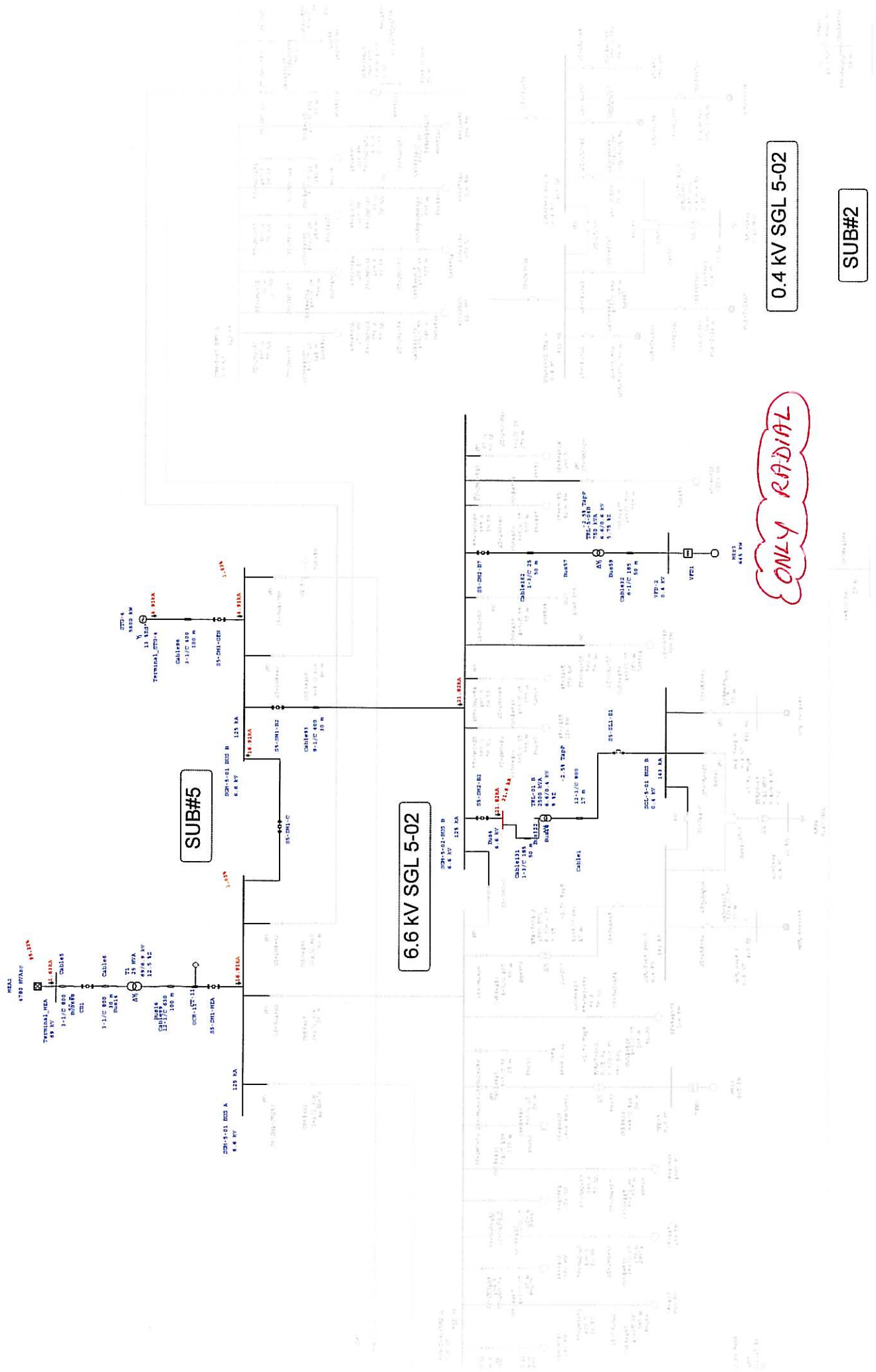


# One-Line Diagram - OLV1 (Short-Circuit Analysis)



Project: Bangchak Utility Project  
 Location:  
 Contract:  
 Engineer: SRP  
 Filename: BUP\_G\_23APR09

