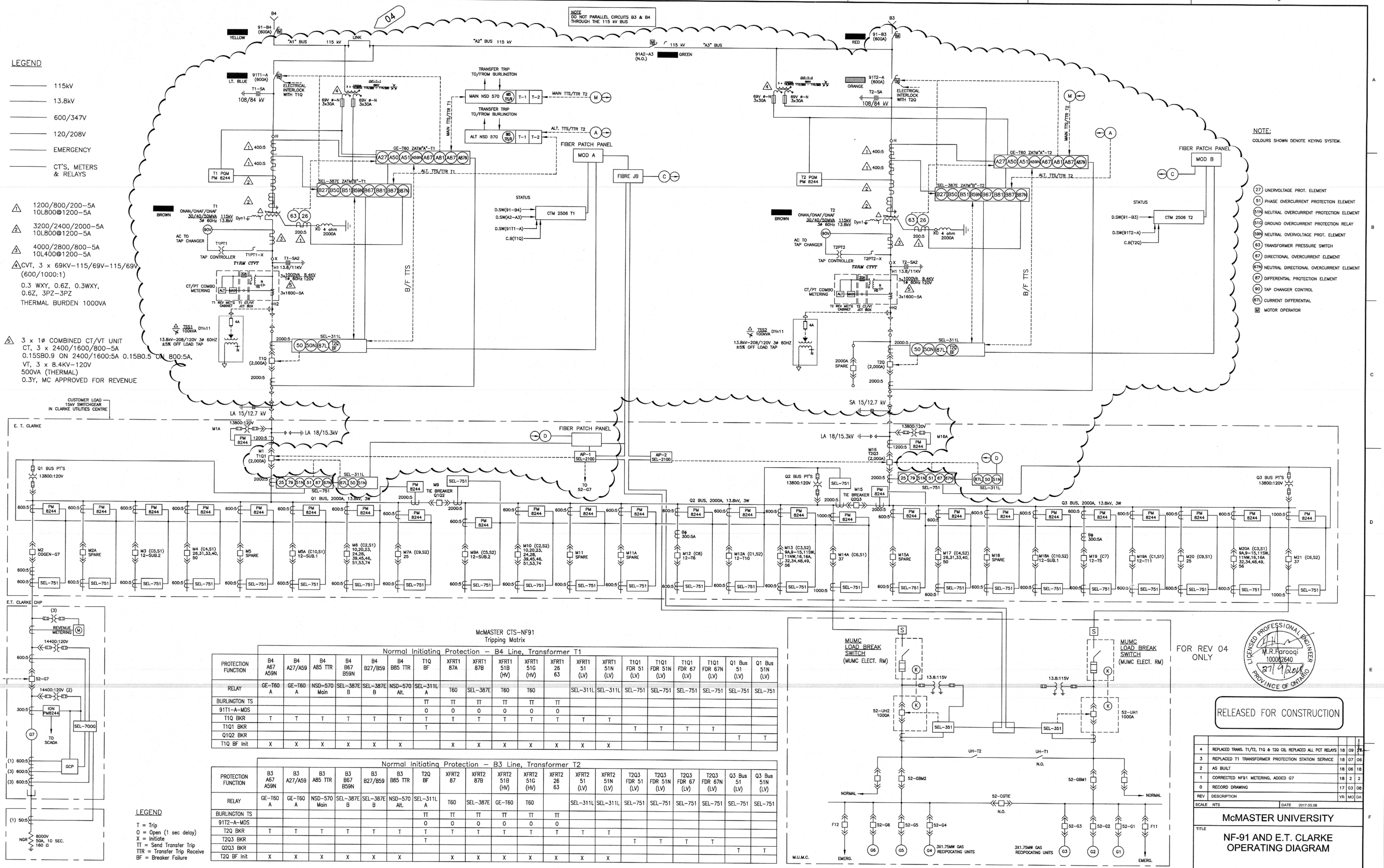


McMASTER CTS–NF91
Tripping Matrix

Normal Initiating Protection – B4 Line, Transformer T1

PROTECTION FUNCTION	B4 A67 A59N	B4 A27/A59	B4 A85 TTR	B4 B67 B59N	B4 B27/B59	B4 B85 TTR	T1Q BF	XFRT1 87A	XFRT1 87B	XFRT1 51B (HV)	XFRT1 51G (HV)	XFRT1 26 63	XFRT1 51 (LV)	XFRT1 51N (LV)	T1Q1 FDR 51 (LV)	T1Q1 FDR 51N (LV)	T1Q1 FDR 67 (LV)	T1Q1 FDR 67N (LV)	Q1 Bus 51 (LV)	Q1 Bus 51N (LV)
RELAY	GE–T60 A	GE–T60 A	NSD–570 Main	SEL–387E B	SEL–387E B	NSD–570 Alt.	SEL–311L A	T60	SEL–387E	T60	T60		SEL–311L	SEL–311L	SEL–751	SEL–751	SEL–751	SEL–751	SEL–751	SEL–751
BURLINGTON TS							TT	TT	TT	TT	TT	TT								
91T1–A–MDS							0	0	0	0	0	0								
T1Q BKR	T	T	T	T	T	T	T	T	T	T	T	T	T	T						
T1Q1 BKR							T								T	T	T	T		
Q1Q2 BKR																			T	T
T1Q BF Init	X	X	X	X	X	X		X	X	X	X	X	X	X						

Normal Initiating Protection – B3 Line, Transformer T2

PROTECTION FUNCTION	B3 A67 A59N	B3 A27/A59	B3 A85 TTR	B3 B67 B59N	B3 B27/B59	B3 B85 TTR	T2Q BF	XFRT2 87	XFRT2 87B	XFRT2 51B (HV)	XFRT2 51G (HV)	XFRT2 26 63	XFRT2 51 (LV)	XFRT2 51N (LV)	T2Q3 FDR 51 (LV)	T2Q3 FDR 51N (LV)	T2Q3 FDR 67 (LV)	T2Q3 FDR 67N (LV)	Q3 Bus 51 (LV)	Q3 Bus 51N (LV)
