PLC/RIO PANEL SYSTEM COMPONENT DETAILS-

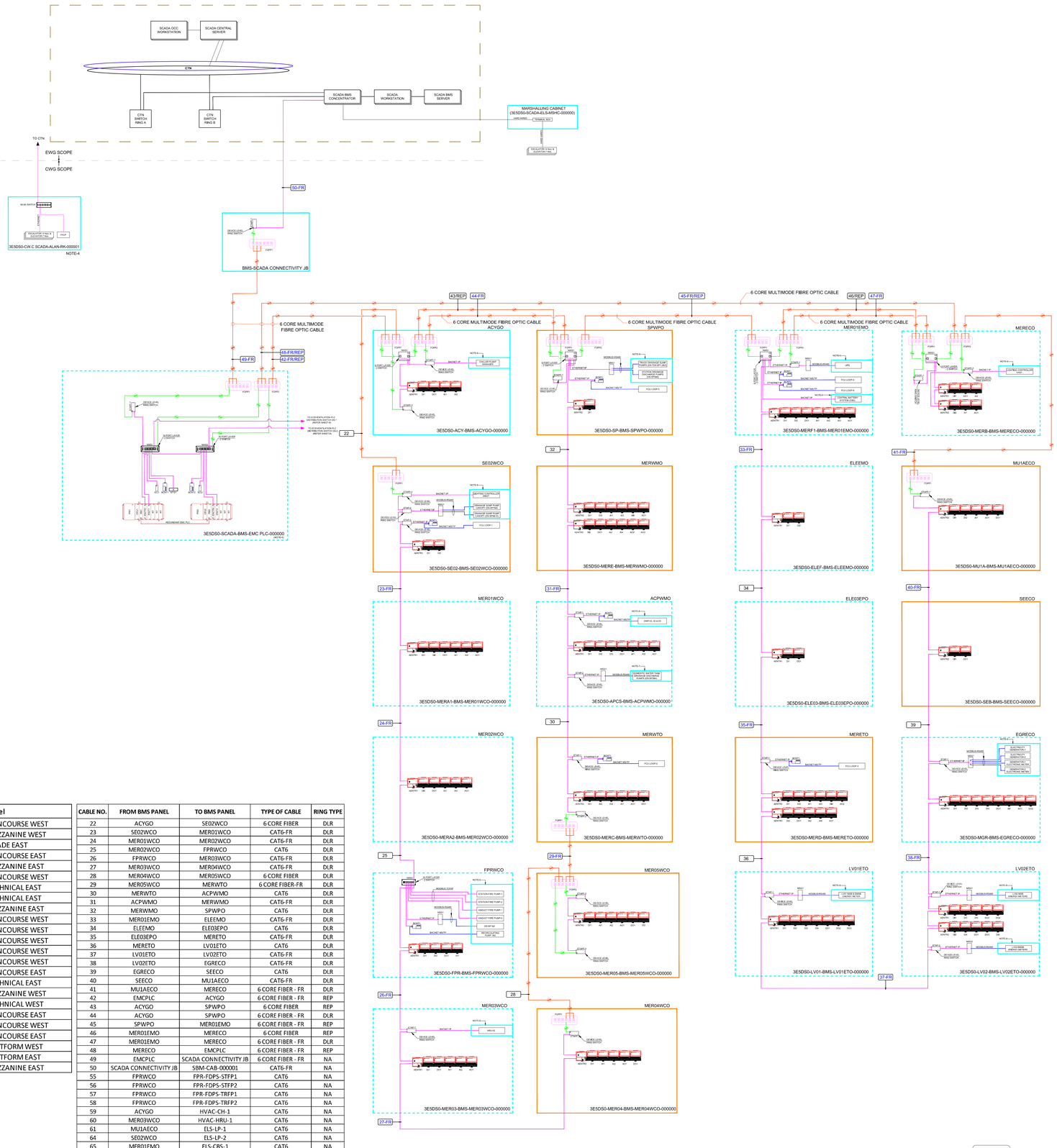
REDUNDANT PLC SYSTEM					
Sl.No.	**Designation**	**Make**	**Model No.**	**Item Description**	
1	CPU	Rockwell	1756-L75	ControlLogix 5575 Controller With 32 Mbytes Memory	2
2	CPU	Rockwell	1756-L74	ControlLogix 5575 Controller With 16 Mbytes Memory	2
3	PW	Rockwell	1756-PA72	ControlLogix, 85-265 VAC Power Supply	4
4	RM	Rockwell	1756-RM2	Redundancy Module	
5	EN2TR	Rockwell	1756-EN2TR	EtherNet dual port 10-100M Interface Module	4
6	EN2T	Rockwell	1756-EN2T	EtherNet Interface Module	4
7	NT	Rockwell	1756-N2	Empty Slot Filler for 1756 Chassis	12

