIO	765 / 0.11 √3 √3	765 / 0.11 √3 √3	765 / 0.11 √3 √3	05	TRANSF. DIFF. LINE PROTECTION	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
				06	LINE PROT./LBB PROTECTION	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-

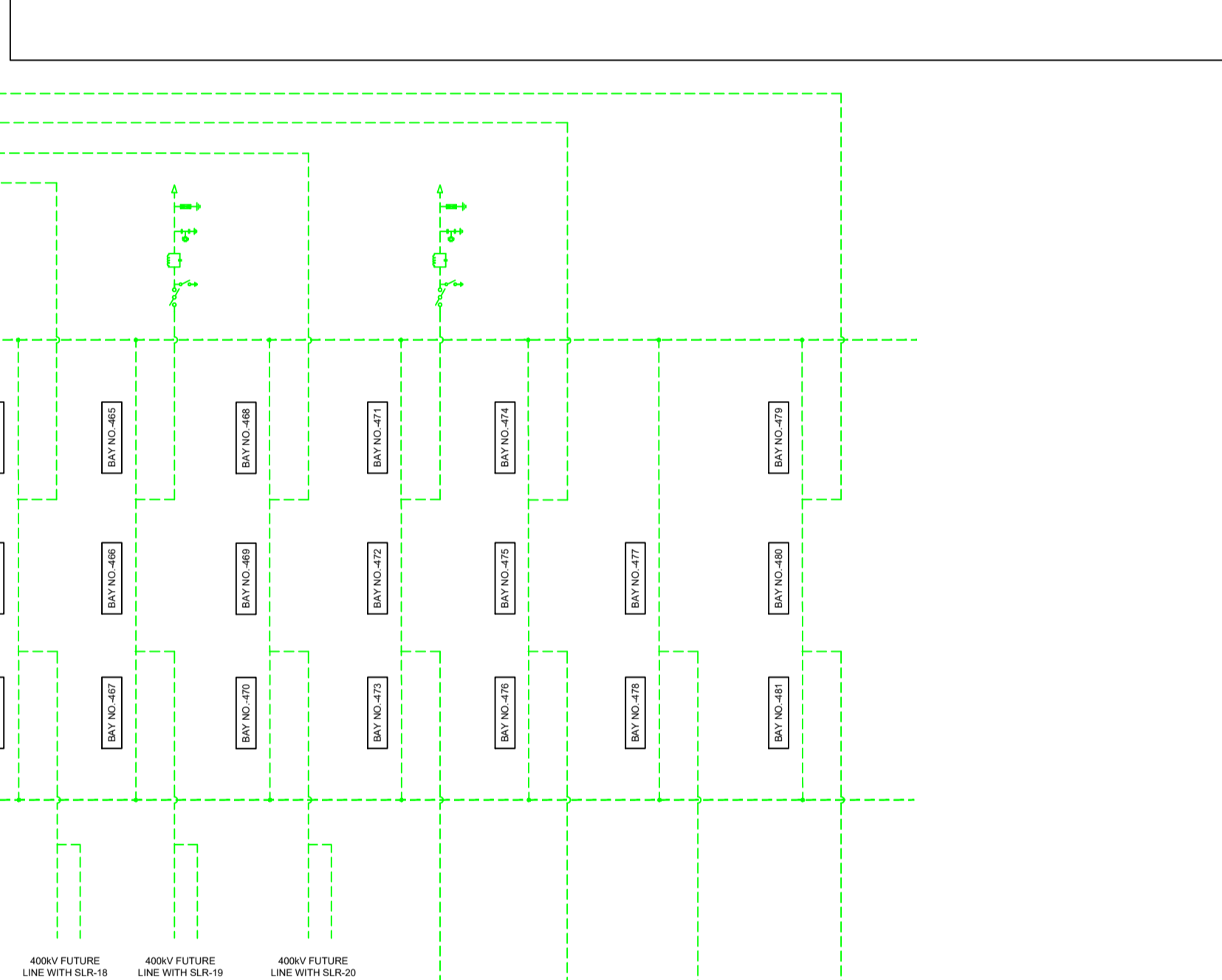
  

420KV, 4400pF CVT CORE DETAILS (TABLE-IB)				420 KV CT (3000A) CORE DETAILS (TABLE - IIB)								
PARTICULARS	SECONDARY-1	SECONDARY-2	SECONDARY-3	CORE NO.	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(VA)	ACCURACY CLASS	MIN. KNEE POINT VOLT. (V)	MAX. CT S.W.R (ohm)	MAX. EXCITING CURRENT AT KVP (mA)	I.S.F.
RATED SECONDARY VOLTAGE (V)	110√3	110√3	110√3	01	BUS DIFFERENTIAL CHECK	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
APPLICATION	PROTECTION	PROTECTION	METERING	02	BUS DIFFERENTIAL MAIN	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
ACCURACY	0.5/3P	0.5/3P	0.2	03	METERING	3000 / 2000 / 500/1	20 20 20	0.2S	-	-	-	<5
OUTPUT BURDEN(MIN)	50 VA	50 VA	50 VA	04	METERING	3000 / 2000 / 500/1	20 20 20	0.2S	-	-	-	<5
VOLTAGE RATIO	400 / 0.11 √3 √3	400 / 0.11 √3 √3	400 / 0.11 √3 √3	05	TRANSF. BACKUP LINE PROTECTION	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-
				06	TRANSF. DIFF. LINE PROTECTION	3000 / 2000 / 500/1	-	PX	3000 / 2000 / 500	15 / 10 / 2.5	20 on 3000/1 TAP 30 on 2000/1 TAP 120 on 500/1 TAP	-

NOTE : 1. PROTECTION CORES SHALL BE OF ACCURACY CLASS PX AS PER IEC 61869.  
2. METERING CORE SHALL BE OF ACCURACY CLASS 0.2S AS PER IEC 61869.

NOTE : 1. PROTECTION CORES SHALL BE OF ACCURACY CLASS PX AS PER IEC 61869.  