ETAP  
 6.0.0C

Study Case: Bus 4

Page: 19  
 Date: 07-14-2009  
 SN:  
 Revision: Base  
 Config.: Case B2

### SHORT-CIRCUIT REPORT

3-Phase fault at bus: **Bus4**

Nominal kV = 6.600  
 Voltage c Factor = 1.10 (User-Defined)  
 Peak Value = 58.341 kA Method C  
 Steady State = 21.815 kA rms

Contribution		Voltage & Initial Symmetrical Current (rms)				
From Bus ID	To Bus ID	% V From Bus	kA Real	kA Imaginary	X/R Ratio	kA Magnitude
Bus4	Total	0.00	0.858	-21.798	25.4	21.815
Bus322	Bus4	0.00	0.000	0.000	999.9	0.000
SGM-5-01 BUS B	SGM-5-02-BUS B	1.03	0.858	-21.798	25.4	21.815
Bus57	SGM-5-02-BUS B	0.00	0.000	0.000	999.9	0.000
Bus28	Bus322	0.00	0.000	0.000	999.9	0.000
Terminal_STG-4	SGM-5-01 BUS B	3.34	0.287	-4.899	17.1	4.908
Bus16	SGM-5-01 BUS A	2.62	0.570	-16.899	29.6	16.909
Bus59	Bus57	0.00	0.000	0.000	999.9	0.000
SGM-5-02-BUS B	Bus4	0.00	0.858	-21.798	25.4	21.815
SGM-5-01 BUS A	SGM-5-01 BUS B	1.03	0.570	-16.899	29.6	16.909

### Breaking and DC Fault Current (kA)

Based on Total Bus Fault Current

TD (S)	Ib sym	Ib asym	Idc
0.01	21.382	34.657	27.275
0.02	21.216	32.147	24.151
0.03	21.041	29.989	21.368
0.04	20.859	28.152	18.906
0.05	20.671	26.671	16.855
0.06	20.597	25.442	14.935
0.07	20.522	24.419	13.234
0.08	20.446	23.570	11.727
0.09	20.369	22.867	10.391
0.10	20.292	22.385	9.451
0.15	20.182	20.849	5.231
0.20	20.072	20.279	2.895
0.25	19.961	20.025	1.602
0.30	19.850	19.870	0.887

$$X/R = 25.4$$

$$I_{k3}'' = 21.815 \text{ kA}$$

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Page: 20  
 Date: 07-14-2009  
 SN:  
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### Short-Circuit Summary Report

#### 3-Phase Fault Currents

Bus		Device		Device Capacity (kA)				Short-Circuit Current (kA)					
ID	kV	ID	Type	Making Peak	Ib sym	Ib asym	Idc	I"k	ip	Ib sym	Ib asym	Idc	Ik
Bus4	6.600	Bus4	Bus					21.815	58.341				21.815
	6.600	S5-SM2-B2	CB	125.000	50.000	53.361	18.639	21.815	58.341	20.597	25.442	14.935	

ip is calculated using method C

Ib does not include decay of non-terminal faulted induction motors

Ik is the maximum steady state fault current

Idc is based on X/R from Method C and Ib as specified above

LV CB duty determined based on ultimate rating.

Maximum through current is used for device duty.

\* Indicates a device with calculated duty exceeding the device capability.

# Indicates a device with calculated duty exceeding the device marginal limit. ( 95 % times device capability)

### Short-Circuit Summary Report

Bus ID	Device ID	Device Capacity		3-Phase Short-Circuit Current Ith (kA)
		Ithr (kA)	Tkr (sec.)	
Bus4	S5-SM2-B2	50.000	3.00	22.128

Ithr = Rated short-circuit withstand current

Tkr = Rated short-time

Ith = Thermal equivalent short-time current

\* Indicates a device with calculated duty exceeding the device capability.

# Indicates a device with calculated duty exceeding the device marginal limit. ( 95 % times device capability)

$$X/R = 25.4 \rightarrow T_{DC} = 80.89 \text{ ms}$$

$$I_{k3}'' = 21.815 \text{ kA.}$$

After 60 ms

$$\underline{\underline{I_{dc} = 14.69 \text{ kA (calculated by hand)}}}$$

ok.