RIO PANELS I/O MODULE DETAILS					
S.I NO.	**Designation**	**MAKE**	**MODEL**	**ITEM DESRIPTION**	**Quantity**
1	AENTR	Rockwell	1794-AENTR	IO Communication Module, EthernetIP Adapter Dual Port	60
2	SDI	Rockwell	1794-IB16	Input Module, 24VDC, 16 Channel (SIL)	80
2	DI	Rockwell	1794-IB16	Input Module, 24VDC, 16 Channel (NON SIL)	13
3	SDO	Rockwell	1794-OB16	Output Module, 24V DC, 16 Channel (SIL)	57
3	DO	Rockwell	1794-OB16	Output Module, 24V DC, 16 Channel (NON SIL)	18
4	DI	Rockwell	1794-IB32	Input Module, 24VDC, 32 Channel (NON SIL)	35
5	DO	Rockwell	1794-OB32	Output Module, 24V DC, 32 Channel (NON SIL)	7
6	SAI	Rockwell	1794-IE8	Analog Input Modules, 8 Channel (SIL)	19
6	AI	Rockwell	1794-IE8	Analog Input Modules, 8 Channel (NON SIL)	34
7	AO	Rockwell	1794-OE12	Analog Output Modules, 12 Channel (NON SIL)	13
8	SAO	Rockwell	1794-OE4	Analog Output Modules, 4 Channel (NON SIL / SIL)	8
8	AO	Rockwell	1794-OE4	Analog Output Modules, 4 Channel (NON SIL / SIL)	3

NETWORK SYSTEM DETAILS					
Sl.No.	**Designation**	**MAKE**	**MODEL**	**Item Description**	**Quantity**
1	NWS (8 Port)	Rockwell	1783-BMS10CGP-PMA	8 Port Access Switch (Layer 2)	8
2	NWS (16 Port)	Rockwell	1783-BMS20CGP-PMA	16 Port Access Switch Switch (Layer 2)	3
3	DS	Rockwell	1783-HMS8TG4CGR-PMA	16 Port Distribution Switch (Layer 3)	2
4	ETAP	Rockwell	1783-ETAP	Ethernet IP Tap Module 3 Copper Ports	14
5	ETAP1F	Rockwell	1783-ETAP1F	Ethernet IP Tap Module 2 Copper & 1 Fiber Ports	18

COMMUNICATION GATEWAYS DETAILS					
Sl.No.	**Designation**	**MAKE**	**MODEL**	**Item Description**	**Quantity**
1	MBT	Prosoft	PLX31-EIP-MBTCP	Ethernet I/P to Modbus TCP/IP Converter	2
2	MSG (4 Port)	Prosoft	PLX31-EIP-MBS4	Ethernet I/P to Modbus Serial Converter (4 Port)	7
3	MSG (1 Port)	Prosoft	PLX31-EIP-MBS	Ethernet I/P to Modbus Serial Converter (1 Port)	6
4	BCNT / BCNTMSTP	Prosoft	PS-QS-1510-0780	EtherNet/IP to BACnet MS/TP or BACnet/IP	10
5	IEC	Prosoft	5201-DFNT-104S	EtherNet/IP to IEC60870-5-104 Server	6