2. METERING CORE SHALL BE OF ACCURACY CLASS 0.2S AS PER IEC 61869.

REFERENCE DRG. NO :  
1. TENDER DRG. NAME : PLAN SLD FOR 765/400KV KALAMB (TALEGAON PUNE) SS  
TENDER DRG. NO. : Layer@RECKALAMB, R-1



**BILL OF QTY. FOR 765KV MAIN EQUIPMENTS:**

SL NO.	DESCRIPTION	UNIT	QUANTITY (ACTUAL)	SYMBOL	REMARKS
1	ADPTO TRANSFORMER (1-PH) (500MVA, 220 / 500 / 230KV) (Including Spare Reactor)	NOS	07		OWNER'S SUPPLY
2	800MVA, 765KV LINE REACTOR (1-PH) (Including Spare Reactor)	NOS	07		- DO -
3	110MVAR 765KV BUS REACTOR (1-PH) (Including Spare Reactor)	NOS	07		- DO -
4	765KV, 3150A, 50KA CIRCUIT BREAKER(3-PH) WITH PIR WITH CSO (With Support Structure)	EA	02		
5	765KV, 3150A, 50KA CIRCUIT BREAKER(3-PH) WITHOUT PIR WITH CSO (With Support Structure)	EA	05		
6	765KV, 3150A, 50KA CIRCUIT BREAKER(3-PH) WITH PIR WITHOUT CSO (With Support Structure)	EA	06		
7	765 KV 3150 A, 50 KA, CIRCUIT BREAKER (1-PH) WITHOUT PIR WITH CSO SUITABLE FOR 1-PH REACTOR SWITCHING (With Support Structure)	EA	07		
8	765KV, 3000A, 50KA 1 PHASE CURRENT TRANSFORMER WITH 120% EXTENDED CURRENT RATING	EA	39		
9	765KV, 8800pF CAPACITIVE VOLTAGE TRANSFORMER(1-PH)	EA	18		
10	765KV, 3150A, 50KA VERTICAL KNEE / DOUBLE BREAK ISOLATOR(3-PH) WITH 1 E/S	EA	28		
11	765KV, 3150A, 50KA VERTICAL KNEE / DOUBLE BREAK ISOLATOR(3-PH) WITH 2 E/S	EA	02		
12	765KV, 3150A, 50KA VERTICAL KNEE / DOUBLE BREAK ISOLATOR(1-PH) WITHOUT E/S	EA	33		
13	765KV, 3150A, 50KA VERTICAL KNEE / DOUBLE BREAK ISOLATOR(1-PH) WITH 1 E/S	EA	21		
14	62kV SURGE ARRESTER (1-PH)	EA	33		
15	765KV, 3150A, 1.0mh, 50KA LINE TRAP	EA	08		

