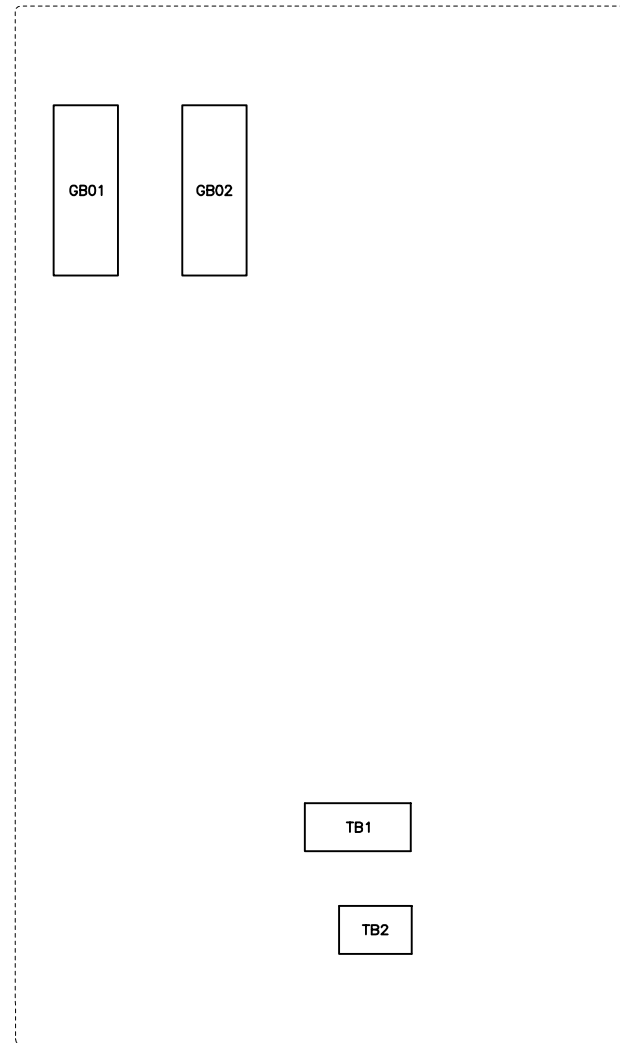
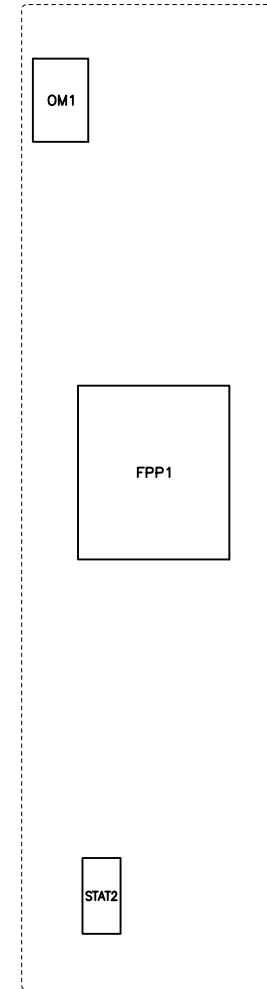


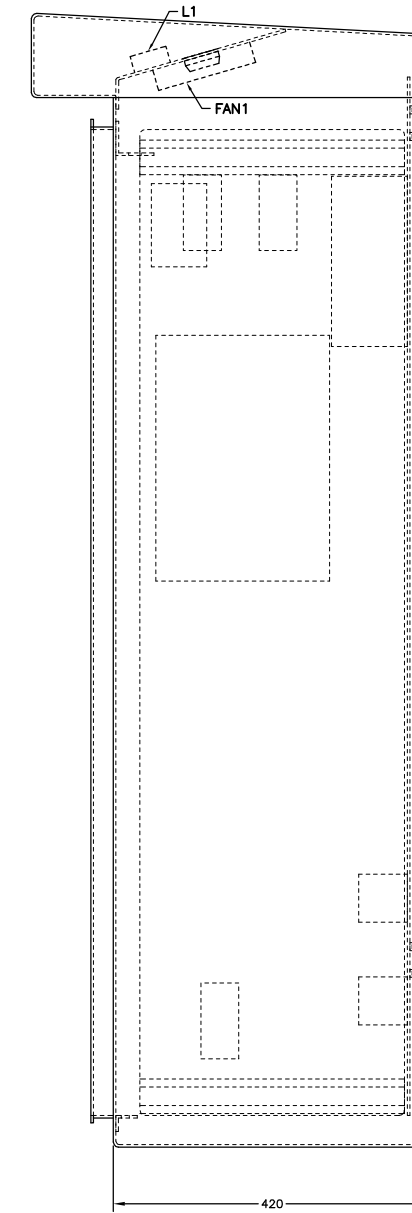
FRONT VIEW



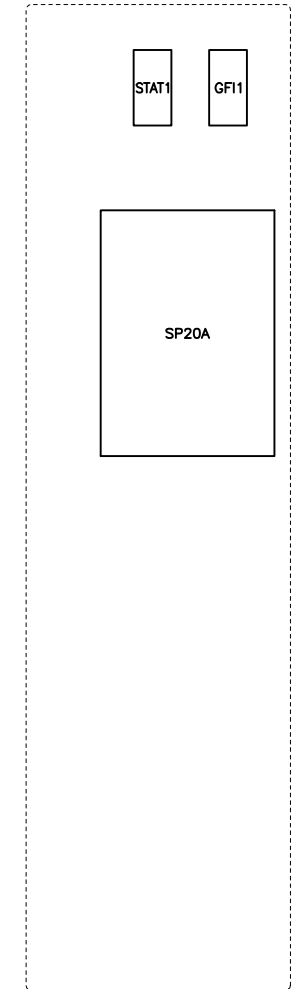
FRONT PANEL



LEFT SIDE PANEL



SIDE VIEW



RIGHT SIDE PANEL

**EQUIPMENT LAYOUT**  
SCALE 1:5

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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS



