



SP### SAMPLE ROAD, GREEN SQUARE

SEWAGE PUMPING STATION

SITE COVER SHEET

ELECTRICAL DRAWINGS INDEX					
DWG N°	TITLE	SHEET	REVISIONS		
SP###-1000-EE-DRG-0001	DRAWING INDEX	01			
SP###-1000-EE-DRG-0002	SINGLE LINE DIAGRAM - 400VAC & 230VAC	02			
SP###-1000-EE-DRG-0003	POWER DISTRIBUTION SCHEMATIC DIAGRAM - 400VAC & 230VAC	03			
SP###-1000-EE-DRG-0004	SCHEMATIC DIAGRAM - SUBMERSIBLE PUMP No1	04			
SP###-1000-EE-DRG-0005	SCHEMATIC DIAGRAM - SUBMERSIBLE PUMP No2	05			
SP###-1000-EE-DRG-0006	RESERVED DRAWING SHEET	06			
SP###-1000-EE-DRG-0007	RESERVED DRAWING SHEET	07			
SP###-1000-EE-DRG-0008	SCHEMATIC DIAGRAM - MANUAL TRANSFER SWITCH	08			
SP###-1000-EE-DRG-0009	SCHEMATIC DIAGRAM - COMMON CONTROLS	09			
SP###-1000-EE-DRG-0010	SCHEMATIC DIAGRAM - COMMON RTU I/O	10			
SP###-1000-EE-DRG-0011	SCHEMATIC DIAGRAM - 24VDC DISTRIBUTION & RTU LAYOUT	11			
SP###-1000-EE-DRG-0012	TERMINATION DIAGRAM - RTU DIGITAL INPUTS - SHEET 1 OF 2	12			
SP###-1000-EE-DRG-0013	TERMINATION DIAGRAM - RTU DIGITAL INPUTS - SHEET 2 OF 2	13			
SP###-1000-EE-DRG-0014	RESERVED DRAWING SHEET	14			
SP###-1000-EE-DRG-0015	TERMINATION DIAGRAM - RTU DIGITAL OUTPUTS - SHEET 1 OF 2	15			
SP###-1000-EE-DRG-0016	TERMINATION DIAGRAM - RTU DIGITAL OUTPUTS - SHEET 2 OF 2	16			
SP###-1000-EE-DRG-0017	TERMINATION DIAGRAM - RTU ANALOG INPUTS	17			
SP###-1000-EE-DRG-0018	TERMINATION DIAGRAM - RTU ANALOG OUTPUTS	18			
SP###-1000-EE-DRG-0019	TERMINATION DIAGRAM - COMMON CONTROLS	19			
SP###-1000-EE-DRG-0020	EQUIPMENT SCHEDULE	20			
SP###-1000-EE-DRG-0021	CABLE SCHEDULE	21			
SP###-1000-EE-DRG-0022	LABEL SCHEDULE	22			
SP###-1000-EE-DRG-0023	CONSTRUCTION DETAILS - SHEET 1 of 3	23			
SP###-1000-EE-DRG-0024	CONSTRUCTION DETAILS - SHEET 2 of 3	24			
SP###-1000-EE-DRG-0025	CONSTRUCTION DETAILS - SHEET 3 of 3	25			
SP###-1000-EE-DRG-0026	INSTALLATION DETAILS - FIELD INSTRUMENTS	26			
SP###-1000-EE-DRG-0027	RESERVED DRAWING SHEET	27			
SP###-1000-EE-DRG-0028	RESERVED DRAWING SHEET	28			
SP###-1000-EE-DRG-0029		29			
SP###-1000-EE-DRG-0030	RESERVED DRAWING SHEET	30			
SP###-1000-EE-DRG-0031	GENERAL ARRANGEMENT - MAIN SWITCHBOARD - ELEVATIONS	31			
SP###-1000-EE-DRG-0032	GENERAL ARRANGEMENT - MAIN SWITCHBOARD - SECTIONS	32			
SP###-1000-EE-DRG-0033	RESERVED (GENERATOR EXTERNAL CONNECTION BOX)	33			
SP###-1000-EE-DRG-0034	CLEARANCE REQUIREMENTS - MAIN SWITCHBOARD	34			
SP###-1000-EE-DRG-0035	RESERVED SWITCHBOARD SLAB - LOCALITY & SITE PLANS-SHEET 1 of 3	40			
SP###-1000-EE-DRG-0036	RESERVED SWITCHBOARD SLAB AND CONDUIT DETAILS-SHEET 2 of 3	41			
SP###-1000-EE-DRG-0037	RESERVED SWITCHBOARD & ELECTRICAL CONDUIT LAYOUT-SHEET 3 of 3	42			

STANDARD VARIABLES	
DESCRIPTION	VALUES
PRIMARY CONTROLLER	
NORMAL SUPPLY MAIN SWITCH	t.b.a. S250PE 3 125
GENERATOR SUPPLY MAIN SWITCH	t.b.a. S250PE 4 125
PUM CIRCUIT BREAKER	t.b.a. <<S125GJ/20>>
PUMP2 CIRCUIT BREAKER	t.b.a. <<S125GJ/20>>
PUMP RATING	7.5kW <<??>>A
PUMP SOFT STARTER SIZE	<MCD6-0020B +x<??>>A
PUMP LINE CONTACTOR	<<CA7-23E>> <<??>>A
PUMP SOCKET OUTLET + INCLINE SLEEVE	DS1 3114013972 + 51BA757
PUMP INLET PLUG + HANDLE	DS1 3118013972 + 311A013
WET WELL LEVEL TRANSMITTER	WL52XXA4AMD10D1X t.b.a.
DELIVERY PRESSURE TRANSMITTER	B82.IXARDAGSHXKAMAX L=20m
FLOWMETER RANGE	NOT APPLICABLE
RADIO	
BACKUP COMMS - 4G MODEM	
EMERGENCY PUMPING TIME	t.b.a.set
INCOMING MAINS SUPPLY CABLE	16mm?
MAIN EARTHING CABLE	6mm?
STARTER SUPPLY CABLE	<<??>>mm?
PUMP SUPPLY CABLE	<<??>>mm?
SEWAGE PUMPS - SAFETY STOP CATEGORY	CATEGORY 1

STANDARD DESIGN OPTIONS		
OPTION	DESCRIPTION	FITTED
A	INDIVIDUAL PUMP MOISTURE IN CHAMBER SENSOR AND FAULT RELAY	YES <input checked="" type="checkbox"/>
B	INDIVIDUAL PUMP STATOR TEMPERATURE SENSOR AND FAULT RELAY	YES <input checked="" type="checkbox"/>
C	INDIVIDUAL PUMP REFLUX VALVE MICRO SWITCH	<input checked="" type="checkbox"/> NO
D	UPSTREAM MANHOLE SURCHARGE IMMINENT PROBE	<input checked="" type="checkbox"/> NO
E	STATION DRY WELL SUMP PUMP & LEVEL SENSORS & RELAYS	<input checked="" type="checkbox"/> NO
F	STATION PERMANENT GENERATOR (ATS AND CONTROLS)	<input checked="" type="checkbox"/> NO
G	STATION EMERGENCY STORAGE LEVEL SENSOR & DEWATERING PUMP	<input checked="" type="checkbox"/> NO
H	STATION DELIVERY FLOWMETER	<input checked="" type="checkbox"/> NO
I	PRIMARY COMMUNICATION	YES <input checked="" type="checkbox"/>
J	PUMP CONNECTION METHOD - (Via Switchboard De-contactor)	YES <input checked="" type="checkbox"/>
K	CATHODIC PROTECTION	<input checked="" type="checkbox"/> NO
L	MOTOR THERMISTORS	<input checked="" type="checkbox"/> NO
M	ODOUR CONTROL	<input checked="" type="checkbox"/> NO
N	CURRENT TRANSFORMER (CT) METERING	<input checked="" type="checkbox"/> NO
O		YES NO
P	WET WELL WASHER	<input checked="" type="checkbox"/> NO
Q	VALVE PIT SUMP PUMP AND LEVEL PROBE	<input checked="" type="checkbox"/> NO
R	BACKUP COMMUNICATION	YES <input checked="" type="checkbox"/>
S	SECONDARY WET WELL LEVEL SENSOR (ULTRASONIC)	<input checked="" type="checkbox"/> NO
T	PRIMARY WET WELL LEVEL SENSOR	YES <input checked="" type="checkbox"/>
U	DELIVERY PRESSURE TRANSMITTER	YES <input checked="" type="checkbox"/>
V	CHEMICAL DOSING	<input checked="" type="checkbox"/> NO
W	SOFT STARTER	YES <input checked="" type="checkbox"/>
X	3rd PUMP INSTALLED	<input checked="" type="checkbox"/> NO
Y	POWER METER	<input checked="" type="checkbox"/> NO

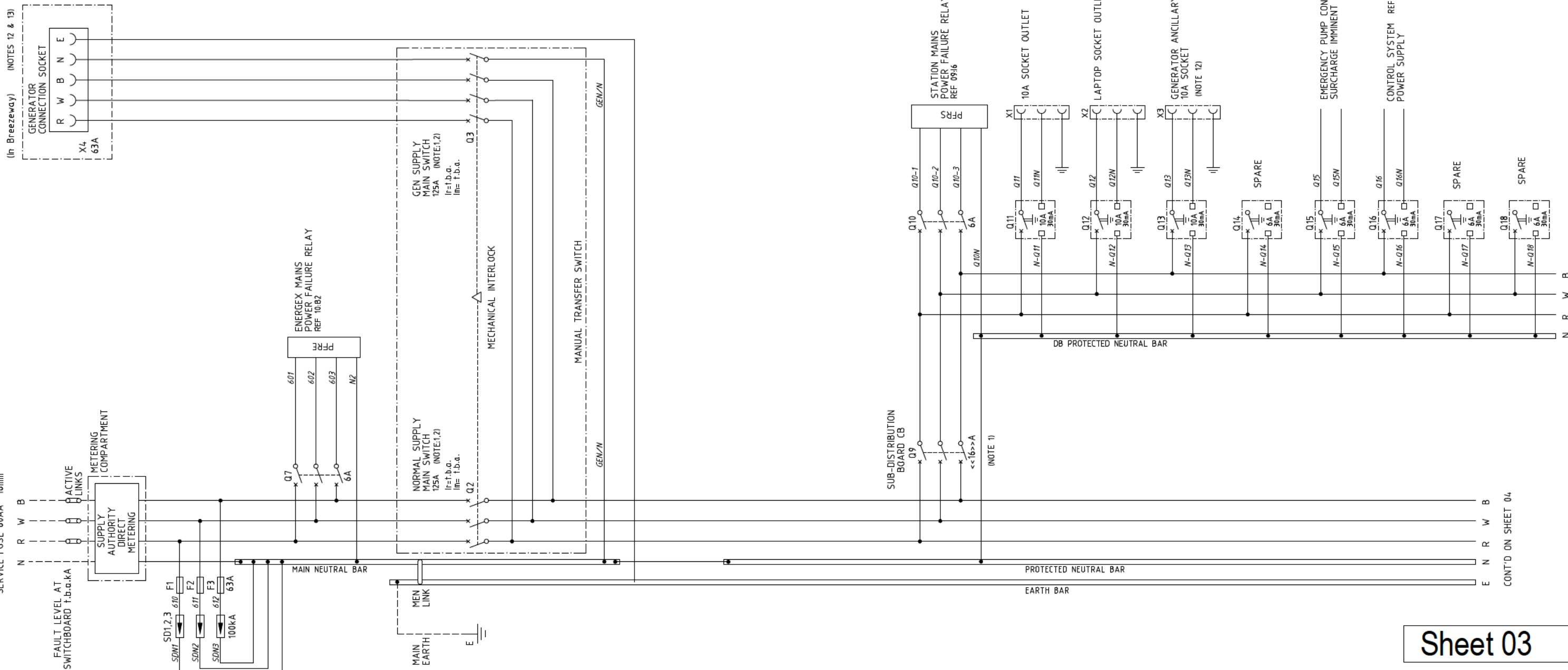
NOTE: Urban Utilities accepts no liability for the use of typical drawings, which must be adapted to the requirements of the particular system and accompanied by detailed designs certified by RPEQ

Sheet 01

AMENDMENTS					AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION			ENGINEERING CERTIFICATION			DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT		DRAWING TITLE			
					I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.			SIGNATURE RPEQ No. DISCIPLINE DATE			DRAFTED BY DATE				SP###		PUMP STATION SWITCHBOARD			
								SIGNATURE RPEQ No. DISCIPLINE DATE			DESIGNED BY DATE				SAMPLE ROAD, GREEN SQUARE		SP###-1040-SWB-0001			
					SIGNATURE DATE										SEWAGE PUMP STATION		DRAWING INDEX			
					NAME RPEQ No.			DESIGN MANAGER'S SIGNATURE DATE			URBAN UTILITIES CIP CODE									
					DISCIPLINE COMPANY NAME			PROJECT MANAGER'S SIGNATURE DATE			URBAN UTILITIES DESIGN W/O No.									
											URBAN UTILITIES CONSTRUCTION W/O No.									
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME								DRAWING STATUS		URBAN UTILITIES DRAWING No.		REV.
																FOR REVIEW		SP###-1000-EE-DRG-0001		P1


NOTES

1. INCOMING MAIN, GENSET, PUMP & DB CIRCUIT BREAKERS SHALL BE LINE SIDE SHROUDED.
2. M.E.N. LINK TO BE PROVIDED AS PER AS-3000,2018 SECTION 5.3.
3. SURGE PROTECTION DEVICE TO BE AS CLOSE TO THE INCOMER AS POSSIBLE.
4. CONDUCTORS SHALL BE A MINIMUM 6mm² AT A MAXIMUM LENGTH OF 600mm TO BE USED OVER THE SHORTEST AND MOST DIRECT PATH WITH NO LOOPS CONNECTED TO NEUTRAL.
5. ALL CIRCUIT BREAKERS TO BE PADLOCKABLE. LOCKING IS TO BE INDEPENDENT OF ESCUTCHEON.
6. CIRCUIT BREAKER RATINGS TO SUIT FAULT LEVEL & LOAD TO ENSURE TYPE 2 CO-ORDINATION WITH CIRCUIT BREAKERS, AC-3 CONTACTORS AND OVERLOADS TO AS IEC 60947.4.1:2015.
7. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST SIZE000 COMPATIBLE LABELING.
8. ALL LIGHT AND POWER CIRCUITS SHALL BE FITTED WITH RCD PROTECTION, SET AT 30mA.
9. ALL POWER OUTLETS MOUNTED ON ESCUTCHEONS TO BE WIRED IN DOUBLE INSULATED CABLES.
10. MAXIMUM DEMAND CALCULATION AND ALL CIRCUIT BREAKER SETTINGS WITHIN THIS DRAWINGS SET HAVE BEEN DERIVED FROM THE SITE POWER SYSTEM ANALYSIS FILE.
(Refer "SP###-0110--E22-001-Power System Analysis")
11. REFER TO TMS60 LOW VOLTAGE SWITCHBOARDS & ENCLOSURES.
12. REFER TO POWER SYSTEM ANALYSIS REPORT FOR DETAILS ON SELECTED GENERATOR SIZES FOR THIS SITE.
13. SWITCHBOARD MANUFACTURER TO PROVIDE DESIGN VERIFICATION REPORT (DVR).
14. TO BE REFERENCED IN AS BUILT REVISION.
15. GENERATOR TO BE PROVIDED WITH INTEGRAL EARTH FAULT PROTECTION. SET AT 150mA.
16. GENERATOR MEN MUST BE DISCONNECTED BEFORE CONNECTION TO SWITCHBOARD.
17. CABLING TO GENERATOR INLET SOCKET AND AUXILIARY SUPPLY GUTLET TO BE DOUBLE INSULATED. CABLING TO BE FULLY SEALED FROM OTHER COMPARTMENTS



CONT'D ON SHEET 04

Sheet 03

AMENDMENTS							AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION				ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM	ASSET/PROJECT		DRAWING TITLE			
							I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				SIGNATURE		SIGNATURE		DRAFTED BY			SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 POWER DISTRIBUTION SCHEMATIC DIA 400VAC & 230VAC			
							SIGNATURE		DATE		SIGNATURE		SIGNATURE		DESIGNED BY								
							NAME		RPEQ No.		DESIGN MANAGER'S SIGNATURE		DATE		URBAN UTILITIES' CIP CODE			DRAWING STATUS		URBAN UTILITIES DRAWING No.			
REV	DATE	DESCRIPTION				DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME	DISCIPLINE		PROJECT MANAGER'S SIGNATURE		DATE		URBAN UTILITIES' CONSTRUCTION W/O No.			FOR REVIEW		SP###-1000-EE-DRG-003		REV. P1


CONT'D ON SHEET 05						
AMENDMENTS						
REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPAN NAME

AS CONSTRUCTED CERTIFICATION	
FOR DRAWING REVISION	
I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.	
SIGNATURE	DATE
NAME	RPEQ No.
DISCIPLINE	COMPANY NAME

ENGINEERING CERTIFICATION			
SIGNATURE	RPEQ No.	DISCIPLINE	DATE
SIGNATURE	RPEQ No.	DISCIPLINE	DATE
DESIGN MANAGER'S SIGNATURE			DATE
PROJECT MANAGER'S SIGNATURE			DATE

DESIGN DRAFTING	
DRAFTED BY	DATE
DESIGNED BY	DATE
URBAN UTILITIES CIP CODE	
URBAN UTILITIES DESIGN W/O No.	
URBAN UTILITIES CONSTRUCTION W/O No.	

