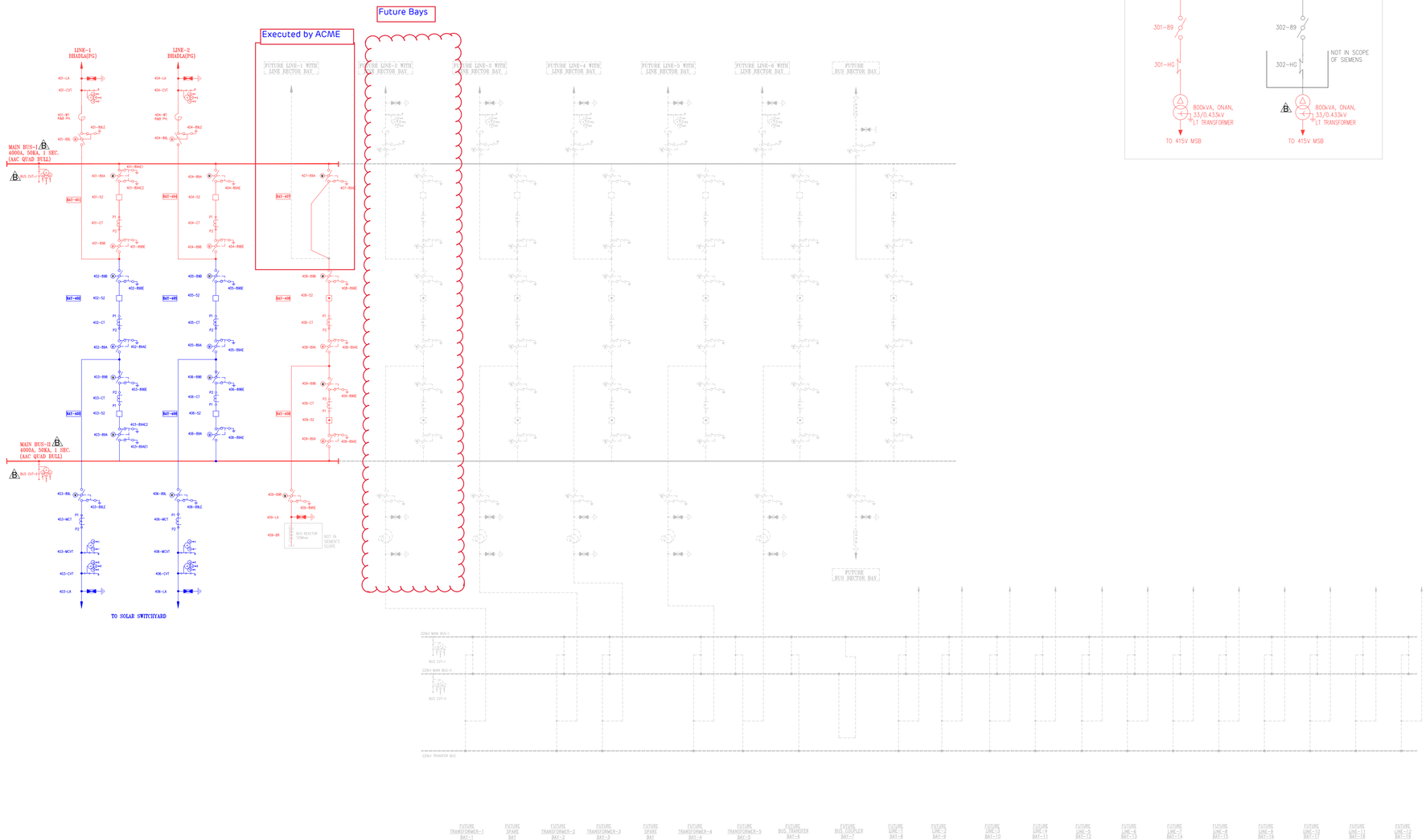

BOQ (400kV EQUIPMENTS):-

SL NO.	SYMBOLS	DESCRIPTION	PACKAGE-B&C SCOPE QTY.	EQUIPMENTS MAKE
1.		420kV, 3150A, 50kA FOR 1sec., 3 PHASE, SF6 CIRCUIT BREAKER WITHOUT CSD, WITHOUT PIR	06 SET.	SIEMENS
2.		420kV, 3150A, 50kA FOR 1sec., 3 PHASE, SF6 CIRCUIT BREAKER WITH CSD, WITHOUT PIR	02 SET	SIEMENS
3.		400kV, 3000-2000-500/1-1-1-1-1-1A, 50kA FOR 1sec, CURRENT TRANSFORMER WITH 120% EXTENDED CURRENT RATING (1φ)	24 Nos.	GE
4.		400kV, 4400pF, 400kV/ √3/0.11kV/ √3, 3-CORE (1φ) CAPACITIVE VOLTAGE TRANSFORMER	18 Nos.	SIEMENS
5.		420kV, 3150A, 50kA FOR 1sec., 3 PHASE, MOTORISED AND ELECTRICALLY GANG OPERATED HORIZONTAL DOUBLE BREAK TYPE ISOLATOR WITH ONE EARTH SWITCH	20 SET.	SIEMENS
6.		420kV, 3150A, 50kA FOR 1sec., 3 PHASE, MOTORISED AND ELECTRICALLY GANG OPERATED HORIZONTAL DOUBLE BREAK TYPE ISOLATOR WITH TWO EARTH SWITCH	02 SET.	SIEMENS
7.		400kV, 0.5mH, 3150A, 50kA FOR 1sec., (1φ) WAVE TRAP	04 Nos.	GE
8.		336kV, 10kA, (1φ) SURGE ARRESTER	15 Nos.	OBLUM