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300-131 Water Street  
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Tel 604.408.7222 Fax 604.408.7224



MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE  
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The Best Place on Earth

**GEORGE MASSEY TUNNEL COUNTERFLOW SYSTEM**  
**ROUTE 99 - STEVESTON HIGHWAY 1/C TO ROUTE 17 1/C**  
**RICHMOND/DELTA**

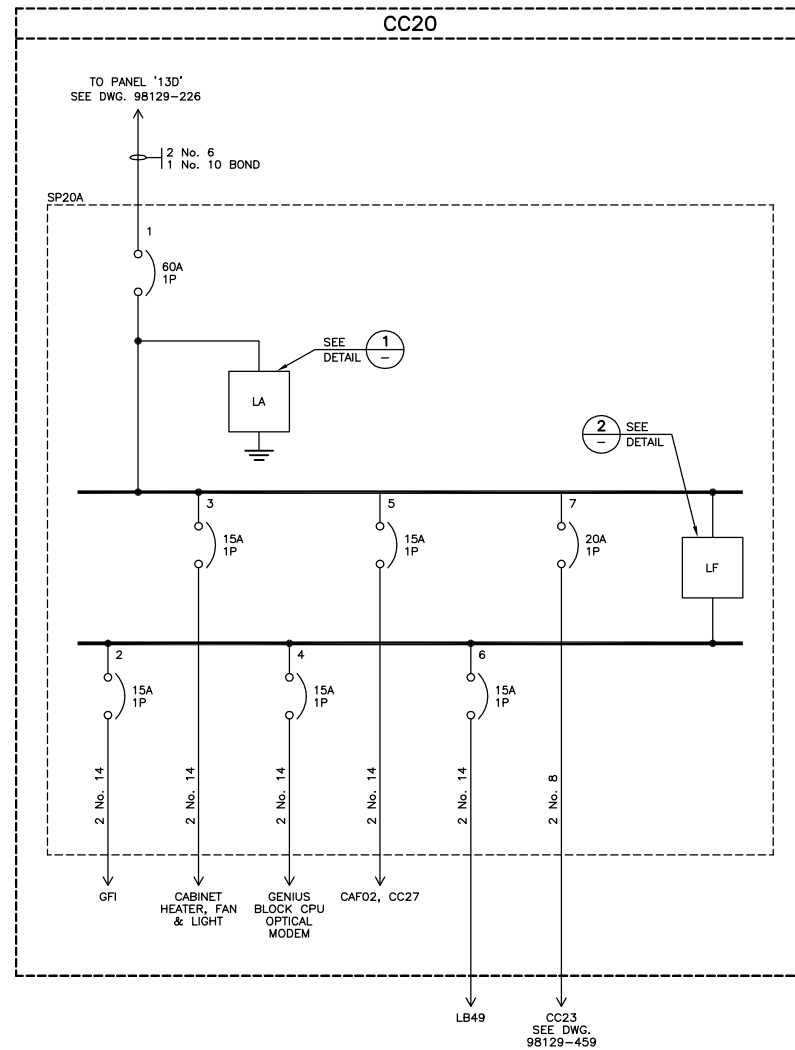
**CC20 - EQUIPMENT LAYOUT**

REV	DATE	REVISIONS	DRAWN
SEP01		ISSUED FOR CABINET TENDER	PBA
A	FEB02	ISSUED FOR CABINET CONSTRUCTION	PBA
B	DEC02	ISSUED FOR TENDER	PBA
C	JAN04	RECORD DRAWING	PBA

DESIGNED _____ DATE _____	
QUALITY CONTROL _____ DATE _____	
QUALITY ASSURANCE _____ DATE _____	
TRAN ELECTRICAL DESIGN REVIEW _____ DATE _____	
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION) _____ DATE _____	
SHEET NUMBER	SITE CODE
SHEET	OF
HWY DIST	REG
DRAWING NUMBER	
TE-98129-440	C

C:\Active Projects\Master Database Drawings\George Massey Tunnel Master Database Drawings\Design Data\98129440C\_14/03/2011\_4:19 PM - DMAT/AS