NON SAFE SYSTEM PLC CONFIGURATION



Panel Tag	Panel Location	Level
3E5DS0-SCADA-BMS-EMC PLC-000000	CW.C SCADA	CONCOURSE WEST
3E5DS0-APCS-BMS-ACPWMO-000000	MW.C ACP	MEZZANINE WEST
3E5DS0-ACY-BMS-ACYGO-000000	GE.C ACY	GRADE EAST
3E5DS0-MGR-BMS-EGRECO-000000	CE.C GR	CONCOURSE EAST
3E5DS0-ELEF-BMS-ELEEMO-000000	ME.C ELE	MEZZANINE EAST
3E5DS0-FPR-BMS-FPRWCO-000000	CW.C FPR	CONCOURSE WEST
3E5DS0-LV01-BMS-LV01ETO-000000	TE.C LV01	TECHNICAL EAST
3E5DS0-LV02-BMS-LV02ETO-000000	TE.C LV02	TECHNICAL EAST
3E5DS0-MERF1-BMS-MER01EMO-000000	ME.C MER01	MEZZANINE EAST
3E5DS0-MERA1-BMS-MER01WCO-000000	CW.C MER01	CONCOURSE WEST
3E5DS0-MERA2-BMS-MER02WCO-000000	CW.C MER02	CONCOURSE WEST
3E5DS0-MER03-BMS-MER03WCO-000000	CW.C MER03	CONCOURSE WEST
3E5DS0-MER04-BMS-MER04WCO-000000	CW.C MER04	CONCOURSE WEST
3E5DS0-MER05-BMS-MER05WCO-000000	CW.C MER05	CONCOURSE WEST
3E5DS0-MERB-BMS-MERECO-000000	CE.C MER	CONCOURSE EAST
3E5DS0-MERD-BMS-MERETO-000000	TE.C MER	TECHNICAL EAST
3E5DS0-MERE-BMS-MERWMO-000000	MW.C MER	MEZZANINE WEST
3E5DS0-MERC-BMS-MERWTO-000000	TW.C MER	TECHNICAL WEST
3E5DS0-MU1A-BMS-MU1AECO-000000	CE.C MU1A	CONCOURSE EAST
3E5DS0-SE02-BMS-SE02WCO-000000	CW.C SE02	CONCOURSE WEST
3E5DS0-SEB-BMS-SEECO-000000	CE.C SE	CONCOURSE EAST
3E5DS0-SP-BMS-SPWPO-000000	PW.C SP	PLATFORM WEST
3E5DS0-ELE03-BMS-ELE03EPO-000000	PE.C ELE03	PLATFORM EAST
3E5DS0-SCADA-ELS-MSHC-000000	ME.C EC	MEZZANINE EAST

CABLE NO.	FROM BMS PANEL	TO BMS PANEL	TYPE OF CABLE	RING TYPE
22	ACYGO	SE02WCO	6 CORE FIBER	DLR
23	SE02WCO	MER01WCO	CAT6-FR	DLR
24	MER01WCO	MER02WCO	CAT6-FR	DLR
25	MER02WCO	FPRWCO	CAT6	DLR
26	FPRWCO	MER03WCO	CAT6-FR	DLR
27	MER03WCO	MER04WCO	CAT6-FR	DLR
28	MER04WCO	MER05WCO	6 CORE FIBER	DLR
29	MER05WCO	MERWTO	6 CORE FIBER-FR	DLR
30	MERWTO	ACPWMO	CAT6	DLR
31	ACPWMO	MERWMO	CAT6-FR	DLR
32	MERWMO	SPWPO	CAT6	DLR
33	MER01EMO	ELEEMO	CAT6-FR	DLR
34	ELEEMO	ELE03EPO	CAT6	DLR
35	ELE03EPO	MERETO	CAT6-FR	DLR
36	MERETO	LV01ETO	CAT6	DLR
37	LV01ETO	LV02ETO	CAT6-FR	DLR
38	LV02ETO	EGRECO	CAT6-FR	DLR
39	EGRECO	SEECO	CAT6	DLR
40	SEECO	MU1AECO	CAT6-FR	DLR
41	MU1AECO	MERECO	6 CORE FIBER - FR	DLR
42	EMCPLC	ACYGO	6 CORE FIBER - FR	REP
43	ACYGO	SPWPO	6 CORE FIBER	REP
44	ACYGO	SPWPO	6 CORE FIBER - FR	DLR
45	SPWPO	MER01EMO	6 CORE FIBER - FR	REP
46	MER01EMO	MERECO	6 CORE FIBER	REP
47	MER01EMO	MERECO	6 CORE FIBER - FR	DLR
48	MERECO	EMCPLC	6 CORE FIBER - FR	REP
49	EMCPLC	SCADA CONNECTIVITY JB	6 CORE FIBER - FR	NA
50	SCADA CONNECTIVITY JB	SBM-CAB-0000001	CAT6-FR	NA
55	FPRWCO	FPR-FDPS-STFP1	CAT6	NA
56	FPRWCO	FPR-FDPS-STFP2	CAT6	NA
57	FPRWCO	FPR-FDPS-TRFP1	CAT6	NA
58	FPRWCO	FPR-FDPS-TRFP2	CAT6	NA
59	ACYGO	HVAC-CH-1	CAT6	NA
60	MER03WCO	HVAC-HRU-1	CAT6	NA
61	MU1AECO	ELS-LP-1	CAT6	NA
62	SE02WCO	ELS-LP-2	CAT6	NA
65	MER01EMO	ELS-CBS-1	CAT6	NA

