

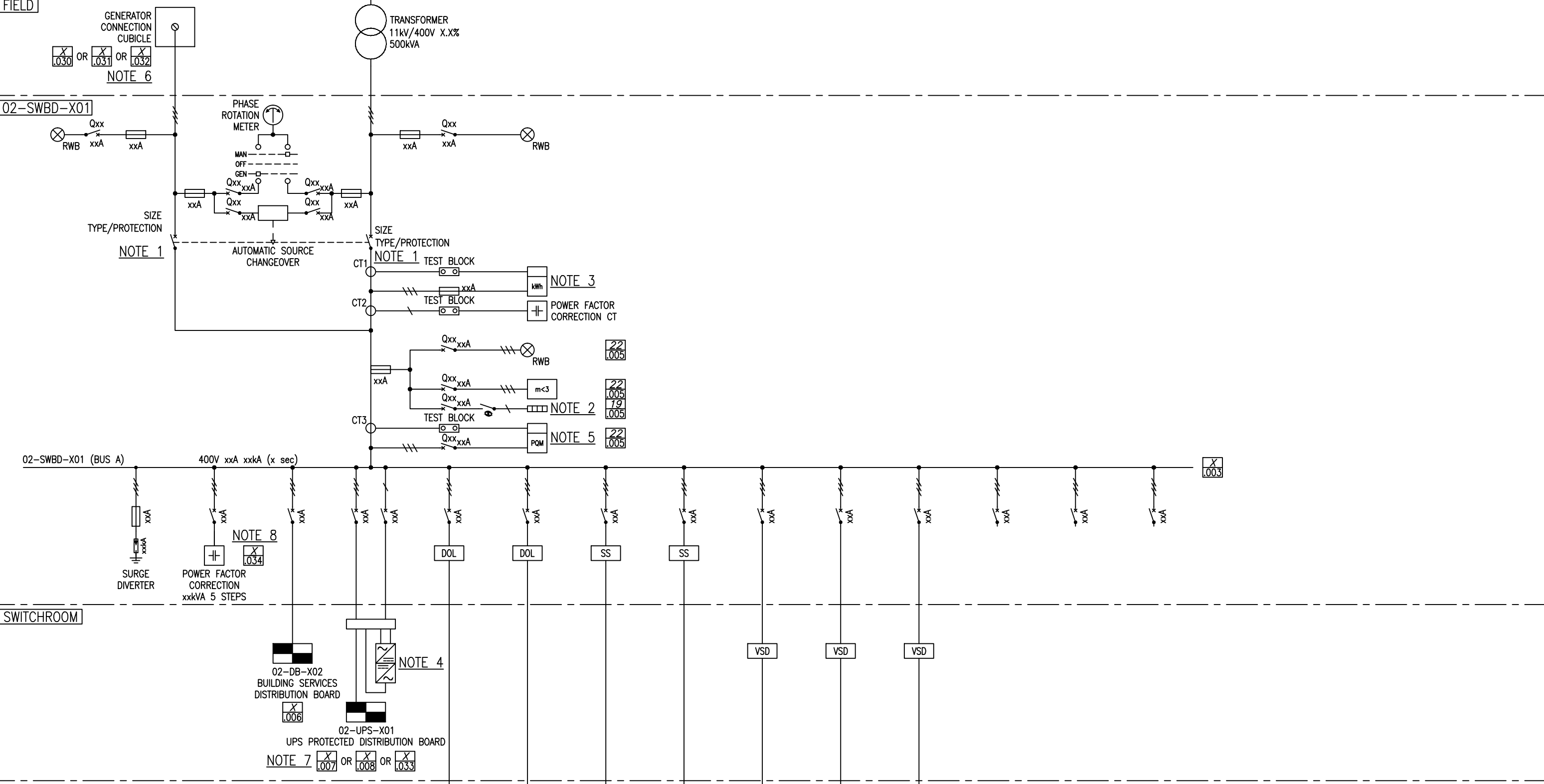
MICROFILM NO.	SHEET	MAIN TITLE	ACAD/ REFERENCE FILE NO.
2010140	.001	DRAWING SCHEDULE	2010140.001
2010140	.002	02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 1 OF 2	2010140.002
2010140	.003	02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 2 OF 2	2010140.003
2010140	.004	COMMUNICATIONS ARCHITECTURE	2010140.004
2010140	.005	STANDARD 3 LINE DIAGRAM	2010140.005
2010140	.006	02-DB-X01 AC DISTRIBUTION	2010140.006
2010140	.007	TYPE 1 UPS INSTALLATION, SINGLE UPS - DUAL SUPPLY	2010140.007
2010140	.008	TYPE 2 UPS INSTALLATION, DUAL PARALLEL REDUNDANT	2010140.008
2010140	.009	24VDC DISTRIBUTION	2010140.009
2010140	.010	CONTROL EQUIPMENT SCHEMATIC	2010140.010
2010140	.011	MOTOR CONTROL - D.O.L SCHEMATIC & THERMISTOR	2010140.011
2010140	.012	MOTOR CONTROL - D.O.L SCHEMATIC & FLYGT	2010140.012
2010140	.013	MOTOR CONTROL - SOFT STARTER SCHEMATIC	2010140.013
2010140	.014	MOTOR CONTROL - SOFT STARTER SCHEMATIC & FLYGT	2010140.014
2010140	.015	MOTOR CONTROL - VSD SCHEMATIC	2010140.015
2010140	.016	MOTOR CONTROL - VSD SCHEMATIC DOSING PUMP	2010140.016
2010140	.017	MOTOR CONTROL - VSD SCHEMATIC & FLYGT	2010140.017
2010140	.018	MOTOR CONTROL - D.O.L WITH SWAMPFOX RTU	2010140.018
2010140	.019	MOTOR CONTROL - D.O.L WITH SWAMPFOX RTU	2010140.019
2010140	.020	PANEL EQUIPMENT LOOP DIAGRAM	2010140.020
2010140	.021	2-WIRE INSTRUMENT LOOP DIAGRAM	2010140.021
2010140	.022	3-WIRE INSTRUMENT LOOP DIAGRAM	2010140.022
2010140	.023	4-WIRE INSTRUMENT LOOP DIAGRAM - 24VDC SUPPLY	2010140.023
2010140	.024	4-WIRE INSTRUMENT LOOP DIAGRAM - 230VAC SUPPLY	2010140.024
2010140	.025	ABB WATERMASTER FLOWMETER LOOP DIAGRAM - 24VDC SUPPLY	2010140.025
2010140	.026	VALVE ACTUATOR LOOP DIAGRAM - 230VAC SUPPLY	2010140.026
2010140	.027	VALVE ACTUATOR LOOP DIAGRAM - 400VAC SUPPLY	2010140.027
2010140	.028	AIR ACTUATED VALVE LOOP DIAGRAM	2010140.028
2010140	.029	SOLENOID VALVE LOOP DIAGRAM	2010140.029
2010140	.030	400A GENERATOR CONNECTION BOX	2010140.030
2010140	.031	800A GENERATOR CONNECTION BOX	2010140.031
2010140	.032	1600A GENERATOR CONNECTION BOX	2010140.032
2010140	.033	TYPE 3 UPS INSTALLATION, DUAL INDEPENDENT WITH STATIC TRANSFER SWITCHES	2010140.033
2010140	.034	TYPICAL ANTENNA INSTALLATION AT BSP CABINET	2010140.034
2010140	.035	TYPICAL ANTENNA INSTALLATION AT STRUCTURE	2010140.035

This drawing set is available in AutoCAD on request and will be issued on presenting a Watercare project drawing number or development reference where the intention is to vest the assets to Watercare

DRAWING SET NOTES:

1. THE FOLLOWING DRAWING SET HAS BEEN CREATED TO PROVIDE ELECTRICAL CONSULTANTS AND DESIGNERS WITH THE LEVEL OF DETAIL REQUIRED BY WSL. IT IS EXPECTED THAT THE DESIGNER WILL UNDERTAKE DUE DILIGENCE TO CONFIRM ALL SPECIFIC DETAILS (e.g. TAG NUMBER, MODELS, TERMINALS NUMBERS, RATINGS, ETC) WHILE UNDERTAKING THE DESIGN.
2. DRAWINGS REQUIRED FROM THIS SET ARE TO BE SELECTED ON A SITE-BY-SITE BASIS. NOT ALL DRAWINGS MAY BE APPLICABLE.
3. FOR WATERCARE STANDARD PUMP STATION DRAWINGS PLEASE REFER DRAWING SET 2010141.
4. DESCRIPTION DENOTED WITH ' ' ARE TO BE UPDATED DURING DESIGN.
5. DRAWING REFERENCES ARE DENOTED BY [.xxx]. WHEN REFERENCING OUTSIDE OF A SET THE ENTIRE DRAWING NUMBER IS REQUIRED. i.e. [2005000.001].
6. SOFT STARTER DRAWINGS [.013] AND [.014] HAVE BEEN BASED ON A SCHNEIDER ALTISTART 48. DESIGNERS ARE REQUIRED TO CONFIRM THE EXACT MAKE, MODEL, OPERATION AND CONNECTIONS DURING THE DESIGN PROCESS.
7. VSD's DRAWINGS [0.15], [0.16] AND [0.17] HAVE BEEN BASED ON A SCHNEIDER ALTIVAR 61. DESIGNERS ARE REQUIRED TO CONFIRM THE EXACT MAKE, MODEL, OPERATION AND CONNECTIONS DURING THE DESIGN PROCESS.
8. UPS DRAWINGS [.007], [.008] AND [.033] TO BE CONFIRMED AND COMPLETED. PLEASE CONTACT WSL PROJECT MANAGER IF REQUIRED.

		DESIGNED								CAD FILE 2010140.001B		DATE 28:09:2016	
		DES. CHECKED								ORIGINAL SCALE A3		CONTRACT No.	
		DRAWN								-		-	
B	09:16	DRAWINGS .034 AND .035 ADDED		J.D		OPERATIONS				REF No.		ISSUE	
A	02:15	MINOR CHANGES		L.M						-		-	
-	01/15	TEMPLATE DRAWING		EC	LM	INFRASTR APP'D				DWG No.		-	
ISSUE	DATE	AMENDMENT		BY	APPD.					2010140		.001	
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										<p>WATERCARE SERVICES LIMITED STANDARD DRAWING DRAWING SCHEDULE</p>			
										<p>2010140 .001 B</p>			



- NOTES:**
1. PLC STATUS INDICATION REQUIRED. REFER DWG [.020]
 2. CABINET HEATER CONTROLLED BY THERMOSTAT.
 3. CONTRACTOR TO ORGANIZE THE PROCUREMENT OF CT METERING FROM LINES COMPANY.
 4. UPS INCLUSIVE OF BYPASS SWITCH AND ISOLATOR.
 5. MINIMUM MEASUREMENTS OF 3 ϕ , V, I, FREQ, THvD, THiD, MAX DEMAND, kWhr.
 6. REFERENCE TO MATCH THE GENERATOR CONNECTION CUBICLE WITH APPROPRIATE CURRENT RATING.
 7. REFERENCE TO MATCH THE UPS APPLICATION TYPE.
 8. DWG. [.034] YET TO BE CREATED.

DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER			
INFRASTR APP'D			
BY	L.M		
APPD.	E.C	L.M	
AMENDMENT			
ISSUE	DATE		
A	02/15	MINOR CHANGES	
-	01/15	TEMPLATE DRAWING	

OPERATIONS	
INFRASTRUCTURE	

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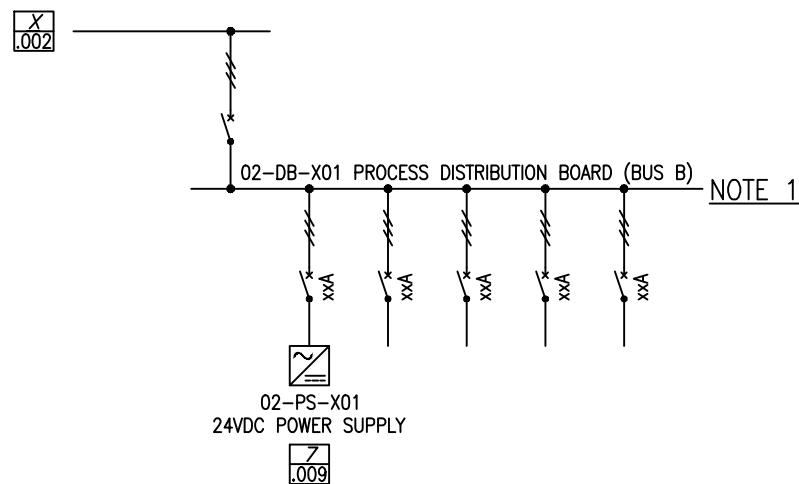
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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 1 OF 2

CAD FILE	2010140.002A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.002	A

FIELD

02-SWBD-X01



FIELD

NOTES:
1. REFER DWG [.006] FOR DB SCHEDULES.