PROJECT TEAM

 **UrbanUtilities**

ASSET/PROJECT

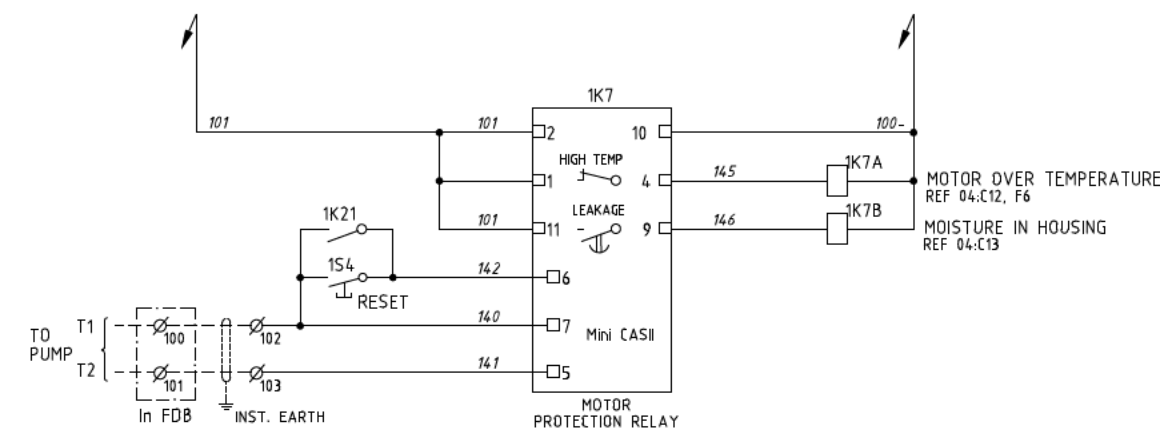
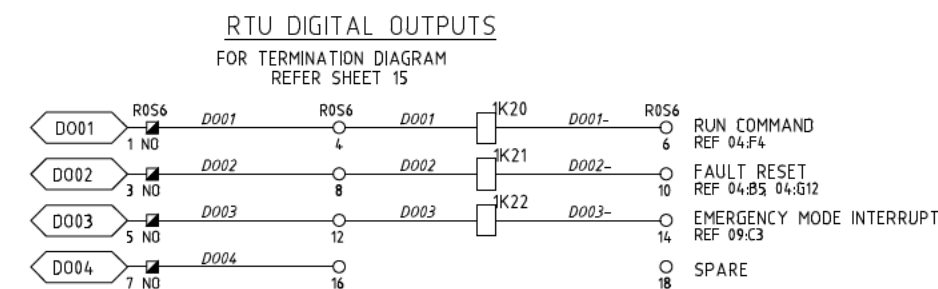
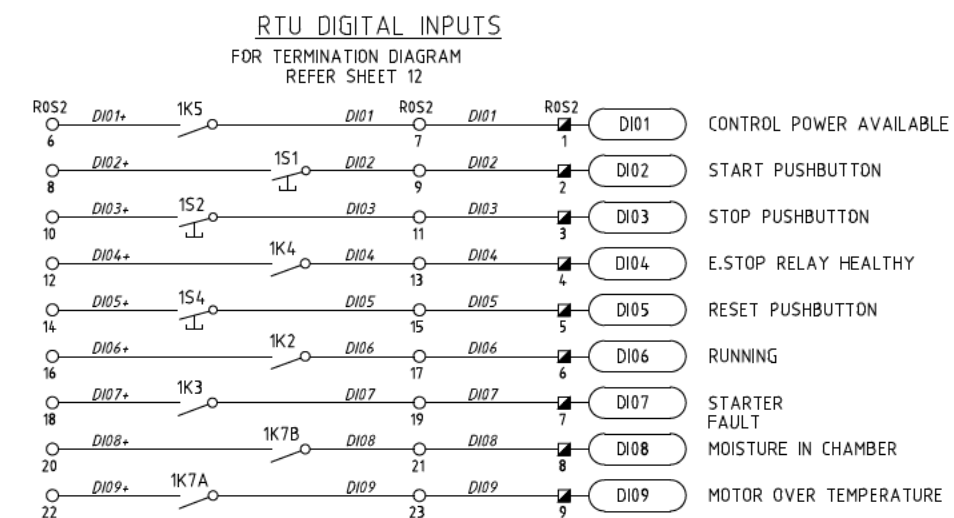
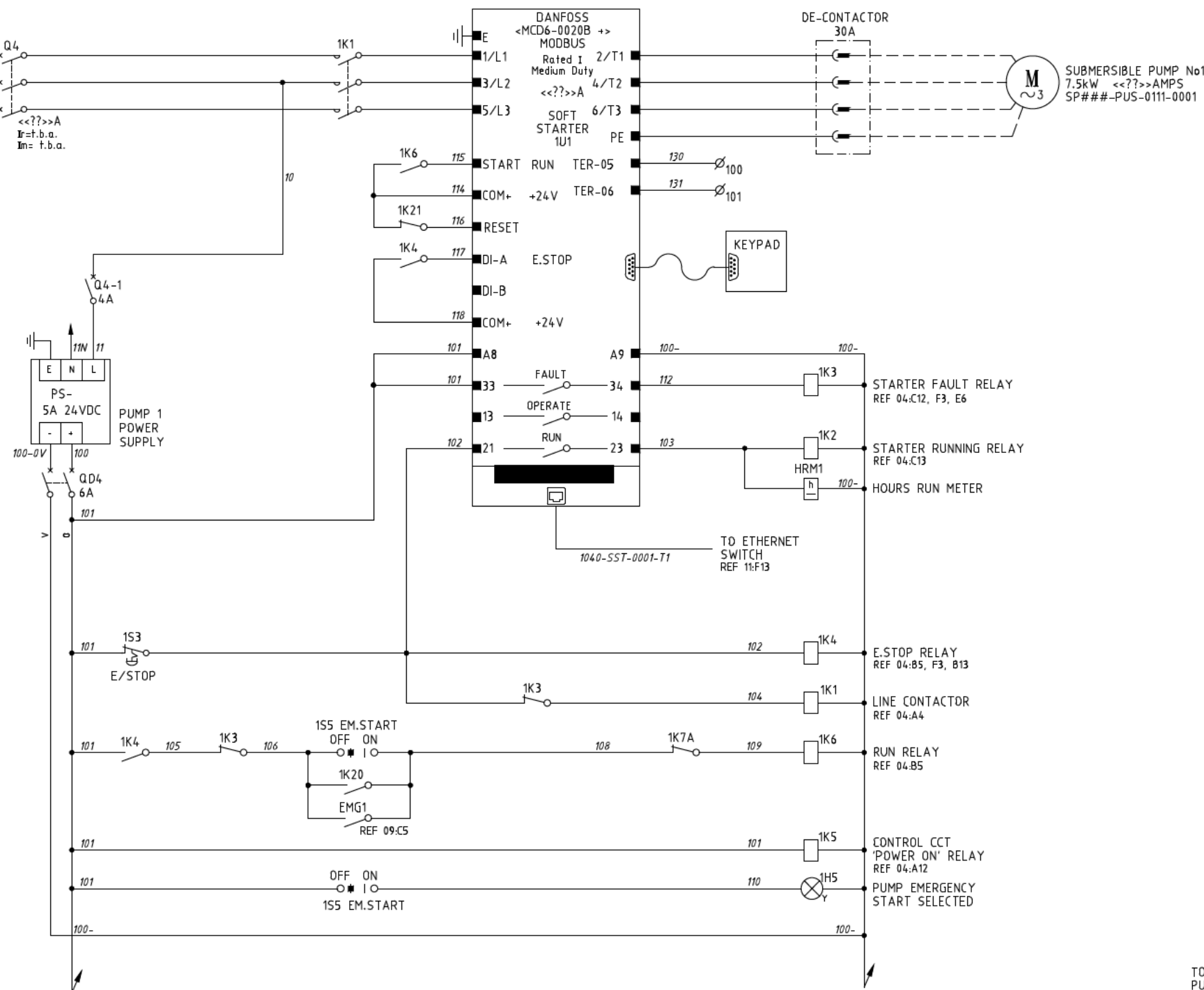
SP###

SAMPLE ROAD, GREEN SQUARE
SEWAGE PUMP STATION

DRAWING STATUS

FOR REVIEW

DRAWING TITLE PUMP STATION SWITCHBOARD SP### 1040-SWB-0001 SCHEMATIC DIAGRAM SUBMERSIBLE PUMP No1		REV.
URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-004		P1



- NOTES

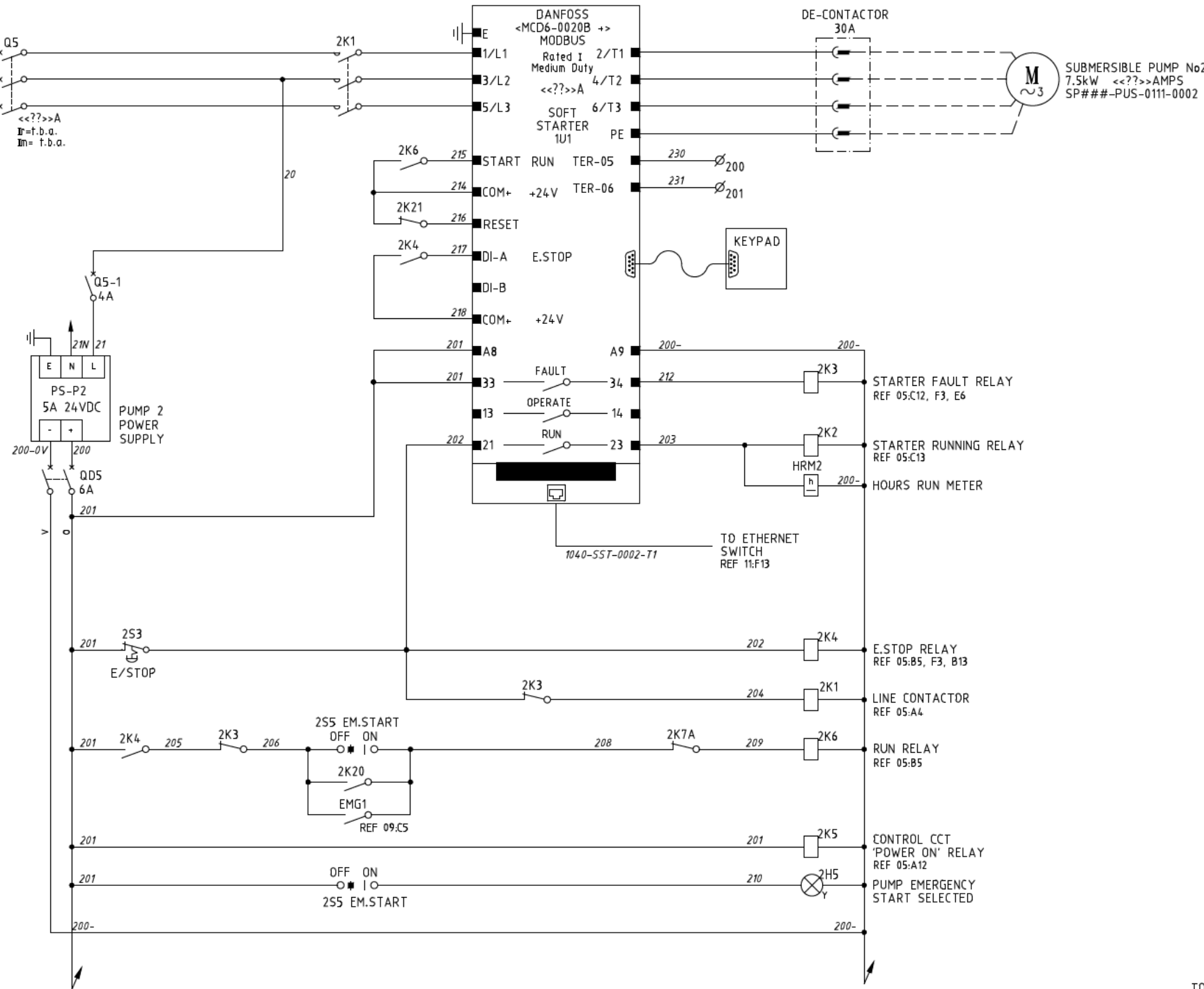
1. SUBMERSIBLE PUMP CIRCUIT BREAKER SHALL BE LINE SIDE SHROUDED.
2. CIRCUIT BREAKER RATINGS TO SUIT FAULT LEVEL & LOAD. ENSURE MIN TYPE 2 CO-ORDINATION WITH CIRCUIT BREAKERS, AC-3 CONTACTORS & OVERLOADS TO AS IEC 60947.4.1:2015.
3. ALL WIRES & CABLE CORES ARE FERRUED WITH GRAFOPLAST SI2000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

LEGEND:

- | | | | |
|---|---|--|----------------|
| ⊗ | RTU MARSH. CCT BKR TERM | | DIGITAL INPUT |
| ⊘ | RTU MARSHALLING TERM | | DIGITAL OUTPUT |
| ⊙ | SW/BOARD CONTROL TERM | | DIGITAL OUTPUT |
| ⊗ | FIELD TERMINAL | | ANALOG INPUT |
| ⊗ | RTU TERMINAL | | ANALOG INPUT |
| ■ | SS TERMINAL | | ANALOG OUTPUT |
| | DISCONNECT TERMINAL c/w COMPONENT BLOCK | | |

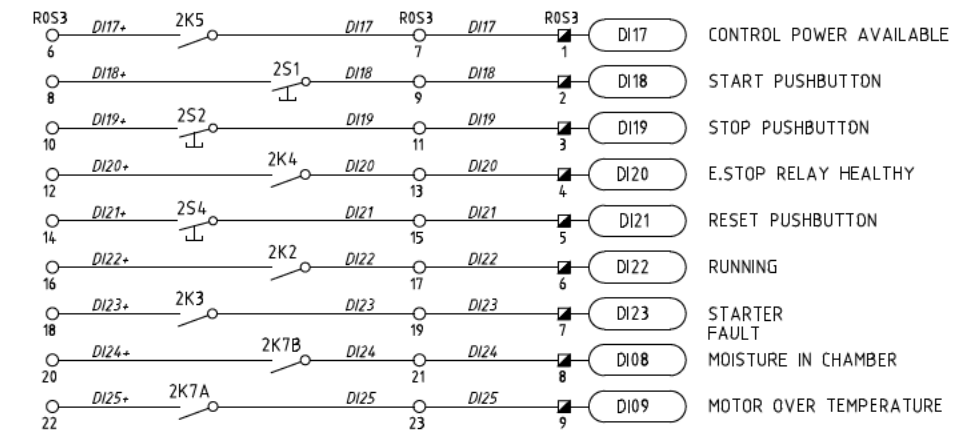
Sheet 04

CONT'D FROM SHEET 04



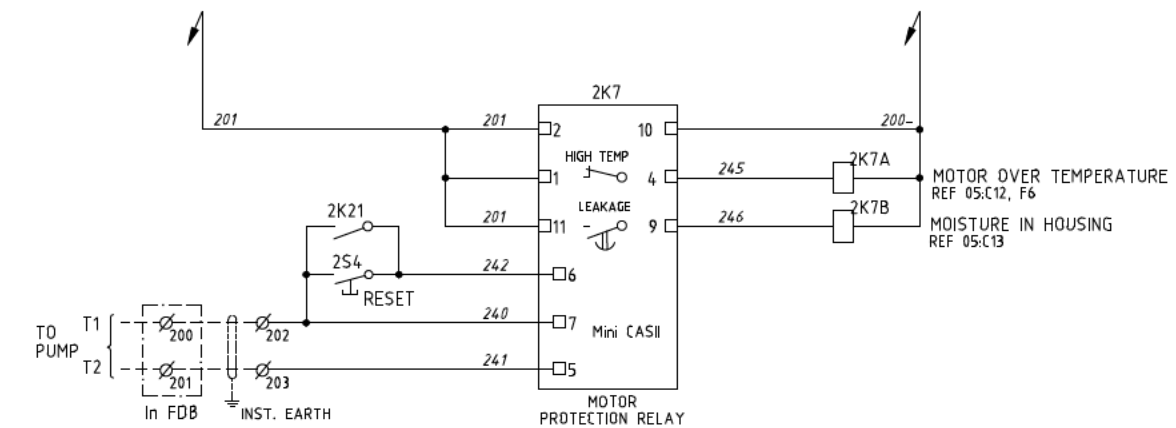
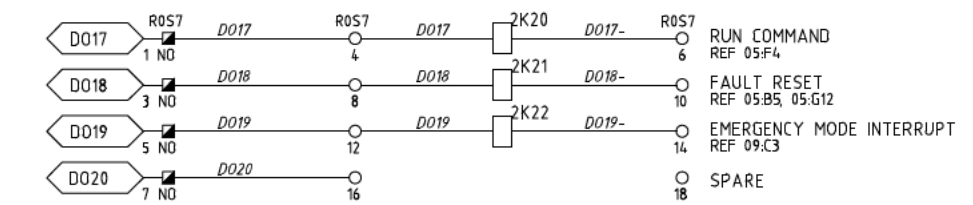
RTU DIGITAL INPUTS

FOR TERMINATION DIAGRAM
REFER SHEET 13



RTU DIGITAL OUTPUTS

FOR TERMINATION DIAGRAM
REFER SHEET 16



NOTES

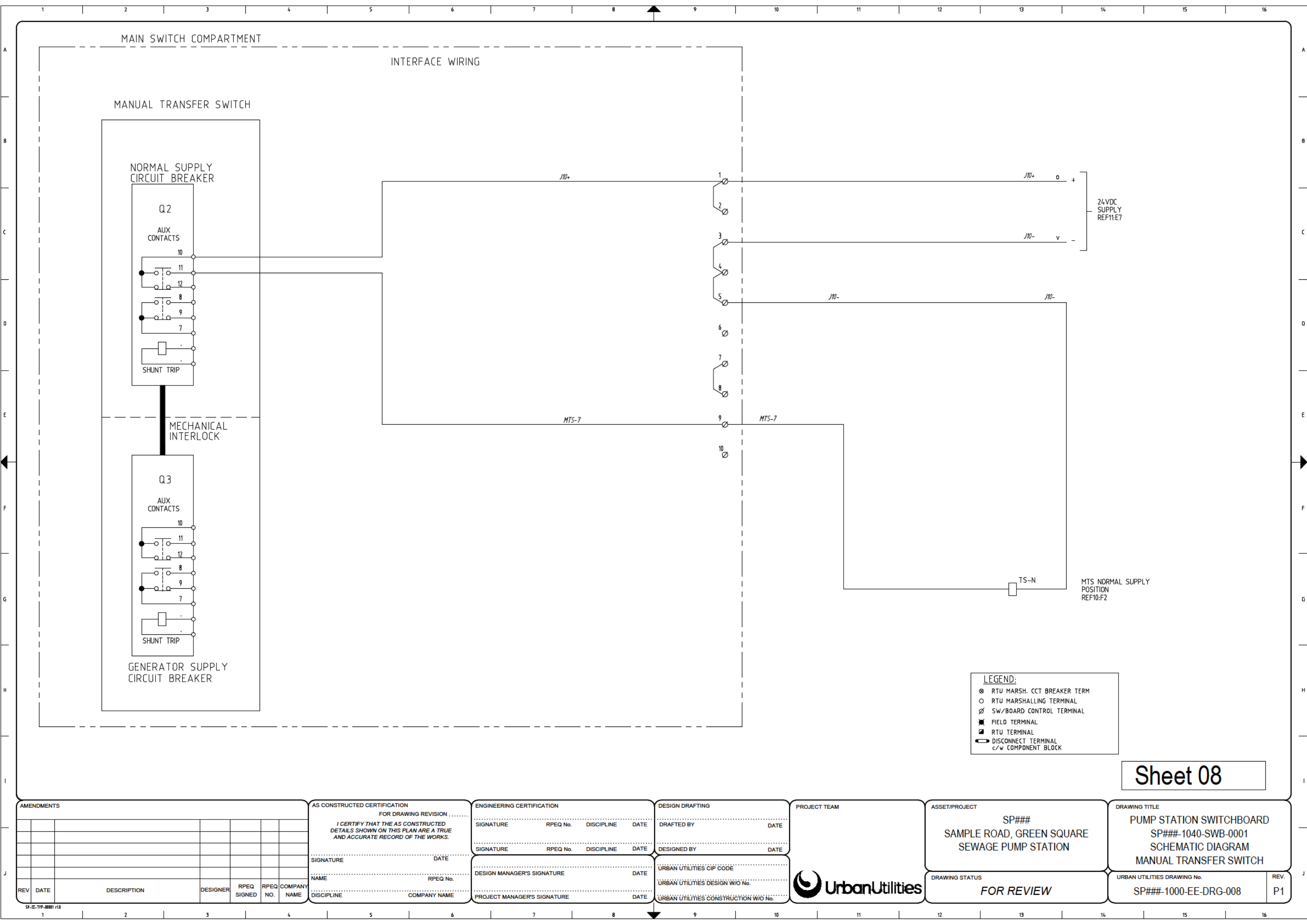
- SUBMERSIBLE PUMP CIRCUIT BREAKER SHALL BE LINE SIDE SHROUDED.
- CIRCUIT BREAKER RATINGS TO SUIT FAULT LEVEL & LOAD. ENSURE MIN TYPE 2 CO-ORDINATION WITH CIRCUIT BREAKERS, AC-3 CONTACTORS & OVERLOADS TO AS IEC 60947.4.1:2015.
- ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST SI2000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

LEGEND:

- RTU MARSH. CCT BKR TERM (DI01) DIGITAL INPUT
- RTU MARSHALLING TERM (DO01) DIGITAL OUTPUT
- SW/BOARD CONTROL TERM (AI01) ANALOG INPUT
- FIELD TERMINAL (AO01) ANALOG OUTPUT
- RTU TERMINAL
- SS TERMINAL
- DISCONNECT TERMINAL c/w COMPONENT BLOCK