9.		400kV, 3-PH., 1x125MVAr, BUS REACTOR (NOT IN SIEMENS SCOPE)	01 No.	SIEMENS
10.		400kV, 3000/1A, 50kA FOR 1sec., 2 CORE, OIL FILLED METERING CURRENT TRANSFORMER (1φ)	06 Nos.	GE
11.		400kV, 4400pF, 400kV/(Z/0.11kV/(Z/0.11kV(Z, 2-CORE (1φ) METERING CAPACITIVE VOLTAGE TRANSFORMER (1φ)	06 Nos.	SIEMENS

SYSTEM PARAMETER DETAILS

SL. No.	DESCRIPTION OF PARAMETERS	400kV SYSTEM
1	SYSTEM OPERATING VOLTAGE	400 kV
2	MAX. OPERATING VOLTAGE (RMS)	420 kV
3	RATED FREQUENCY	50 Hz
4	IMPULSE WITHSTAND VOLTAGE (FOR 1.2/50 microsec) a). FOR TRANSFORMERS AND REACTORS b). FOR OTHER EQUIPMENTS c). FOR INSULATOR STRING	 1300 kVp 1425 kVp 1550 kVp
5	SWITCHING IMPULSE WITHSTAND VOLTAGE (FOR 250/2500 microsec) DRY & WET	1050 kVp
6	ONE MIN. POWER FREQUENCY WITHSTAND VOLTAGE DRY (RMS)	630 kV
7	CORONA EXTINCTION VOLTAGE	320 kV
8	MIN. CREEPAGE DISTANCE a. FOR INSULATOR STRING ONLY (31mm/kV) b. FOR EQUIPMENT INSULATORS (25mm/kV)	 13020 mm 10500 mm
9	MAX. FAULT CURRENT WITH DURATION	50kA FOR 1sec.