**BILL OF QTY. FOR 400KV MAIN EQUIPMENTS:**

SL NO.	DESCRIPTION	UNIT	QUANTITY (ACTUAL)	SYMBOL	REMARKS
1	125MVAR, 420KV, 3-PH BUS REACTOR	EA	02		OWNER'S SUPPLY
2	420KV, 3150A, 63KA CIRCUIT BREAKER(3-PH) WITHOUT PIR WITH CSO (With Support Structure)	EA	07		
3	420KV, 3150A, 63KA CIRCUIT BREAKER(3-PH) WITHOUT PIR WITHOUT CSO (With Support Structure)	EA	02		
4	420KV, 3000A, 63KA, 1-PH CURRENT TRANSFORMER WITH 120 % EXTENDED CURRENT RATING	EA	27		
5	420KV, 4400pF CAPACITIVE VOLTAGE TRANSFORMER(1-PH)	EA	12		
6	420KV, 3150A, 63KA ISOLATOR (3-PH) (DOUBLE BREAK) WITH 1 E/S	EA	20		
7	420KV, 3150A, 63KA ISOLATOR (3-PH) (DOUBLE BREAK) WITH 2 E/S	EA	02		
8	420KV, 3150A, 63KA ISOLATOR (1-PH) (DOUBLE BREAK) WITH 1 E/S	EA	07		
9	420KV, 3150A, 63KA ISOLATOR (1-PH) (DOUBLE BREAK) WITHOUT E/S	EA	05		
10	33kV SURGE ARRESTER (1-PH)	EA	19		
11	400KV, 3150A, 0.5mh, 63KA LINE TRAP	EA	04		

**NOTE:**  
1) FOR DETAIL OF TRANSFORMER, REACTOR AREA PLEASE REFER RESPECTIVE SHEET (2 OF 2) AS MENTIONED.  
2) SUPPLY, ERECTION, TESTING & COMMISSIONING OF 800MVA AT 110 MVAR, 765/3 KV, SINGLE PHASE AUTO TRANSFORMERS ARE NOT IN UNDER SCOPE OF MS TECEL.  
3) SUPPLY, ERECTION, TESTING & COMMISSIONING OF 800MVA AT 110 MVAR, 765/3 KV, SINGLE PHASE LINE AND BUS REACTOR ARE NOT IN UNDER SCOPE OF MS TECEL.  
4) SUPPLY, ERECTION, TESTING & COMMISSIONING OF 400KV, 125MVAR, 3 PHASE BUS REACTOR ARE NOT IN UNDER SCOPE OF MS TECEL.

**BILL OF QTY. FOR 145KV & 33KV EQUIPMENTS (For NCT CONNECTION):**

SL NO.	DESCRIPTION	UNIT	QUANTITY (ACTUAL)	SYMBOL	REMARKS
1	145KV, 1250A, 31.5KA CIRCUIT BREAKER (1-PH) (With Support Structure)	EA	02		
2	132 KV SURGE ARRESTOR (1 PH)	EA	02		
3	145 KV, 500 OHM NGR	EA	02		
4	CURRENT TRANSFORMER (38KV) - 300A (200% EXTENDED) FOR 765KV LINE REACTOR NEUTRAL ALONG WITH SUPPORT STRUCTURE	EA	02		
5	CURRENT TRANSFORMER (38KV) - 300A (120% EXTENDED) FOR 765KV TRANSFORMER NEUTRAL ALONG WITH SUPPORT STRUCTURE	EA	02		

**BOQ FOR MAIN ITEMS(AT TERTIARY SIDE):**

SL NO.	DESCRIPTION	UNIT	QUANTITY (ACTUAL)	SYMBOL	REMARKS
1	72.5KV, 1250A, 25KA, 3-PH CIRCUIT BREAKER WITH SUPPORT STRUCTURE	EA	01		
2	72.5KV, 400A, 25KA, 3-PH DOUBLE BREAK ISOLATOR WITHOUT E/S	EA	01		
3	72.5KV, 50A, 25KA, 1-PH CURRENT TRANSFORMER WITH 120% EXTENDED CURRENT RATING	EA	03		
4	72.5KV VOLTAGE TRANSFORMER(1-PH)	EA	03		
5	800kVA, 330 433kV, 3-PH LT TRANSFORMER (BIL - 250 KVP)	EA	01		

**BOQ FOR MAIN ITEMS(AT LT AREA-SEB SUPPLY)**

SL NO.	DESCRIPTION	UNIT	QUANTITY (ACTUAL)	SYMBOL	REMARKS
1	38KV, 400A, 25KA, 3-PHASE HDB ISOLATOR	EA	01		
2	30KV, SURGE ARRESTER (1-PH)	EA	03		
3	38KV, HORN GAP FUSE (3-PH)	EA	01		
4	800kVA, 330 433kV 3-PH LT TRANSFORMER (BIL - 170 KVP)	EA	01		