DESIGNED				
DES. CHECKED				
DRAWN				
DWG. CHECKED				
PROJECT LEADER				
INFRASTR'R APP'D				
ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

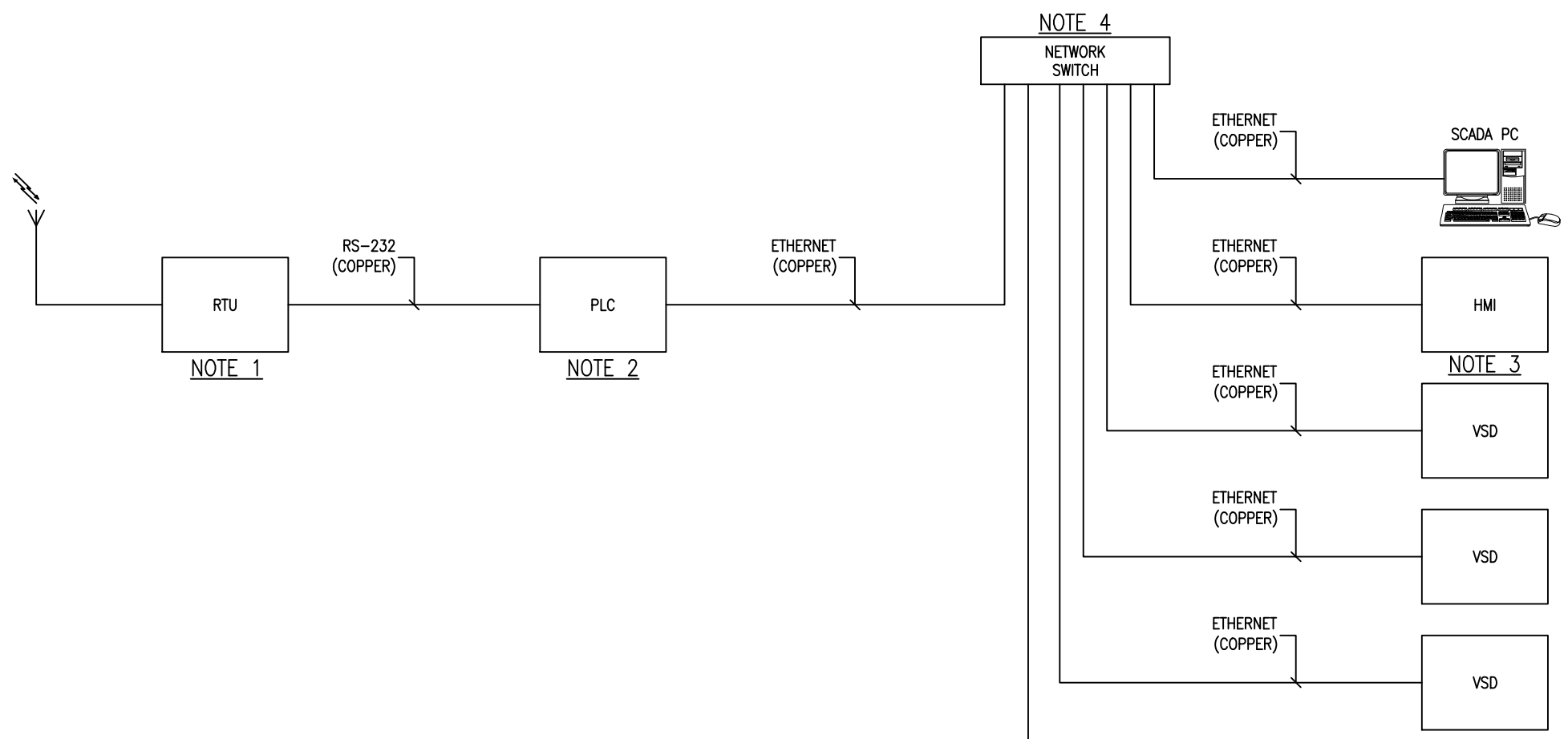
OPERATIONS	
INFRASTRUCTURE	



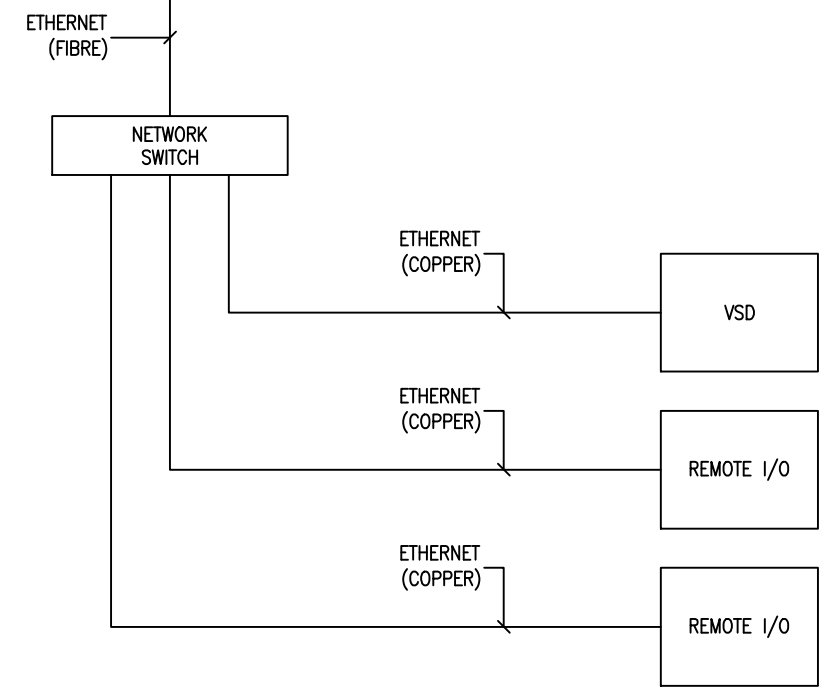
WATERCARE SERVICES LIMITED
STANDARD DRAWING
02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 2 OF 2

CAD FILE	2010140.003A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.003	A

MAIN PLANT BUILDING



REMOTE PLANT BUILDING



- NOTES:**
- xxx RTU. REFER DWG [.010] FOR DETAILS.
 - xxx PLC. REFER DWG [.010] FOR DETAILS.
 - xxx TOUCH SCREEN MOUNTED ON DOOR. REFER DWG [.010] FOR DETAILS.
 - xxx ETHERNET SWITCH. REFER DWG [.010] FOR DETAILS.

DESIGNED				
DES. CHECKED				
DRAWN				
DWG. CHECKED				
PROJECT LEADER				
INFRASTR'R APP'D				
ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

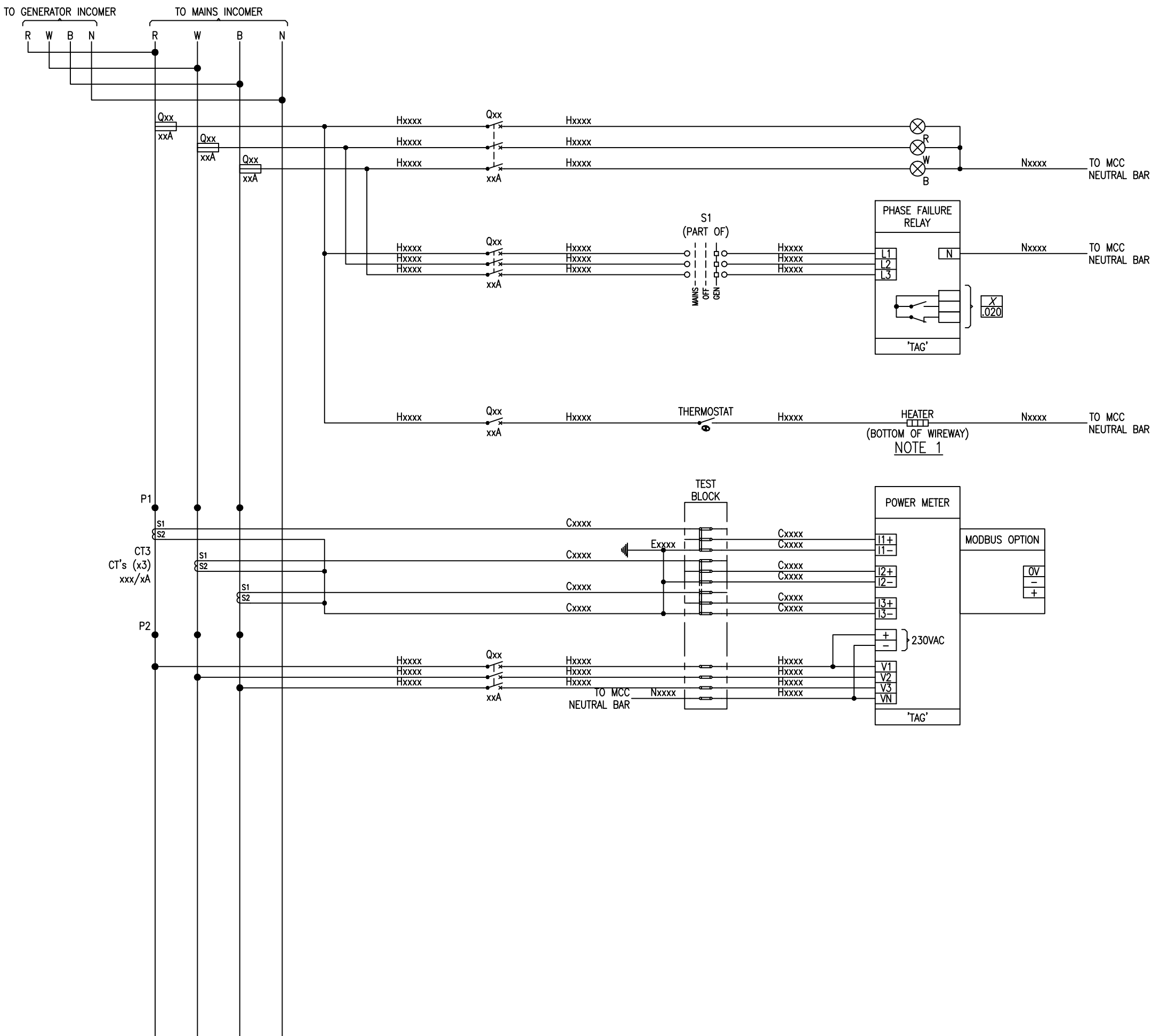
OPERATIONS

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STANDARD DRAWING
COMMUNICATIONS ARCHITECTURE

CAD FILE	2010140.004A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.004	A




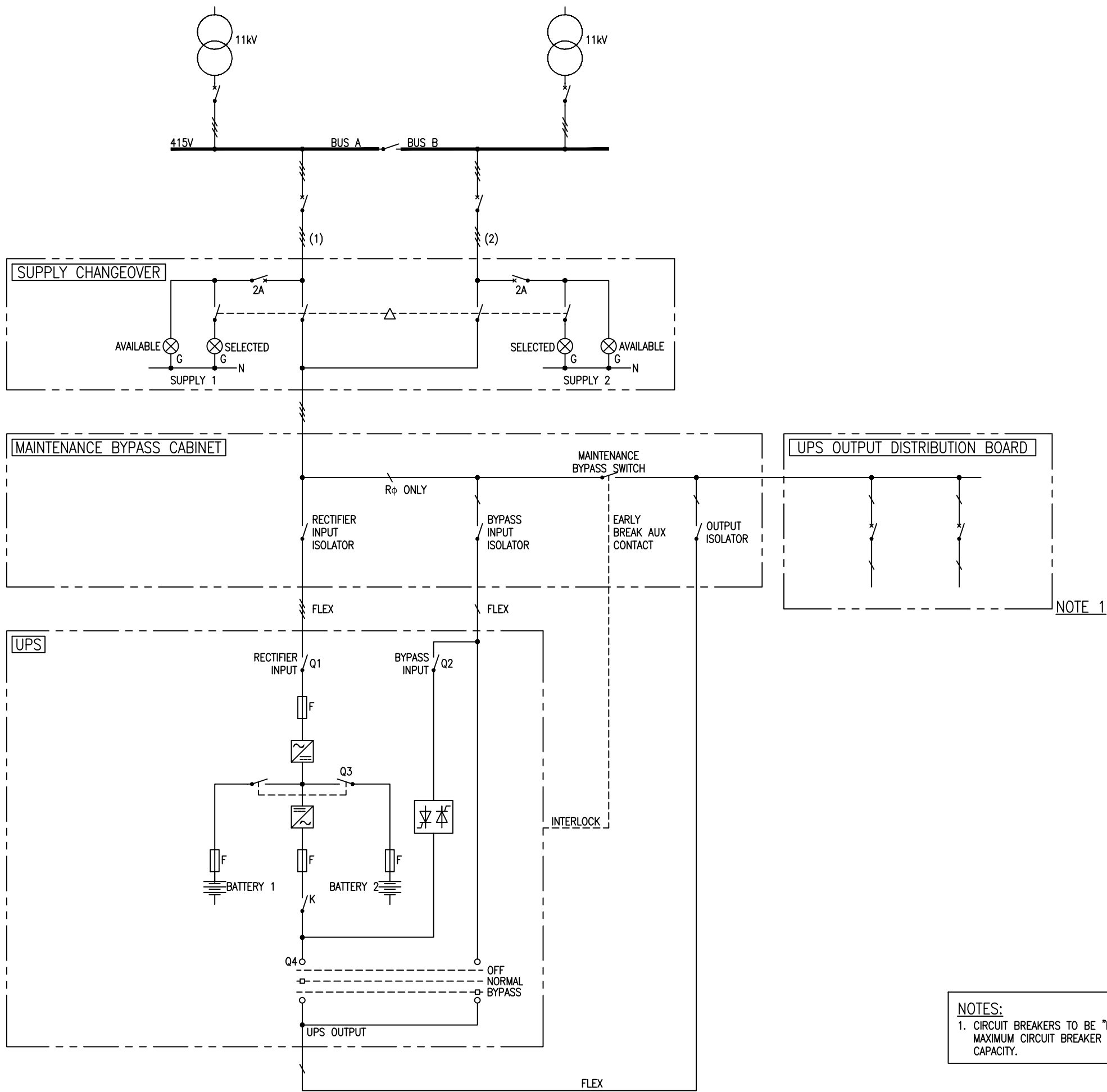
NOTES:
 1. HEATER SIZE TO BE CONFIRMED BY THE SWITCHBOARD MANUFACTURER.