CANCIP - PRINTING - REPAIRING - PREVIOUS EDITIONS



SINGLE LINE DIAGRAM - SP20A

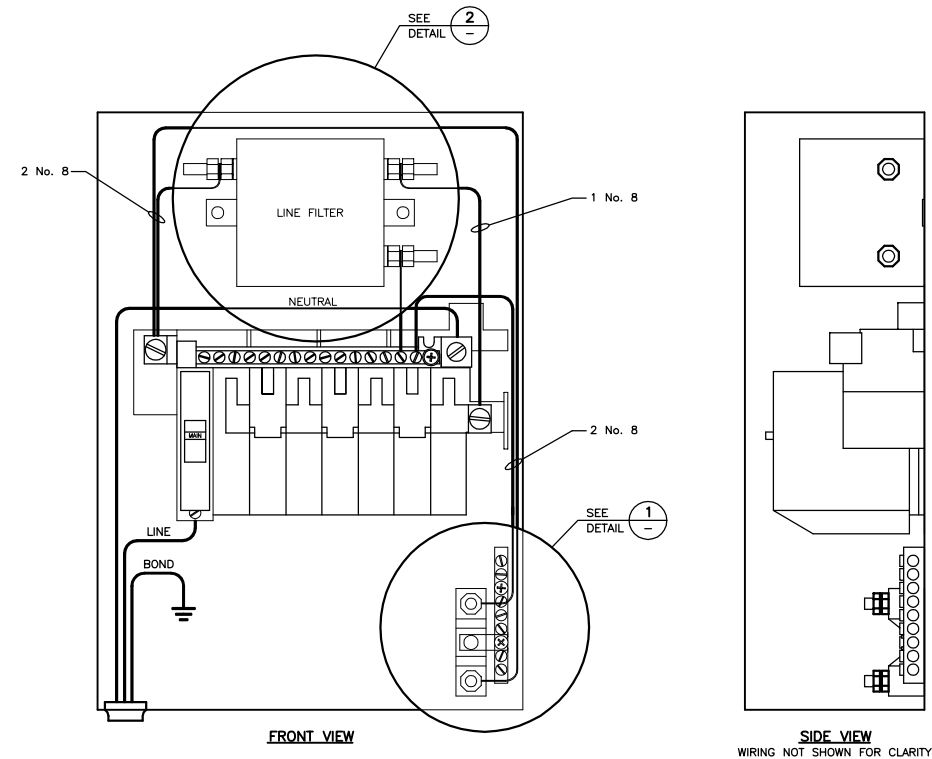
LOCATION	CC20	MAX. AMPACITY	60 A
VOLT	120 V	PHASES	1
TOTAL LOAD	3345 W		

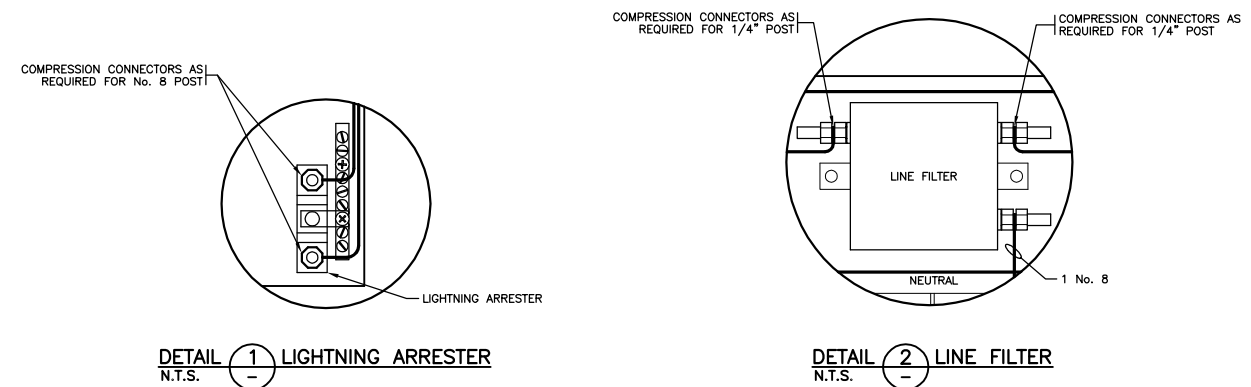
CIRCUIT No.	1	2	3	4	5	6	7	8
BREAKER AMPS	60	15	15	15	15	15	20	20
LOCATION	MAIN BREAKER	GFI	CABINET HEATER FAN & LIGHT	GENIUS BLOCK CPU OPTICAL MODEM	CAF02	LB49	CC23	SPACE
LOAD VA	-	240	450	50	565	200	1840	-

PANEL SCHEDULE - SP20A

REFERENCE	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
SP20A	1	8 CCT. LOAD CENTRE	SQUARE D	Q08L-100S
	5	15A, 1P BREAKER	SQUARE D	Q0115
	1	20A, 1P BREAKER	SQUARE D	Q0120
	1	60A, 1P BREAKER	SQUARE D	Q0160
	1	LINE FILTER	TYCOR	TC120P60
	1	LIGHTNING ARRESTER	TII	358C