**SYSTEM PARAMETERS:**

SL No.	DESCRIPTION	765KV	400KV	66KV	33KV
1.0	RATED VOLTAGE	765 KV	400 KV	66 KV	33 KV
2.0	HIGHEST SYSTEM VOLTAGE	800 KV rms	420 KV rms	72.5 KV rms	36 KV rms
3.0	RATED FREQUENCY	50 Hz	50 Hz	50 Hz	50 Hz
4.0	MAX. FAULT LEVEL (1 Sec)	50 KA for 1 Sec	63 KA for 1 Sec	25 KA for 1 Sec	25 KA for 1 Sec
5.0	RATED 1 min POWER FREQ. WITHSTAND VOLTAGE	1550 KVP	1550 KVP	325 KVP	170 KVP
6.0	FULL SWITCHING IMPULSE VOLTAGE (DRY & WET)	2100 KVP	1550 KVP	325 KVP	170 KVP
7.0	RATED WAVE IMPULSE WITHSTAND VOLTAGE	2100 KVP	1550 KVP	325 KVP	170 KVP
8.0	MINIMUM CREEPAGE DISTANCE - EQUIPMENT	2000 mm	1950 mm	1813 mm	900 mm
9.0	MINIMUM CREEPAGE DISTANCE - INSULATOR	24800 mm	13020 mm	2248 mm	1116 mm
10.0	SYSTEM EARTHING	EFFECTIVELY EARTH	EFFECTIVELY EARTH	EFFECTIVELY EARTH	EFFECTIVELY EARTH

REV.	DATE	REMARKS	APPROVAL CAT.	DATE	ISSUED FOR CONSTRUC.
0	11.11.25	FIRST SUBMISSION			

CLIENT: WRNES TALEGAON POWER TRANSMISSION LTD.

EPC: TECHNO ELECTRIC & ENGG. CO. LTD.

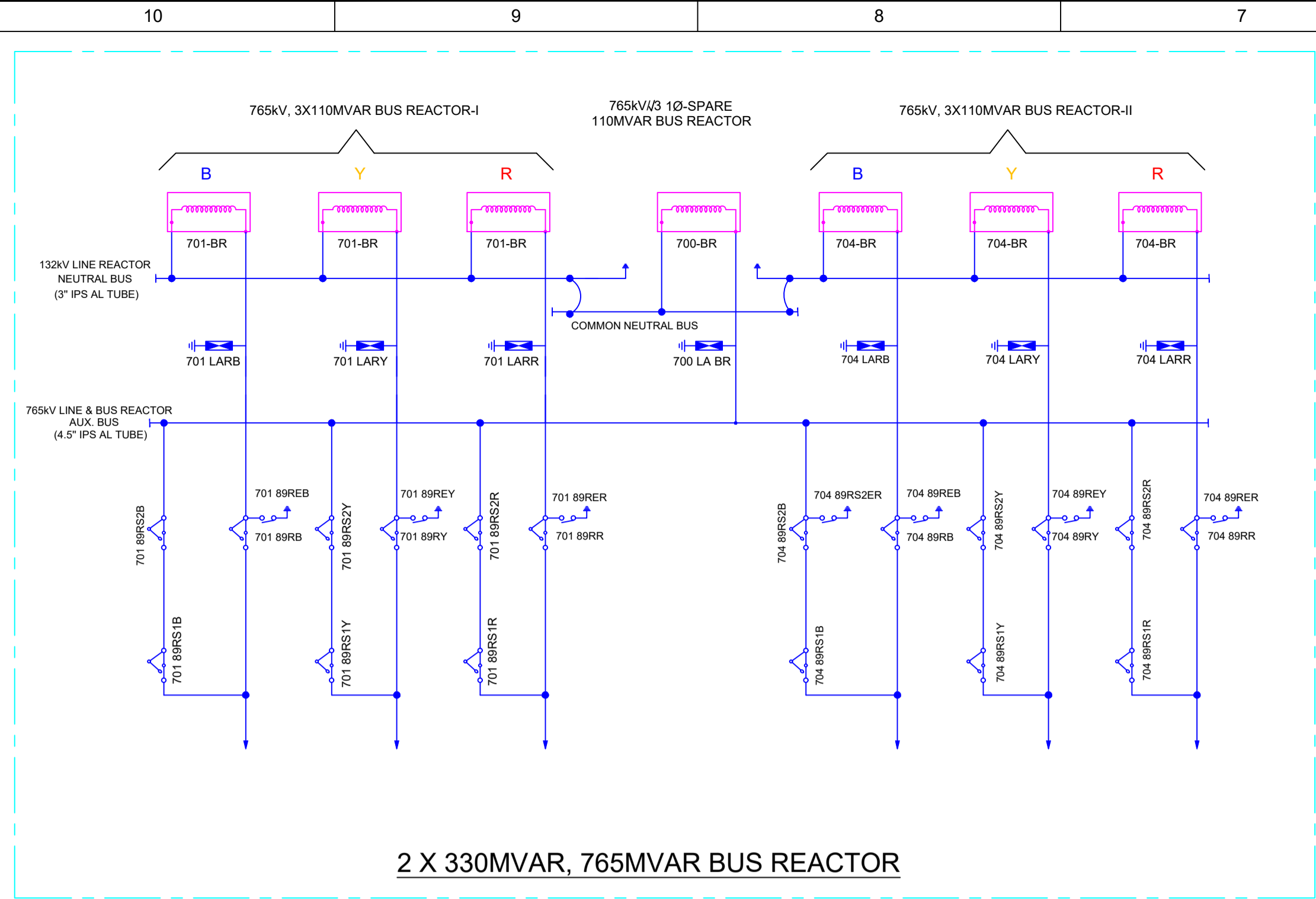
LOA NO.: LOA/KALAMB/TECHNO/SS/01/25 DATED: 14.08.2025  
LOA/KALAMB/TECHNO/SS/02/25 DATED: 14.08.2025