Sheet 05

AMENDMENTS							AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION				ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM	ASSET/PROJECT		DRAWING TITLE			
							I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				SIGNATURE RPEQ No. DISCIPLINE DATE				DRAFTED BY DATE			SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 SCHEMATIC DIAGRAM SUBMERSIBLE PUMP No2			
							SIGNATURE DATE				SIGNATURE RPEQ No. DISCIPLINE DATE				DESIGNED BY DATE								
							NAME RPEQ No.				DESIGN MANAGER'S SIGNATURE DATE				URBAN UTILITIES CIP CODE								
							DISCIPLINE COMPANY NAME				PROJECT MANAGER'S SIGNATURE DATE				URBAN UTILITIES DESIGN W/O No.								
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME											DRAWING STATUS		URBAN UTILITIES DRAWING No.		REV.
																			FOR REVIEW		SP###-1000-EE-DRG-005		P1

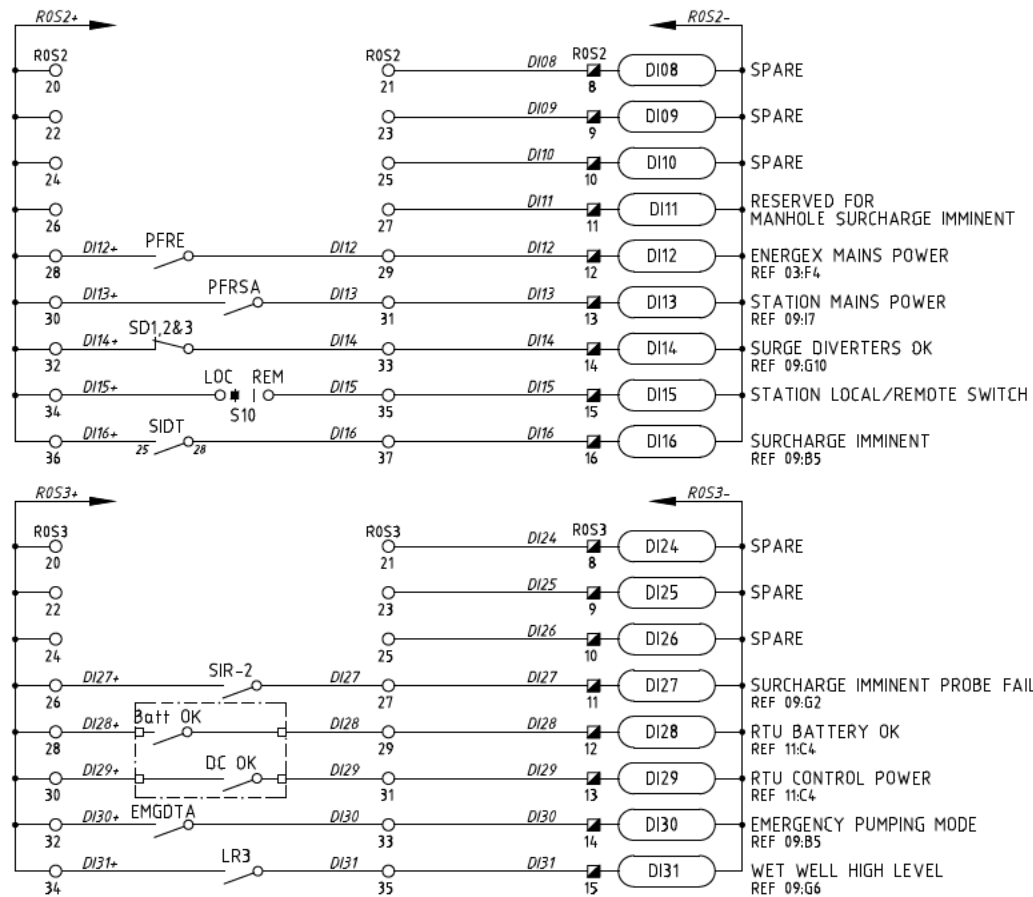


Sheet 08

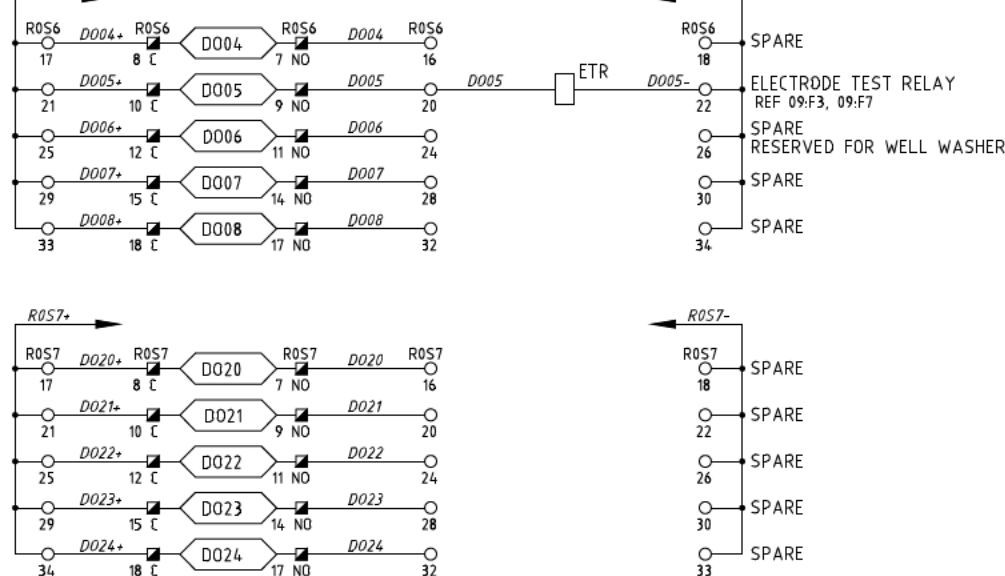
AMENDMENTS						AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION				ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT		DRAWING TITLE		
						I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				SIGNATURE RPEQ No. DISCIPLINE DATE				DRAFTED BY DATE				SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 SCHEMATIC DIAGRAM MANUAL TRANSFER SWITCH		
						SIGNATURE DATE				SIGNATURE RPEQ No. DISCIPLINE DATE				DESIGNED BY DATE								
						NAME RPEQ No.				DESIGN MANAGER'S SIGNATURE DATE				URBAN UTILITIES CIP CODE								
						DISCIPLINE COMPANY NAME				PROJECT MANAGER'S SIGNATURE DATE				URBAN UTILITIES DESIGN W/O No.								
														URBAN UTILITIES CONSTRUCTION W/O No.								
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME										DRAWING STATUS		URBAN UTILITIES DRAWING No.		
																		FOR REVIEW		SP###-1000-EE-DRG-008		
																				REV. P1		



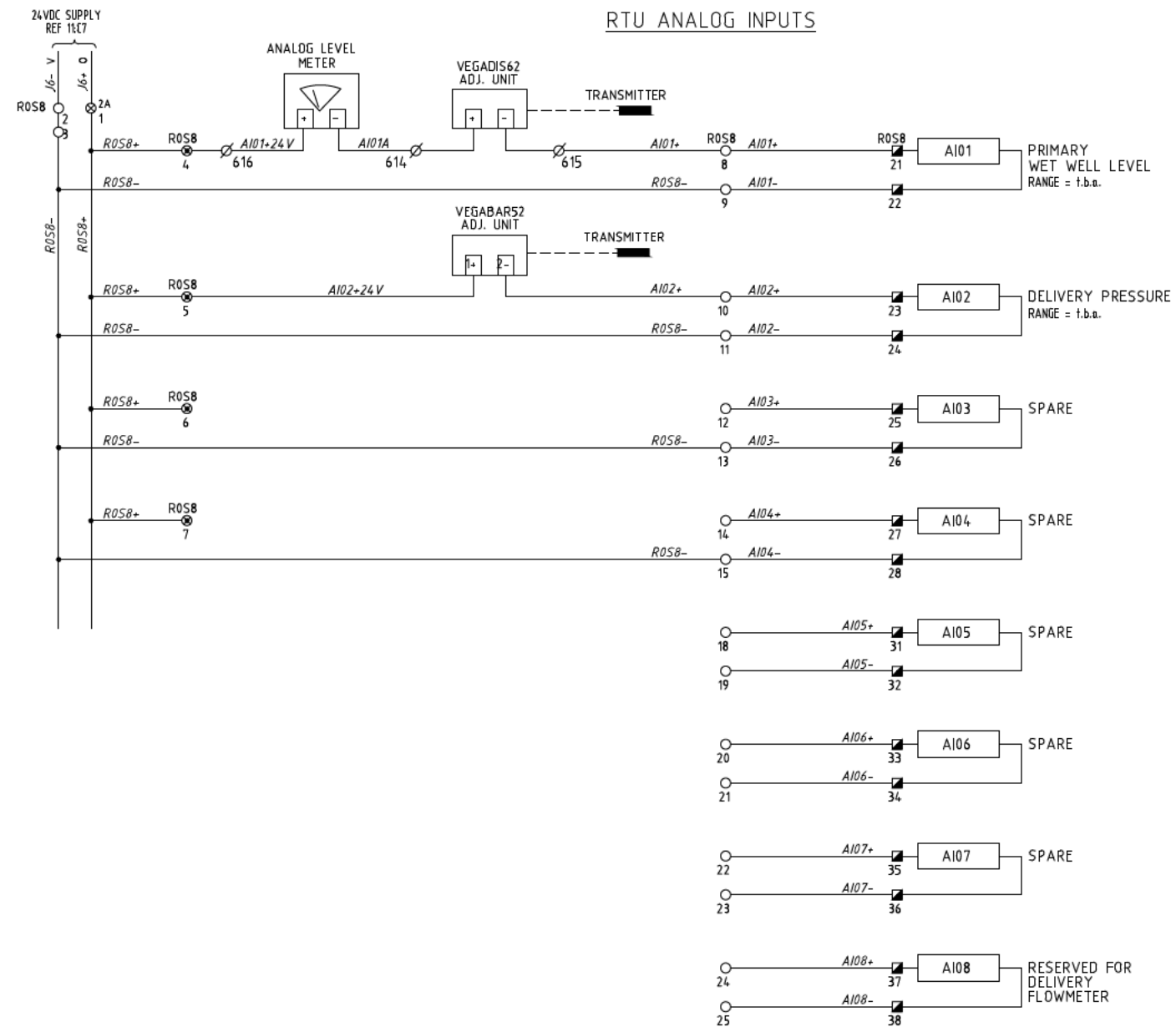
RTU DIGITAL INPUTS



RTU DIGITAL OUTPUTS



RTU ANALOG INPUTS



LEGEND:

- ⊗ RTU MARSH. CCT BREAKER TERM
- ⊙ RTU MARSH. FUSE TERMINAL
- RTU MARSHALLING TERMINAL
- ⊘ SW/BOARD CONTROL TERMINAL
- RTU TERMINAL
- COMPONENT TERMINAL

DI01 DIGITAL INPUT

DO01 DIGITAL OUTPUT

AI01 ANALOG INPUT

AO01 ANALOG OUTPUT

NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST SI2000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

Sheet 10

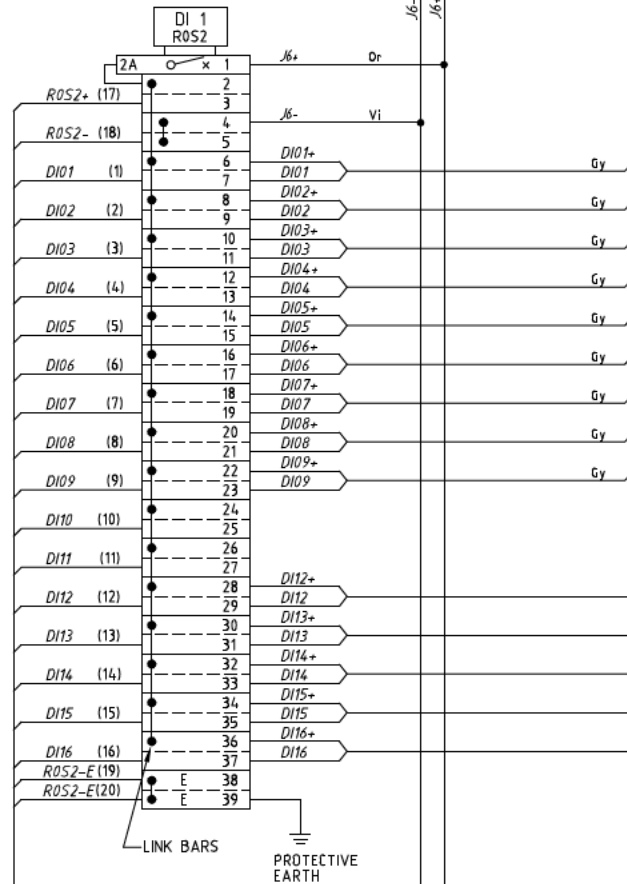
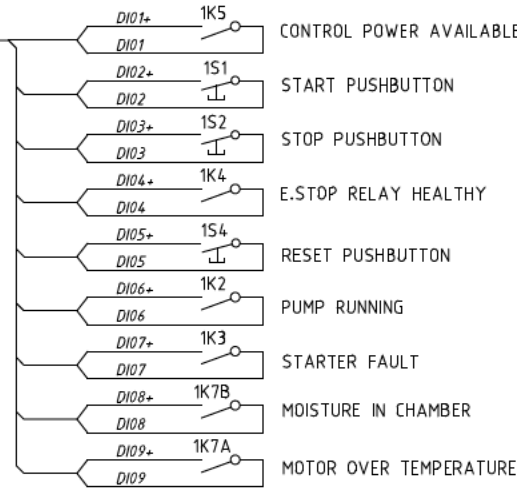
AMENDMENTS					AS CONSTRUCTED CERTIFICATION					ENGINEERING CERTIFICATION					DESIGN DRAFTING					PROJECT TEAM					ASSET/PROJECT					DRAWING TITLE				
					I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.					SIGNATURE RPEQ No. DISCIPLINE DATE					DRAFTED BY DATE					SP###					PUMP STATION SWITCHBOARD									
					SIGNATURE DATE					SIGNATURE RPEQ No. DISCIPLINE DATE					DESIGNED BY DATE					SAMPLE ROAD, GREEN SQUARE					SP###-1040-SWB-0001									
					NAME RPEQ No.					DESIGN MANAGER'S SIGNATURE DATE					URBAN UTILITIES CIP CODE					SEWAGE PUMP STATION					SCHEMATIC DIAGRAM									
					DISCIPLINE COMPANY NAME					PROJECT MANAGER'S SIGNATURE DATE					URBAN UTILITIES DESIGN W/O No.					DRAWING STATUS					URBAN UTILITIES DRAWING No.									
															URBAN UTILITIES CONSTRUCTION W/O No.					FOR REVIEW					SP###-1000-EE-DRG-010									
																									REV.									
																									P1									



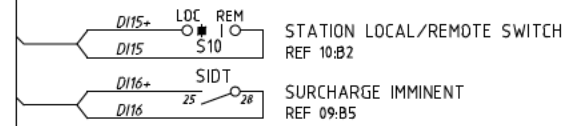
RTU COMPARTMENT

RACK 0 SLOT 2
16 CHANNEL
DIGITAL INPUT MODULE
16 DI Fast 24V

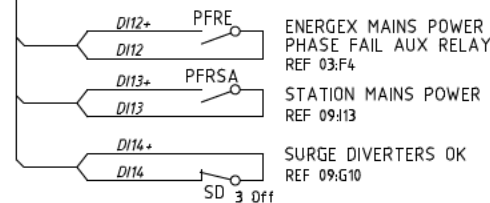
DI01	1	(1)
DI02	2	(2)
DI03	3	(3)
DI04	4	(4)
DI05	5	(5)
DI06	6	(6)
DI07	7	(7)
DI08	8	(8)
DI09	9	(9)
DI10	10	(10)
DI11	11	(11)
DI12	12	(12)
DI13	13	(13)
DI14	14	(14)
DI15	15	(15)
DI16	16	(16)
+24V	17	(17)
COM1	18	(18)
PGND1	19	(19)
PGND1	20	(20)

WIRED
CABLE BRAID &
20 WAY TB HOLDERPUMP 1
STARTER COMPARTMENT
REFER SHEET 04

COMMON COMPARTMENT



INCOMER COMPARTMENT



SWITCHBOARD

FIELD

LEGEND:

C??	CABLE IDENTIFIER
2A 1	RTU MINITURE CCT BREAKER
1	LINK TERMINAL
1 2	THROUGH TERMINAL (DUAL LEVEL)
1 2	GROUND TERMINAL (DUAL LEVEL)

NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST S12000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

Sheet 12

AMENDMENTS					AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.					ENGINEERING CERTIFICATION					DESIGN DRAFTING					PROJECT TEAM					ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION					DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 TERMINATION DIAGRAM RTU DIGITAL INPUTS - SHEET 1 OF 2														
					SIGNATURE DATE					SIGNATURE RPEQ No. DISCIPLINE DATE					DRAFTED BY DATE																													
					NAME RPEQ No.					SIGNATURE RPEQ No. DISCIPLINE DATE					DESIGNED BY DATE																													
					DISCIPLINE COMPANY NAME					DESIGN MANAGER'S SIGNATURE DATE					URBAN UTILITIES CIP CODE																													
										PROJECT MANAGER'S SIGNATURE DATE					URBAN UTILITIES DESIGN W/O No.																													
															URBAN UTILITIES CONSTRUCTION W/O No.																													
REV DATE DESCRIPTION DESIGNER RPEQ SIGNED RPEQ NO. COMPANY NAME																														DRAWING STATUS FOR REVIEW					URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-012					REV. P1				

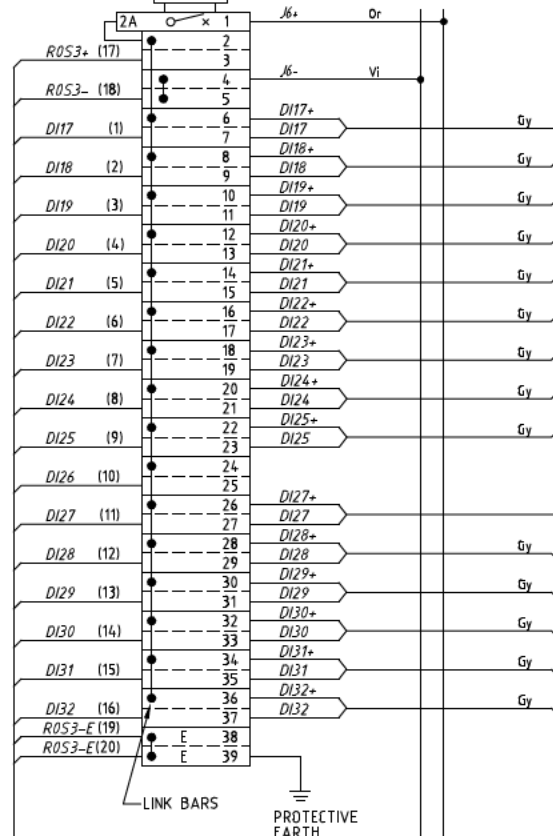
RTU COMPARTMENT

RACK 0 SLOT 3
16 CHANNEL
DIGITAL INPUT MODULE
16 DI Fast 24V

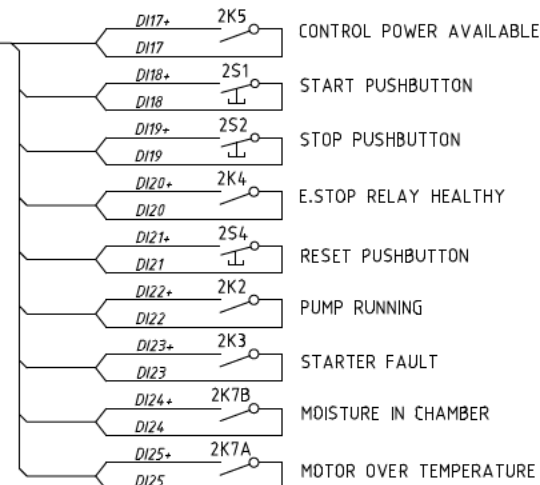
DI17	1	(1)
DI18	2	(2)
DI19	3	(3)
DI20	4	(4)
DI21	5	(5)
DI22	6	(6)
DI23	7	(7)
DI24	8	(8)
DI25	9	(9)
DI26	10	(10)
DI27	11	(11)
DI28	12	(12)
DI29	13	(13)
DI30	14	(14)
DI31	15	(15)
DI32	16	(16)
+24V	17	(17)
COM1	18	(18)
PGND1	19	(19)
PGND1	20	(20)