NOTES:-

1. GATEWAY IEC1 & IEC2 WILL BE USED FOR NON-SAFE SIGNALS IN SIMPLEX CONFIGURATION.
2. MODBUS TCP/IP & BACNET IP LINK SHALL BE DIRECTLY CONNECTED TO ACCESS SWITCHES OR DLR SWITCH FROM THIRD PARTY GATEWAYS.
3. REFER SHEET 9 TO 12 FOR HARDWIRE CONNECTED EQUIPMENTS TO RIO PANELS.
4. MAINTENANCE SWITCHES WILL BE PLACED IN ALAN PANELS.REFER ADMINISTRATIVE NETWORK INTERCONNECTION DRAWING (DOC NO. - M-ANA-3ESDS0-CELC-GDR-000004) FOR MORE DETAILS.
5. HVAC, DRAINAGE, FUEL OIL, FIRE FIGHTING, DOMESTIC WATER, TRACK LIGHTING & ELECTRICAL SYSTEMS ARE CONNECTED WITH REDUNDANT EMC PLC. (NON SAFE PLC).
6. THIRD PARTY EQUIPMENTS & SYSTEMS ARE PROVIDED BY MEP SUB-CONTRACTOR.
7. SOLID ORANGE COLORED BOXES REPRESENTS MIXED RIO (SAFE & NON SAFE IOs)PANELS WITH DEDICATED COMMUNICATION RACKS FOR SAFE & NON SAFE IOs.