SUBSTATION: 765/400/220KV AIS SUBSTATION AT KALAMB

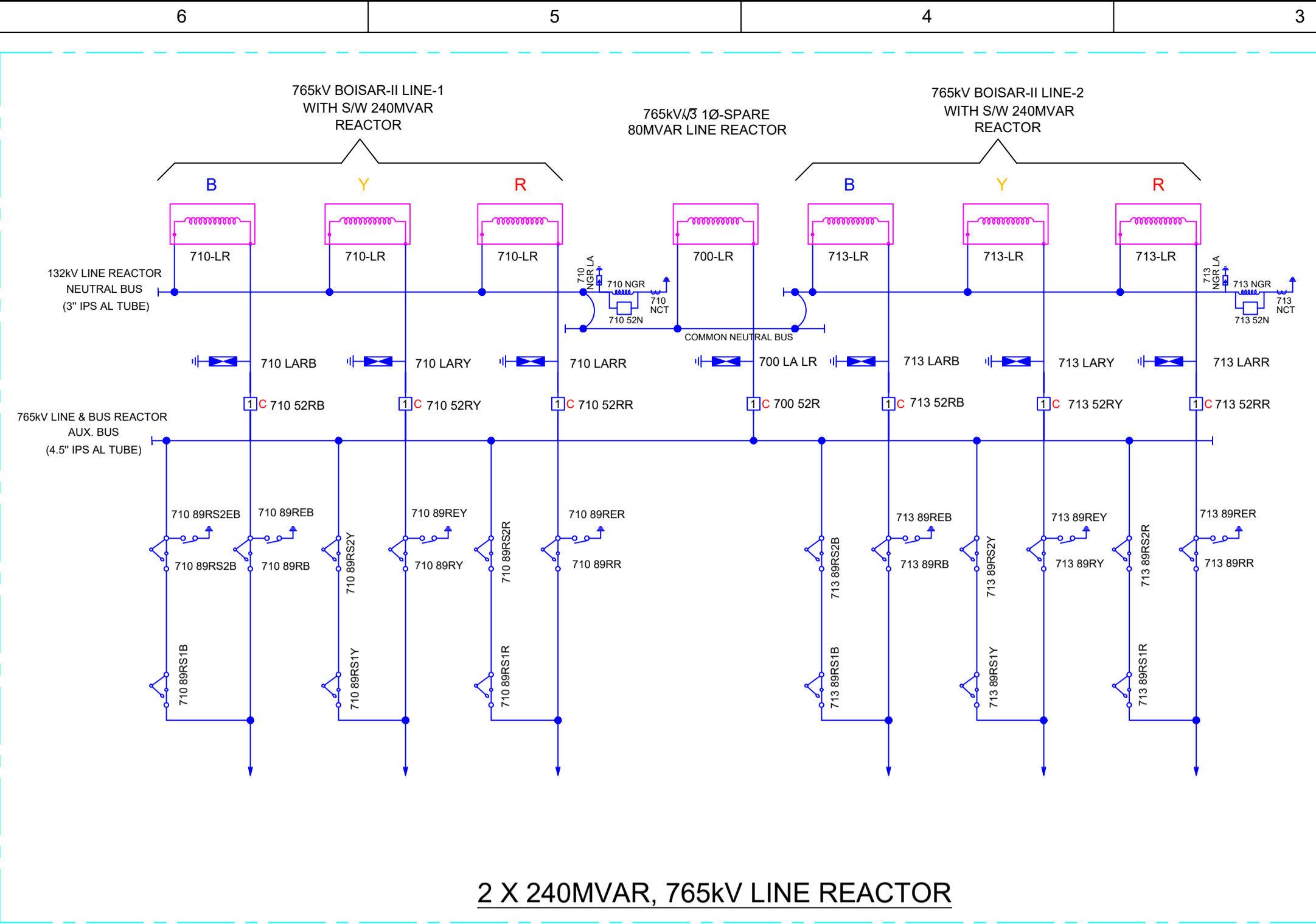
TITLE: SINGLE LINE DIAGRAM