WIRED
CABLE BRAID &
20 WAY TB HOLDERRACK 0 SLOT 4
16 CHANNEL
DIGITAL INPUT MODULE
16 DI Fast 24V

DI33	1	(1)
DI34	2	(2)
DI35	3	(3)
DI36	4	(4)
DI37	5	
DI38	6	
DI39	7	
DI40	8	
DI41	9	
DI42	10	
DI43	11	
DI44	12	
DI45	13	
DI46	14	
DI47	15	
DI48	16	
+24V	17	
COM1	18	(18)
PGND1	19	(19)
PGND1	20	(20)

WIRED
CABLE BRAID &
10 WAY TB HOLDERDI 2
R053PROTECTIVE
EARTHCONT ON
SHEET 15PUMP 2
STARTER COMPARTMENT

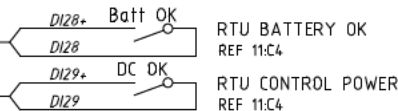
REFER SHEET 05



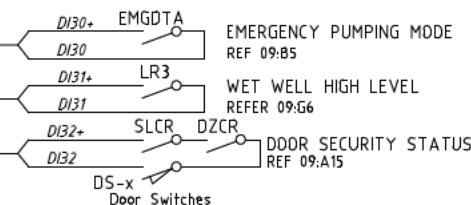
COMMON COMPARTMENT



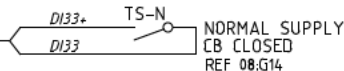
RTU COMPARTMENT



COMMON COMPARTMENT



COMMON COMPARTMENT



NOTES

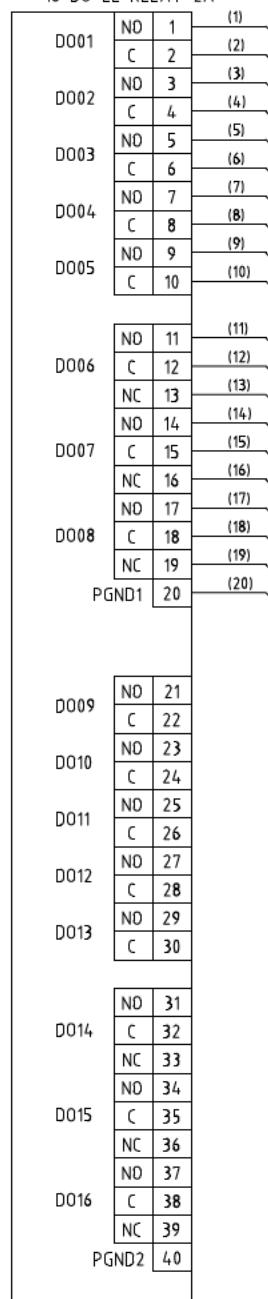
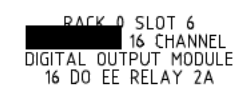
1. ALL WIRES & CABLE CORES ARE
FERRULED WITH GRAFOPLAST S12000
COMPATIBLE LABELING.
TERMINAL NUMBERING TO USE PHOENIX
TERMINAL NUMBERING SYSTEM
PACKAGE.

LEGEND:

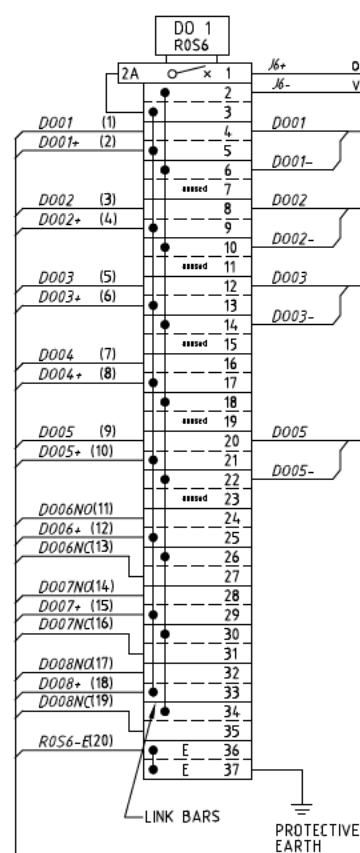
C??	CABLE IDENTIFIER
2A 1 2	RTU MINITURE CCT BREAKER
1 2	THROUGH TERMINAL (DUAL LEVEL)
1 2	GROUND TERMINAL (DUAL LEVEL)

Sheet 13

AMENDMENTS				AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				ENGINEERING CERTIFICATION SIGNATURE RPEQ No. DISCIPLINE DATE SIGNATURE RPEQ No. DISCIPLINE DATE				DESIGN DRAFTING DRAFTED BY DATE DESIGNED BY DATE				PROJECT TEAM				ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION				DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 TERMINATION DIAGRAM RTU DIGITAL INPUTS - SHEET 2 OF 2							
REV DATE DESCRIPTION DESIGNER RPEQ SIGNED RPEQ NO. COMPANY NAME				SIGNATURE DATE NAME RPEQ No. DISCIPLINE COMPANY NAME				DESIGN MANAGER'S SIGNATURE DATE PROJECT MANAGER'S SIGNATURE DATE				URBAN UTILITIES' CIP CODE URBAN UTILITIES DESIGN W/O No. URBAN UTILITIES CONSTRUCTION W/O No.				UrbanUtilities				DRAWING STATUS FOR REVIEW				URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-013				REV. P1			

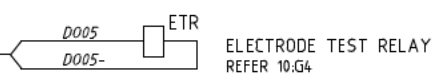
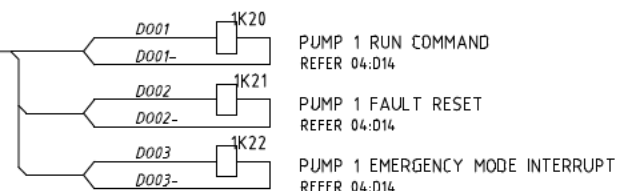


WIRED
CABLE BRAID &
20 WAY TB HOLDER



CONT ON
SHEET 13

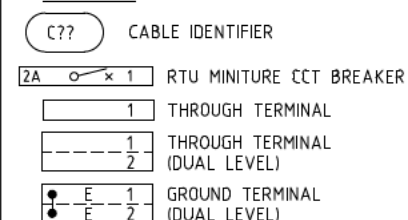
CONT ON
SHEET 16



NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST SI2000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

LEGEND:



Sheet 15


AMENDMENTS						
REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPAN NAME

AS CONSTRUCTED CERTIFICATION	
FOR DRAWING REVISION .	
I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.	
SIGNATURE	DATE
NAME	RPEQ No
DISCIPLINE	COMPANY NAME

ENGINEERING CERTIFICATION			
SIGNATURE	RPEQ No.	DISCIPLINE	DATE
SIGNATURE	RPEQ No.	DISCIPLINE	DATE
DESIGN MANAGER'S SIGNATURE			DATE
PROJECT MANAGER'S SIGNATURE			DATE

DESIGN DRAFTING	
DRAFTED BY	DATE
DESIGNED BY	DATE
URBAN UTILITIES CIP CODE	
URBAN UTILITIES DESIGN W/O No.	
URBAN UTILITIES CONSTRUCTION W/O No.	

PROJECT TEAM

 Urban Utilities

ASSET/PROJECT	SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION
DRAWING STATUS	<i>FOR REVIEW</i>

DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 TERMINATION DIAGRAM RTU DIGITAL OUTPUTS - SHEET 1 OF 2		REV.
URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-015		P1

RTU COMPARTMENT

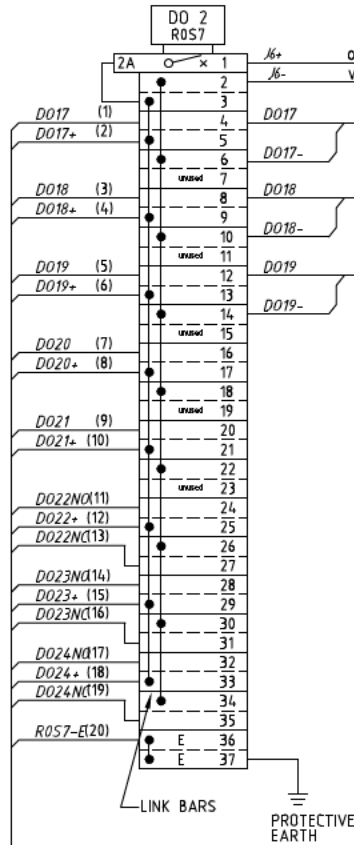
RACK 0 SLOT 7
16 CHANNEL
DIGITAL OUTPUT MODULE
16 DD EE RELAY 2A

D017	NO	1	(1)
	C	2	(2)
D018	NO	3	(3)
	C	4	(4)
D019	NO	5	(5)
	C	6	(6)
D020	NO	7	(7)
	C	8	(8)
D021	NO	9	(9)
	C	10	(10)
D022	NO	11	(11)
	C	12	(12)
D023	NC	13	(13)
	NO	14	(14)
D024	C	15	(15)
	NC	16	(16)
D025	NO	17	(17)
	C	18	(18)
D026	NC	19	(19)
	PGND1	20	(20)
D027	NO	21	
	C	22	
D028	NO	23	
	C	24	
D029	NO	25	
	C	26	
D030	NO	27	
	C	28	
D031	NO	29	
	C	30	
D032	NO	31	
	C	32	
D033	NC	33	
	NO	34	
D034	C	35	
	NC	36	
D035	NO	37	
	C	38	
D036	NC	39	
	PGND2	40	

WIRED
CABLE BRAID &
20 WAY TB HOLDER

CONT ON
SHEET 15

CONT ON
SHEET 17

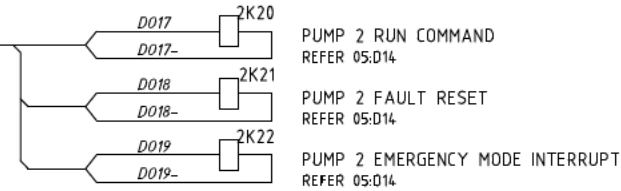


SWITCHBOARD

FIELD

PUMP 2
STARTER COMPARTMENT

REFER SHEET 05



PUMP 2 RUN COMMAND
REFER 05:014

PUMP 2 FAULT RESET
REFER 05:014

PUMP 2 EMERGENCY MODE INTERRUPT
REFER 05:014

NOTES

1. ALL WIRES & CABLE CORES ARE
FERRULED WITH GRAFOPLAST SI2000
COMPATIBLE LABELING.
TERMINAL NUMBERING TO USE PHOENIX
TERMINAL NUMBERING SYSTEM
PACKAGE.

LEGEND:

C??	CABLE IDENTIFIER
2A	RTU MINITURE CCT BREAKER
1 2	THROUGH TERMINAL (DUAL LEVEL)
E 1 E 2	GROUND TERMINAL (DUAL LEVEL)

Sheet 16

AMENDMENTS					AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.					ENGINEERING CERTIFICATION SIGNATURE RPEQ No. DISCIPLINE DATE SIGNATURE RPEQ No. DISCIPLINE DATE					DESIGN DRAFTING DRAFTED BY DATE DESIGNED BY DATE					PROJECT TEAM					ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION					DRAWING TITLE PUMP STATION SWITCHBOARD SP### 1040-SWB-0001 TERMINATION DIAGRAM RTU DIGITAL OUTPUTS - SHEET 2 OF 2									
REV DATE DESCRIPTION DESIGNER RPEQ SIGNED RPEQ NO. COMPANY NAME					SIGNATURE DATE NAME RPEQ No. DISCIPLINE COMPANY NAME					DESIGN MANAGER'S SIGNATURE DATE PROJECT MANAGER'S SIGNATURE DATE					URBAN UTILITIES CIP CODE URBAN UTILITIES DESIGN W/O No. URBAN UTILITIES CONSTRUCTION W/O No.					UrbanUtilities					DRAWING STATUS FOR REVIEW					URBAN UTILITIES DRAWING No. SP### 1000-EE-DRG-016					REV. P1				

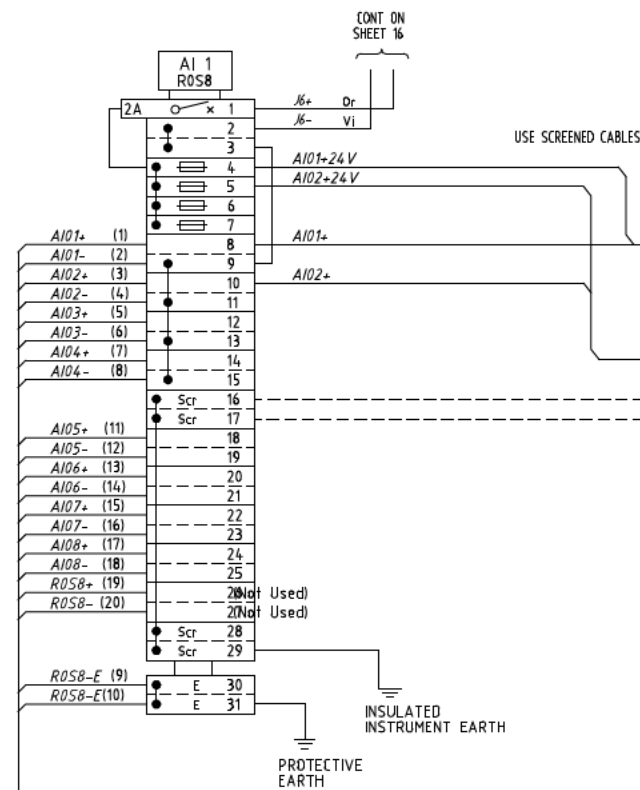
RTU COMPARTMENT

BACK 0 SLOT 8
14AD/8AI CHANNEL
MIXED ANALOG MODULE
8 AI 20mA

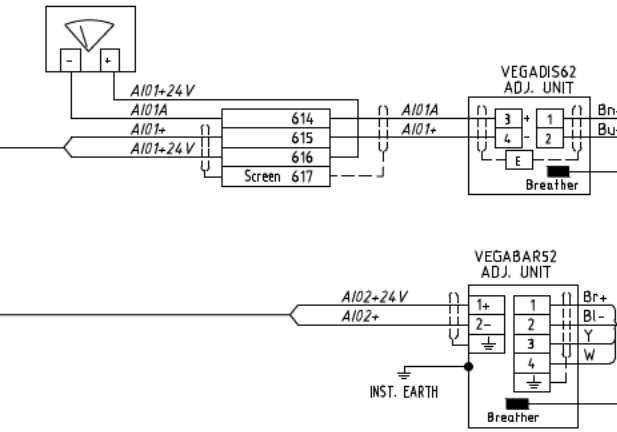
AI01	CH1	21	(1)
		22	(2)
AI02	CH2	23	(3)
		24	(4)
AI03	CH3	25	(5)
		26	(6)
AI04	CH4	27	(7)
		28	(8)
	PGND	29	(9)
	PGND	30	(10)
AI05	CH5	31	(11)
		32	(12)
AI06	CH6	33	(13)
		34	(14)
		35	(15)
AI07	CH7	36	(16)
		37	(17)
AI08	CH8	38	(18)
		39	(19)
	+24 V	40	(20)
	-24 V		

PART OFF
MIXED ANALOG MODULE
REF 18.B1

WIRED
CABLE BRAID &
20 WAY TB HOLDER

ANALOG LEVEL
METER

RTU COMPARTMENT



1090-LT-0001-J

PRIMARY
WET WELL LEVEL
TRANSMITTER

1090-LT-0001

1090-PIT-0001-J

DELIVERY PRESSURE
TRANSMITTER

1090-PIT-0001

LEGEND:

C??	CABLE IDENTIFIER
2A	RTU MINITURE CCT BREAKER
1	FUSE TERMINAL
1	THROUGH TERMINAL
1	THROUGH TERMINAL (DUAL LEVEL)
2	THROUGH TERMINAL (DUAL LEVEL)
E 1	GROUND TERMINAL (DUAL LEVEL)
E 2	GROUND TERMINAL (DUAL LEVEL)

NOTES

1. ALL WIRES & CABLE CORES ARE
FERRULED WITH GRAFOPLAST S12000
COMPATIBLE LABELING.
TERMINAL NUMBERING TO USE PHOENIX
TERMINAL NUMBERING SYSTEM
PACKAGE.

2. ALL FUSES ARE 500mA EXCEPT
WHERE NOTED OTHERWISE.

Sheet 17

AMENDMENTS

REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME

AS CONSTRUCTED CERTIFICATION

FOR DRAWING REVISION
I CERTIFY THAT THE AS CONSTRUCTED
DETAILS SHOWN ON THIS PLAN ARE A TRUE
AND ACCURATE RECORD OF THE WORKS.

SIGNATURE DATE
NAME RPEQ No.
DISCIPLINE COMPANY NAME

ENGINEERING CERTIFICATION

SIGNATURE RPEQ No. DISCIPLINE DATE
SIGNATURE RPEQ No. DISCIPLINE DATE

DESIGN MANAGER'S SIGNATURE DATE
PROJECT MANAGER'S SIGNATURE DATE

DESIGN DRAFTING

DRAFTED BY DATE
DESIGNED BY DATE

URBAN UTILITIES CIP CODE
URBAN UTILITIES DESIGN W/O No.
URBAN UTILITIES CONSTRUCTION W/O No.

PROJECT TEAM

URBAN UTILITIES

ASSET/PROJECT

SP###
SAMPLE ROAD, GREEN SQUARE
SEWAGE PUMP STATION

DRAWING STATUS

FOR REVIEW

DRAWING TITLE

PUMP STATION SWITCHBOARD
SP###-1040-SWB-0001
TERMINATION DIAGRAM
RTU ANALOG INPUTS

URBAN UTILITIES DRAWING No.

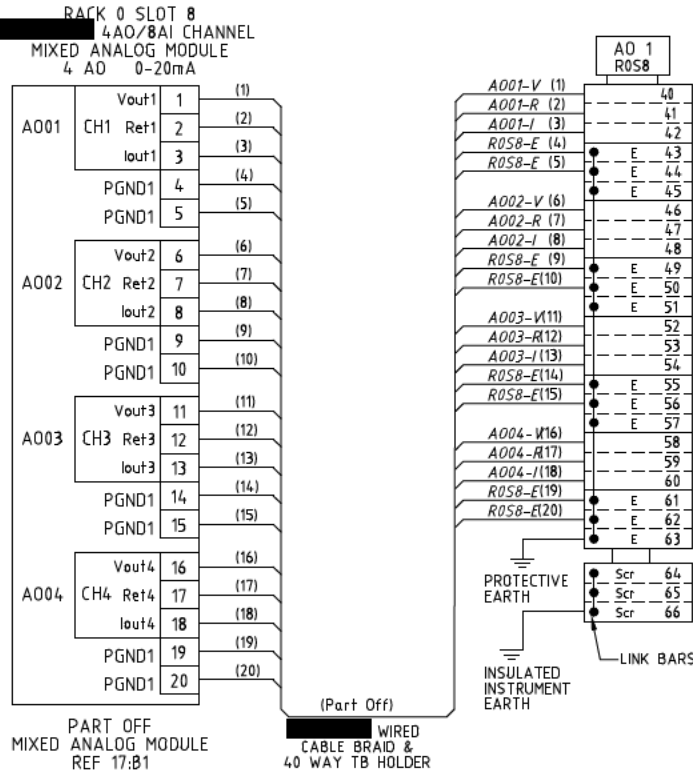
SP###-1000-EE-DRG-017

REV.