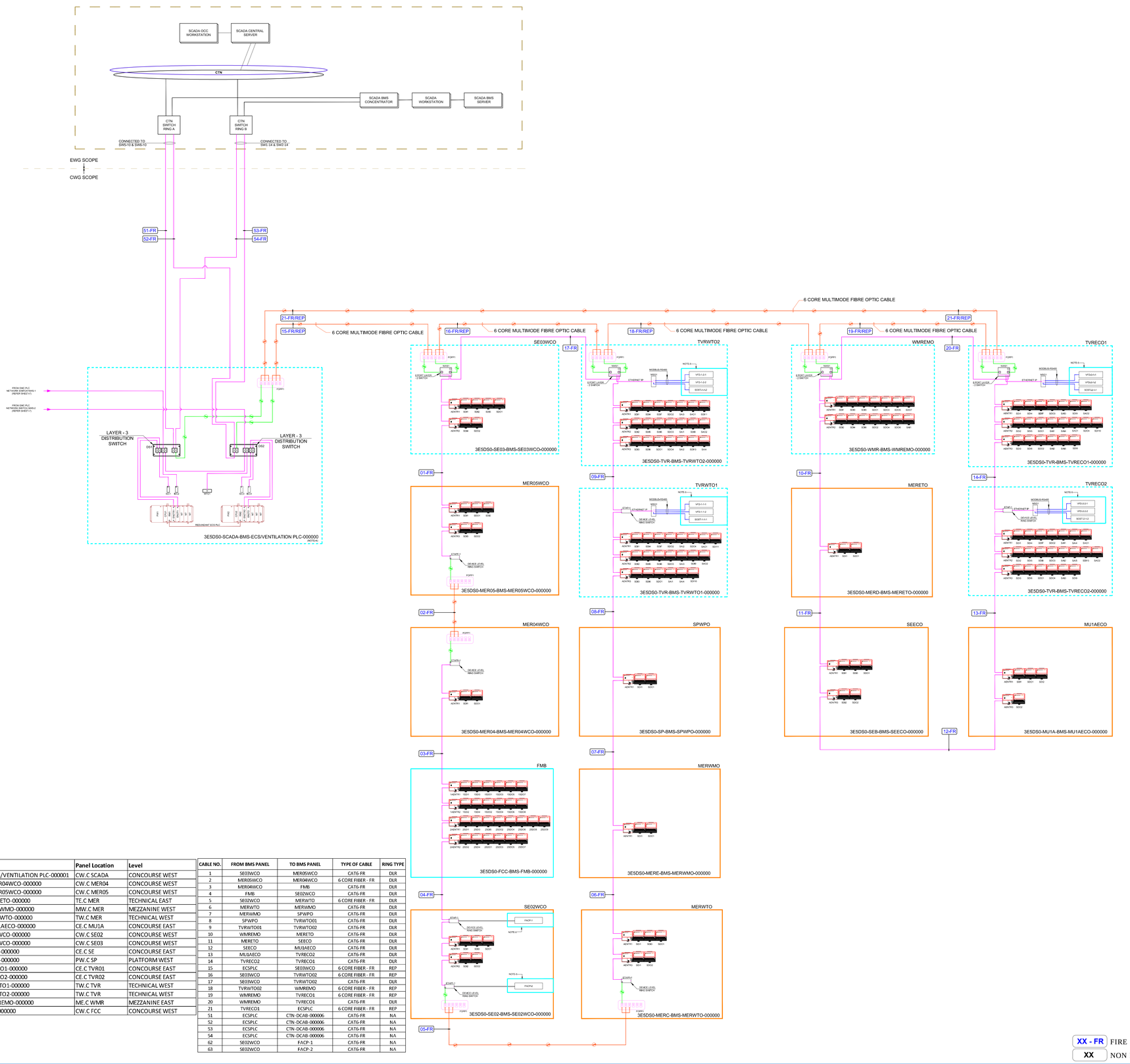
LEGENDS:-

	MULTIMODE FIBRE OPTIC CABLE
	FIBRE OPTIC PATCH CORD
	SERIAL COMMUNICATION CABLE
	CAT6 CABLE
	REDUNDANSY SYNC CABLE
	HARD WIRE
	PLC RACK
	INPUT/OUTPUT MODULE
FOPP	FIBER OPTIC PATCH PANEL (6 PORT/12 CORE)
ETAP	ETHERNET I/P TAP MODULE 3 COPPER PORTS (DEVICE LEVEL RING SWITCH)
ETAPF	ETHERNET I/P TAP MODULE 2 COPPER 1 FIBER PORTS (DEVICE LEVEL RING SWITCH)
MSG	ETHERNET I/P TO MODBUS SERIAL GATEWAY (4 PORT)
MSG	ETHERNET I/P TO MODBUS SERIAL GATEWAY (1 PORT)
MTG	ETHERNET I/P TO MODBUS TCP/IP GATEWAY
NWS	NETWORK SWITCH (8 PORT)
NWS	NETWORK SWITCH (16 PORT)
DS	DISTRIBUTION SWITCH (12 PORT)
BCNT	ETHERNET I/P TO BACNET I/P OR BACNET MS/TP GATEWAY
AENTR	ETHERNET I/P DUAL PORT ADAPTER MODULE
AI	ANALOG INPUT MODULE
AO	ANALOG OUTPUT MODULE
XAI	ANALOG INPUT MARSHALLING TERMINAL
XAO	ANALOG OUTPUT MARSHALLING TERMINAL
CPU	CENTRAL PROCESSING UNIT (PLC CONTROLLER)
PW	CPU RACK (PLC) POWER SUPPLY
DI	DIGITAL INPUT MODULE
DO	DIGITAL OUTPUT MODULE
IEC	ETHERNET I/P TO IEC-104 SERVER
EN2TR	ETHERNET I/P DUAL PORT INTERFACE MODULE
EN2T	ETHERNET I/P INTERFACE MODULE
NT	EMPTY SLOT FILLER FOR PLC CHASSIS
PLC	PROGRAMMABLE LOGIC CONTROLLER
RM	REDUNDANCY MODULE
SAI	SIL ANALOG INPUT MODULE
SAO	SIL ANALOG OUTPUT MODULE
SDI	SIL DIGITAL INPUT MODULE
SDO	SIL DIGITAL OUTPUT MODULE
UPS	UNITERRUPTABLE POWER SUPPLY
CBS	CENTRAL BATTERY SYSTEM
MDB	MAIN DISTRIBUTION BOARD
EMDB	EMERGENCY MAIN DISTRIBUTION BOARD
LCS	LIGHTING CONTROL SYSTEM
HRU	HEAT RECOVERY UNIT
FACP	FIRE ALARM CONTROL PANEL
FR	FIRE RESISTANT