DRAWN BY: P.M.  
CHECKED BY: A.M.  
APPROVED BY: R.G.  
SCALE: NTS

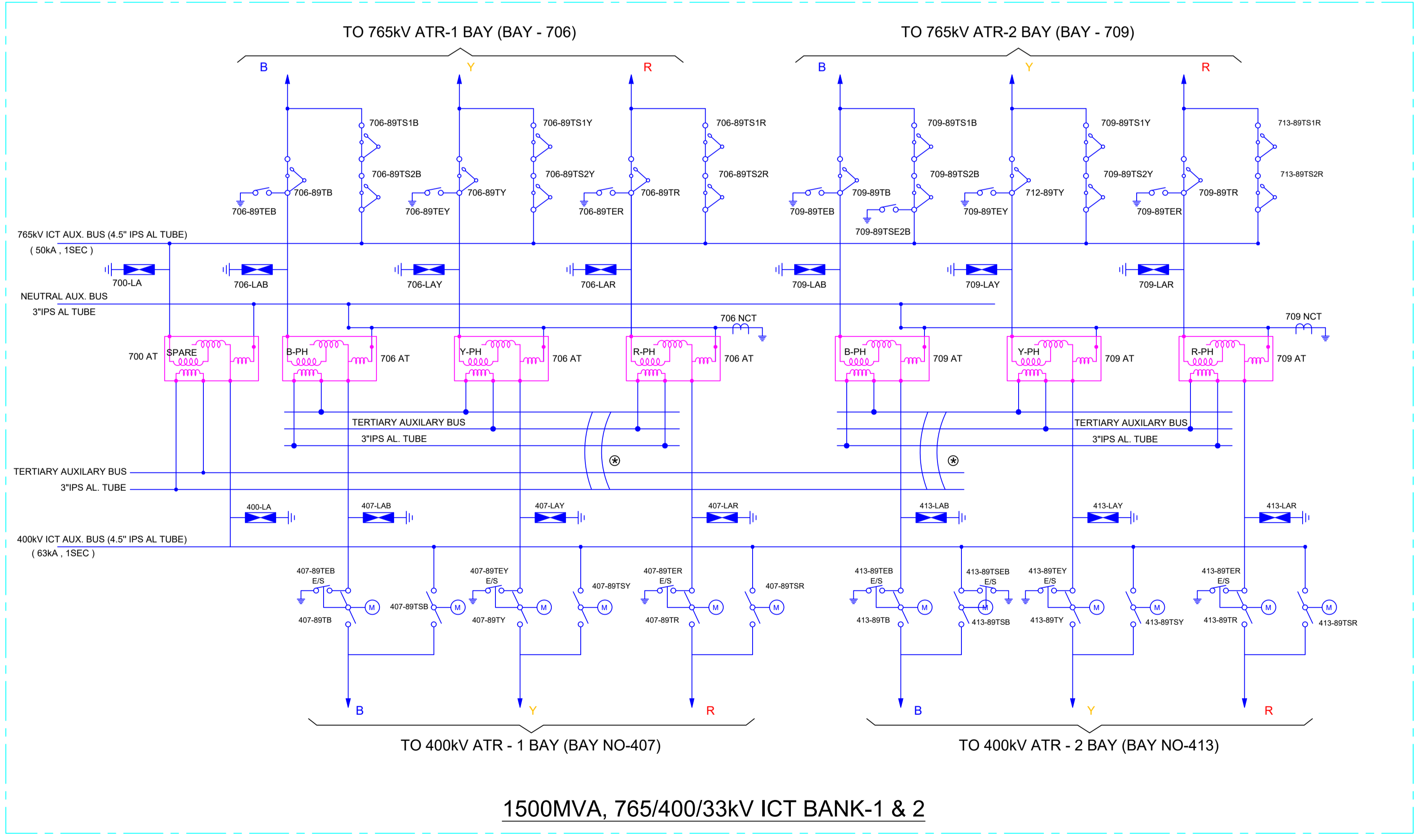