P1

RTU COMPARTMENT

STARTER COMPARTMENT



LEGEND:

C?? CABLE IDENTIFIER

2A RTU MINITURE CCT BREAKER

THROUGH TERMINAL (THREE LEVEL)

GROUND TERMINAL (THREE LEVEL)

NOTES

1. ALL WIRES & CABLE CORES ARE FERRULED WITH GRAFOPLAST S12000 COMPATIBLE LABELING. TERMINAL NUMBERING TO USE PHOENIX TERMINAL NUMBERING SYSTEM PACKAGE.

Sheet 18

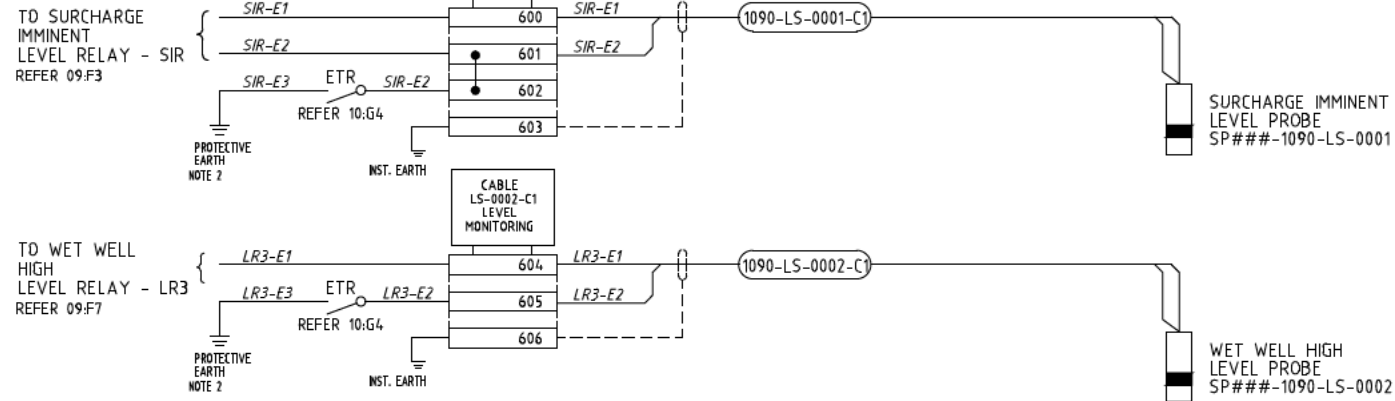
AMENDMENTS					AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.					ENGINEERING CERTIFICATION					DESIGN DRAFTING					PROJECT TEAM					ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION					DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 TERMINATION DIAGRAM RTU ANALOG OUTPUTS																			
					SIGNATURE DATE					SIGNATURE RPEQ No. DISCIPLINE DATE					DRAFTED BY DATE																																		
					NAME RPEQ No.					SIGNATURE RPEQ No. DISCIPLINE DATE					DESIGNED BY DATE																																		
					DISCIPLINE COMPANY NAME					DESIGN MANAGER'S SIGNATURE DATE					URBAN UTILITIES CIP CODE																																		
										PROJECT MANAGER'S SIGNATURE DATE					URBAN UTILITIES DESIGN W/O No.																																		
															URBAN UTILITIES CONSTRUCTION W/O No.																																		
REV DATE DESCRIPTION DESIGNER RPEQ SIGNED RPEQ NO. COMPANY NAME																																																	
SP-ET-TYP-00001 r1.0																																																	



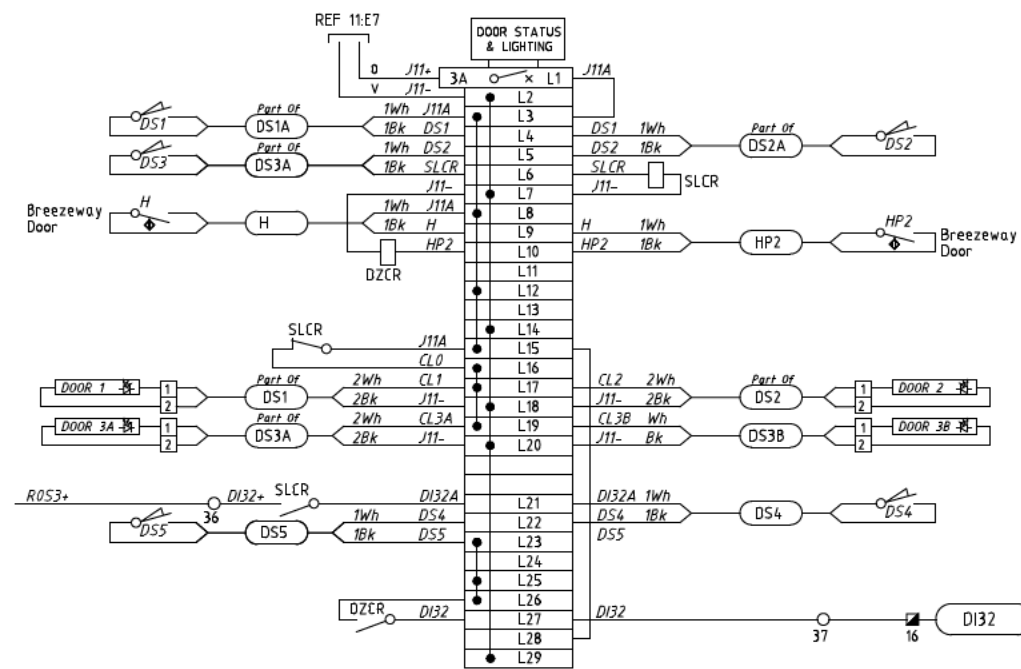
DRAWING STATUS
FOR REVIEW

URBAN UTILITIES DRAWING No.
SP###-1000-EE-DRG-018
REV.
P1

LEVEL MONITORING



SWITCHBOARD INTERNAL LIGHTING AND SECURITY



LEGEND:

C?? CABLE IDENTIFIER

2A x 1 RTU MINITURE CCT BREAKER


1 THROUGH TERMINAL

NOTES

1. ALL WIRES & CABLE CORES ARE
FERRULED WITH GRAFOPLAST S12000
COMPATIBLE LABELING.
TERMINAL NUMBERING TO USE PHOENIX
TERMINAL NUMBERING SYSTEM
PACKAGE.

2. RUN SEPARATE DEDICATED EARTH CONDUCTOR TO PROTECTIVE EARTH BAR.

Sheet 19

AMENDMENTS							AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.		ENGINEERING CERTIFICATION SIGNATURE RPEQ No. DISCIPLINE DATE SIGNATURE RPEQ No. DISCIPLINE DATE				DESIGN DRAFTING DRAFTED BY DATE DESIGNED BY DATE		PROJECT TEAM		ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 TERMINATION DIAGRAM COMMON CONTROLS	
							SIGNATURE DATE													
							NAME RPEQ No.		DESIGN MANAGER'S SIGNATURE DATE				URBAN UTILITIES CIP CODE							
							DISCIPLINE COMPANY NAME		PROJECT MANAGER'S SIGNATURE DATE				URBAN UTILITIES DESIGN W/O No.							
													URBAN UTILITIES CONSTRUCTION W/O No.							
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME							DRAWING STATUS FOR REVIEW		URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-019		REV. P1	

ITEM	QTY	DESCRIPTION	MANUFACTURER	CATALOGUE No	REMARKS	ITEM	QTY	DESCRIPTION	MANUFACTURER	CATALOGUE No	REMARKS	ITEM	QTY	DESCRIPTION	MANUFACTURER	CATALOGUE No	REMARKS
1	3	ACTIVE LINKS	CLIPSAL	B 65/7 (165A)		63	2	PUMP LINE CONTACTOR - K1 (24VDC COIL)	SPRECHER & SCHUH	<<CA7-23E>>	24VDC COIL						
2	1	MANUAL TRANSFER SWITCH c/w BACKPLATE + MECH I/LOCK	TERASAKI	INTERLOCK LINK T2ML25RA	Q2 - Set Ir=t.b.a. Char=t.b.a.	64	2	SOFT STARTER RUNNING RELAY - K2	IDEC	RH1B-ULD-DC24V	+ SH1B-05						
3		MAIN SWITCHES: Q2- S250PE 3 12S Q3- S250PE 4 12S	c/w SHUNT TRIPS	Q2 - c/w AUX CONTACTS	Q3 - Set Ir=t.b.a. Char=t.b.a.	65	2	STARTER FAULT RELAY - K3	IDEC	RH3B-ULD-DC24V	+ SH3B-05						
4	1	Q4 PUMP 1 CIRCUIT BREAKER +T2HS Handle	TERASAKI	<<S12SG1/20>>	Set Ir=t.b.a. Im=t.b.a.	66	2	PUMP EM. STOP RELAY - K4	IDEC	RH3B-ULD-DC24V	+ SH3B-05						
5	1	Q5 PUMP 2 CIRCUIT BREAKER +T2HS Handle	TERASAKI	<<S12SG1/20>>	Set Ir=t.b.a. Im=t.b.a.	67	2	PUMP CONTROL ICT POWER ON RELAY - K5	IDEC	RH1B-ULD-DC24V	+ SH1B-05						
7	1	Q7 ENERGEX PHASE FAILURE CIRCUIT BREAKER	TERASAKI	DTCB15306C		68	2	PUMP RUN RELAY - K6	IDEC	RH1B-ULD-DC24V	+ SH1B-05						
9	1	Q9 SUB-DISTRIBUTION BOARD CIRCUIT BREAKER	TERASAKI	<<DTCB10316C>>	Fix Set Ir=<<16>> Im=<<10 (160A)>>	69											
10	1	Q10 STATION MAINS PHASE FAILURE CIRCUIT BREAKER	TERASAKI	DTCB10306C	10kA 3P 6A "C" curve	70	2	PUMP PROTECTION RELAY - K7	XYLEM	MiniCASII	24VDC						
11	1	Q11 10A SOCKET OUTLET CIRCUIT BREAKER	TERASAKI	DSRCBH-10-30A	10kA 1P 10A 30mA RCD	71	2	MOTOR OVER TEMPERATURE RELAY - K7A	IDEC	RH2B-ULD-DC24V	+ SH2B-05C						
12	1	Q12 RTU LAPTOP SOCKET OUTLET CIRCUIT BREAKER	TERASAKI	DSRCBH-10-30A	10kA 1P 10A 30mA RCD	72	2	PUMP LEAKAGE ALARM RELAY - K7B	IDEC	RH1B-ULD-DC24V	+ SH1B-05C						
13	1	Q13 GENERATOR AUXILIARY SUPPLY CIRCUIT BREAKER	TERASAKI	DSRCBH-10-30A	10kA 1P 10A 30mA RCD	73	2	PUMP RUN COMMAND RELAY - K20	IDEC	RH1B-ULD-DC24V	+ SH1B-05						
14	1	Q14 SPARE CIRCUIT BREAKER	TERASAKI	DSRCBH-6-30A	10kA 1P 6A 30mA RCD	74	2	PUMP FAULT RESET RELAY - K21	IDEC	RH2B-ULD-DC24V	+ SH2B-05						
15	1	Q15 EM PUMP CNTRL & SURCHARGE IMMINENT CB	TERASAKI	DSRCBH-6-30A	10kA 1P 6A 30mA RCD	75	2	PUMP EMERGENCY MODE INTERRUPT RELAY - K22	IDEC	RH1B-ULD-DC24V	+ SH1B-05						
16	1	Q16 RTU POWER SUPPLY CIRCUIT BREAKER	TERASAKI	DSRCBH-6-30A	10kA 1P 6A 30mA RCD	76											
17	1	Q17 SPARE CIRCUIT BREAKER	TERASAKI	DSRCBH-6-30A	10kA 1P 6A 30mA RCD	77	2	PUMP START PUSHBUTTON - S1	SPRECHER & SCHUH	D7P-F3-PX10							
18	1	Q18 SPARE CIRCUIT BREAKER	TERASAKI	DSRCBH-6-30A	10kA 1P 6A 30mA RCD	78	2	PUMP STOP PUSHBUTTON - S2	SPRECHER & SCHUH	D7P-F4-PX10							
						79	2	PUMP EM/STOP PUSHBUTTON - S3	SPRECHER & SCHUH	D7P-MT34-PX01S	c/w D7-15YE112						
						80	2	PUMP RESET PUSHBUTTON - S4	SPRECHER & SCHUH	D7P-F6-PX10	+ PX10						
						81	2	PUMP HOUR RUN METER - HRM	NHP	RQ4801080VDC	24VDC						
						82	2	PUMP EMERGENCY START SWITCH & LIGHT - SS/15	SPRECHER & SCHUH	D7P-LSM25 + D7-NBY	+ D7-X10 (2), ENGRAVE 'OFF ON'						
						85	2	PUMP POWER SOCKET OUTLET + INCLINE SLEEVE	MARECHAL	DS1 3114013972 + 51BA757							
						86	2	PUMP POWER INLET PLUG + HANDLE	MARECHAL	DS1 3118013972 + 311A013							
						92	1	SIR - SURCHARGE IMMINENT LEVEL RELAY	XYLEM	SAFE-F5	24VDC						
						93	1	LR3- WET WELL HIGH LEVEL RELAY	XYLEM	MTR-5	24VDC						
						95											
30	2	PUMP 230VAC CONTROL CIRCUIT BREAKER	TERASAKI	DTCB6104C	Q4-1, Q5-1												
31																	
32	3	24VDC CONTROL CIRCUIT BREAKER	TERASAKI	DTCB6206C	QD4, QD5, QD15		98	1	SURCHARGE IMMINENT DELAY TIMER - S1DT	SPRECHER & SCHUH	RZ7-FSA 4E U23	ON DELAY / INSTANTANEOUS					
33	1	BATTERY SHORT CCT PROTECTION CIRCUIT BREAKER	TERASAKI	DTEB6210C	QD8		99	1	EMERGENCY PUMPING MODE TIMER - EMGDT	OMRON	H3CA-A (+ P2CF-11)	(+ Y92A-488) OFF DELAY					
34	3	230VAC-24VDC PUMP CONTROL POWER SUPPLY	WEIDMULLER	8951340000	120W 5A/24VDC		100	1	EMERGENCY PUMPING MODE AUX RELAY - EMGDTA	IDEC	RH2B-ULD-DC24V	+ SH2B-05					
35	2	PS1 24VDC BATT & LOAD CIRCUIT BREAKERS	TERASAKI	DTEB6210C	QD9, QD10		101	1	EMERGENCY PUMPING MODE RELAY PUM - EMG1	IDEC	RH1B-ULD-DC24V	+ SH1B-05					
36	3	F1-3 - SURGE DIVERter CIRCUIT FUSES	NHP	63AMP HRC	FUSES & HOLDERS		102	1	EMERGENCY PUMPING MODE TIMER PUMP2 - EMG2	SPRECHER & SCHUH	RZ7-FSA 3E U23	ON DELAY 0.05-60sec					
37	3	SURGE DIVERter	CRITEC	TDS1100-25R-277			103	1	MTS AUX RELAY : TS-N	IDEC	RH1B-ULD- DC24V	+ SH1B-05					
38							104										
39							105										
40							106										
41	1	ENERGEX PHASE FAILURE RELAY - PFRE	CARLO GAVAZZI	DPB01CM48W4			107										
42	1	ENERGEX PHASE FAILURE AUX RELAY - PFREA	IDEC	RH4B-ULD-DC24V	+ SH4B-05		108										
43	1	STATION PHASE FAILURE RELAY - PFRS	CARLO GAVAZZI	DPB01CM48W4			109										
44							110										
45-46	2	MAIN NEUTRAL LINK + MAIN EARTH LINK	CLIPSAL	BPAH12 + BPAHE12	+ B 65F (Neutral)		111										
47-48	2	DIST. BD NEUTRAL LINK + DIST. BD EARTH LINK	CLIPSAL	B 65D30	+ B 65F (Neutral)		112										
49	1	PROTECTED NEUTRAL LINK	CLIPSAL	BPAH12	+ B 65F (Neutral)		113										
50	1	INSTRUMENT EARTH LINK	CLIPSAL	L13/25A	INSULATED		114	1	SW/BD LIGHTING CONTROL RELAY - DZCR	IDEC	RH2B-ULD-DC24V	+ SH2B-05					
52	1	DISTRIBUTION BOARD 3 PHASE BUSBAR COMB	TERASAKI	ICL183	80A 18 POLE + BUSBAR END CAP		115	1	SW/BD LIGHTING CONTROL RELAY - SLCR	IDEC	RH2B-ULD-DC24V	+ SH2B-05					
53	1	1 PHASE SOCKET OUTLET 10A - X1	CLIPSAL	15+90B (SHROUD)			116										
54	1	LAPTOP SOCKET OUTLET 10A - X2	CLIPSAL	25+449A+449AP			117										
56	1	1 PHASE OUTLET - GENERATOR ANCLARY POWER - X3	CLIPSAL	56S0310 IPS6			118	1	STATION LOCAL/REMOTE SWITCH - S10	KRAUS & NAIMER	CAD11-A720-600-F72-F758	ENGRAVE 'LOCAL REMOTE'					
57	1	3 PH N&E APPLIANCE INLET&PLUG -GENERATOR POWER - X4	MENNEKES	MEN365B Plus MEN14212	c/w PROTECTIVE CAP 40787		119	1	ELECTRODES TEST RELAY - ETR	IDEC	RH4B-ULD-DC24V	+ SH4B-05					
58							120										
59							121	1	WET WELL LEVEL INDICATOR	CROMPTON INSTRUMENTS	244-01KG-HG-IP-SR 4-20mA	0-100% ADJ RED POINTER					
60	2	PUMP SOFT STARTER	DANFOSS MCDS	<MCDS-00200 >> MODBUS TCP	136G7336 + 175G0130		122	2	BREEZEWAY DOOR PROXIMITY SWITCH	PEPPERL & FUCHS	NEB5-18GM40-20						
61	2	EXTERNAL KEYPAD KIT	DANFOSS	175G0187			123	5	SW/BD DOOR MICRO SWITCHES - SINGLE POLE	OMRON	Z-15GW2 5S B						
62							124										
							125	4	SW/BD INTERNAL LED LIGHTS	LUMIFA	LF1B-C35-2THWW4	See Construction Notes Sht 23					
							126										

AMENDMENTS

REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME

AS CONSTRUCTED CERTIFICATION
FOR DRAWING REVISION

I CERTIFY THAT THE AS CONSTRUCTED
DETAILS SHOWN ON THIS PLAN ARE A TRUE
AND ACCURATE RECORD OF THE WORKS.

SIGNATURE.....DATE.....

NAME.....RPEQ No.....

DISCIPLINE.....COMPANY NAME.....

ENGINEERING CERTIFICATION

SIGNATURE.....RPEQ No.....DISCIPLINE.....DATE.....

SIGNATURE.....RPEQ No.....DISCIPLINE.....DATE.....

DESIGN MANAGER'S SIGNATURE.....DATE.....

PROJECT MANAGER'S SIGNATURE.....DATE.....

