



NOTES

1. 115 KV. IVT RATIO

$$\frac{115,000}{\sqrt{3}} : \frac{115}{\sqrt{3}} / 115 // \frac{115}{\sqrt{3}} / 115 \text{ V}$$

$$\frac{115,000}{\sqrt{3}} : \frac{115}{\sqrt{3}} / 115 // \frac{115}{\sqrt{3}} / 115 \text{ V} - \text{FOR LINE BAY (04YP-01)}$$

$$\frac{115,000}{\sqrt{3}} : \frac{115}{\sqrt{3}} / 115 // \frac{115}{\sqrt{3}} / 115 \text{ V} - \text{FOR LINE BAY (05YP-01)}$$
2. 115 KV. CT RATIO

1800/1500/1200/900/600/300 : 1/1/1/1 A. - FOR LINE BAY, TRANSFORMER BAY

1800/1500/1200/900/600/300 : 1/1/1/1 A. - FOR LINE BAY (04YC-01)

1800/1500/1200/900/600/300 : 1/1/1/1 A. - FOR LINE BAY (05YC-01)

500/200/100 : 1A - FOR HIGH SIDE TRANSFORMER BUSHING CT
3. 22 KV. VT. RATIO

$$\frac{22000}{\sqrt{3}} : \frac{110}{\sqrt{3}} / \frac{110}{\sqrt{3}} \text{ V}$$
4. 22 KV. CT. RATIO

1800/1500/900 : 1/1/1/1 A - FOR INCOMING BREAKER

1800/1500/900 : 1/1 A - FOR TIE BREAKER

1800/900 : 1/1 A - FOR LOW SIDE TRANSFORMER BUSHING CT

1800/900 : 1/1 A - FOR NEUTRAL TRANSFORMER BUSHING CT

600/300 : 1/1 A - FOR OUTGOING 22 KV.

600/300 : 1/1 A - FOR CAPACITOR BANK
5. THE NEUTRAL GROUNDING RESISTORS (NGR) ARE INDICATED FOR FUTURE INSTALLATION.

6. SYNCHRONIZING SCHEMATIC

6.1 0-YP-01 SHOWN THUS, REFER TO INCOMING IVT DESIGNATIONS.

6.2 0BYP-01 SHOWN THUS REFERS TO RUNNING BUS IVT

6.3 0B ONLY ✓ SHOWN THUS, REFERS TO THE SECONDARY WINDING OF IVT FOR PHASE"B" AND USING FULL TAP WINDING 115V FOR SYNCHRONIZING SYSTEM WITH ONE END OF THE WINDING CONNECTED WITH COMMON GROUND BUS.

6.4 MANUAL SYNCHRONIZING BY SYNCHROSCOPE SHALL UTILIZE INCOMING AND RUNNING SECONDARY VOLTAGES OF METERING CORES FROM"PHASE B" FOR BOTH IVT'S.

6.5 AUTOMATIC SYCHRONISM VERIFICATION BY SYNCHRO CHECK RELAY (25) SHALL UTILIZE INCOMING AND RUNNING SECONDARY VOLTAGES OF RELAYING CORES FROM"PHASE B" FOR BOTH IVT'S.

7. FOR 115 KV. NEW SYSTEM PROTCTION, RELAYS SHALL BE DOUBLE MAIN PROTECTION RELAY (MAIN1&2) AND DIFFERENT PRODUCT/MANUFACTURER.

DEVICES	EXPLANATION
21/ 21N	DISTANCE TIME-STEP PHASE AND GROUND DISTANCE RELAY
67	DIRECTIONAL PHASE OVERCURRENT RELAY
67N	DIRECTIONAL GROUND OVERCURRENT RELAY
25	SYNCHROCHECK RELAY
79	AUTOMATIC RECLOSING RELAY
50 BF	BREAKER FAILURE RELAYING
50 51	NON-DIRECTIONAL INSTANTANEOUS AND TIME PHASE OVERCURRENT RELAY
50N 51N	NON-DIRECTIONAL INSTANTANEOUS AND TIME GROUND OVERCURRENT RELAY
51GB	NON-DIRECTIONAL TIME GROUND BACKUP OVERCURRENT RELAY
87T	TRANSFORMER DIFFERENTIAL RELAY
87 REF	TRANSFORMER RESTRICTED EARTH FAULT RELAY THIS RELAY SHALL BE INCORPORATED IN THE TRANSFORMER DIFFERENTIAL RELAY (87T)
27,59	UNDER/OVER VOLTAGE RELAY
90	AUTOMATIC VOLTAGE REGULATOR
87B	BUS DIFFERENTIAL RELAY-HIGH IMPEDANCE TYPE
95B	BUSBAR SUPERVISION RELAY FOR BUSWIRE SUPERVISION FOR 87B
50 ARC	ARC DETECTOR RELAY FOR ARC PROTECTION SYSTEM
81	UNDER FREQUENCY RELAY
60	CAPACITOR CURRENT UNBALANCE SENSING RELAY
Q	POWER FACTOR CONTROLLER
DPM	DIGITAL POWER METER
DIM	DISTRIBUTED I/O MODULE (PROVIDED IN CSCS)
V METER	DIGITAL VOLTMETER
SS	SYNCHRONIZING SWITCH,3-POSITION,AUTO-OFF-MAN
L	SYNCHRONIZING LAMP
V	VOLTMETER
F	FREQUENCY METER
S	SYNCHROSCOPE
LL	LINE INDICATING LAMP
TS	CURRENT TEST SWITCH
TS	POTENTIAL TEST SWITCH
▲	LOCATED IN THE SWITCHYARD JUNCTION BOX
●	LOCATED IN THE CONTROL OR RELAY BOARD
▼	LOCATED IN THE 22 kV SWITCHGEAR JUNCTION BOX
◇	FOR 22 kv SWITCHGEAR CONTROL & PROTECTIVE CIRCUITS
⏏	WYE CONNECTED CT OF SECONDARY WINDING
⏏	DELTA CONNECTED CT OF SECONDARY WINDING (IF ANY)
⏏	TRANSFORMER BUSHING CT OF SECONDARY WINDING, WYE CONNECTED FOR PHASE OR NEUTRAL

SCOPE OF ADDITIONAL WORK

กองออกแบบสถานีไฟฟ้า ฝ่ายงานสถานีไฟฟ้า	การไฟฟ้าส่วนภูมิภาค	ใช้แบบ _____ ถูกแทนโดยแบบ _____
ผู้เขียน _____ สุวิกรม ผู้สำรวจ _____ วิศวกร _____ สุวิกรม หัวหน้าแผนก _____ วรวิชัย ผู้อำนวยการกอง _____ ผู้อำนวยการฝ่าย _____ (นางน)	ผู้ว่าการ _____ (นางน)	เขียนเสร็จวันที่ 20 ต.ค. 2563 แก้แบบวันที่ _____ มีมติเป็น _____ มาตรฐาน _____
รองผู้ว่าการวิศวกรรม _____	สถานีไฟฟ้าเกาะโพธิ์ จ.ชลบุรี (เพิ่มเติม) มิเตอร์ และ สี่เหลี่ยมโต๊ะแอมแปร์	แบบเลขที่ FA4-011/63121 แผ่นที่ 1 ของจำนวน 1 แผ่น
	KO PHO SUBSTATION (ADD) METERING AND RELAYING DIAGRAM	