BOQ (33kV EQUIPMENTS):-

SL. NO.	SYMBOLS	DESCRIPTION	PACKAGE-B&C SCOPE QTY.	EQUIPMENTS MAKE
1.		800kVA, Dyn11, 3Ø, AUX. TRANSFORMER (170kVp)	02 Nos.	---
2.		36kV, 400A, 25kA FOR 3sec., 3 PHASE, MOTORISED AND ELECTRICALLY GANG OPERATED HORIZONTAL DOUBLE BREAK TYPE ISOLATOR WITHOUT EARTH SWITCH	01 SET.	SIEMENS
3.		33kV LA (1 PHASE)	03 Nos.	---
4.		36kV HORN GAP FUSE (1 PHASE)	03 Nos.	---

400 & 220kV FUTURE BAYS:-

SL NO.	PROVISION FOR FUTURE BAYS	NOS.
1.	400kV (FUTURE) LINE WITH REACTOR BAYS	06
2.	400kV (FUTURE) TRANSFORMER BAYS	05
3.	400kV (FUTURE) BUS REACTOR BAYS	02
4.	220kV (FUTURE) LINE BAYS	12
5.	220kV (FUTURE) TRANSFORMER BAYS	05
6.	220kV (FUTURE) BUS COUPLER BAYS	01
7.	220kV (FUTURE) TRANSFER BUS COUPLER BAYS	01

REF. DRAWINGS:-

1. 400kV SLD FOR FATEHGARH S/S (TENDER STAGE) DRWNO. SLD/FFC/FATEHGARH

LEGEND:-

- PRESENT SCOPE UNDER PACKAGE-B
- PRESENT SCOPE UNDER PACKAGE-C
- FUTURE / NOT IN SCOPE OF M/s SIEMENS

EQUIPMENT IDENTIFICATION:-

89AE

- EQUIPMENT ID — E REPRESENTS EARTH SWITCH
- EQUIPMENT ID — A,B,C FOR SIMILAR EQP. ON SAME BAY; L FOR LINE BAY; R FOR REACTOR BAY; T FOR TRANSFORMER BAY
- STANDARD EQUIPMENT NO. — 52 FOR CIRCUIT BREAKER; 89 FOR ISOLATOR; CT FOR CURRENT TRANSFORMER; CVT FOR CAPACITIVE VOLTAGE TRANSFORMER; LA FOR LIGHTNING ARRESTOR; WT FOR WAVE TRAP; LAR/R FOR LIGHTNING ARRESTOR OF REACTOR; 52B FOR CIRCUIT BREAKER (BYPASS OF NGR)

NOTES:-

1. WAVE TRAP CONSIDERED AT R & B PHASES ONLY IN BHADLA (PG) LINES. LOCATION OF WAVE TRAP TO BE CONFIRMED BY M/s FBTL.
2. BHADLA (PG) LINE SIDE CONDUCTOR TO BE CONSIDERED AS ACSR HEXA ZEBRA.
3. 400KV BAY NO. 402, 403, 405 & 406 ARE UNDER THE SCOPE OF PACKAGE-B

Rev	Description	By	Signed	Date
0	FIRST SUBMISSION	RD		2018.10.16
A	REVISED AS PER COMMENTS DATED:03.11.18	RD		2018.12.06
B	REVISED AS PER DISCUSSION DATED:24.12.18	RD		2018.12.24

Last Modified :- Jan 02, 2019 - 6:05pm

SCALES SHOWN ARE FOR AN A1 SIZE ORIGINAL DRAWING

EPC CONTRACTOR: SIEMENS

Client: FATEHGARH BHADLA TRANSMISSION LTD.

Client: adani™

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Drawn: AK | Check: RD | Designed: RD | Verified: RK

Drawing Title: KEY SINGLE LINE DIAGRAM FOR 400kV POOLING SS FATHEHGARH

Project Title: 400kV POOLING SUBSTATION FATEHGARH_PKG.- B & C

Client Drawing No. 5682-E-EPS-4OH-BE-K-V-1

Consultant/Contractor Drawing No. (1)-G71770-AC 053-S151-001 P-091053_E_C1_8831_FBC_B

Rev: B

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