DESIGN DRAFTING

DRAFTED BY.....DATE.....

DESIGNED BY.....DATE.....

URBAN UTILITIES CIP CODE.....

URBAN UTILITIES DESIGN W/O No.....

URBAN UTILITIES CONSTRUCTION W/O No.....

PROJECT TEAM

ASSET/PROJECT

SP###
SAMPLE ROAD, GREEN SQUARE
SEWAGE PUMP STATION

DRAWING TITLE

PUMP STATION SWITCHBOARD
SP###-1040-SWB-0001
EQUIPMENT SCHEDULE

DRAWING STATUS

FOR REVIEW

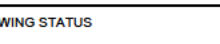
URBAN UTILITIES DRAWING No.

SP###-1000-EE-DRG-020

REV.

P1

[illegible]

AMENDMENTS							AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION . I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.		ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		DRAWING TITLE PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 LABEL SCHEDULE				
										SIGNATURE	RPEQ No.	DISCIPLINE	DATE	DRAFTED BY	DATE			DRAWING STATUS FOR REVIEW		URBAN UTILITIES DRAWING No. SP###-1000-EE-DRG-022		REV. P1	
										SIGNATURE	RPEQ No.	DISCIPLINE	DATE	DESIGNED BY	DATE								
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME		SIGNATURE		DATE		DESIGN MANAGER'S SIGNATURE		DATE	URBAN UTILITIES CIP CODE						
									NAME		RPEQ No.			URBAN UTILITIES DESIGN W/O No.			URBAN UTILITIES CONSTRUCTION W/O No.						
									DISCIPLINE		COMPANY NAME												

CONSTRUCTION – EXTERNAL SWITCHBOARD

Cubicle construction 3mm Marine grade Aluminium (5251).
Plinth construction 80x40 channel 6061 T6 Grade Aluminium.
Folded, "Pulse MIG" & "TIG welded with all visible seams and joints fully welded, free from splatter and ground smooth where needed.
External doors and covers fitted with Emka 1011-207 self grip seal.
All Fixings shall be 316 grade stainless steel.
Stainless Steel "D" Handles fitted where indicated on the drawings.
M6 Earth studs fixed to the interior of all doors and hinged escutcheons and on adjacent cubicle interior surfaces. Fit dedicated earth stud adjacent main earth bar for switchboard earth.
Door stiffeners, door stays, cable straps, & document holders etc fitted as shown on the drawings.
Door stay arms to be S/Steel and of sufficient strength to prevent being deformed when subjected to reasonable loads. Minimum 3mm S/Steel.
Lift-off covers and mounting panels fixed with M8 studs & stainless steel dome nuts.
Gland plates manufactured from 3mm aluminium, unless otherwise shown.
Inspection/Access plates manufactured from 3mm aluminium.
Gland/Inspect/Access plate openings fitted with M6x1.0 flat head closed end rivet nuts. (Detail F)
Cable glands to be fitted with compression side installed within cubicle. (Detail G)
Gland/Inspection/Access plates to be fitted with seals attached to cubicle.
Gland/Inspection/Access plate fixings at 100mm.
Gland/Inspection/Access plates to maintain a 50mm clearance from section dividers.
Gland/Inspection/Access plates are NOT to be split.
All gland plates to be earthed.
Inspection/Access plates are NOT to be earthed.
Provide Shrouding to all live parts to IP20 where required.
Hinges (external) Selectrix HIB650ss-316. Stainless steel.
Star washers fitted under all hinge screws.
Hinged escutcheons fixed with Emka 1/4 turn 1000-U142
All equipment to be removable via front access.
Install switchboard with non-hydroscopic material between plinth and concrete slab. (Detail E1)
All escutcheons to open a minimum of 90°
All sheet metal edging to be de-burred.
All switchboard LED lights to be mounted on the horizontal plane.
Switchboard static ventilation to be via punched louvers (Refer drawings for locations)
Switchboard static ventilation (excluding breezeway) to be backed with stainless steel mesh gauze and removable filter material

Locks Doors 1 – 4
SELECTRIX - Swing Handle
SELECTRIX - 3 point lock rod set -
Lockwood Barrel Lock
For key Codes refer to "Door lock hardware table" and each door for clarification.

Energex Meter Door.
SELECTRIX - Swing Handle Padlockable - 316
SELECTRIX - 3 point lock rod set -
ENERGEX padlock, S/Steel Shackles, 45mm brass pin tumbler.
Energex Key c/w 2 keys.

OPERATING PARAMETERS

Standard	AS 61439.1
Current & Frequency	AC 50Hz
Rated Operational Voltage Ue	400 VAC
Rated Insulation Voltage Ui	0.6/1kV
Rated Auxiliary Voltage	230 VAC / 24 VDC
Rated Current (Main Bus)	125 AMPS
Short Circuit Current Isc	20 kA
Duration of Isc	.3 sec
Degree of Protection	IP 56 to AS 1939
Measure of Protection by barriers and enclosures	
Service Conditions	Outdoors
Mass	Not exceeding 2000kg
Earthing System	MEN
Forms of Segregation	Form 3, DB Section Form 1

WIRING

All wiring to be PVC V90 HT 0.6/1kV Grade with tinned conductor.
Control and instrumentation wiring has flexible copper conductors, and is colour coded as detailed below, each individual wire shall be numbered each end, and terminated by the use of appropriate pre-insulated crimp lugs or pins.
Separate lugs or pins shall be used for each conductor. A proprietary dual lug may be used to terminate two conductors in the one lug.
Use proprietary bridging links, where possible, to common up terminals.
Not more than two wires shall be connected to the terminals of any equipment or device.
Not more than one lug shall be connected on one side of any tunnel type terminal. Where multiple connections are required on tunnel terminals, proprietary terminal link bars shall be used.
Power wiring to be minimum 2.5sqmm stranded copper conductors, phase colour coded as detailed below.
Control wiring to be minimum 1.0sqmm flexible copper conductors, colour coded as detailed below.
Low level control signals to be minimum 0.5sqmm flexible copper conductors, colour coded as detailed below.
Wiring between RTU terminals & RTU disconnect plugs to be multicore cable with 0.5sqmm flexible copper conductors.
4–20mA analog signals (internal & external) wired in shielded pair minimum size 0.5sqmm, and earthed at one end only. (Switchboard end for external signals)
All 230VAC wiring in the RTU section and cable zones shall be double insulated and all terminals shall be shrouded and labelled- 'Danger 230VAC' or 'Danger 400VAC'
1Ø & 3Ø Outlets on escutcheon to be wired in double insulated cable.
Provide shrouding with warning label over all 230VAC door/escutcheon mounted equipment.
Earth cables minimum 2.5sqmm flexible.
All equipment shrouding within switchboard to be minimum IP20.
Doors, gland plates and hinged escutcheons bonded with flexible copper B/Wire.
Disconnection zone door to be bonded with flexible copper B/Wire. Heat shrink at lugs.
Switchboard to have dedicated earthing cable bonding directly to main earth bar.
Ensure minimum clearance of 100mm is maintained between cable ducting & gland plates.
Wire numbering will be equal to Grafoplast SI2000 system.
Terminal numbering to be - Phoenix Terminal Numbering System Package.
Terminal strips to be mounted 30mm off equipment panel to aid termination.
Wire numbers are readable left to right, bottom to top as shown.

Breezeway Locks
DORE ELECTRICS - Stainless steel 1/4 turn coin lock with a Square Insert

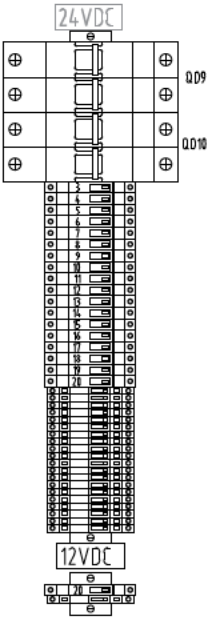
Breezeway - Security Latches
DORE ELECTRICS - Stainless Steel 1/4 Turn Latch - IP65
With s/s Hooked Cam 8mm 'Triangle' Key

PAINTING

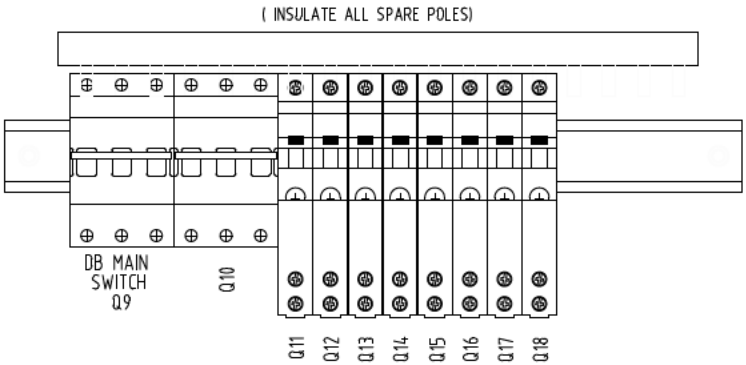
Aluminium Surface Preparation.
Finish smooth all exposed welds, clean, descale, and degrease all surfaces.
Surfaces pretreatment in accordance with AS 1580 & AS 3715 using Novox LF acid etch cleaner, Novacoat 12 conversion coating, & clean water rinses.
Apply DULUX ALPHATECH 3000 powder coat to manufacturer's recommendations.
CUBICLE & EXTERNAL COMPONENTS :- DULUX Mist Green (36648) matt finish.
INTERIOR ITEMS (mounting panels, escutcheons, etc.) :- DULUX Bright White (32166)
Minimum Dry Film Thickness all surfaces 50 microns.

COLOUR CODE

Phase wiring (A,B &C)	Red, White, Blue	2.5sqmm (min)
Potential Metering (230/400 VAC)	Red, White, Blue, Black	1.5sqmm
Current Metering (Secondary)	Red, White, Blue, Grey	2.5sqmm
230 VAC Control Active	Red	1.0sqmm
230 VAC Neutral	Black	1.0sqmm
Extra Low VDC Positive supplies	Orange	1.0sqmm
Extra Low VDC Negative supplies	Violet	1.0sqmm
General Extra Low VDC Wiring	Grey	1.0sqmm
RTU & PLC Wiring	Grey	0.5sqmm
Electrode Wiring	Salmon	1.0sqmm
Intrinsically safe wiring	Light Blue	1.5sqmm
Earth	Green/Yellow	2.5sqmm (min)
Door & Escutcheon Earth Bonds	Green/Yellow	6 sqmm Flexible
Instrument Shield Earth	Green/Yellow	1.5sqmm (min)



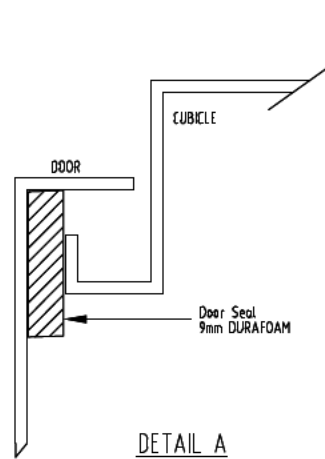
DETAIL M2
DC DISTRIBUTION ARRANGEMENT



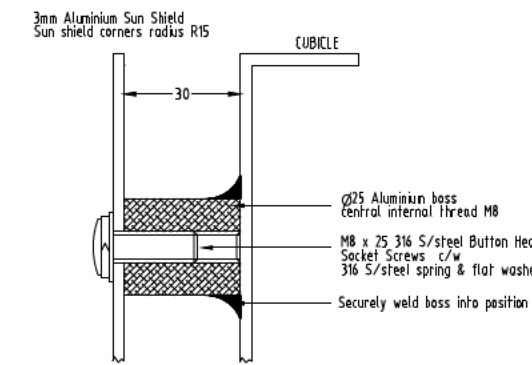
DETAIL M1
SUB-DISTRIBUTION BOARD ARRANGEMENT

Sheet 23

AMENDMENTS						AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION . I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.						ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT		DRAWING TITLE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						</

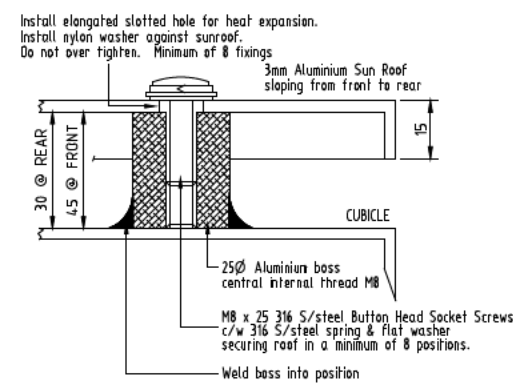


DETAIL A
(DOOR SEAL)



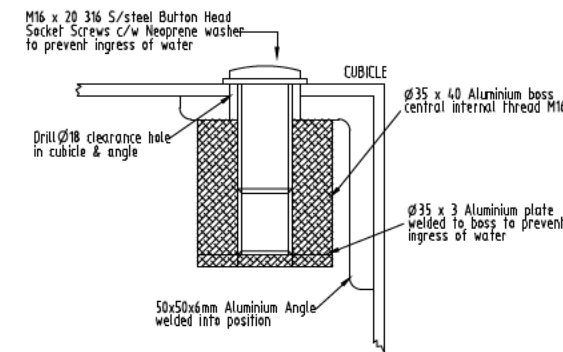
Notes: Screws are not to penetrate cubicle metalwork.
Boss for sunshields to be 30mm.

DETAIL B
(SUN SHIELD MOUNTING TO ENDS, REAR AND DOORS)

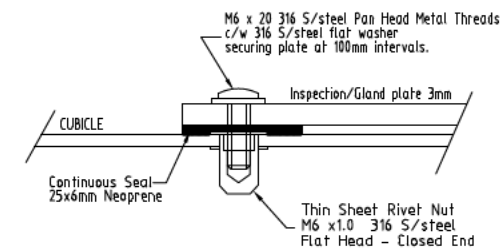
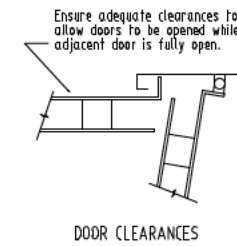


Note: Screws are not to penetrate cubicle metalwork.
Boss for sunroof to be 45mm at front, 30mm at rear

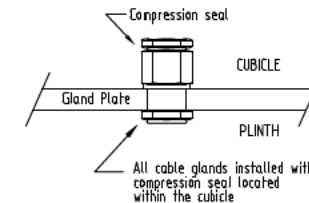
DETAIL C
(SUN ROOF FIXING DETAIL)



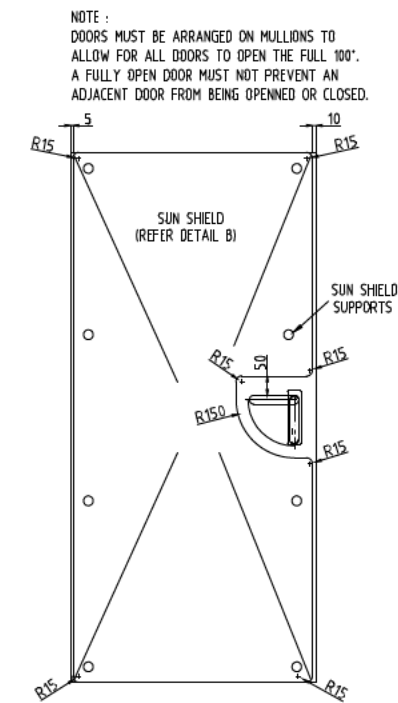
DETAIL D
(EYE BOLT FIXING DETAIL)



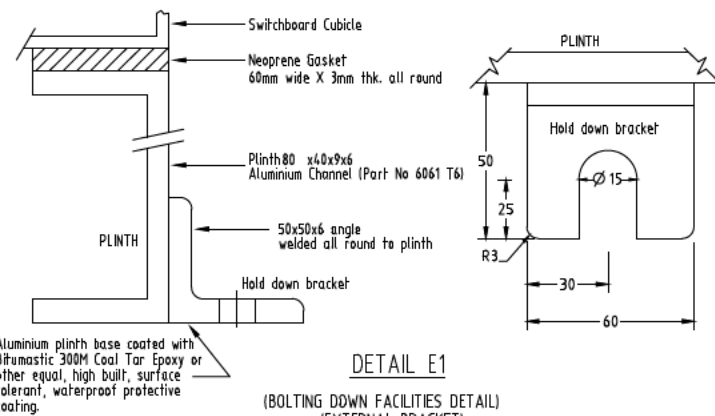
DETAIL F
(GLAND/INSPECTION PLATE FIXING DETAIL)



DETAIL G
(CABLE GLAND INSTALLATION DETAIL)

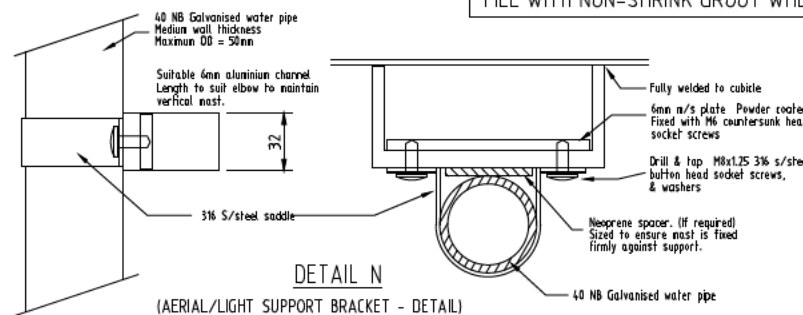


DETAIL K
(DOOR SUN SHIELD DETAIL)

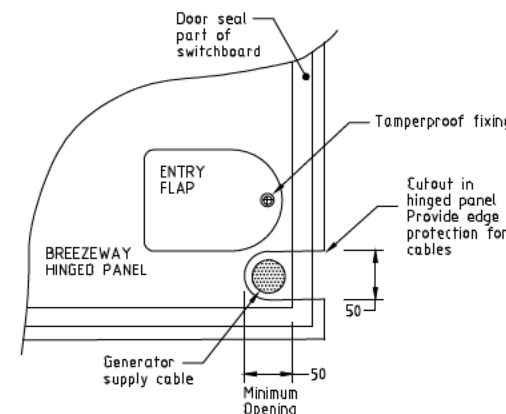


DETAIL E1
(BOLTING DOWN FACILITIES DETAIL)
(EXTERNAL BRACKET)

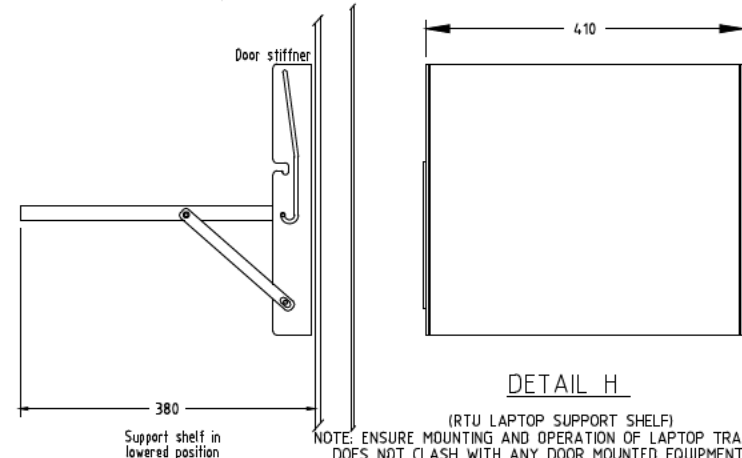
SET UP CUBICLE TO BE LEVEL & PLUMB BEFORE BOLTING TO CONCRETE PLINTH USING M12 S/STEEL CHEMICAL ANCHORS. MINIMUM ANCHORAGE 110mm. USE 40x40x3mm WASHERS FILL WITH NON-SHRINK GROUT WHERE REQUIRED.