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DES. CHECKED		INFRASTRUCTURE				ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.	ISSUE		
DWG. CHECKED				-	-		
PROJECT LEADER				DWG No.		2010140	.005
INFRASTR APP'D				ISSUE DATE	AMENDMENT		A
BY	APPD.						

02-DB-X01		
PHASE	DESCRIPTION	REFERENCE
R1	-	.0XX
W1	-	.0XX
B1	-	.0XX
R2	-	.0XX
W2	-	.0XX
B2	-	.0XX
R3	-	.0XX
W3	-	.0XX
B3	-	.0XX
R4	-	.0XX
W4	-	.0XX
B4	-	.0XX
R5	-	.0XX
W5	-	.0XX
B5	-	.0XX
R6	-	.0XX
W6	-	.0XX
B6	-	.0XX
R7	-	.0XX
W7	-	.0XX
B7	-	.0XX
R8	-	.0XX
W8	-	.0XX
B8	-	.0XX
R9	-	.0XX
W9	-	.0XX
B9	-	.0XX
R10	-	.0XX
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R11	-	.0XX
W11	-	.0XX
B11	-	.0XX
R12	-	.0XX
W12	-	.0XX
B12	-	.0XX
R13	-	.0XX
W13	-	.0XX
B13	-	.0XX
R14	-	.0XX
W14	-	.0XX
B14	-	.0XX
R15	-	.0XX
W15	-	.0XX
B15	-	.0XX

02-DB-X02		
PHASE	DESCRIPTION	REFERENCE
R1	-	.0XX
W1	-	.0XX
B1	-	.0XX
R2	-	.0XX
W2	-	.0XX
B2	-	.0XX
R3	-	.0XX
W3	-	.0XX
B3	-	.0XX
R4	-	.0XX
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B12	-	.0XX
R13	-	.0XX
W13	-	.0XX
B13	-	.0XX
R14	-	.0XX
W14	-	.0XX
B14	-	.0XX
R15	-	.0XX
W15	-	.0XX
B15	-	.0XX

DESIGNED				OPERATIONS		 <p>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</p>	WATERCARE SERVICES LIMITED STANDARD DRAWING 02-DB-X01 & 02-DB-X02 AC DISTRIBUTION	CAD FILE 2010140.006A		DATE 25:02:2015	
DES. CHECKED				INFRASTRUCTURE				ORIGINAL SCALE A3		CONTRACT No.	
DRAWN								REF No.		ISSUE	
DWG. CHECKED								-		-	
PROJECT LEADER						-		-			
INFRASTR APP'D						2010140		.006		A	
ISSUE	DATE	AMENDMENT		BY	APPD.						
A	02:15	MINOR CHANGES		L.M							
-	01/15	TEMPLATE DRAWING		E.C	L.M						



NOTE 1

NOTES:
 1. CIRCUIT BREAKERS TO BE "B" CURVE TRIP 3-5xIN. MAXIMUM CIRCUIT BREAKER SIZE DEPENDANT ON UPS CAPACITY.

DESIGNED				
DES. CHECKED				
DRAWN				
DWG. CHECKED				
PROJECT LEADER	L.M			
INFRASTR APP'D	E.C	L.M		
ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

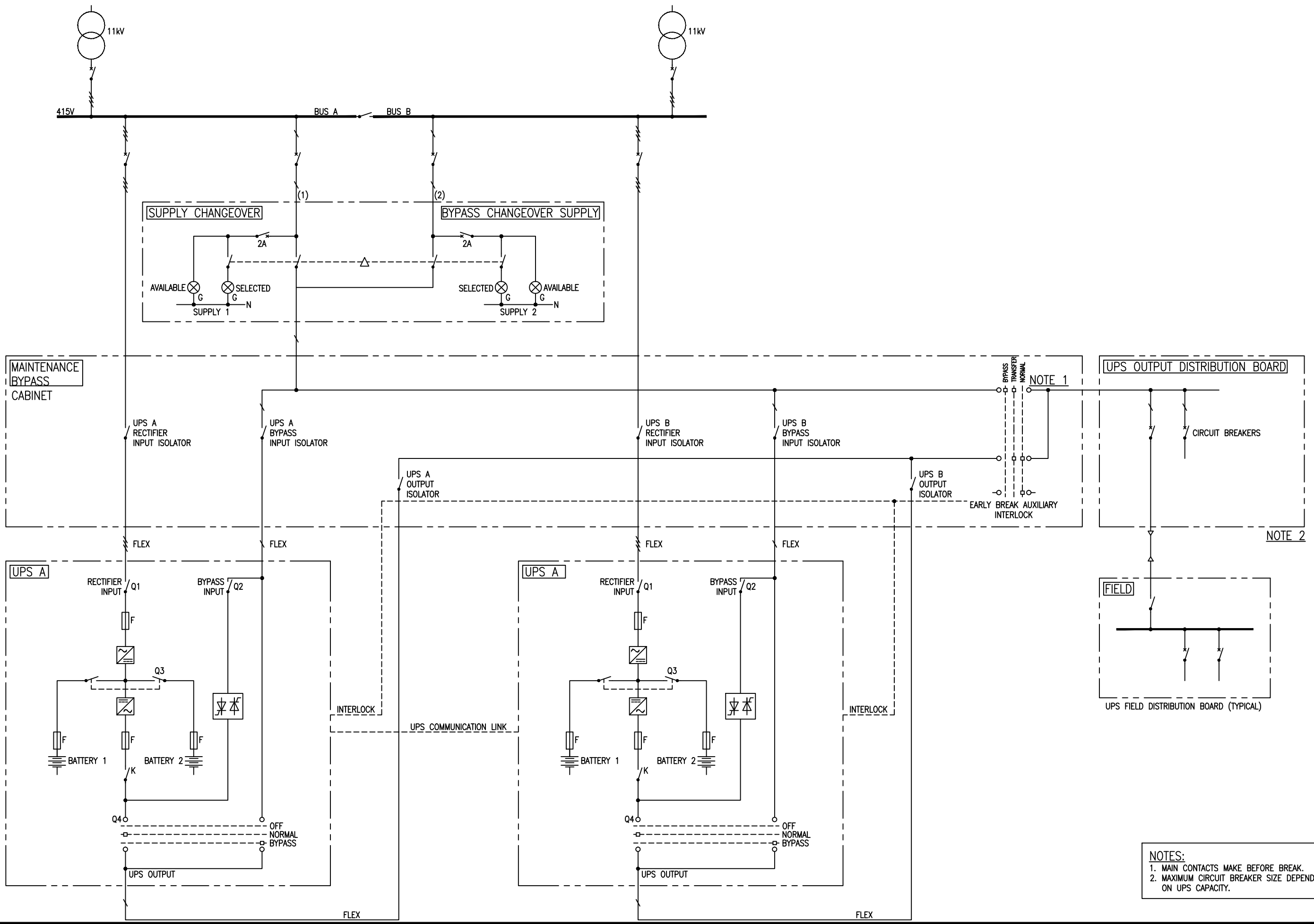
OPERATIONS

WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 TYPE 1 UPS INSTALLATION, SINGLE UPS - DUAL SUPPLY

INFRASTRUCTURE

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REF No.	-	ISSUE	-
DWG No.	2010140	.007	A



NOTES:
 1. MAIN CONTACTS MAKE BEFORE BREAK.
 2. MAXIMUM CIRCUIT BREAKER SIZE DEPENDANT ON UPS CAPACITY.

DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER			
INFRAS'T'R APP'D			
BY	L.M	APPD.	L.M
DATE	01/15	AMENDMENT	
ISSUE	A	02:15	MINOR CHANGES
	-	01/15	TEMPLATE DRAWING

OPERATIONS



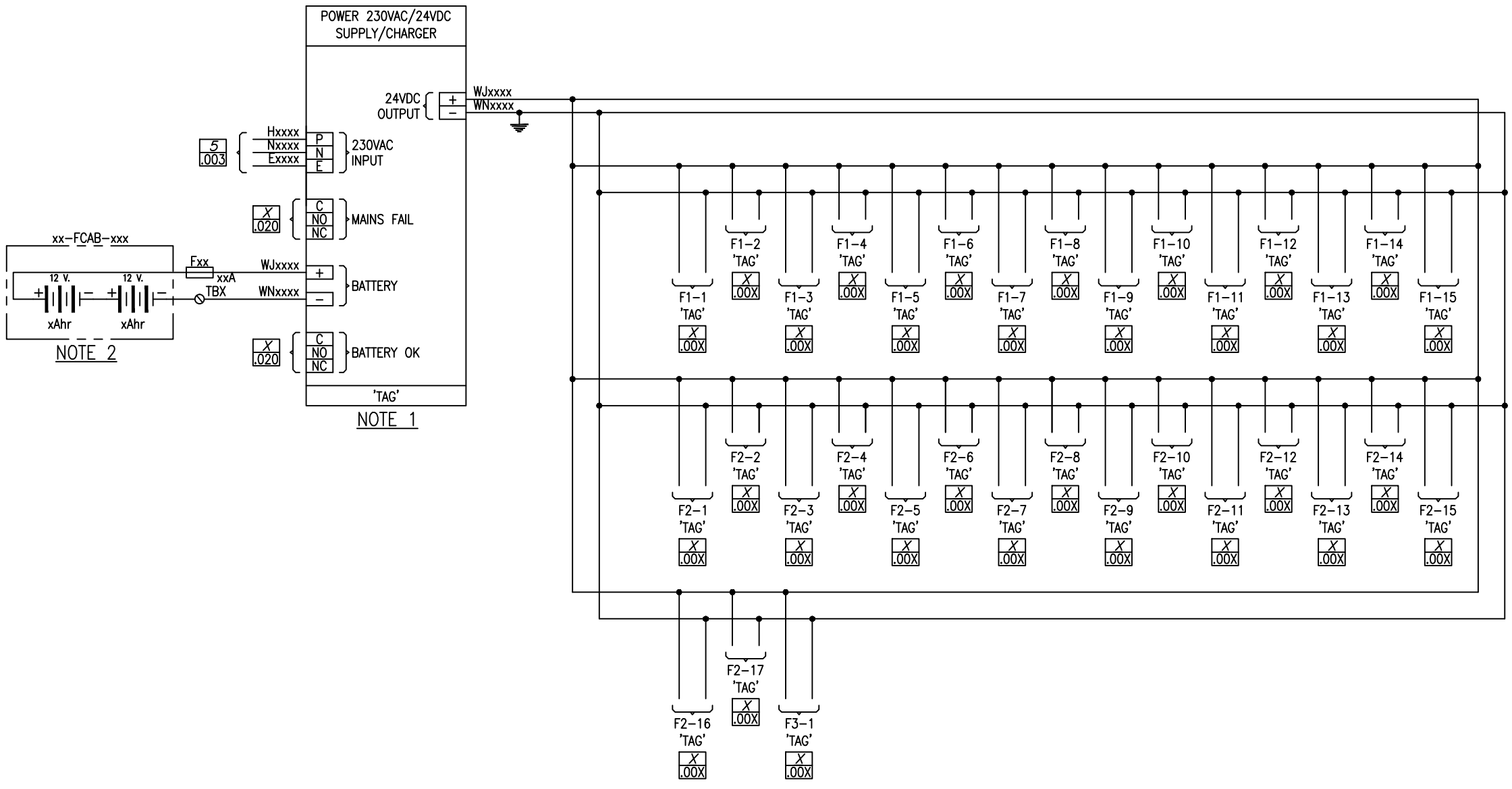
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INFRASTRUCTURE

WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 TYPE 2 UPS INSTALLATION, DUAL PARALLEL REDUNDANT

CAD FILE	2010140.008A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140		.008
			A



NOTES:
 1. TYPE - TBC
 MAKE - TBC
 MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509
 2. TYPE - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