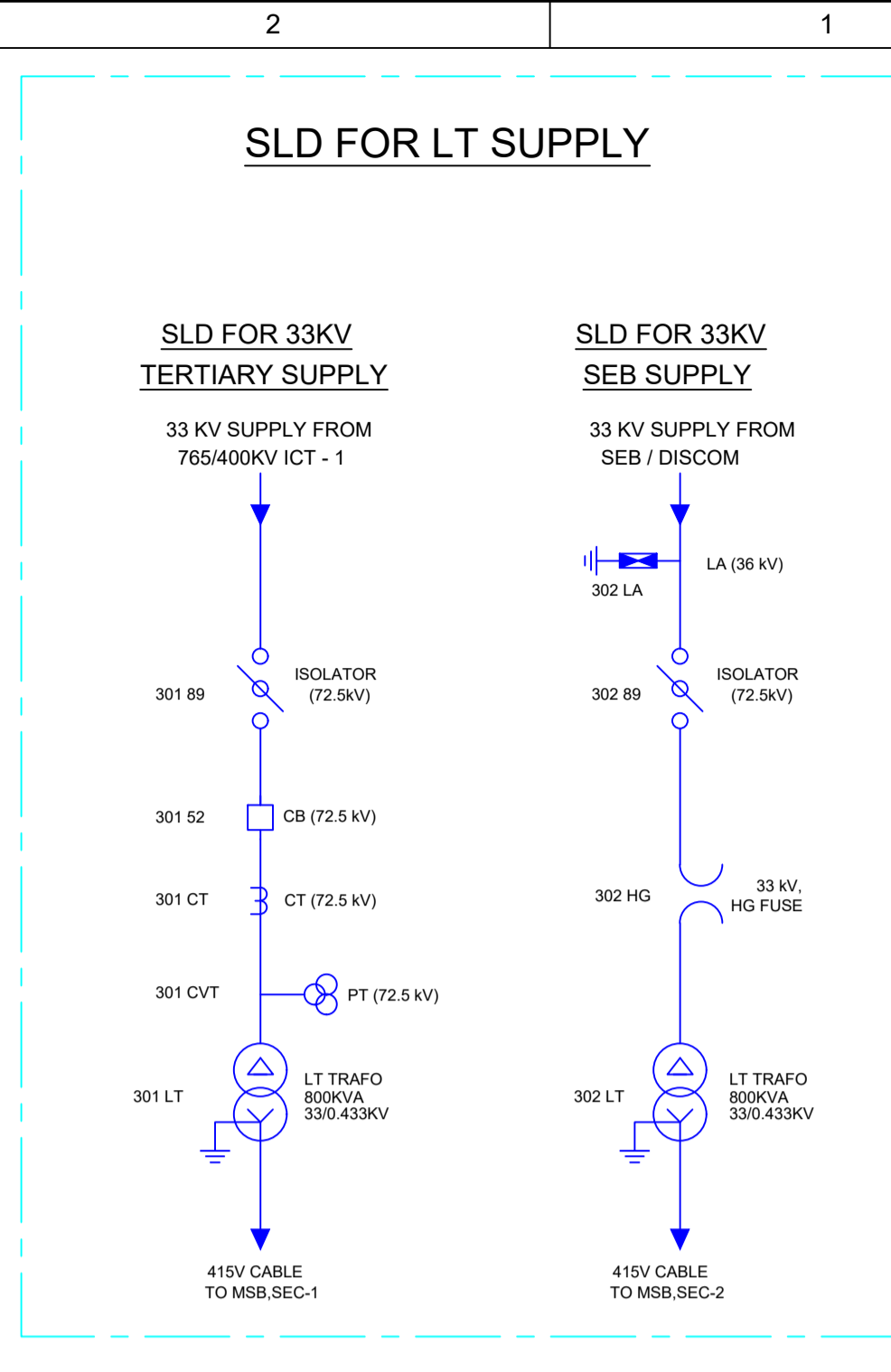
TECHNO DWG. NO.: 0827KA\_WPTL\_SWYD\_E\_DRG\_41.001  
SHEET NO.: 01 OF 02