XX - FR FIRE RESISTANT CABLE NUMBER

XX NON FIRE RESISTANT CABLE NUMBER

SAFE SYSTEM PLC CONFIGURATION



Panel Tag	Panel Location	Level
3E5DS0-SCADA-BMS-ECS/VENTILATION PLC-000001	CW.C SCADA	CONCOURSE WEST
3E5DS0-MER04-BMS-MER04WCO-000000	CW.C MER04	CONCOURSE WEST
3E5DS0-MER05-BMS-MER05WCO-000000	CW.C MER05	CONCOURSE WEST
3E5DS0-MERD-BMS-MERETO-000000	TE.C MER	TECHNICAL EAST
3E5DS0-MERE-BMS-MERWMO-000000	MW.C MER	MEZZANINE WEST
3E5DS0-MERC-BMS-MERWTO-000000	TW.C MER	TECHNICAL WEST
3E5DS0-MU1A-BMS-MU1AECO-000000	CE.C MU1A	CONCOURSE EAST
3E5DS0-SE02-BMS-SE02WCO-000000	CW.C SE02	CONCOURSE WEST
3E5DS0-SE03-BMS-SE03WCO-000000	CW.C SE03	CONCOURSE WEST
3E5DS0-SEB-BMS-SEECO-000000	CE.C SE	CONCOURSE EAST
3E5DS0-SP-BMS-SPWPO-000000	PW.C SP	PLATFORM WEST
3E5DS0-TVR-BMS-TVRECO1-000000	CE.C TVR01	CONCOURSE EAST
3E5DS0-TVR-BMS-TVRECO2-000000	CE.C TVR02	CONCOURSE EAST
3E5DS0-TVR-BMS-TVRWTO1-000000	TW.C TVR	TECHNICAL WEST
3E5DS0-TVR-BMS-TVRWTO2-000000	TW.C TVR	TECHNICAL WEST
3E5DS0-WMR-BMS-WMREMO-0000000	ME.C WMR	MEZZANINE EAST
3E6DS0-FMB-MES-FMB-000000	CW.C FCC	CONCOURSE WEST

CABLE NO.	FROM BMS PANEL	TO BMS PANEL	TYPE OF CABLE	RING TYPE
1	SE03WCO	MER05WCO	CAT6-FR	DLR
2	MER05WCO	MER04WCO	6 CORE FIBER - FR	DLR
3	MER04WCO	FMB	CAT6-FR	DLR
4	FMB	SE02WCO	CAT6-FR	DLR
5	SE02WCO	MERWTO	6 CORE FIBER - FR	DLR
6	MERWTO	MERWMO	CAT6-FR	DLR
7	MERWMO	SPWPO	CAT6-FR	DLR
8	SPWPO	TVRWTO01	CAT6-FR	DLR
9	TVRWTO01	TVRWTO02	CAT6-FR	DLR
10	WMREMO	MERETO	CAT6-FR	DLR
11	MERETO	SEECO	CAT6-FR	DLR
12	SEECO	MU1AECO	CAT6-FR	DLR
13	MU1AECO	TVRECO2	CAT6-FR	DLR
14	TVRECO2	TVRECO1	CAT6-FR	DLR
15	ECSPLC	SE03WCO	6 CORE FIBER - FR	REP
16	SE03WCO	TVRWTO02	6 CORE FIBER - FR	REP
17	SE03WCO	TVRWTO02	CAT6-FR	DLR
18	TVRWTO02	WMREMO	6 CORE FIBER - FR	REP
19	WMREMO	TVRECO1	6 CORE FIBER - FR	REP
20	WMREMO	TVRECO1	CAT6-FR	DLR
21	TVRECO1	ECSPLC	6 CORE FIBER - FR	REP
51	ECSPLC	CTN-DCAB-000006	CAT6-FR	NA
52	ECSPLC	CTN-DCAB-000006	CAT6-FR	NA
53	ECSPLC	CTN-DCAB-000006	CAT6-FR	NA
54	ECSPLC	CTN-DCAB-000006	CAT6-FR	NA
62	SE02WCO	FACP-1	CAT6-FR	NA
63	SE02WCO	FACP-2	CAT6-FR	NA