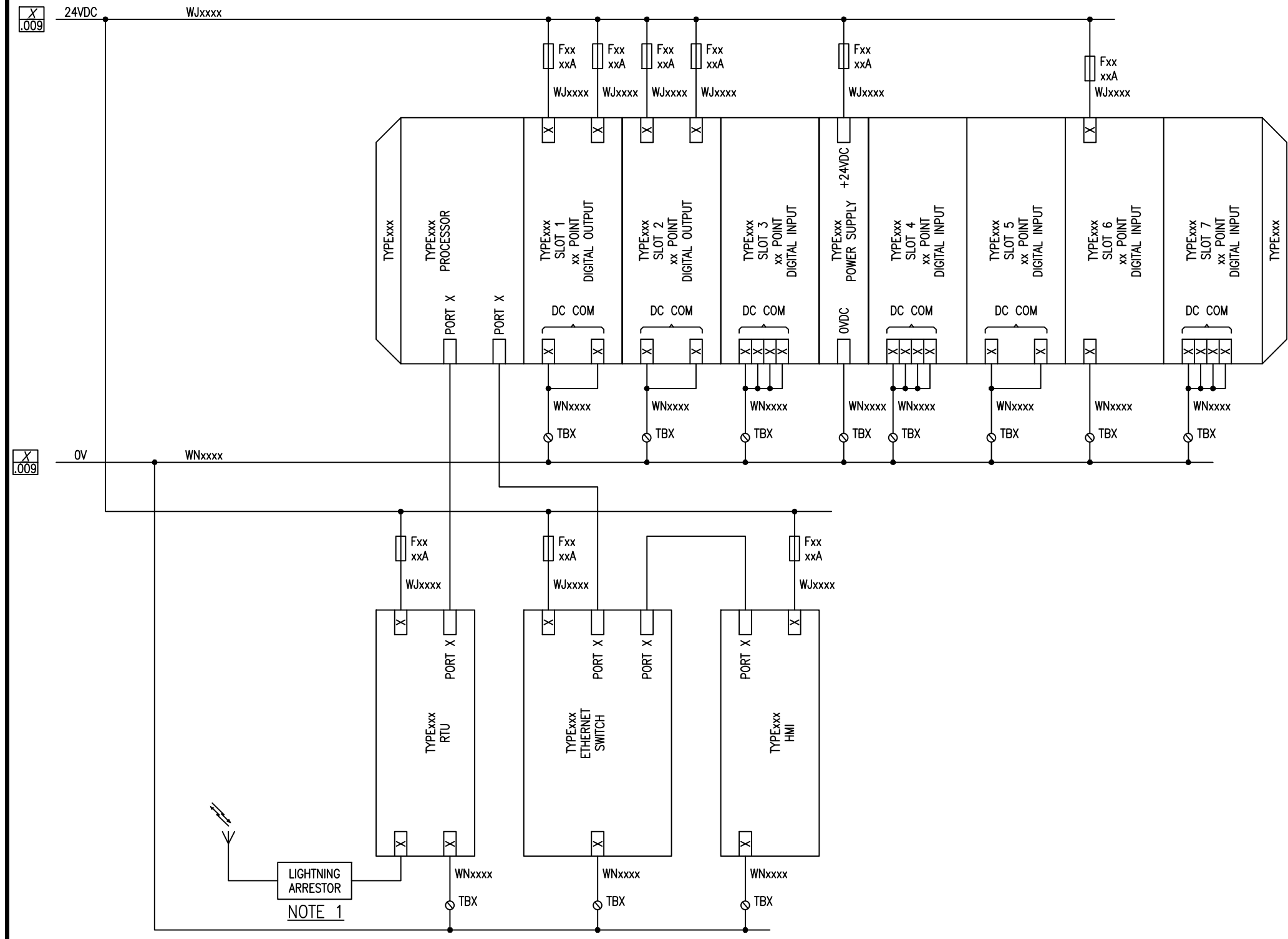
DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER	L.M		
INFRASTR'R APP'D	E.C	L.M	
BY		APPD.	

OPERATIONS	
INFRASTRUCTURE	

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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 24VDC DISTRIBUTION

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ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.009	A



NOTES:
 1. TYPE - TBC
 MAKE - TBC
 MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

DESIGNED	
DES. CHECKED	
DRAWN	
DWG. CHECKED	
PROJECT LEADER	
INFRASTR'R APP'D	

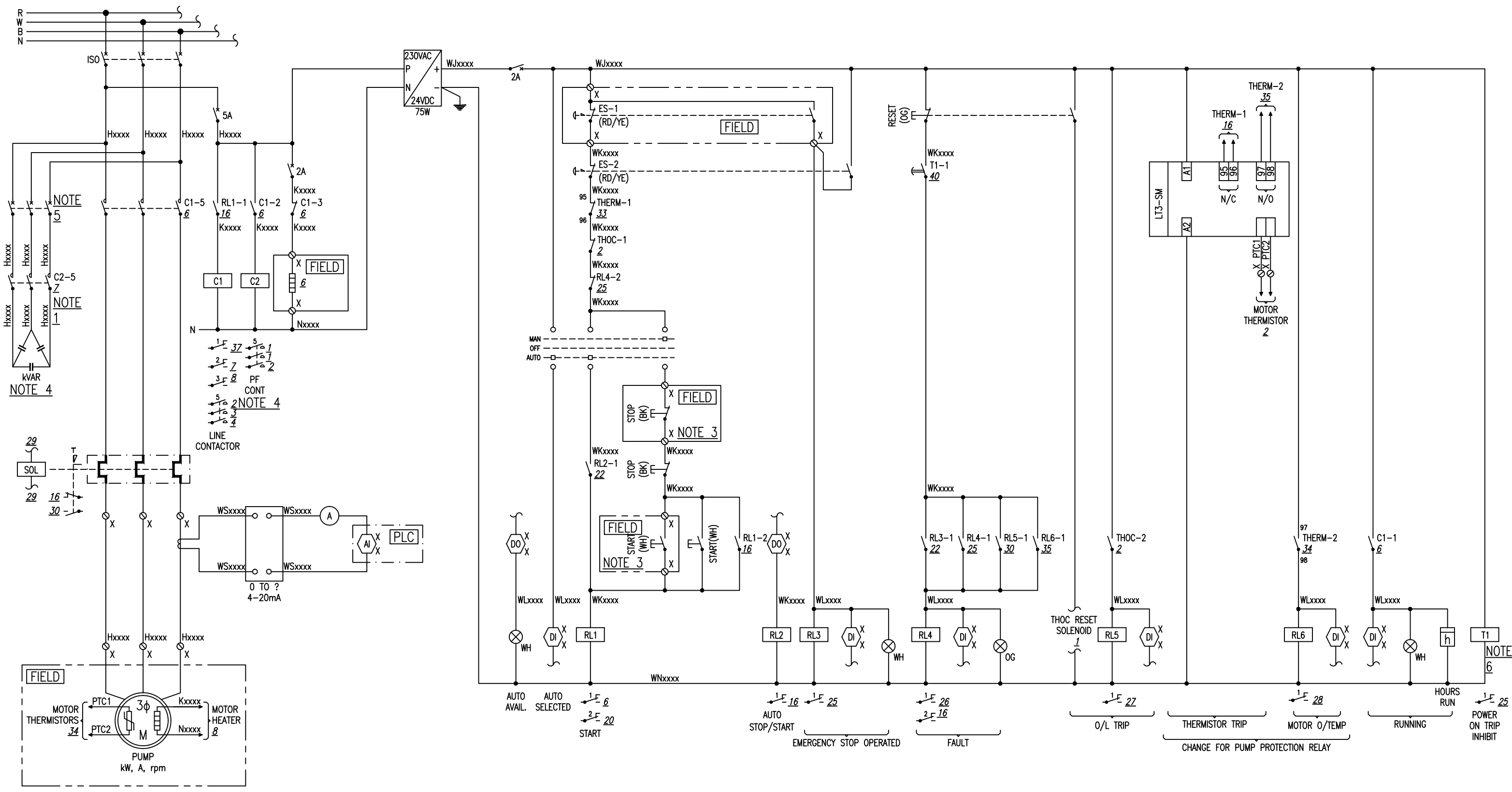
OPERATIONS

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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 CONTROL EQUIPMENT SCHEMATIC

CAD FILE	2010140.010A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.010	A



NOTE 5
NOTE 4

NOTE 4

NOTE 3

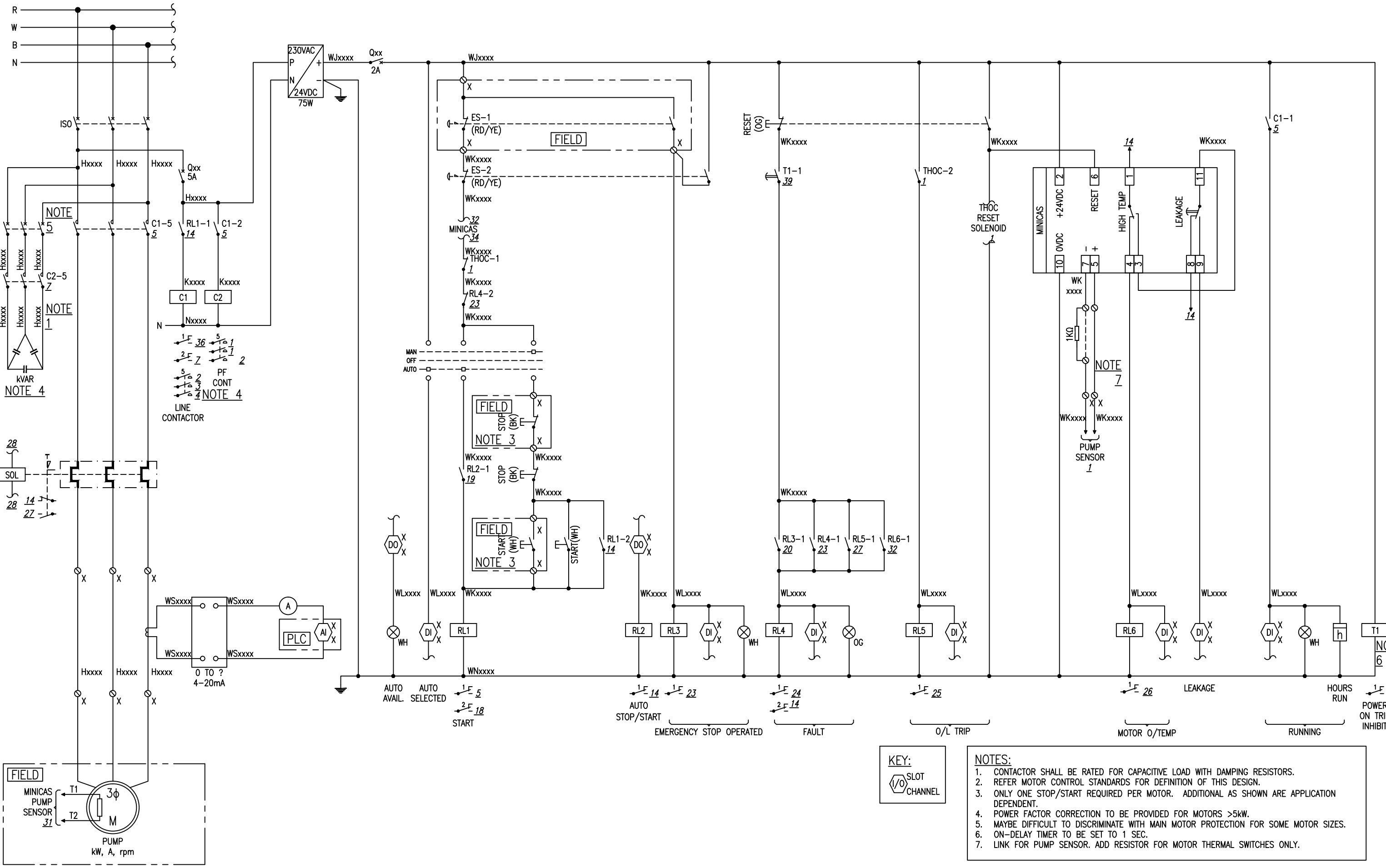
NOTE 3

NOTE 6

KEY:
 SLOT
 CHANNEL

NOTES:
 1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTORS.
 2. REFER MOTOR STANDARDS FOR DEFINITION OF THIS DESIGN.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
 4. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS > 5KW.
 5. MAY BE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
 6. ON-DELAY TIMER TO BE SET TO 1 SEC.

DESIGNED		OPERATIONS		 WATERCARE SERVICES LIMITED STANDARD DRAWING MOTOR CONTROL - D.O.L SCHEMATIC & THERMISTOR	CAD FILE 2010140.011A	DATE 25:02:2015
DES. CHECKED		INFRASTRUCTURE			ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.	ISSUE	
DWG. CHECKED				-	-	
PROJECT LEADER				DWG No.		
INFRAS'TR APP'D				2010140	.011	
ISSUE	DATE	AMENDMENT	BY	APPD.		A
A	02:15	MINOR CHANGES	L.M			
-	01/15	DRAWING TEMPLATE	E.C	L.M		



KEY:
 SLOT CHANNEL

- NOTES:**
1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTORS.
 2. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
 4. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >5kW.
 5. MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
 6. ON-DELAY TIMER TO BE SET TO 1 SEC.
 7. LINK FOR PUMP SENSOR. ADD RESISTOR FOR MOTOR THERMAL SWITCHES ONLY.