2 X 330MVAR, 765MVAR BUS REACTOR



2 X 240MVAR, 765KV LINE REACTOR



1500MVA, 765/400/33KV ICT BANK-1 & 2

72.5kV CT (50A) CORE DETAILS : (TABLE-IIF)  
WITH 120% EXTENDED CURRENT RATING  
( FOR LT TRAF0)

CORE NO	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(VA)	ACCURACY CLASS
01	OC & EF	50/1	10	5P10
02	METERING	50/1	10	0.2S
03	METERING	50/1	10	0.2S

NEUTRAL CT FOR BANK OF 765KV, 1-PH TRANSFORMER (TABLE - IIG):

CORE NO	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(VA)	ACCURACY CLASS	MIN. KNEE POINT VOLT. (V)	MAX. CT S.W.R (ohm)	MAX. EXCITING CURRENT AT KPV (mA)
01	REF (HIGH IMPEDANCE)	3000 / 1	-	PX	3000 V	12	20 on 3000/1 TAP

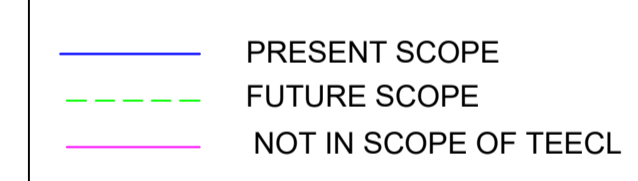
NEUTRAL CT FOR BANK OF 765KV, 1-PH REACTOR (TABLE - IIH):

CORE NO	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(VA)	ACCURACY CLASS	MIN. KNEE POINT VOLT. (V)	MAX. CT S.W.R (ohm)	MAX. EXCITING CURRENT AT KPV (mA)
01	EARTH FAULT PROTECTION	300 / 1	-	PX	300 V	1	40 on 300/1 TAP

72.5kV VT CORE DETAILS (TABLE - IE):

PARTICULARS	SECONDARY-1	SECONDARY-2	APPLICATION
RATED SECONDARY VOLTAGE (V)	110/√3	110/√3	
APPLICATION	PROTECTION	METERING	
ACCURACY	3P	0.5	
OUTPUT BURDEN(MIN)	10 VA	10 VA	
VOLTAGE RATIO	33 / (0.11 / √3)	33 / (0.11 / √3)	TERTIARY

LEGENDS:



NOTES:

- SUPPLY, ERECTION, TESTING & COMMISSIONING OF 500 MVA, (765/√3)/(400/√3)/33KV, SINGLE PHASE AUTO TRANSFORMERS ARE NOT IN UNDER SCOPE OF M/S TEECL.
- SUPPLY, ERECTION, TESTING & COMMISSIONING OF 80MVAR & 110 MVAR, 765/√3 KV, SINGLE PHASE LINE AND BUS REACTOR ARE NOT IN UNDER SCOPE OF M/S TEECL.
- ALL MANUAL JUMPERING FOR 145KV NEUTRAL OF REACTOR BANK, 33KV NEUTRAL & 66KV TERTIARY OF ICT SHALL BE TWIN CONDUCTOR.

REV.	DATE	FIRST SUBMISSION	REMARKS	APPROVAL CAT.	ISSUED FOR CONSTRU.
0	11.11.25	FIRST SUBMISSION			

CLIENT: WRNES TALEGAON POWER TRANSMISSION LTD.

EPC: **TECHNO ELECTRIC & ENGG. CO. LTD.**  
ENGINEERS & CONSTRUCTORS  
KOLKATA, INDIA

LOA NO. LOA/KALAMB/TECHNO/SS/01/25 DATED: 14.08.2025  
LOA/KALAMB/TECHNO/SS/02/25 DATED: 14.08.2025

SUBSTATION: 765/400/220KV AIS SUBSTATION AT KALAMB

TITLE: SINGLE LINE DIAGRAM

TECHNO DWG. NO. 0827KA\_WTPTL\_SWYD\_E\_DRG\_41\_001

DRAWN BY	P.M.
CHECKED BY	A.M.
APPROVED BY	R.G.
SCALE	NTS

SHEET NO. 02 02