RELAY	GE–T60 A	GE–T60 A	NSD–570 Main	SEL–387E B	SEL–387E B	NSD–570 Alt.	SEL–311L A	T60	SEL–387E	GE–T60	T60		SEL–311L	SEL–311L	SEL–751	SEL–751	SEL–751	SEL–751	SEL–751	SEL–751
BURLINGTON TS							TT	TT	TT	TT	TT	TT								
91T2–A–MDS							0	0	0	0	0	0								
T2Q BKR	T	T	T	T	T	T	T	T	T	T	T	T	T	T						
T2Q3 BKR							T								T	T	T	T		
Q2Q3 BKR																			T	T
T2Q BF Init	X	X	X	X	X	X		X	X	X	X	X	X	X						

LEGEND
T = Trip
O = Open (1 sec delay)
X = Initiate
TT = Send Transfer Trip
TTR = Transfer Trip Receive
BF = Breaker Failure

FOR REV 04 ONLY

M.R.Parooqi 100062640 27/9/2018 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

RELEASED FOR CONSTRUCTION

REV	DESCRIPTION	YR	MO	DA
4	REPLACED TRANS. T1/T2, T1Q & T2Q CB, REPLACED ALL PCT RELAYS	18	09	21
3	REPLACED T1 TRANSFORMER PROTECTION STATION SERVICE	18	07	06
2	AS BUILT	18	06	18
1	CORRECTED NF91 METERING, ADDED G7	18	2	2
0	RECORD DRAWING	17	03	08

SCALE NTS DATE 2017.03.08

McMASTER UNIVERSITY

TITLE
NF–91 AND E.T. CLARKE OPERATING DIAGRAM

CAD FILE: NF91.SingleL.Jul.2018 REV 4

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