PANEL LAYOUT



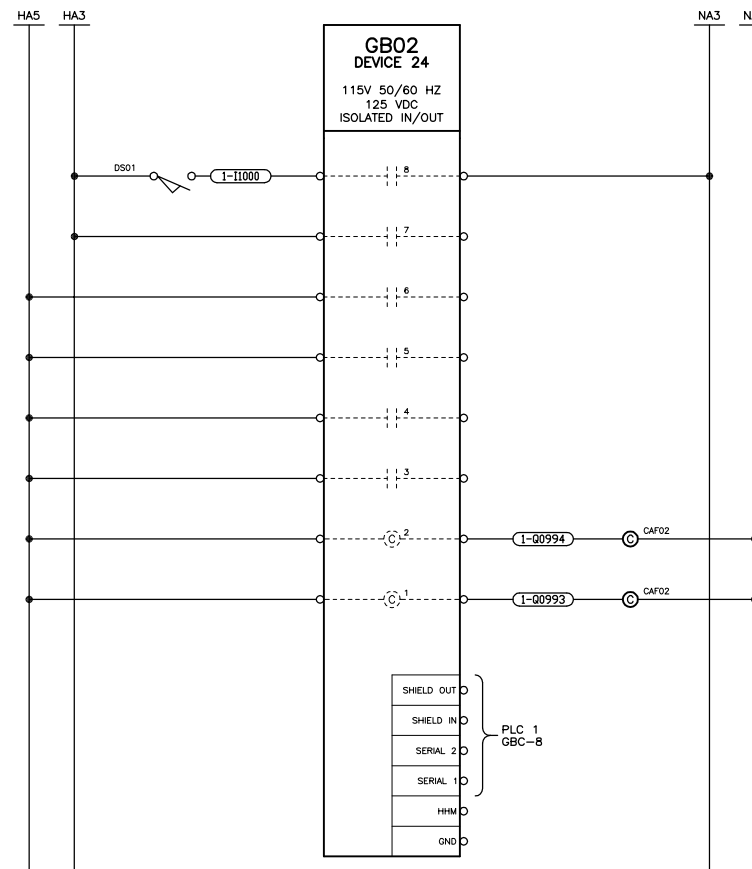
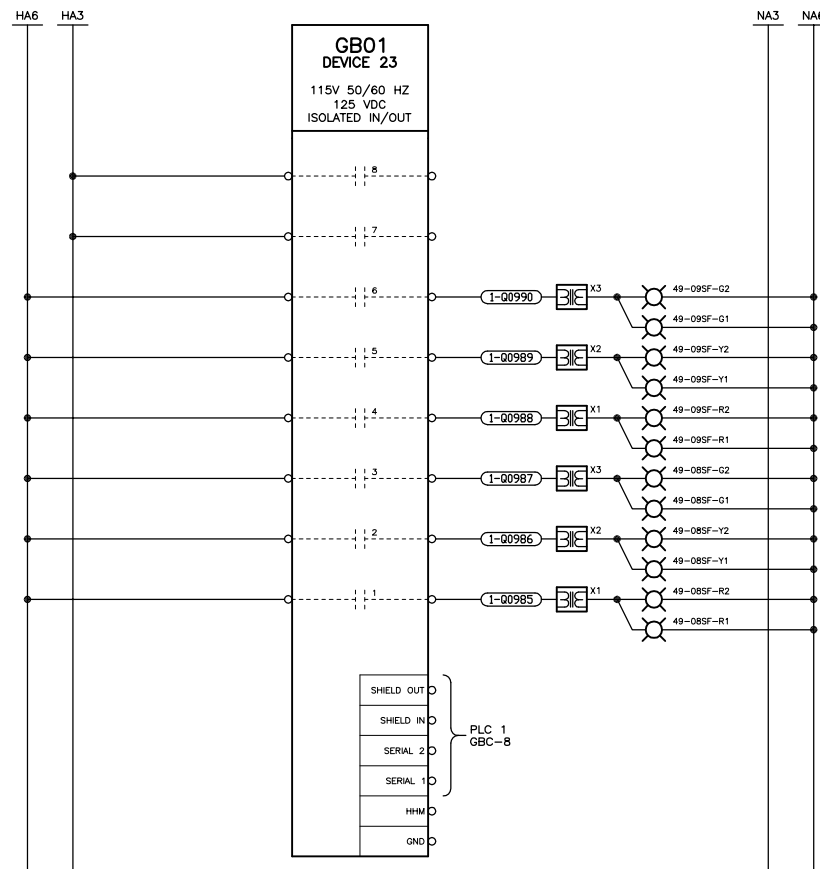
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CAD FILENAME: 98129441C.DWG			
GEORGE MASSEY TUNNEL COUNTERFLOW SYSTEM ROUTE 99 - STEVESTON HIGHWAY I/C TO ROUTE 17 I/C RICHMOND/DELTA			
CC20 - SINGLE LINE DIAGRAM			
DESIGNED	DATE	QUALITY CONTROL	DATE
DATE	DATE	TRAN ELECTRICAL DESIGN REVIEW	DATE
SHEET NUMBER	SITE CODE	HWY DIST	REG
SHEET	OF		DRAWING NUMBER
			TE-98129-441 C

Active Projects Master Database Drawings George Massey Tunnel Master Database Drawings Design Date 98129441C 14/03/2011 4:32 PM CMAT/AS

CANCEL PRINTING BEARING PREVIOUS EDITION



GENIUS BLOCK CONFIGURATION DATA								
CONFIGURATION DATA COMMON TO ALL BLOCKS								
BAUD RATE: 76.8K PULSE TEST: DISABLED INPUT FILTR TIME: 20ms ISOL VOLTAGE SEL: 115AC BSM PRESENT: NO CPU REDUNDANCY: NO CTRL REDUND CONFIG PROTECT: DISABLED								
BLOCK	CIRCUIT	REFERENCE NUMBER	I/O CCT. CONFIG.	REPORT FAULTS	HOLD LAST STATE	OUTPUT DEFAULT	REPORT NO LOAD	OVERLOAD SHUTDOWN
GB01	1	0985	Q	Y	N	0	Y	Y
	2	0986	Q	Y	N	0	Y	Y
	3	0987	Q	Y	N	0	Y	Y
	4	0988	Q	Y	N	0	Y	Y
	5	0989	Q	Y	N	0	Y	Y
	6	0990	Q	Y	N	0	Y	Y
	7	0991	Q	Y	N	0	Y	Y
	8	0992	Q	Y	N	0	Y	Y
GB02	1	0993	Q	Y	N	0	Y	Y
	2	0994	Q	Y	N	0	Y	Y
	3	0995	Q	Y	N	0	Y	Y
	4	0996	Q	Y	N	0	Y	Y
	5	0997	Q	Y	N	0	Y	Y
	6	0998	Q	Y	N	0	Y	Y
	7	0999	Q	Y	N	0	Y	Y
	8	1000	I	-	-	-	-	-