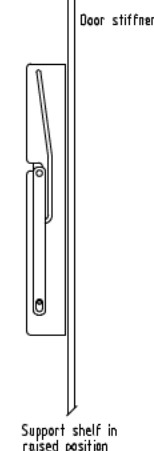
DETAIL N
(AERIAL/LIGHT SUPPORT BRACKET - DETAIL)



DETAIL J
(CABLE ENTRY FLAP)
(Entry flap shown in open position)

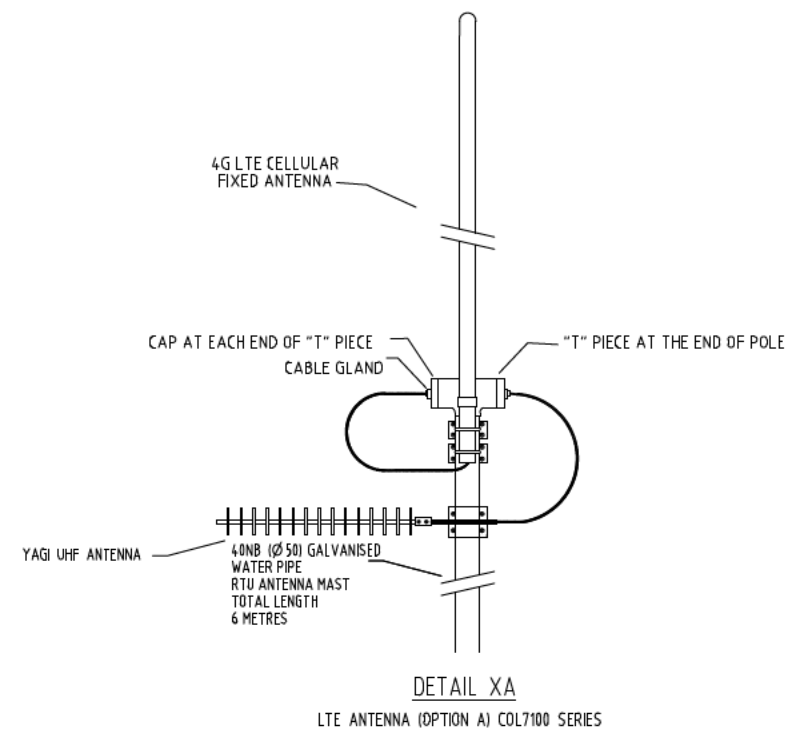


DETAIL H
(RTU LAPTOP SUPPORT SHELF)



(Fit 3mm neoprene gasket between plinth & flange)
(Fixings 3/16 S/steel bolts, nuts, flat & spring washers)

DETAIL P
(AERIAL & AREA LIGHTING FLANGE MOUNTING DETAIL)
(COMPLETE WITH BLANKING FLANGE IF NO AERIAL FITTED)



DETAIL XA
(LTE ANTENNA (OPTION A) COL7100 SERIES)

Sheet 25

AMENDMENTS					AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION				ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT		DRAWING TITLE	
REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME	SIGNATURE	DATE	SIGNATURE	RPEQ No.	DISCIPLINE	DATE	DRAFTED BY	DATE	SP###		SAMPLE ROAD, GREEN SQUARE		PUMP STATION SWITCHBOARD	
															SP###-1040-SWB-0001		CONSTRUCTION DETAILS		SHEET 3 OF 3	
															DRAWING STATUS		FOR REVIEW		URBAN UTILITIES DRAWING No.	
															SP###-1000-EE-DRG-025		REV.		P1	
															URBAN UTILITIES					

NORTH SURVEY MARKER No.???
mAHd = ????

ALL CABLES TO BE TERMINATED INTO
SWITCHBOARD VIA CABLE GLANDS.
REFER TO DETAIL 'W' SHEET 24

80 mm CONDUIT TO SWITCHBOARD

6x40mm S/S 'U' SHAPED SUPPORT
BRACKET FIXED TO 3 INSIDE
WALLS OFF OPENING.
Note 8

S/S HANGING HOOKS
WELDED TO
SUPPORT BRACKET
(3 OFF)

ALLOW SUFFICIENT LENGTH ON CABLE TO ALLOW
FOR REMOVAL OF PROBE AND CONDUIT ASSEMBLY.
EXCESS LENGTH TO BE STORED IN ELECTRODE BOX.

TOP OF SLAB LEVEL (SITE SURVEY LEVEL)
mAHd =

TOP OF LEVEL
PROBE HOOKS
mAHd = t.b.a.

Note 1, 6

CABLE
TIES

CABLE CLAMP
SUSPENSION EYELET

RAG TUBE - BELLED OVER PROBE
Ø32 CONDUIT 300 LONG C/W CAP & NYLON GLAND

25mm NYLON
CABLE GLAND
Note 4

END CAP
(No Glue)

32mm PVC CONDUIT
BELLED OVER PROBE

DRILLED 6mm HOLES AT
300mm INTERVALS ALONG
THE LENGTH OF THE CONDUIT
Note 2

Note 3

HYDROSTATIC LEVEL
PROBE
RANGE t.b.a.

MEASUREMENT POINT

HIGH LEVEL
mAHd = t.b.a.

MEASUREMENT POINT

HIGH LEVEL
PROBE

t.b.a. mtrs
Note 5

t.b.a. mtrs
Note 5

LEVEL PROBE
mAHd = t.b.a.

BOTTOM OF WELL
mAHd = t.b.a.

Temporary hanging
length t.b.a. mtrs

SURCHARGE LEVEL
mAHd = t.b.a.

SURCHARGE IMMINENT
LEVEL
mAHd = t.b.a.

MEASUREMENT POINT

SURCHARGE IMMINENT
LEVEL PROBE

The surcharge imminent probe is to
be hung at a temporary value, of
t.b.a.mtrs until site testing proves
actual levels of overflow.
This is a level of t.b.a.mAHd

PUMP A START
mAHd = t.b.a.

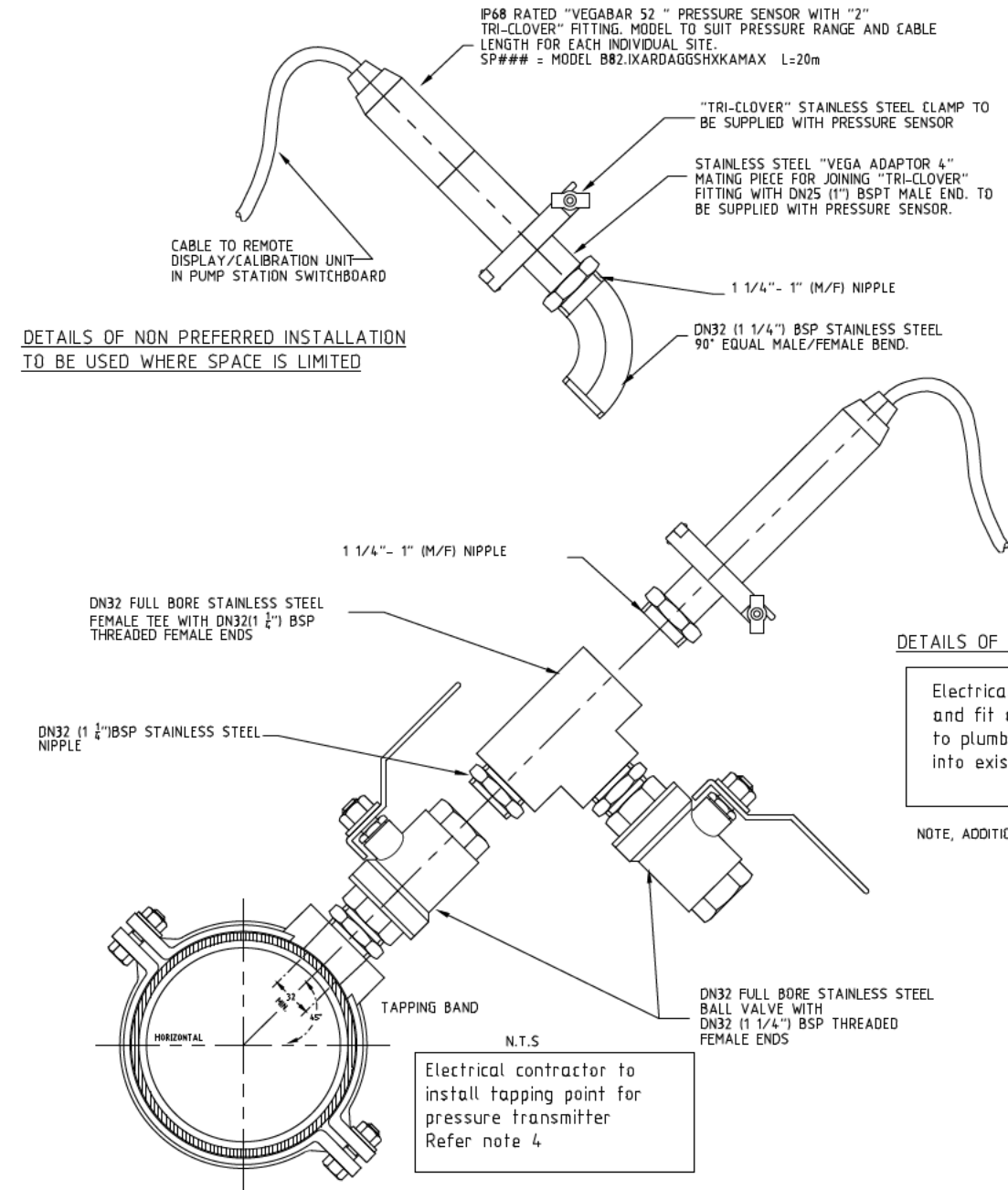
PUMP A STOP
mAHd = t.b.a.
(See Note 7)

PRIMARY LEVEL PROBE INSTALLATION NOTES

1. Install stainless steel hanging hooks for the suspension of the hydrostatic probe, high level & surcharge probes. Hooks to be welded to S/S support bracket installed on the inside perimeter on the opening.
2. Drill 4 x 6mm holes, 150mm from each end and every 300mm of the cut length, prior to installation.
3. Install so that the conduit covers approximately 1/2 the probe. Do Not glue the conduit to the end cap.
4. Install a 25mm nylon cable gland. Apply no compression to cable.
5. Measurements are to be taken from top of the Level Probe Bracket to 'measurement points' on probes
6. Install hanging hooks to ensure the greatest separation between probes can be achieved.
7. Pump stop level may need to be adjusted to allow for pump ramp down time. This may be required to prevent possible air locking of the pumps.
8. New stainless steel 'U' shape support bracket to be fabricated and installed for the installation of new s/s hanging hooks for level probes (3 off) New bracket to provide adequate separation of level instruments.

QTY	MATERIALS LIST
1	LENGTH OF HEAVY DUTY ORANGE PVC CONDUIT 32mm
2	CONDUIT END CAP
3	25mm NYLON CABLE GLAND
4	CABLE CLAMP SUSPENSION EYELET

DETAILS OF NON PREFERRED INSTALLATION TO BE USED WHERE SPACE IS LIMITED



DETAILS OF PREFERRED INSTALLATION

Electrical contractor to supply
and fit all fitting necessary
to plumb pressure transducer
into existing isolation valve.

NOTE, ADDITIONAL FITTINGS MAY BE REQUIRED.

PRESSURE TRANSMITTER INSTALLATION NOTES

1. Material: All stainless steel fittings to be grade 316.
2. Galling: All stainless steel threads to be lubricated with approved anti galling grease and thread tape where applicable.
3. Install as per 'preferred' detail unless space limitations prevents this method. this method.
4. Install tapping point for pressure transmitter in discharge pipework using tapping band as shown.

Sheet 26

AMENDMENTS

REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME

AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION

I CERTIFY THAT THE AS CONSTRUCTED
DETAILS SHOWN ON THIS PLAN ARE A TRUE
AND ACCURATE RECORD OF THE WORKS.

SIGNATURE DATE
NAME RPEQ No.
DISCIPLINE COMPANY NAME

ENGINEERING CERTIFICATION

SIGNATURE RPEQ No. DISCIPLINE DATE
SIGNATURE RPEQ No. DISCIPLINE DATE

DESIGN MANAGER'S SIGNATURE DATE
PROJECT MANAGER'S SIGNATURE DATE

DESIGN DRAFTING

DRAFTED BY DATE
DESIGNED BY DATE

URBAN UTILITIES CIP CODE
URBAN UTILITIES DESIGN W/O No.
URBAN UTILITIES CONSTRUCTION W/O No.

PROJECT TEAM

URBAN UTILITIES

ASSET/PROJECT

SP###
SAMPLE ROAD, GREEN SQUARE
SEWAGE PUMP STATION
FOR REVIEW

DRAWING STATUS

DRAWING TITLE

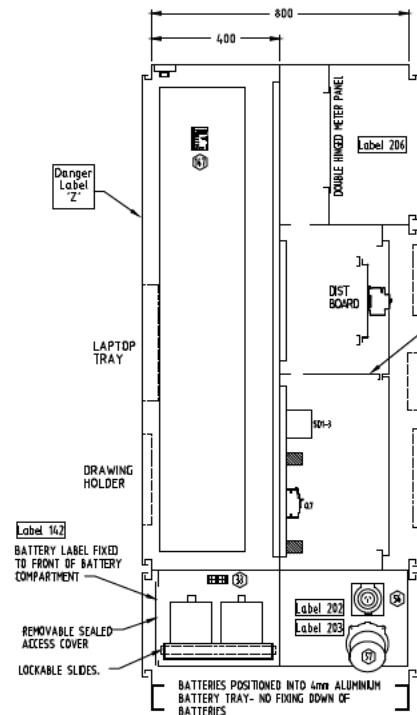
PUMP STATION SWITCHBOARD
SP###-1040-SWB-0001
INSTALLATION DETAILS
FIELD INSTRUMENTS

URBAN UTILITIES DRAWING No.

SP###-1000-EE-DRG-026

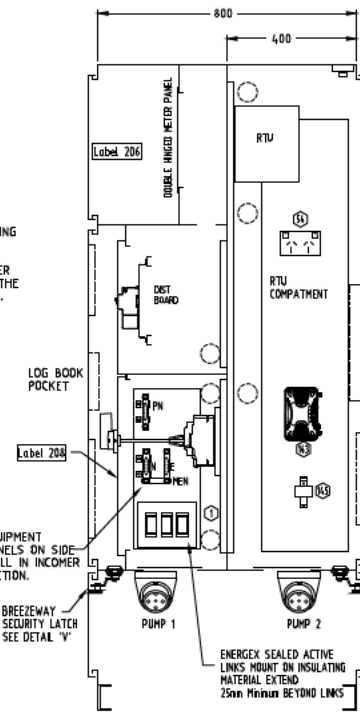
REV.

P1

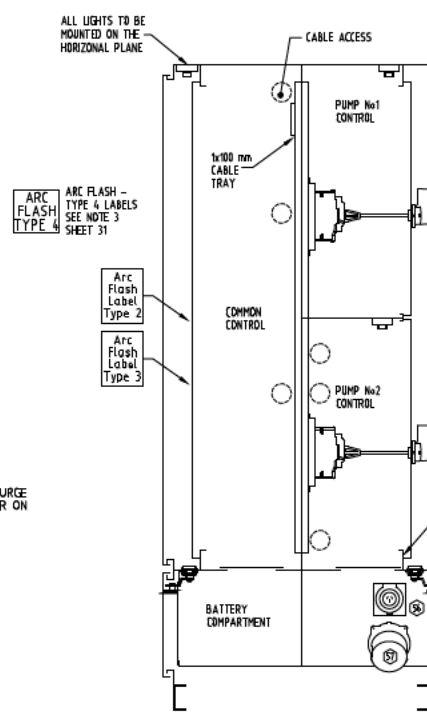


SECTION E-E

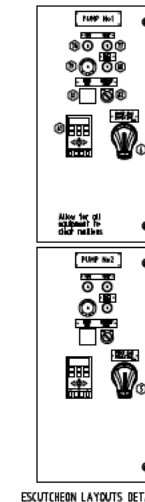
ENSURE LOG BOOK, DRAWING & LEGEND CARD HOLDERS DON'T CLASH OR IMPEDE THE FUNCTIONING OF OTHER EQUIPMENT MOUNTED ON THE DOORS AND ESCUTCHEONS.



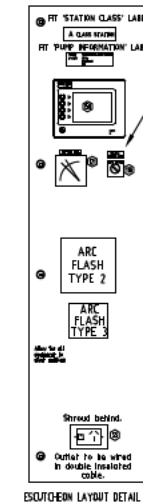
SECTION F-F



SECTION G-G

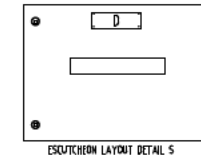


ESCUTCHEON LAYOUTS DETAIL T

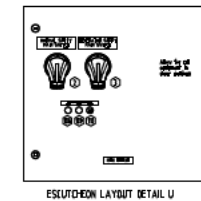


ESCUTCHEON LAYOUT DETAIL R

Allow 15mm min. clearance for device connections between display and other heat & duct support