ISSUE	DATE	AMENDMENT	BY	APPD.
A	02:15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

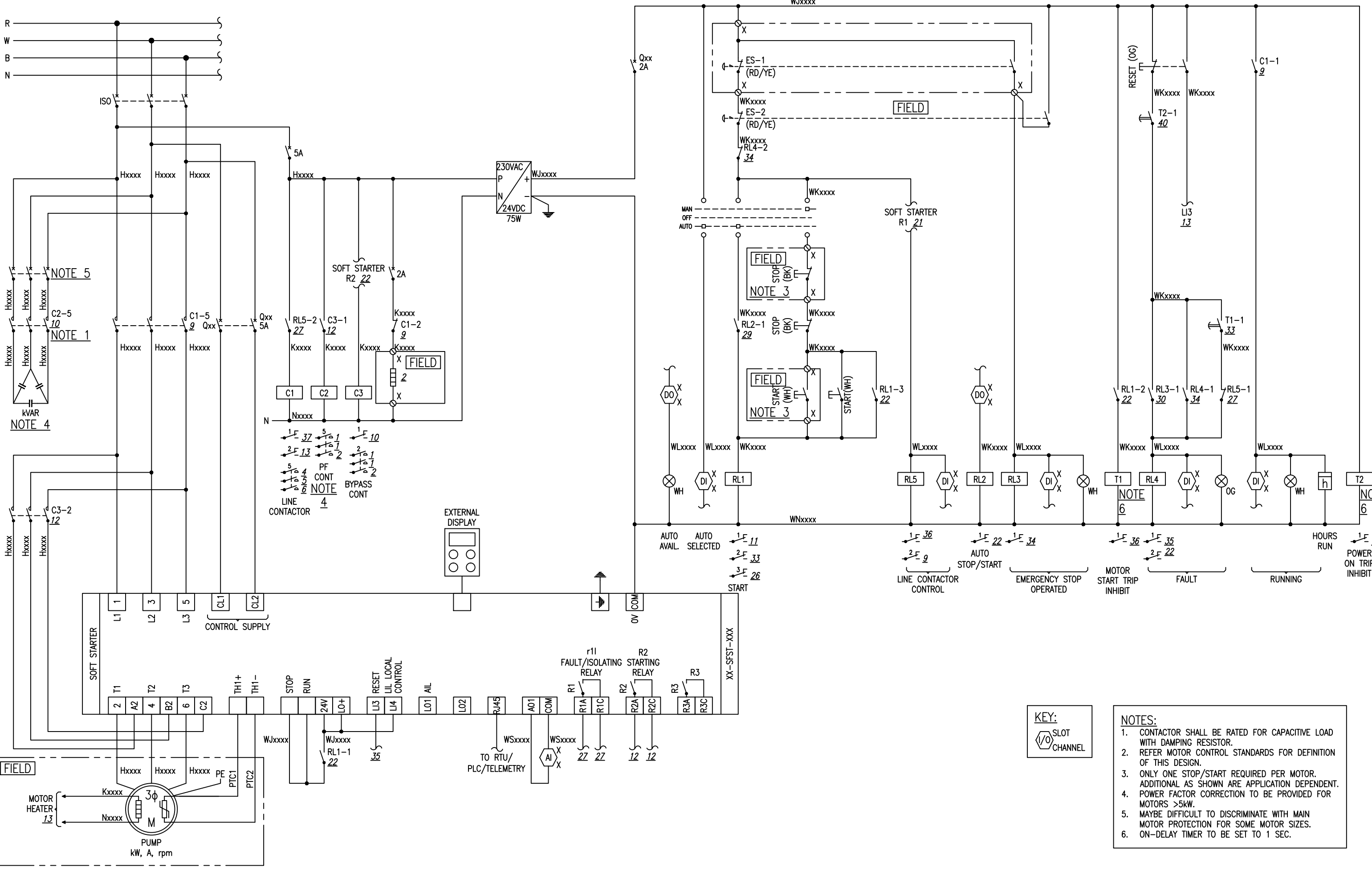
DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER	INFRAS'T'R APP'D

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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 MOTOR CONTROL - D.O.L SCHEMATIC & FLYGT

CAD FILE	2010140.012A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.012	A



KEY:
 SLOT
 CHANNEL

- NOTES:**
1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTOR.
 2. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION SPECIFIC.
 4. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >5kW.
 5. MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
 6. ON-DELAY TIMER TO BE SET TO 1 SEC.

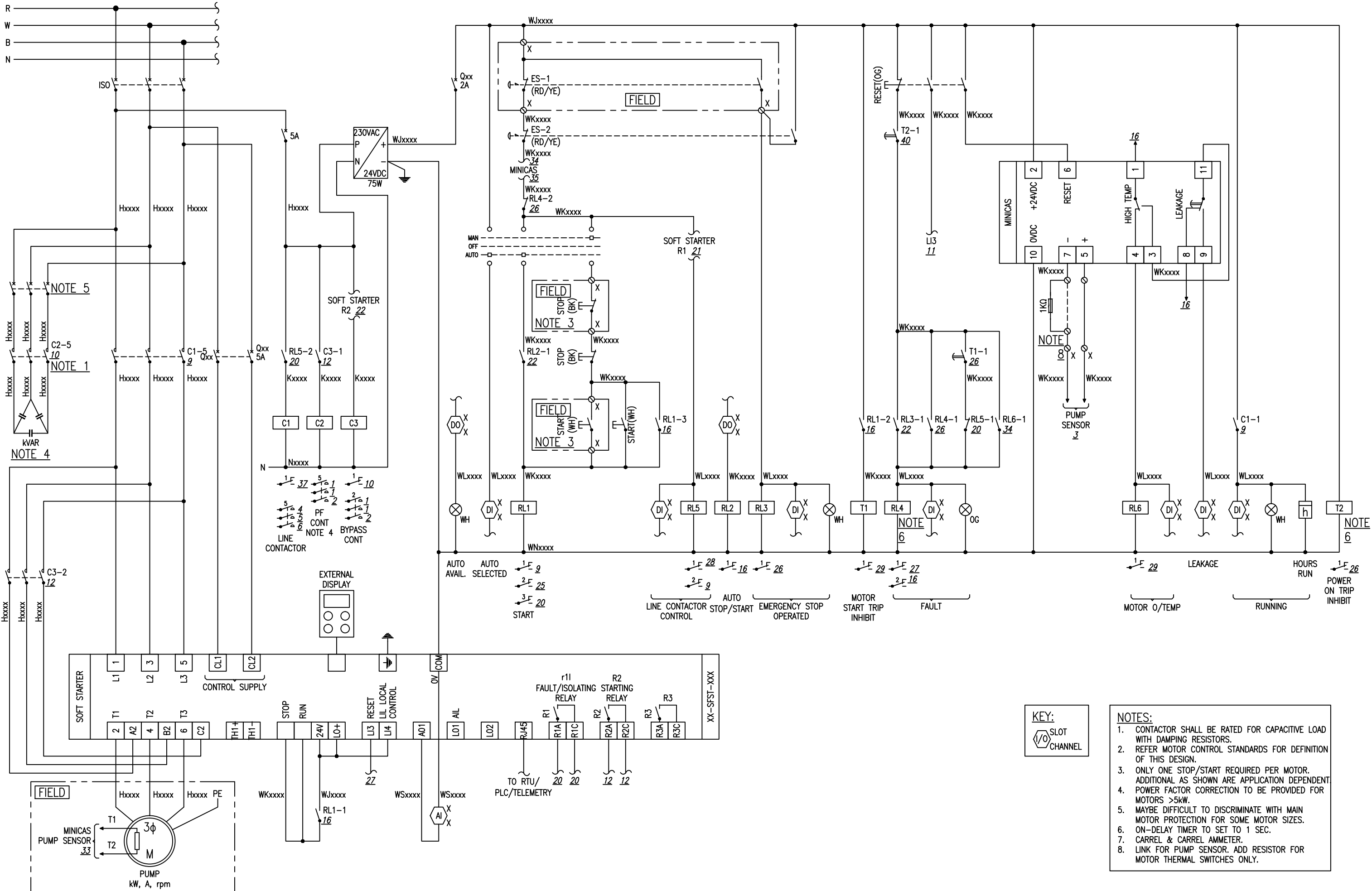
ISSUE	DATE	AMENDMENT	BY	APPD.
A	02:15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER

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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 MOTOR CONTROL - SOFT STARTER SCHEMATIC

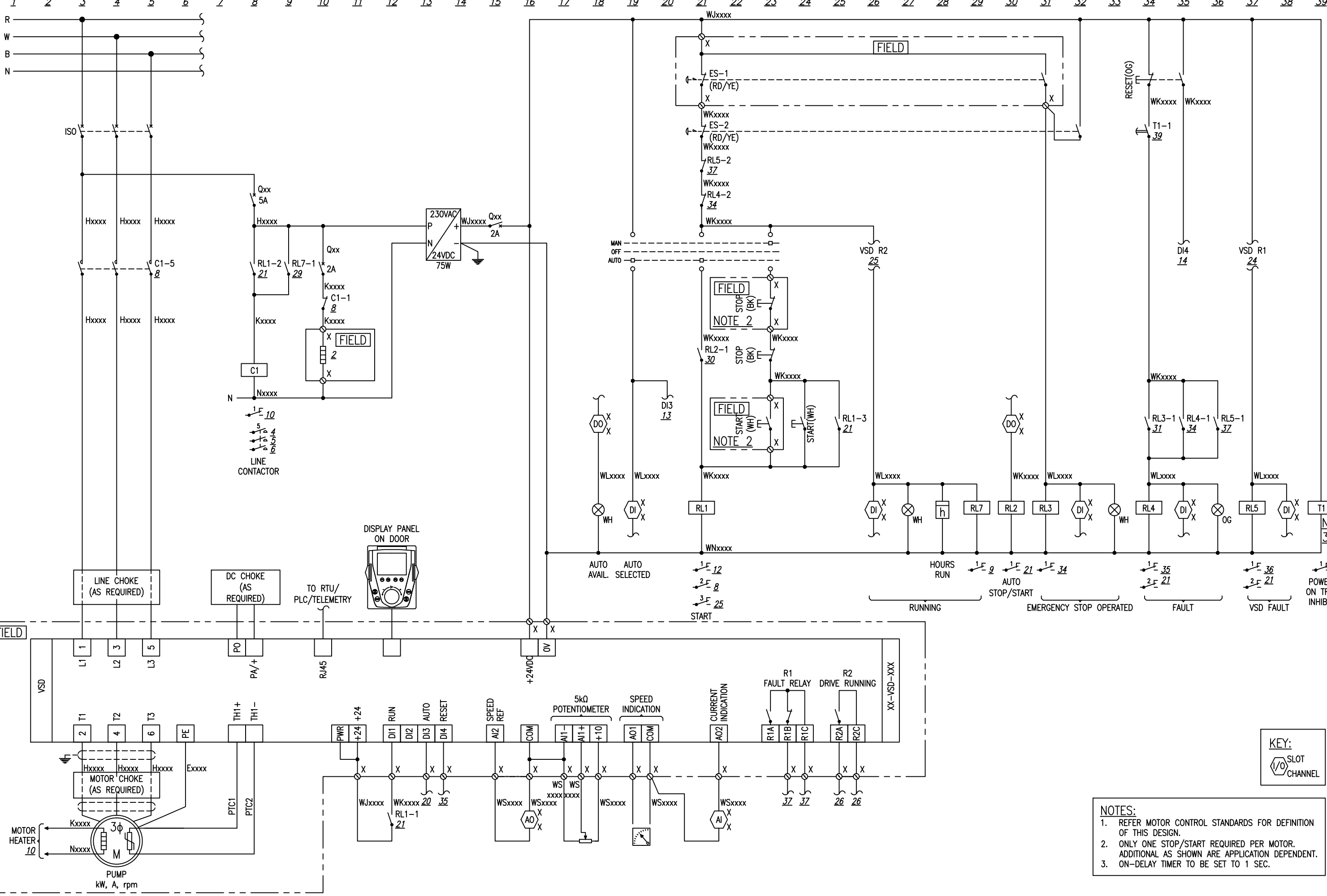
CAD FILE	2010140.013A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.013	A



KEY:
 SLOT
 CHANNEL

- NOTES:**
1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTORS.
 2. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT
 4. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >5kW.
 5. MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
 6. ON-DELAY TIMER TO SET TO 1 SEC.
 7. CARREL & CARREL AMMETER.
 8. LINK FOR PUMP SENSOR. ADD RESISTOR FOR MOTOR THERMAL SWITCHES ONLY.