DEVICE LIST		
REFERENCE	LOCATION	DESCRIPTION
49-08SF-R1	LB49 - HEAD 8 SOUTH FACE	LIGHT 1 - RED
49-08SF-R2		LIGHT 2 - RED
49-08SF-Y1		LIGHT 3 - YELLOW
49-08SF-Y2		LIGHT 4 - YELLOW
49-08SF-G1		LIGHT 5 - GREEN
49-08SF-G2	LB49 - HEAD 9 SOUTH FACE	LIGHT 6 - GREEN
49-09NF-R1		LIGHT 1 - RED
49-09NF-R2		LIGHT 2 - RED
49-09NF-Y1		LIGHT 3 - YELLOW
49-09NF-Y2		LIGHT 4 - YELLOW
49-09NF-G1	COUNTERFLOW ADVISORY FLASHER	LIGHT 5 - GREEN
49-09NF-G2		LIGHT 6 - GREEN
CAFO2		CA FLASHER LAMP 1
CAFO2		CA FLASHER LAMP 2
DS01		DOOR SWITCH
X1		TOROIDAL XFMR-RED
X2		TOROIDAL XFMR-YELLOW
X3		TOROIDAL XFMR-GREEN

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REV	DATE	REVISIONS	DRAWN
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B	DEC02	ISSUED FOR TENDER	PBA
C	JAN04	RECORD DRAWING	PBA

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**GEORGE MASSEY TUNNEL COUNTERFLOW SYSTEM**  
ROUTE 99 - STEVESTON HIGHWAY I/C TO ROUTE 17 I/C  
RICHMOND/DELTA

**CC20 - I/O DIAGRAM**

DESIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
QUALITY CONTROL: \_\_\_\_\_ DATE: \_\_\_\_\_  
QUALITY ASSURANCE: \_\_\_\_\_ DATE: \_\_\_\_\_  
TRAN ELECTRICAL DESIGN REVIEW: \_\_\_\_\_ DATE: \_\_\_\_\_

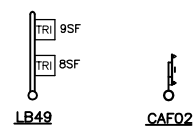
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION): \_\_\_\_\_  
DATE: \_\_\_\_\_

SHEET NUMBER	SITE CODE	HWY DIST	REG	DRAWING NUMBER
SHEET OF				TE-98129-442

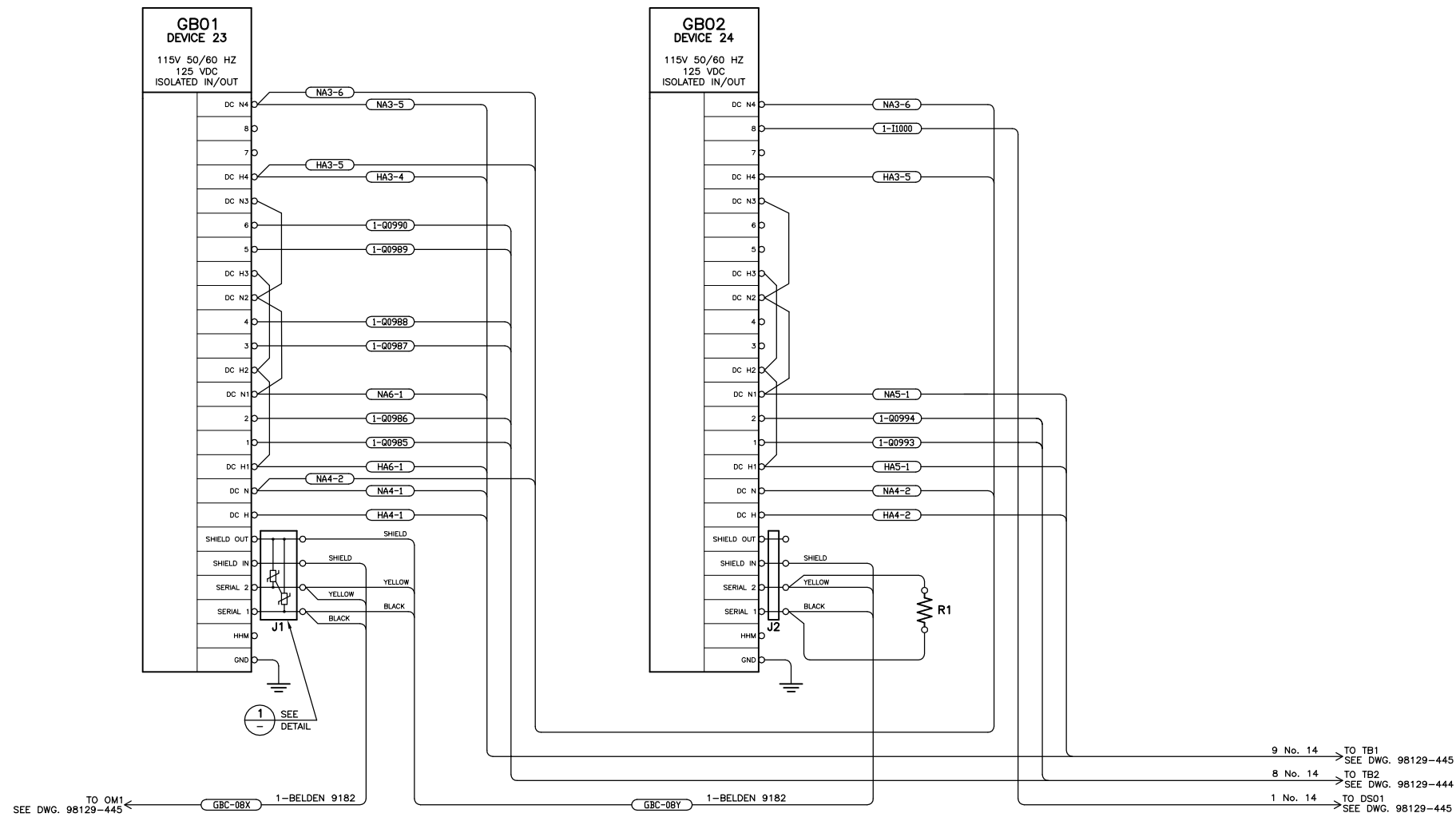
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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