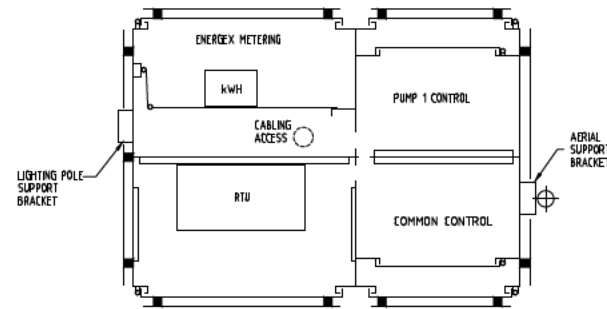


ESCUTCHEON LAYOUT DETAIL S

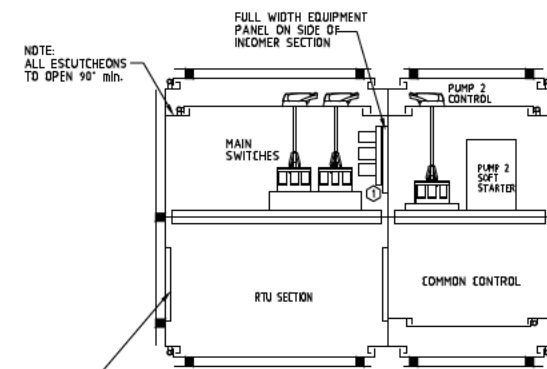


ESCUTCHEON LAYOUT DETAIL U

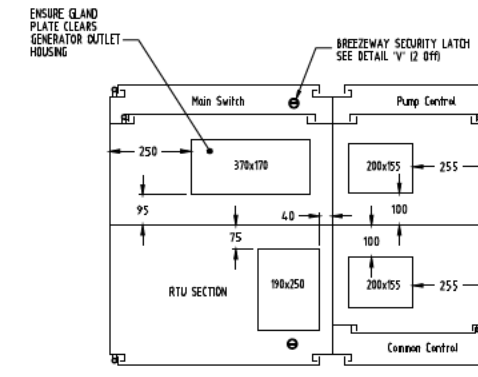
ESCUTCHEON LAYOUTS



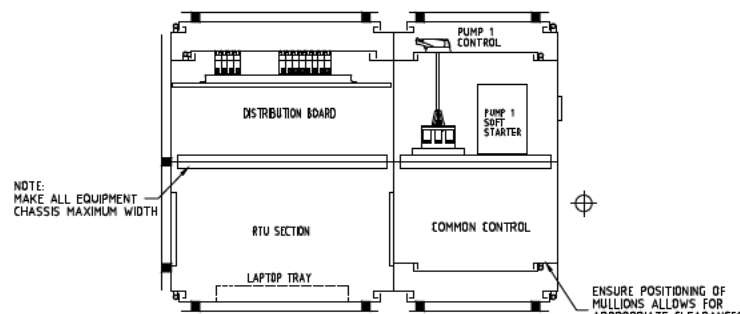
SECTION A-A



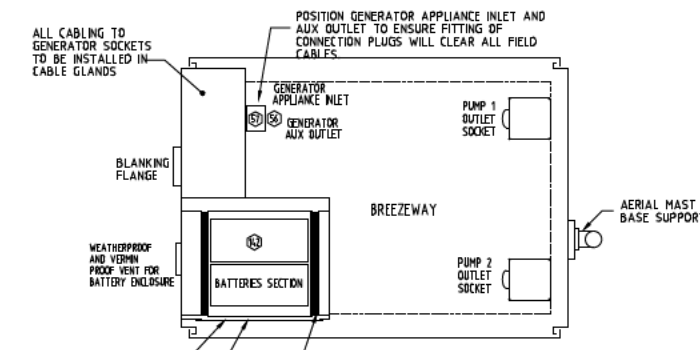
SECTION C-C



GLAND PLATE CUTOUTS




SECTION B-B

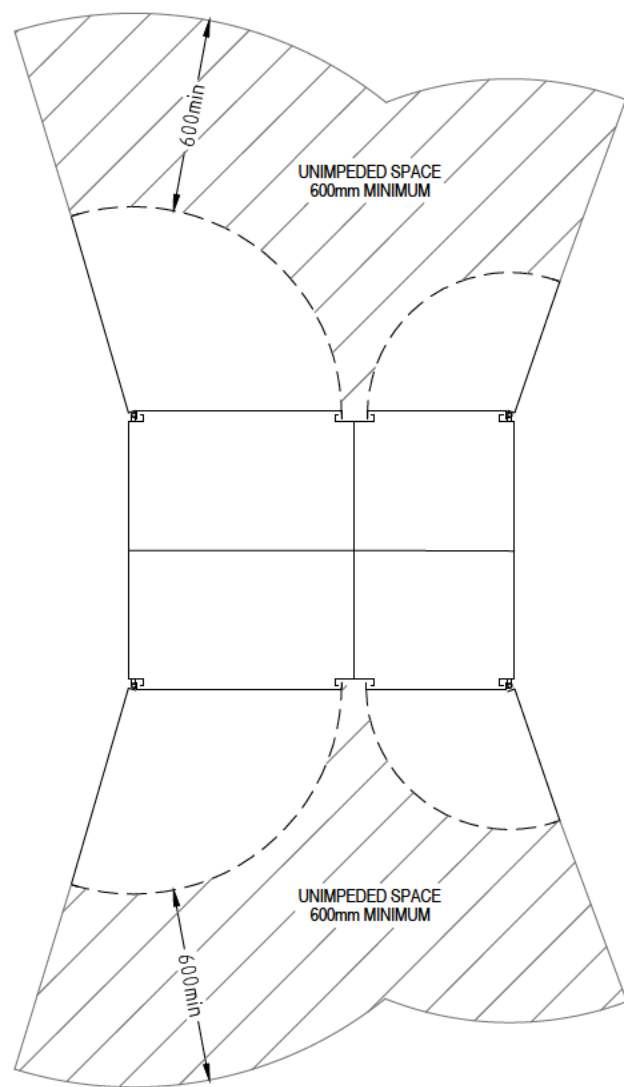


SECTION D-D

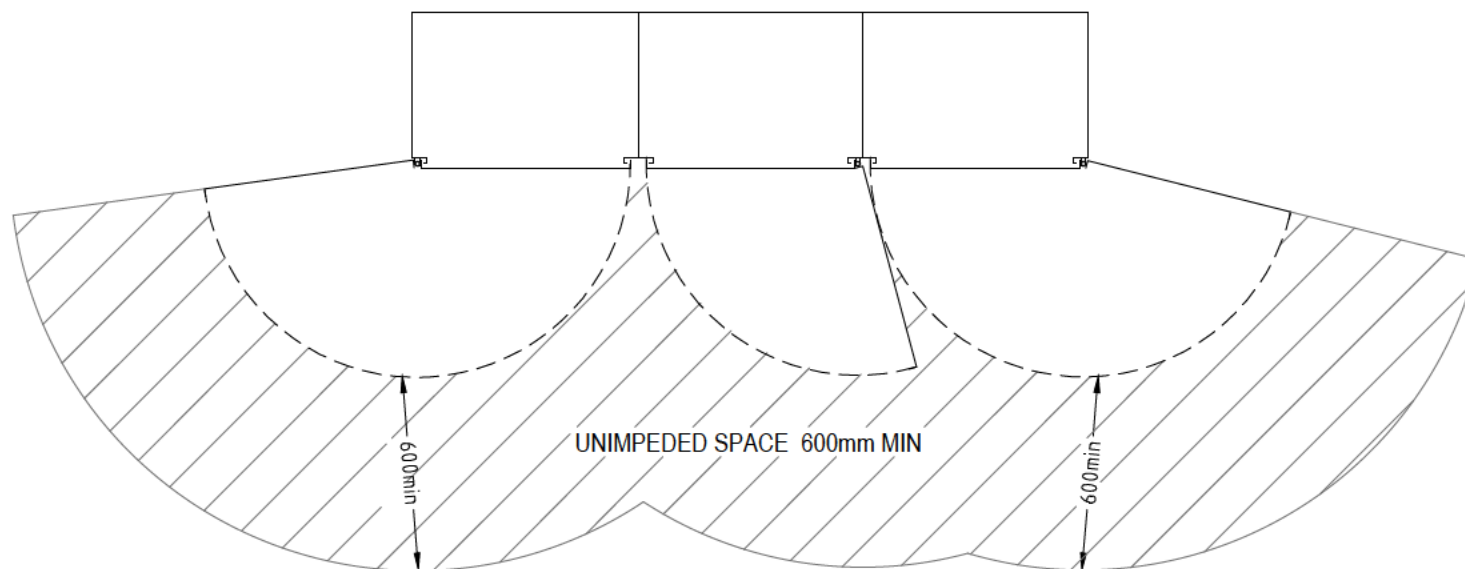
NOTE: THIS GA DRAWING IS A GUIDE ONLY THAT SHOWS OVERALL NOMINAL DIMENSIONS & EQUIPMENT LAYOUT. IT IS NOT TO SCALE AND MUST NOT BE USED AS WORKSHOP DESIGN. THE SWITCHBOARD MANUFACTURER MUST PROVIDE THEIR OWN SWITCHBOARD WORKSHOP DESIGN FOR QUU APPROVAL, BEFORE PROCEEDING WITH ANY SHEET METAL WORK.

Sheet 32

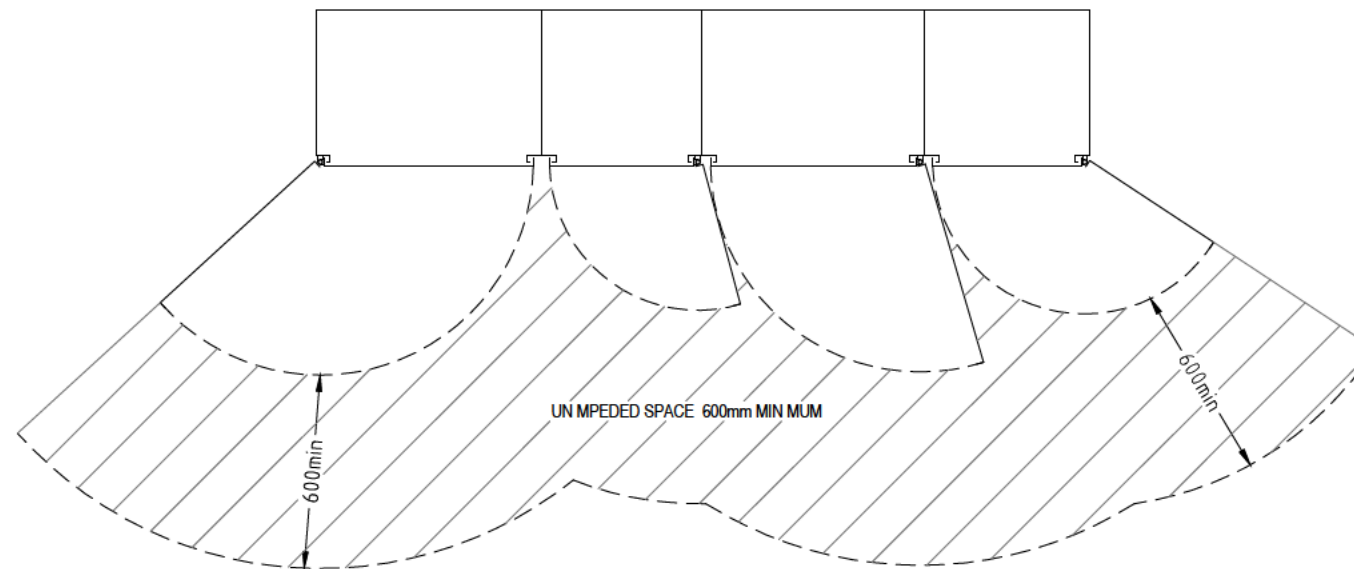
AMENDMENTS						AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION _____ I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.		ENGINEERING CERTIFICATION				DESIGN DRAFTING		<div>PROJECT TEAM</div> <div></div>	ASSET/PROJECT		DRAWING TITLE		
							SIGNATURE	RPEQ No.	DISCIPLINE	DATE	DRAFTED BY	DATE	SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 GENERAL ARRANGEMENT MAIN SWITCHBOARD - SECTIONS				
							SIGNATURE	RPEQ No.	DISCIPLINE	DATE	DESIGNED BY	DATE							
							SIGNATURE				URBAN UTILITIES CIP CODE								
							NAME	RPEQ No.			DESIGN MANAGER'S SIGNATURE		DATE		URBAN UTILITIES DESIGN W/O No.				
REV	DATE	DESCRIPTION	DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME	DISCIPLINE	COMPANY NAME			PROJECT MANAGER'S SIGNATURE		DATE	URBAN UTILITIES CONSTRUCTION W/O No.		DRAWING STATUS		URBAN UTILITIES DRAWING No.	REV.
																FOR REVIEW		SP###-1000-EE-DRG-032	P1



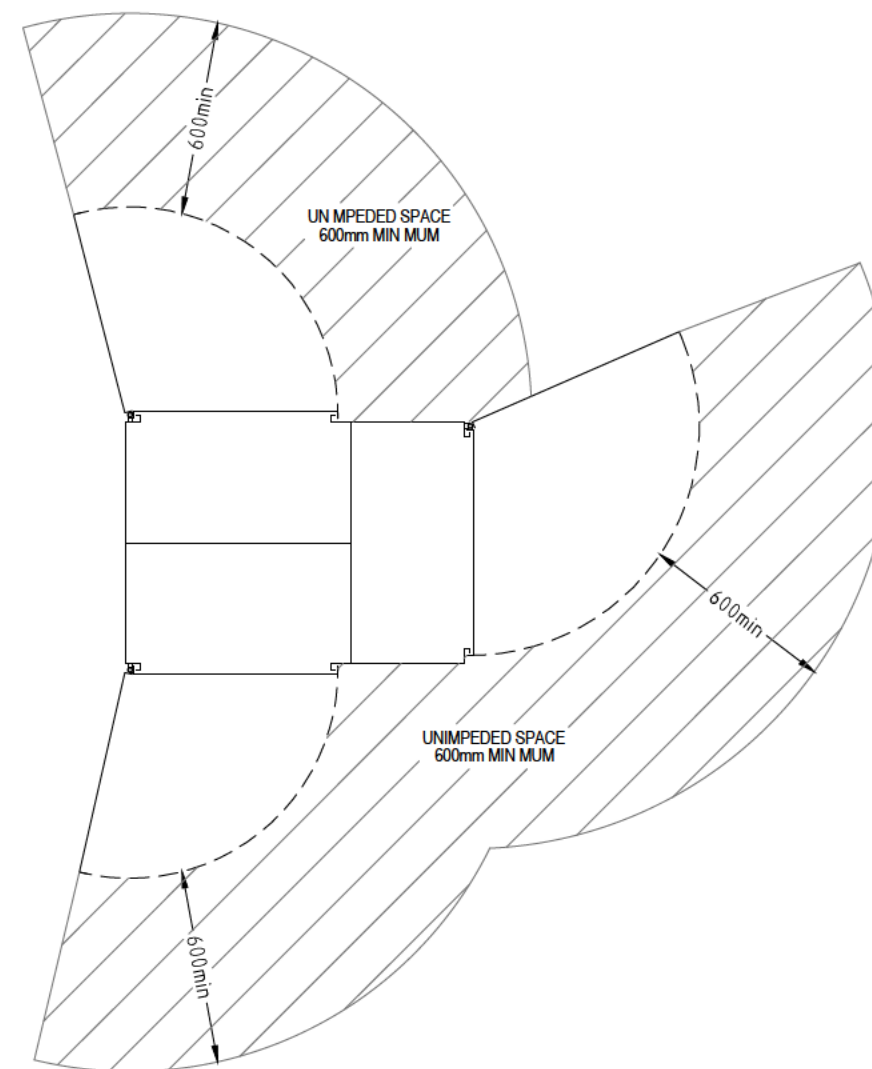
OPTION 1a - 4 TIER DOUBLE SIDED SWITCHBOARD



OPTION 2b - 3 TIER SINGLE SIDED SWITCHBOARD



OPTION 1b - 4 TIER SINGLE SIDED SWITCHBOARD



OPTION 2a - 3 TIER THREE SIDED SWITCHBOARD

Sheet 34

AMENDMENTS						AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION _____ I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				ENGINEERING CERTIFICATION				DESIGN DRAFTING		PROJECT TEAM		ASSET/PROJECT		DRAWING TITLE		
						SIGNATURE _____ DATE _____				SIGNATURE _____ RPEQ No. _____ DISCIPLINE _____ DATE _____				DRAFTED BY _____ DATE _____				SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION		PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 CLEARANCE REQUIREMENTS MAIN SWITCHBOARD		
						SIGNATURE _____ DATE _____				SIGNATURE _____ RPEQ No. _____ DISCIPLINE _____ DATE _____				DESIGNED BY _____ DATE _____								
						NAME _____ RPEQ No. _____				DESIGN MANAGER'S SIGNATURE _____ DATE _____				URBAN UTILITIES CIP CODE _____								
						DISCIPLINE _____ COMPANY NAME _____				PROJECT MANAGER'S SIGNATURE _____ DATE _____				URBAN UTILITIES DESIGN W/O No. _____								
														URBAN UTILITIES CONSTRUCTION W/O No. _____								
REV	DATE	DESCRIPTION				DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME									DRAWING STATUS		URBAN UTILITIES DRAWING No.		REV.
																		FOR REVIEW		SP###-1000-EE-DRG-034		P1

LABELS

Internal labels W/B engraved ABS PLASTIC to label schedule.
Warning labels R/W engraved ABS PLASTIC to label schedule.
E/Stop labels Y/B engraved ABS PLASTIC to label schedule.
First letter = Background colour, Second letter = Lettering colour.

Main switch label		10mm 4mm	Material ABS PLASTIC Colour B/W
Pump CB labels		10mm 4mm	Material ABS PLASTIC Colour W/B
Compartment door labels		10mm	Material STAINLESS STEEL Colour Black Infill
E/Stop labels		4mm	Material ABS PLASTIC Colour Y/B
Equipment labels		4mm	Material ABS PLASTIC Colour W/B

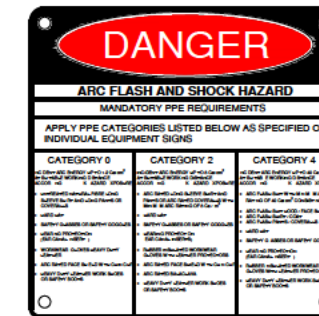
Internal labels secured by M3 chrome plated metal threads.
CB's to be identified with individual labels as per label schedule.
Labels obstructed by switchboard wiring are relocated to adjacent duct lid and secured by M3 nylon threads. Lid to be secured by a single cable tie at one corner.
External switchboard labels to be 1mm thick 316 grade stainless steel secured by M3 316 stainless steel metal threads.
All internal and external labels are to have bevelled edges.



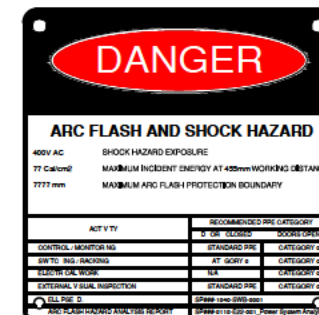
LABEL Z SAFETY SIGN:
280x190x2mm + 4x4mm FIXING HOLES.
ALUMINIUM POWDER COATED WHITE.
5 COLOR SCREEN PRINTED
+ ANTI-GRAFFITI LAMINATE.
Mounted on RTU compartment door as shown on general arrangement. Sht 31



ARC FLASH & SHOCK HAZARD SIGN TYPE 1
Mounted on all compound gates or switchboard building access door for indoor installations.
Refer to QUU standard drawing: 486/1/25-0005-001

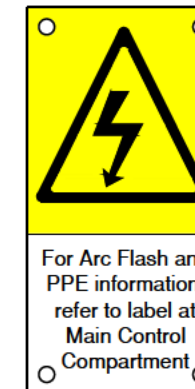


ARC FLASH & SHOCK HAZARD SIGN TYPE 2
Mounted on common control compartment escutcheon as shown on general arrangement. Sht 32.
Refer to QUU standard drawing: 486/1/25-0005-002



Common Control Compartment

ARC FLASH & SHOCK HAZARD SIGN TYPE 3
Mounted on common control compartment escutcheon as shown on general arrangement. Sht 32.
Refer to QUU standard drawing: 486/1/25-0005-003




ARC FLASH & SHOCK HAZARD SIGN TYPE 4
Mounted on all switchboard external doors, hinged and removable panels as shown on general arrangement. Sht 31 & 32.
Refer to QUU standard drawing: 486/1/25-0005-004

LABEL AF

ARC FLASH & SHOCK HAZARD SIGNS

Sheet 35

AMENDMENTS							AS CONSTRUCTED CERTIFICATION FOR DRAWING REVISION				ENGINEERING CERTIFICATION				DESIGN DRAFTING		<div>PROJECT TEAM</div> <div></div>		ASSET/PROJECT		DRAWING TITLE	
							I CERTIFY THAT THE AS CONSTRUCTED DETAILS SHOWN ON THIS PLAN ARE A TRUE AND ACCURATE RECORD OF THE WORKS.				SIGNATURE RPEQ No. DISCIPLINE DATE		DRAFTED BY DATE		SP### SAMPLE ROAD, GREEN SQUARE SEWAGE PUMP STATION				PUMP STATION SWITCHBOARD SP###-1040-SWB-0001 ARC FLASH & SHOCK HAZARD LABELS			
							SIGNATURE DATE				SIGNATURE RPEQ No. DISCIPLINE DATE		DESIGNED BY DATE									
							NAME RPEQ No.				DESIGN MANAGER'S SIGNATURE DATE		URBAN UTILITIES CIP CODE									
REV	DATE	DESCRIPTION			DESIGNER	RPEQ SIGNED	RPEQ NO.	COMPANY NAME	DISCIPLINE	COMPANY NAME	PROJECT MANAGER'S SIGNATURE DATE		URBAN UTILITIES CONSTRUCTION W/O No.		<div>UrbanUtilities</div>		DRAWING STATUS		URBAN UTILITIES DRAWING No.		REV.	
													URBAN UTILITIES CONSTRUCTION W/O No.				FOR REVIEW		SP###-1000-EE-DRG-035		P1	