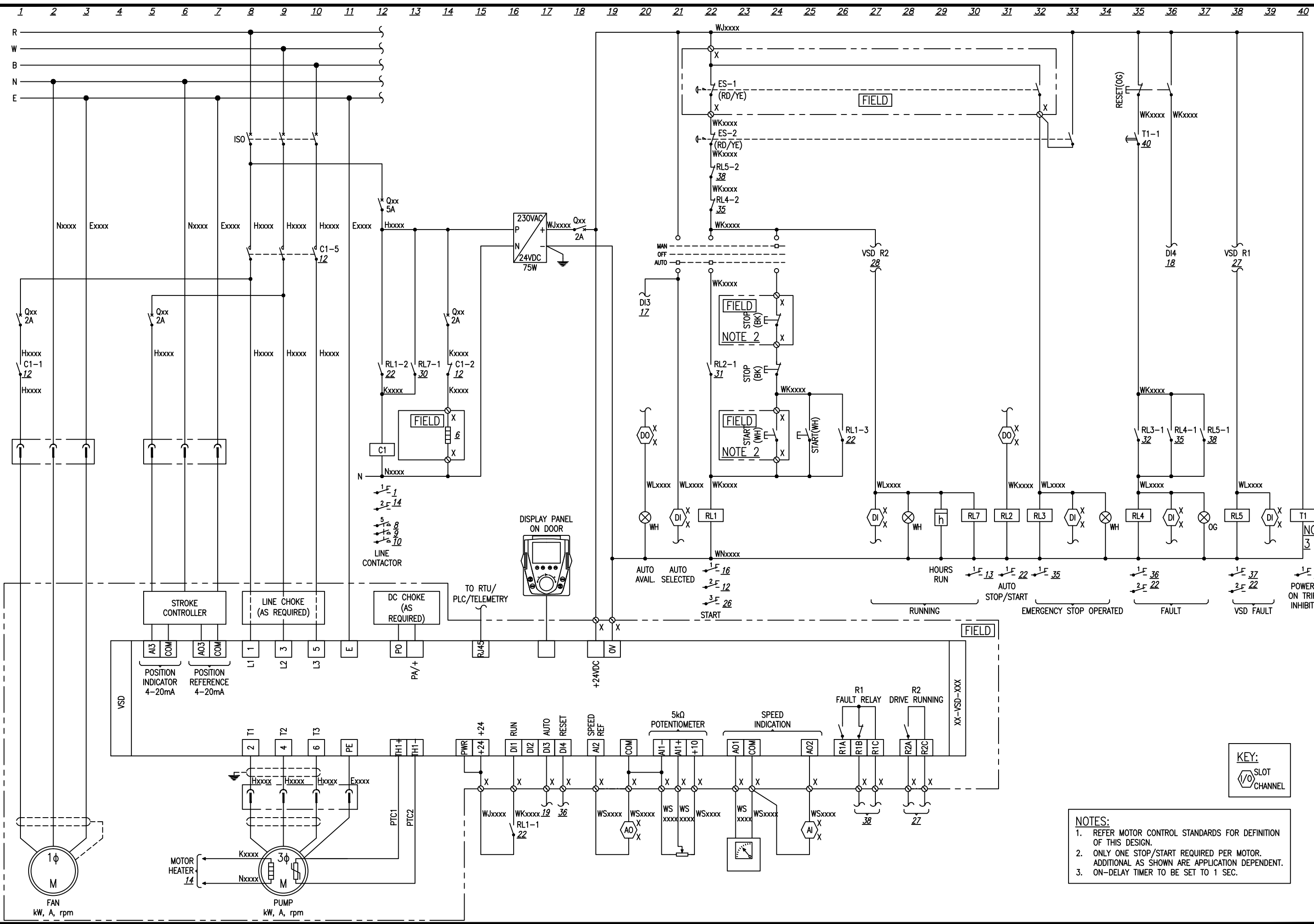
DESIGNED		OPERATIONS			WATERCARE SERVICES LIMITED STANDARD DRAWING MOTOR CONTROL - SOFT STARTER SCHEMATIC & FLYGT	CAD FILE 2010140.014A DATE 25:02:2015	
DES. CHECKED		DRAWN				ORIGINAL SCALE A3	CONTRACT No.
DRAWN		DWG. CHECKED		REF No.		ISSUE	
PROJECT LEADER		INFRASTR APP'D		-		-	
ISSUE	DATE	BY	APPD.	INFRASTRUCTURE	DWG No. 2010140		2014
AMENDMENT						A	



KEY:
 SLOT CHANNEL

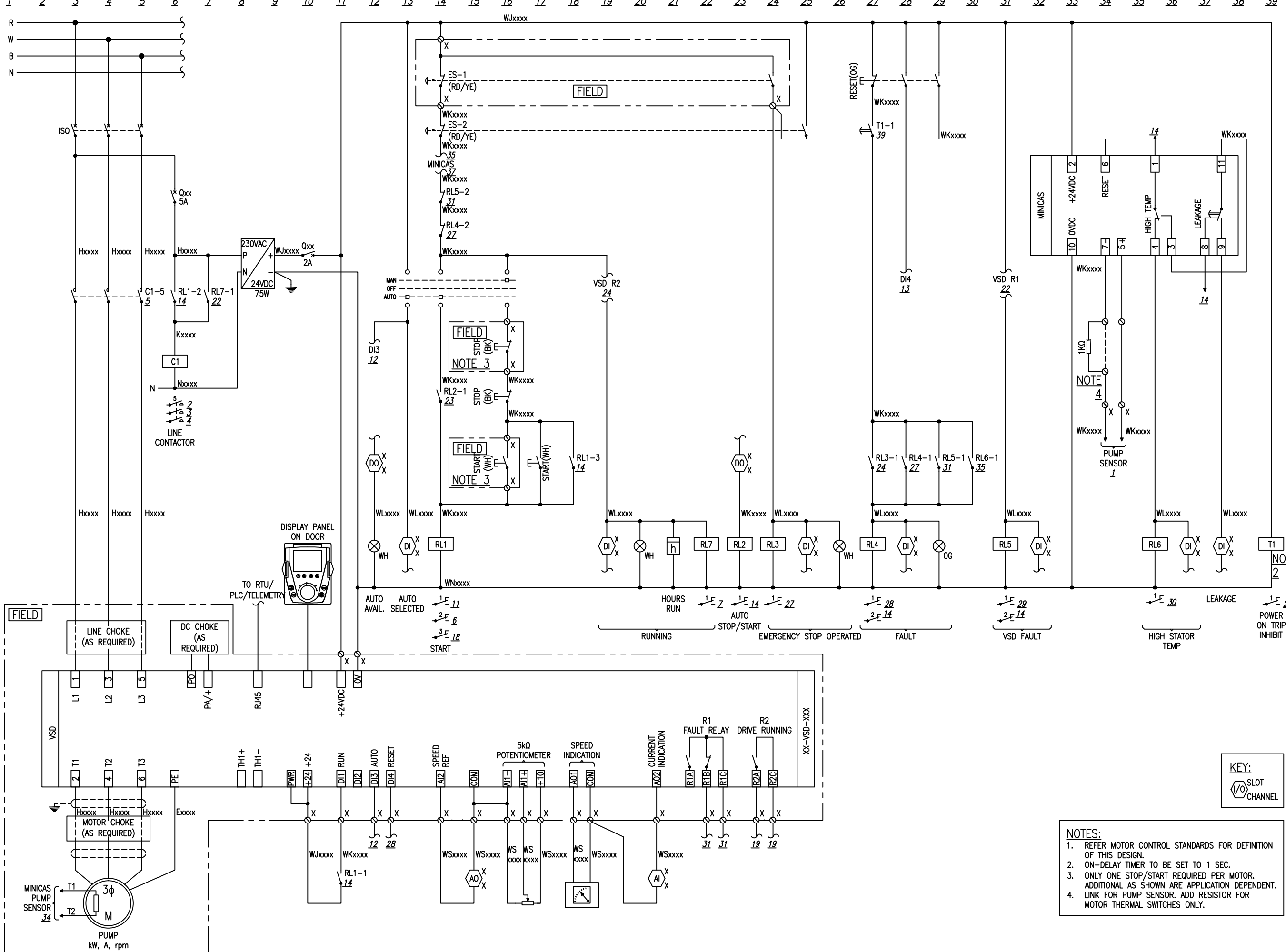
NOTES:
 1. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 2. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
 3. ON-DELAY TIMER TO BE SET TO 1 SEC.

DESIGNED		OPERATIONS		 Watercare <small>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</small>	WATERCARE SERVICES LIMITED STANDARD DRAWING MOTOR CONTROL - VSD SCHEMATIC	CAD FILE 2010140.015A	DATE 25:02:2015
DES. CHECKED		INFRASTRUCTURE				ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.	ISSUE		
DWG. CHECKED				DWG No.	2010140	.015	A
PROJECT LEADER							
INFRASTR APP'D							
ISSUE	DATE	AMENDMENT	BY	APPD.			
A	02:15	MINOR CHANGES	L.M				
-	01/15	TEMPLATE DRAWING	E.C	L.M			



- NOTES:**
1. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 2. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
 3. ON-DELAY TIMER TO BE SET TO 1 SEC.

DESIGNED		OPERATIONS		WATERCARE SERVICES LIMITED		CAD FILE 2010140.016A		DATE 25:02:2015	
DES. CHECKED		DRAWN		COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.		ORIGINAL SCALE A3		CONTRACT No.	
DRAWN		DWG. CHECKED		WATERCARE SERVICES LIMITED		REF No.		ISSUE	
PROJECT LEADER		INFRASTR APP'D		STANDARD DRAWING		-		-	
BY L.M		APPD. E.C L.M		MOTOR CONTROL - VSD SCHEMATIC DOSING PUMP		DWG No.		2010140 .016	
AMENDMENT		BY APPD.		INFRASTRUCTURE		2010140		.016	
A 02:15 MINOR CHANGES		L.M						A	
- 01/15 TEMPLATE DRAWING		E.C L.M							



- NOTES:**
1. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 2. ON-DELAY TIMER TO BE SET TO 1 SEC.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
 4. LINK FOR PUMP SENSOR. ADD RESISTOR FOR MOTOR THERMAL SWITCHES ONLY.



ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

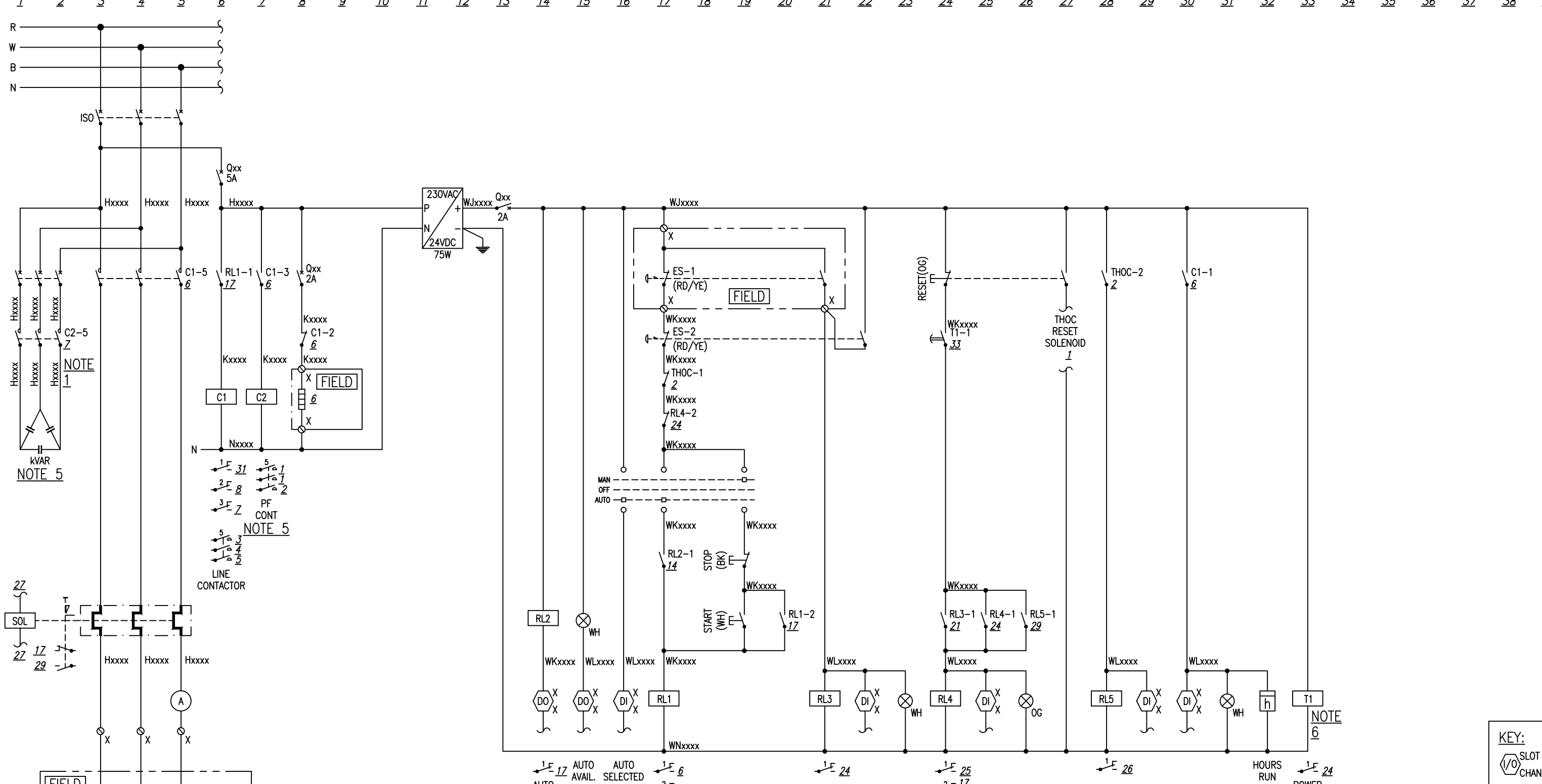
DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER	INFRAS'TR APP'D

OPERATIONS

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WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 MOTOR CONTROL - VSD SCHEMATIC & FLYGT

CAD FILE 2010140.017A	DATE 25:02:2015
ORIGINAL SCALE A3	CONTRACT No.
REF No.	ISSUE
DWG No. 2010140	.017



NOTE 1
kVAR
NOTE 5

NOTE 2
PF CONT
NOTE 5
LINE CONTACTOR

NOTE 6

KEY:
SLOT
CHANNEL

- NOTES:
1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD.
 2. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION & LOCATION DEPENDENT.
 4. MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
 5. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >15kW.
 6. ON-DELAY TIMER TO BE SET TO 1 SEC.