Active Projects Master Database Drawings\George Massey Tunnel Master Database Drawings\Design Data\88129442C\_14/03/2011\_4:32 PM - QM/AT/S



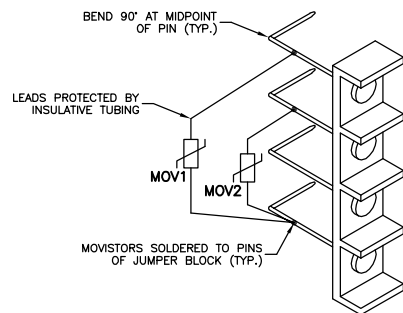
CANCEL PRINTING PREVIOUS EDITIONS



9 No. 14 TO TB1  
SEE DWG. 98129-445  
8 No. 14 TO TB2  
SEE DWG. 98129-444  
1 No. 14 TO DS01  
SEE DWG. 98129-445

TO OM1  
SEE DWG. 98129-445  
GBC-08X 1-BELDEN 9182

GBC-08Y 1-BELDEN 9182



DETAIL 1  
N.T.S.

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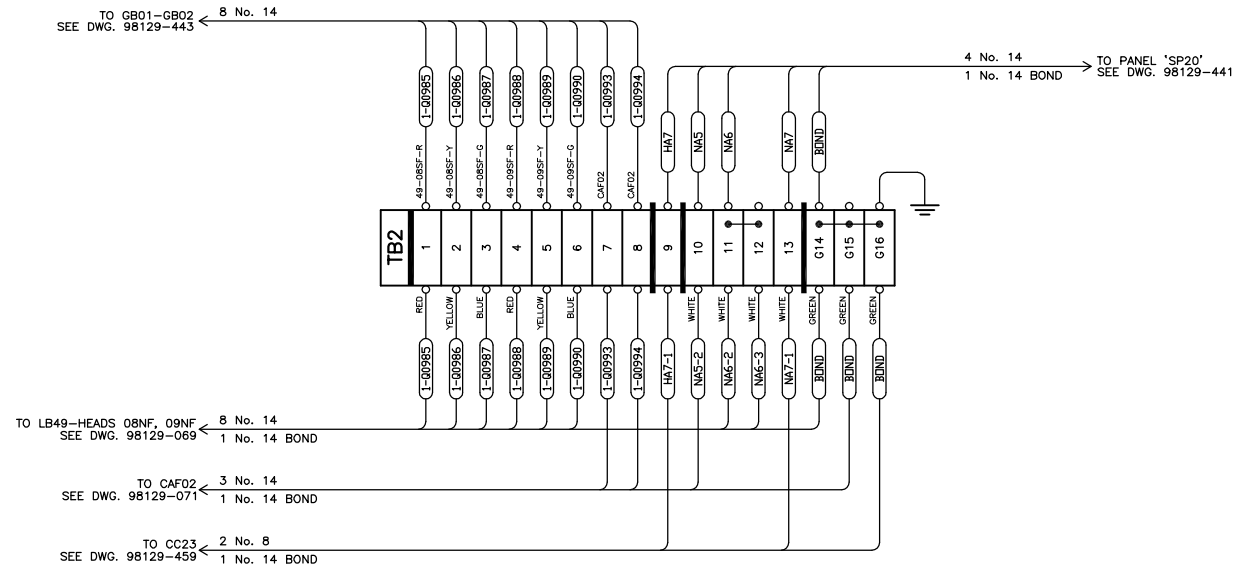
SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

**NOTES:**

- EQUIPMENT LAYOUT IS APPROXIMATE.
- ALL CONDUCTORS SHALL BE STRANDED.
- ALL CONDUCTORS SHALL BE NO. 14 RW90 UNLESS OTHERWISE NOTED.
- NO. 14 RW90 COLOURS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:  
RED.....CONTROL  
WHITE.....NEUTRAL  
BLACK.....HOT  
GREEN.....BOND
- ONLY SPECIALIZED BONDING REQUIREMENTS ARE SHOWN. OTHER BONDING NOT SHOWN FOR CLARITY. ALL BONDING SHALL COMPLY WITH THE CANADIAN ELECTRICAL CODE.