NOTES:-

1. GATEWAY IEC1 & IEC3, GATEWAY IEC2 & IEC4 WILL BE USED FOR SAFE SIGNALS IN REDUNDANT CONFIGURATION.
2. MODBUS TCP/IP & BACNET IP LINK SHALL BE DIRECTLY CONNECTED TO ACCESS SWITCHES OR DLR SWITCH FROM THIRD PARTY GATEWAYS.
3. REFER SHEET 9 TO 12 FOR HARDWIRE CONNECTED EQUIPMENTS TO RIO PANELS.
4. SMOKE EXHAUST FANS, MAKE-UP AIR FANS, STAIR PRESSURIZATION FANS, STATION ENTRY DOORS, DOOR AIR CURTAINS, FIRE DETECTION AND ALARM SYSTEM, TUNNEL VENTILATION SHAFT FAN, OVER TRACK EXHAUST & UNDER PLATFORM EXHAUST SYSTEMS, JET FANS, WATER MIST SYSTEM, FIREMAN BOX ARE CONNECTED WITH REDUNDANT ECS/VENTILATION PLC. (SAFE PLC)
5. THIRD PARTY EQUIPMENTS & SYSTEMS ARE PROVIDED BY MEP SUB-CONTRACTOR.
6. SOLID ORANGE COLORED BOXES REPRESENTS MIXED RIO (SAFE & NON SAFE IOs)/PANELS WITH DEDICATED COMMUNICATION RACKS FOR SAFE & NON SAFE IOs.

LEGENDS:-

	MULTIMODE FIBRE OPTIC CABLE
	FIBRE OPTIC PATCH CORD
	SERIAL COMMUNICATION CABLE
	CAT6 CABLE
	REDUNDANCY SYNC CABLE
	HARD WIRE
	PLC RACK
	INPUT/OUTPUT MODULE
FOPP	FIBER OPTIC PATCH PANEL (6 PORT/12 CORE)
ETAP	ETHERNET I/P TAP MODULE 3 COPPER PORTS (DEVICE LEVEL RING SWITCH)
ETAPF	ETHERNET I/P TAP MODULE 2 COPPER 1 FIBER PORTS (DEVICE LEVEL RING SWITCH)
MSG	ETHERNET I/P TO MODBUS SERIAL GATEWAY (4 PORT)
MSG	ETHERNET I/P TO MODBUS SERIAL GATEWAY (1 PORT)
MTG	ETHERNET I/P TO MODBUS TCP/IP GATEWAY
NWS	NETWORK SWITCH (8 PORT)
NWS	NETWORK SWITCH (16 PORT)
DS	DISTRIBUTION SWITCH (12 PORT)
BCNT	ETHERNET I/P TO BACNET I/P OR BACNET MS/TP GATEWAY
AENTR	ETHERNET I/P DUAL PORT ADAPTER MODULE
AI	ANALOG INPUT MODULE
AO	ANALOG OUTPUT MODULE
XAI	ANALOG INPUT MARSHALLING TERMINAL
XAO	ANALOG OUTPUT MARSHALLING TERMINAL
CPU	CENTRAL PROCESSING UNIT (PLC CONTROLLER)
PW	CPU RACK (PLC) POWER SUPPLY
DI	DIGITAL INPUT MODULE
DO	DIGITAL OUTPUT MODULE
IEC	ETHERNET I/P TO IEC-104 SERVER
EN2TR	ETHERNET I/P DUAL PORT INTERFACE MODULE
EN2T	ETHERNET I/P INTERFACE MODULE
NT	EMPTY SLOT FILLER FOR PLC CHASSIS
PLC	PROGRAMMABLE LOGIC CONTROLLER
RM	REDUNDANCY MODULE
SAI	SIL ANALOG INPUT MODULE
SAO	SIL ANALOG OUTPUT MODULE
SDI	SIL DIGITAL INPUT MODULE
SDO	SIL DIGITAL OUTPUT MODULE
UPS	UNITERRUPTABLE POWER SUPPLY
CBS	CENTRAL BATTERY SYSTEM
MDB	MAIN DISTRIBUTION BOARD
EMDB	EMERGENCY MAIN DISTRIBUTION BOARD
LCS	LIGHTING CONTROL SYSTEM
HRU	HEAT RECOVERY UNIT
FACP	FIRE ALARM CONTROL PANEL
FR	FIRE RESISTANT

XX - FR FIRE RESISTANT CABLE NUMBER

XX NON FIRE RESISTANT CABLE NUMBER