ISSUE	DATE	AMENDMENT	BY	APPD.
A	02:15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

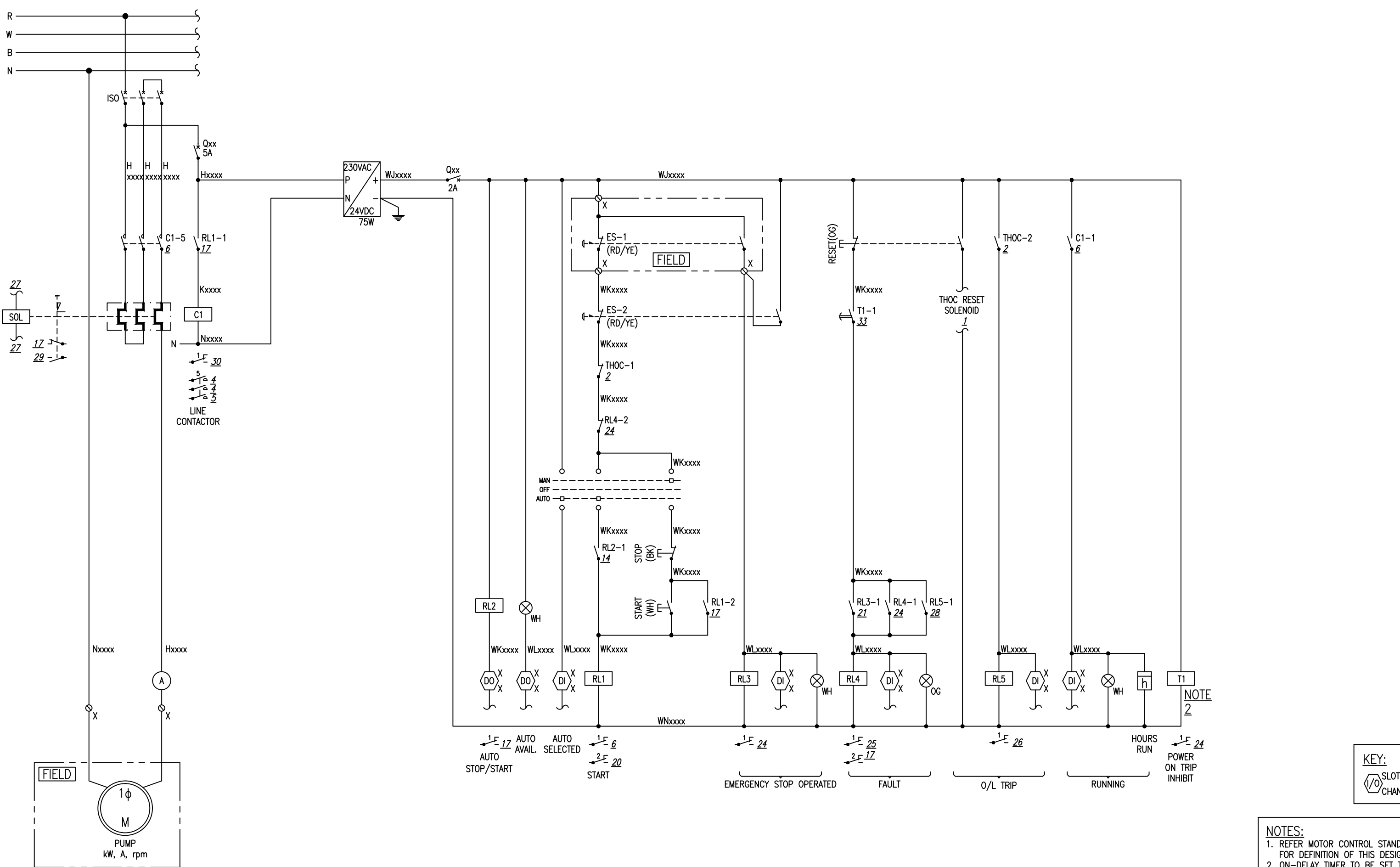
DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER	INFRASTR'R APP'D

OPERATIONS

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WATERCARE SERVICES LIMITED
STANDARD DRAWING
MOTOR CONTROL - DOL WITH SWAMPFOX RTU

CAD FILE	2010140.018A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.018	A



KEY:
 SLOT CHANNEL

NOTES:
 1. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
 2. ON-DELAY TIMER TO BE SET TO 1 SEC.

DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER			
INFRASTR APP'D			
BY	L.M		
APPD.	E.C	L.M	

OPERATIONS

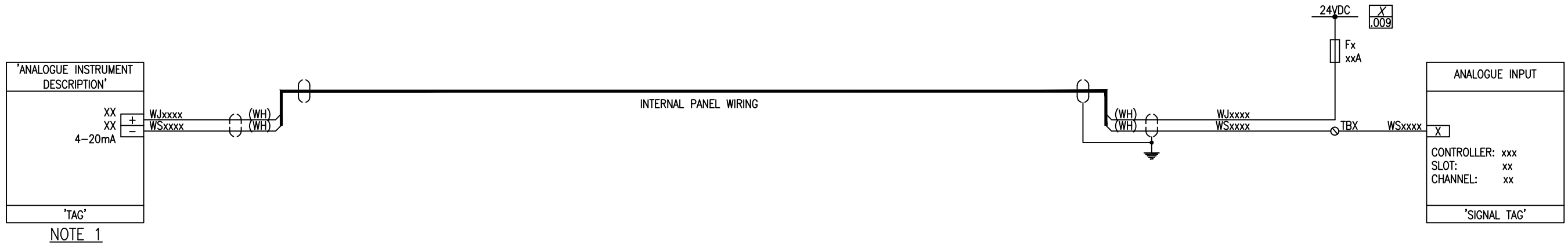
INFRASTRUCTURE

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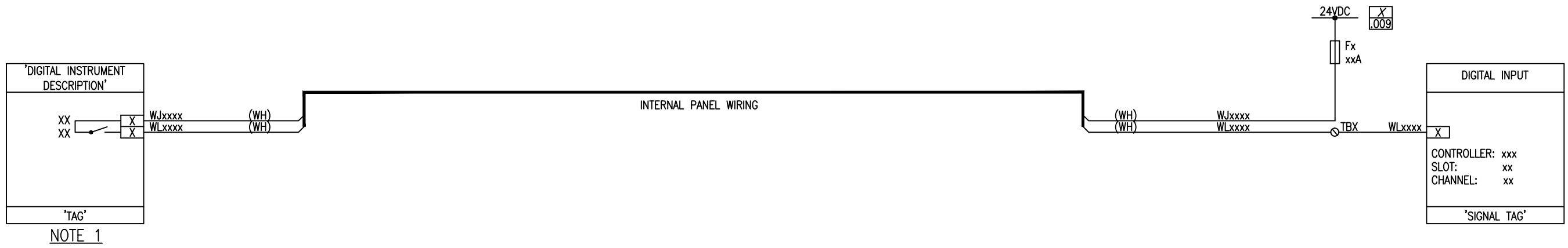
WATERCARE SERVICES LIMITED
 STANDARD DRAWING
 MOTOR CONTROL - D.O.L WITH SWAMPFOX RTU

CAD FILE	2010140.019A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	
REF No.		ISSUE	
DWG No.	2010140	.019	A


02-SWBD-X01



OR

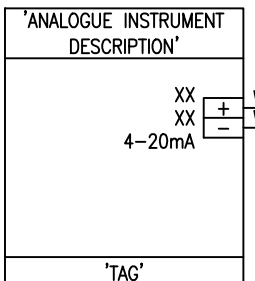


NOTES:
 1. TYPE - TBC
 MAKE - TBC
 MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

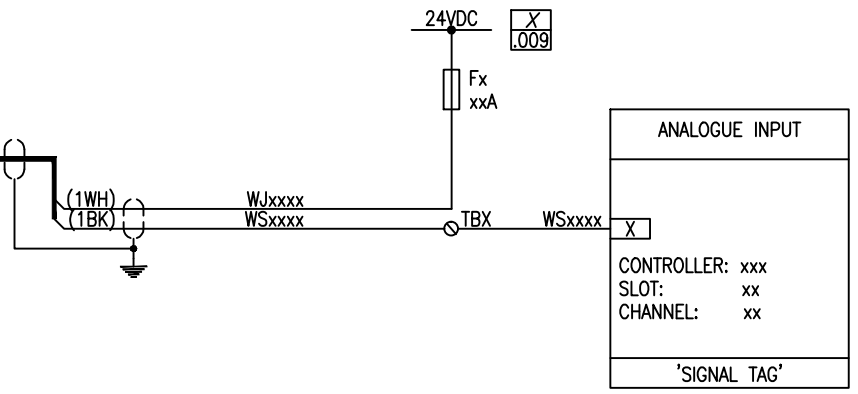
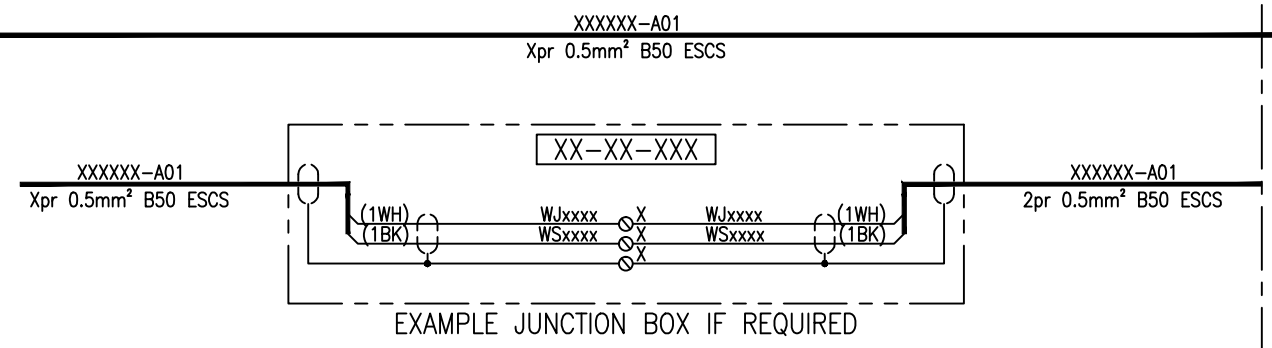
DESIGNED		DRAWN		OPERATIONS		 <p>Watercare</p> <p>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</p>	WATERCARE SERVICES LIMITED		CAD FILE 2010140.020A DATE 25:02:2015		
DES. CHECKED		DWG. CHECKED		INFRASTRUCTURE			STANDARD DRAWING		ORIGINAL SCALE A3 CONTRACT No.		
PROJECT LEADER		PROJECT LEADER				PANEL EQUIPMENT LOOP DIAGRAM		REF No.		ISSUE	
INFRASTR'R APP'D		INFRASTR'R APP'D						DWG No. 2010140		ISSUE A	
ISSUE	DATE	AMENDMENT	BY	APPD.							