EQUIPMENT LIST				
REFERENCE	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
GB01-GB02	4	115VAC/125VDC LOW LEAK ISOL 110 BLOCK	GE FANUC	IC660BBS102
J1-J2	4	COMM. BUS CONNECTOR	CONTROL DESIGN	A107204NL
MOV1-MOV2	2	METAL OXIDE VARISTOR	SIEMENS	S07K140
R1	1	1/4W, 150 OHM RESISTOR	N/A	N/A

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CAD FILENAME: 98129443C.DWG							
REV	DATE	REVISIONS		DRAWN			
	SEP01	ISSUED FOR CABINET TENDER		PBA			
	A FEB02	ISSUED FOR CABINET CONSTRUCTION		PBA			
	B DEC02	ISSUED FOR TENDER		PBA			
	C JAN04	RECORD DRAWING		PBA			
<b>GEORGE MASSEY TUNNEL COUNTERFLOW SYSTEM</b> <b>ROUTE 99 - STEVESTON HIGHWAY I/C TO ROUTE 17 I/C</b> <b>RICHMOND/DELTA</b>							
<b>CC20 - WIRING DIAGRAM - GENIUS BLOCK</b>							
DESIGNED _____		DATE _____		QUALITY CONTROL _____		DATE _____	
QUALITY ASSURANCE _____		DATE _____		TRAN ELECTRICAL DESIGN REVIEW _____		DATE _____	
SHEET NUMBER		SITE CODE		HWY DIST		REG	
SHEET OF						DRAWING NUMBER	
						TE-98129-443 C	



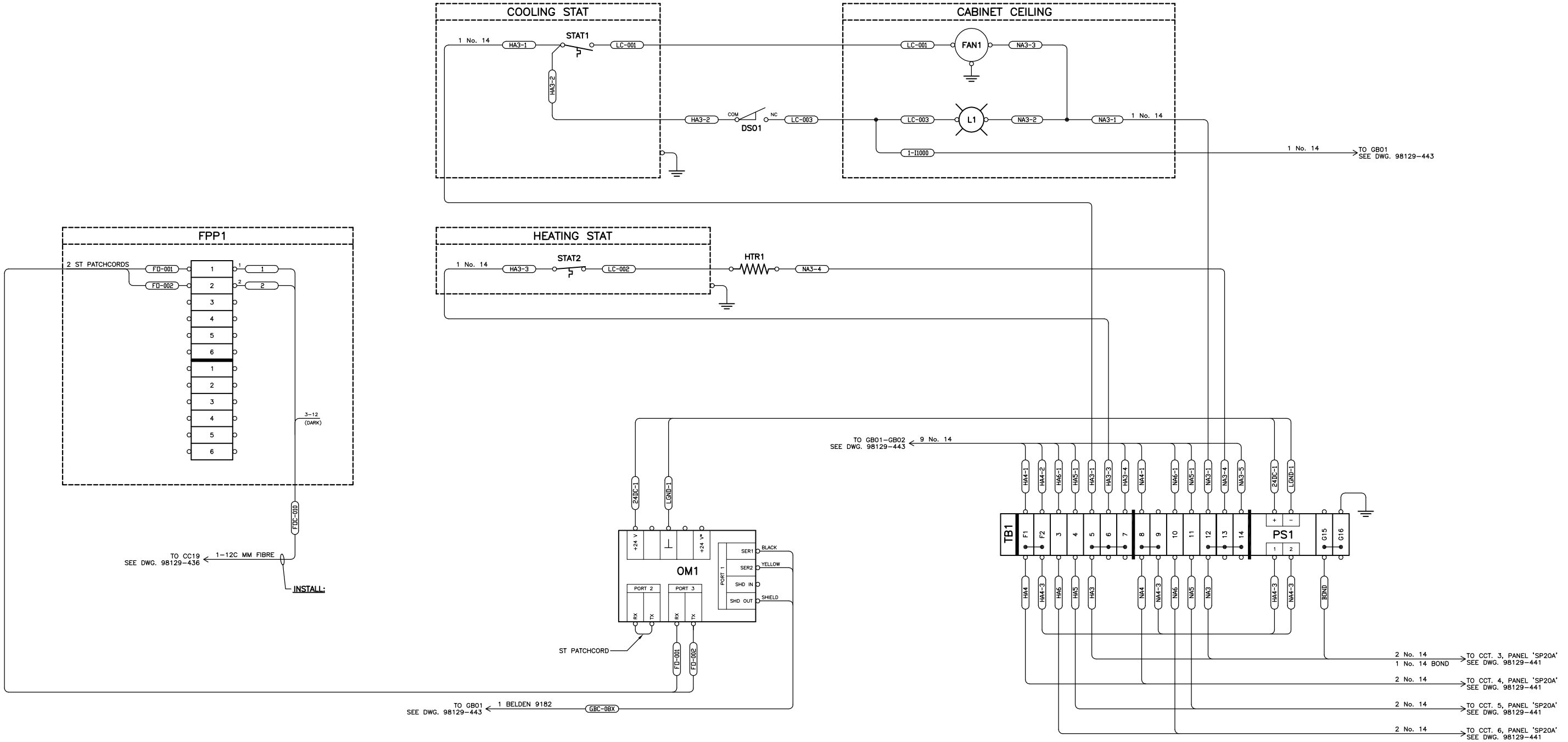
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SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

EQUIPMENT LIST				
REFERENCE	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
TB2	1	WDU6 TERMINAL WPE6 GROUND TERMINAL WAP2.5-10 END SECTION WEW 35/2 END BRACKET WTW 2.5-10 PARTITION WSI 6/2 FUSE TERMINAL WJV6 JUMPER BAR TS35 MOUNTING BAR	WEIDMULLER	102020

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CAD FILENAME: 98129444C.DWG					
REV	DATE	REVISIONS	DRAWN		
	SEP01	ISSUED FOR CABINET TENDER	PBA		
A	FEB02	ISSUED FOR CABINET CONSTRUCTION	PBA		
B	DEC02	ISSUED FOR TENDER	PBA		
C	JAN04	RECORD DRAWING	PBA		
		DESIGNED _____		DATE _____	
		QUALITY CONTROL _____		DATE _____	
		QUALITY ASSURANCE _____		DATE _____	
		TRAN ELECTRICAL DESIGN REVIEW _____		DATE _____	
SHEET NUMBER		SITE CODE		DRAWING NUMBER	
SHEET OF				TE-98129-444 C	

\\Active-Projects\Master\_Databases\Domina\George\_Massey\_Tunnel\_Master\_Databases\Drawings\Design\_Dwgs\98129445C\_14\03\2011\_424\_PW\_CMTA\AS



TO CC19  
SEE DWG. 98129-436

1-12C MM FIBRE  
INSTALL:

TO GB01  
SEE DWG. 98129-443

1 BELDEN 9182  
GBC-08X

TO GB01-GB02  
SEE DWG. 98129-443

9 No. 14

2 No. 14 → TO CCT. 3, PANEL 'SP20A'  
SEE DWG. 98129-441

1 No. 14 BOND → TO CCT. 4, PANEL 'SP20A'  
SEE DWG. 98129-441

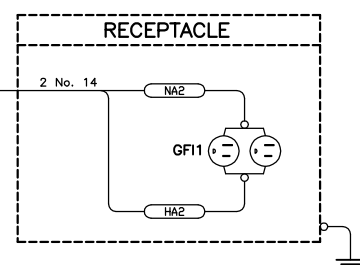
2 No. 14 → TO CCT. 5, PANEL 'SP20A'  
SEE DWG. 98129-441

2 No. 14 → TO CCT. 6, PANEL 'SP20A'  
SEE DWG. 98129-441

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REFERENCE	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
DS01	1	DOOR SWITCH COVER	CUTLER HAMMER	E47BMS30 E47PA1
F1-F2	2	1/2A FUSE	BUSS	ABC-1/2
FAN1	1	FAN, 260 CFM	NIDEC	TA600AC-A3031B
FPP1	1	FIBRE OPTIC PATCH PANEL	AVAYA	100A3LIU
	2	PANEL C/W C2000A COUPLINGS	AVAYA	10AST
	2	DIELECTRIC SHEATH CLAMPS	AVAYA	12A2
	2	12 FIBRE FAN OUT KITS	AVAYA	1AF1-16LG
GF11	1	GROUND FAULT RECEPTACLE JUNCTION BOX	BRYANT COMMANDER	GFR52FT1 1110
HTR1	1	350W, 120V STRIP HEATER CERAMIC TERMINAL COVERS	HOTWATT	FS-12-120-350-X6-86
L1	1	660W PORCELAIN LAMP HOLDER	LEVITON	9350-001
	1	100W ROUGH USAGE BULB	N/A	N/A
OM1	1	OZD GENIUS G12 FIBER TRANSCEIVER	HIRSCHMANN	933 989-021
PS1	1	24V DC POWER SUPPLY	IDEC	PS5R-D24
STAT1	1	COOLING STAT JUNCTION BOX	HONEYWELL COMMANDER	T851A2051 1110
STAT2	1	HEATING STAT JUNCTION BOX	HONEYWELL COMMANDER	T498A 1110
TB1	AS REQ.	WDJ4 TERMINAL WPE4 GROUND TERMINAL WAP2.5-10 END SECTION WEW 35/2 END BRACKET WTW 2.5-10 PARTITION WSI 6/2 FUSE TERMINAL WQV4 JUMPER BAR TS35 MOUNTING BAR	WEIDMULLER	102010 101010 105000 106120 105010 101400 AS REQ. 38340



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ROUTE 99 - STEVESTON HIGHWAY I/C TO ROUTE 17 I/C  
RICHMOND/DELTA

**CC20 - WIRING DIAGRAM - MISCELLANEOUS**

DESIGNED \_\_\_\_\_ DATE \_\_\_\_\_  
QUALITY CONTROL \_\_\_\_\_ DATE \_\_\_\_\_  
QUALITY ASSURANCE \_\_\_\_\_ DATE \_\_\_\_\_  
TRAN ELECTRICAL DESIGN REVIEW \_\_\_\_\_ DATE \_\_\_\_\_

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)  
DATE \_\_\_\_\_

SHEET NUMBER \_\_\_\_\_ OF \_\_\_\_\_ SITE CODE \_\_\_\_\_ HWY DIST \_\_\_\_\_ REG \_\_\_\_\_ DRAWING NUMBER \_\_\_\_\_

TE-98129-445 C