FIELD

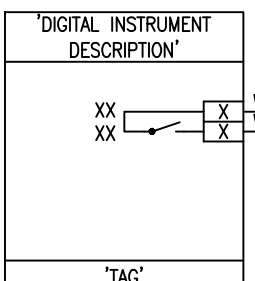
02-SWBD-X01



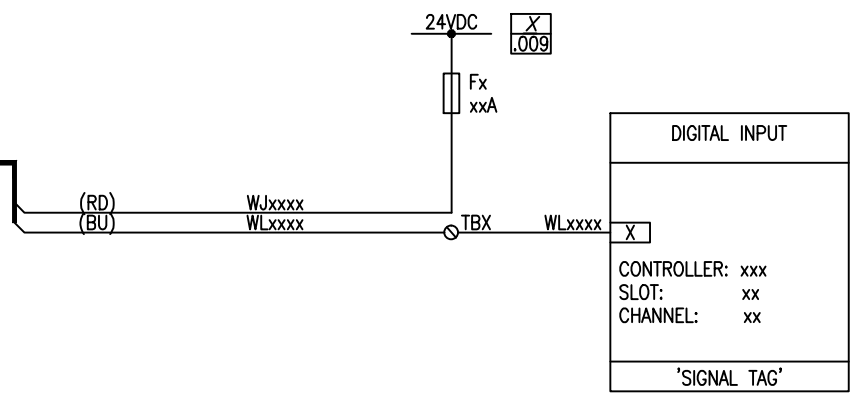
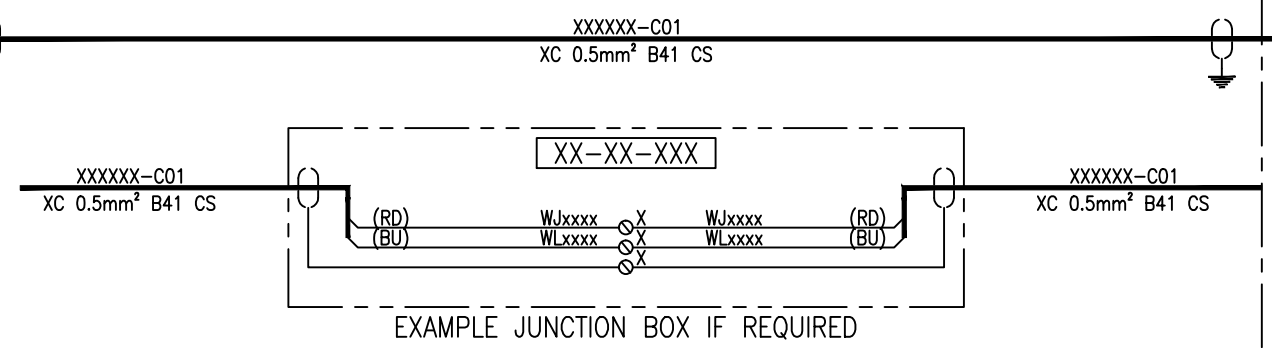
NOTE 1



OR



NOTE 1




NOTES:
1. TYPE - TBC
MAKE - TBC
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER			
INFRASTR'R APP'D			
BY	L.M	E.C	L.M
APPD.			

OPERATIONS

INFRASTRUCTURE



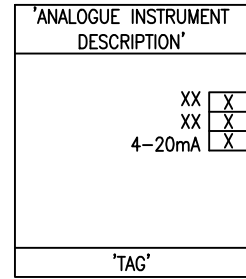
COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.

WATERCARE SERVICES LIMITED
STANDARD DRAWING
2-WIRE INSTRUMENT LOOP DIAGRAM

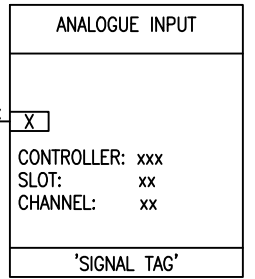
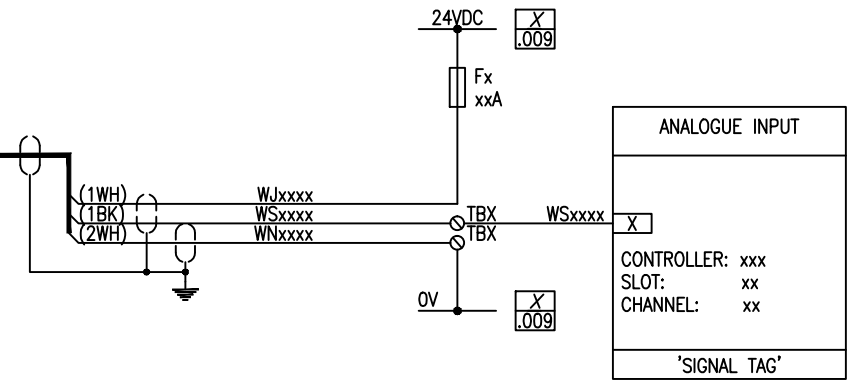
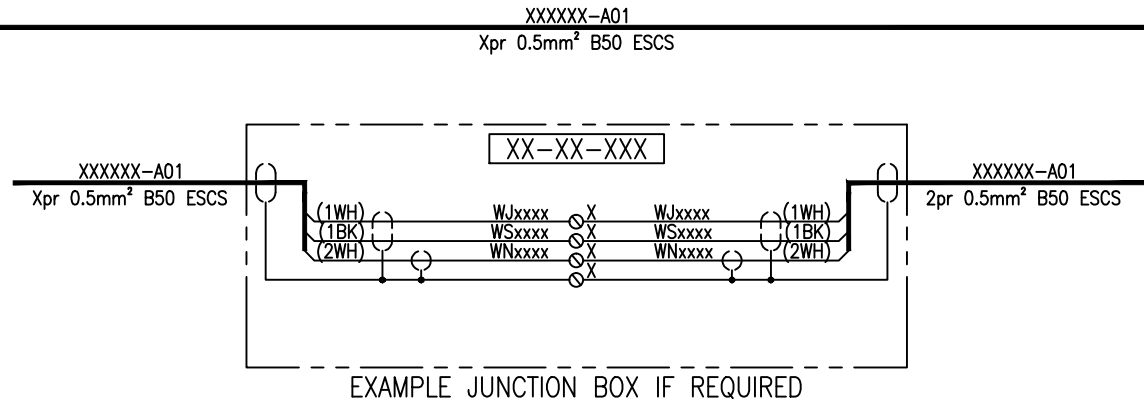
CAD FILE	2010140.021A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	
REF No.		ISSUE	
DWG No.	2010140		A

FIELD

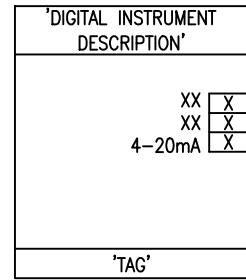
02-SWBD-X01



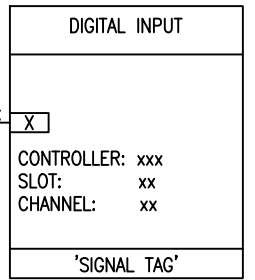
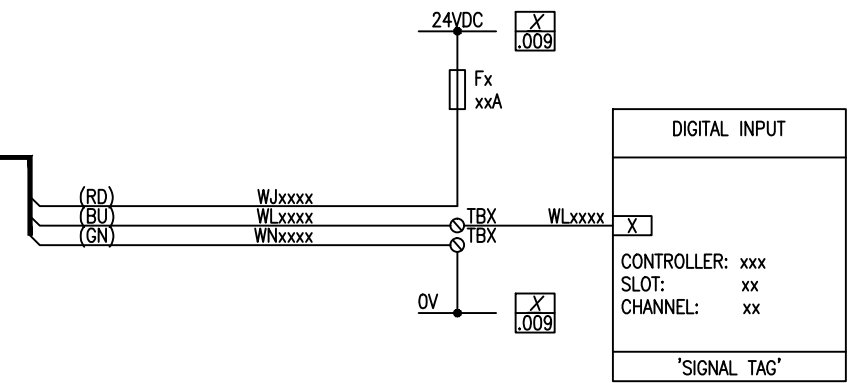
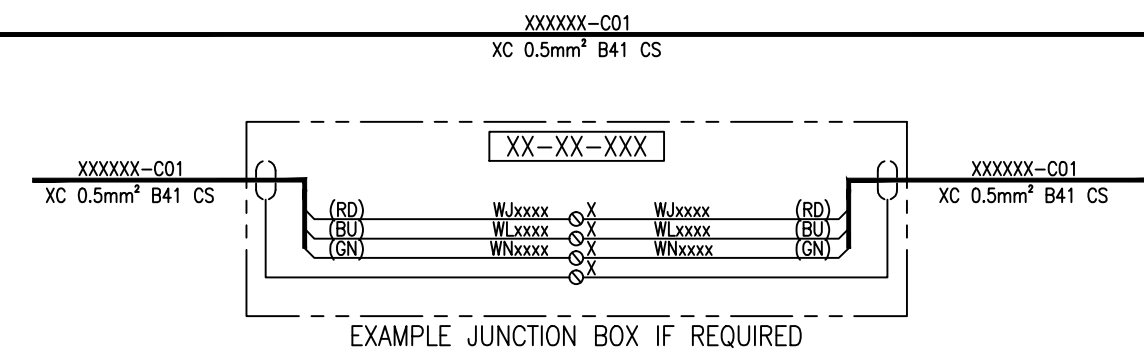
NOTE 1



OR



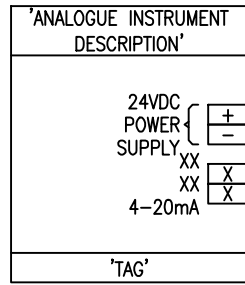
NOTE 1



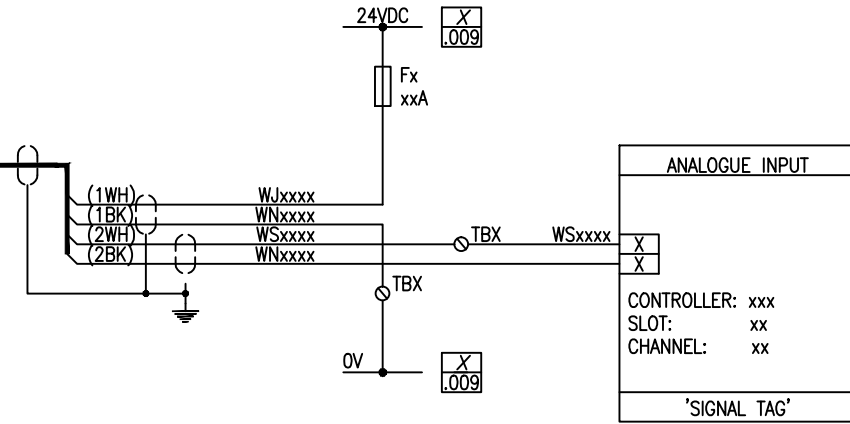
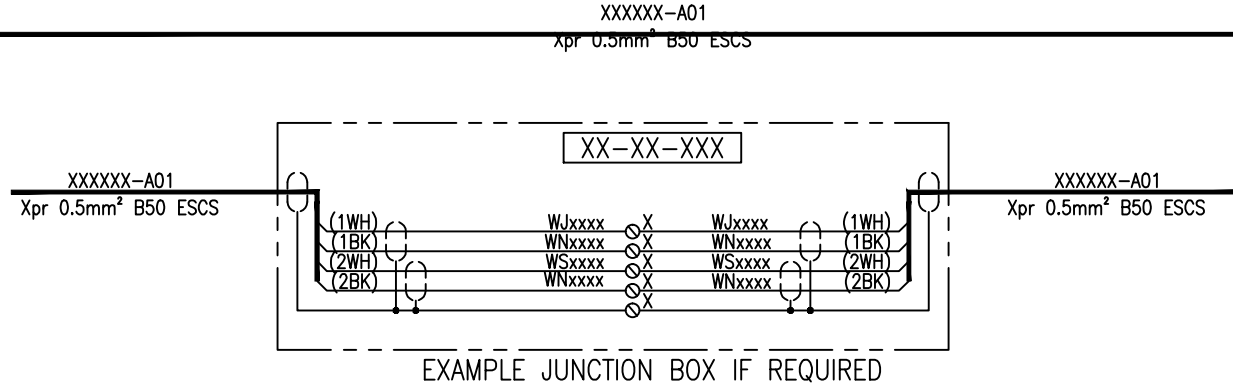
NOTES:
 1. TYPE - TBC
 MAKE - TBC
 MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

FIELD

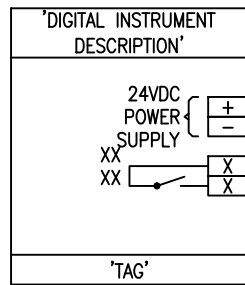
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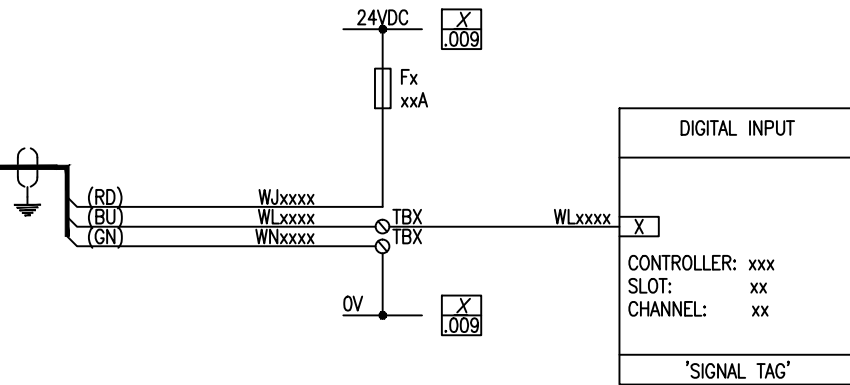
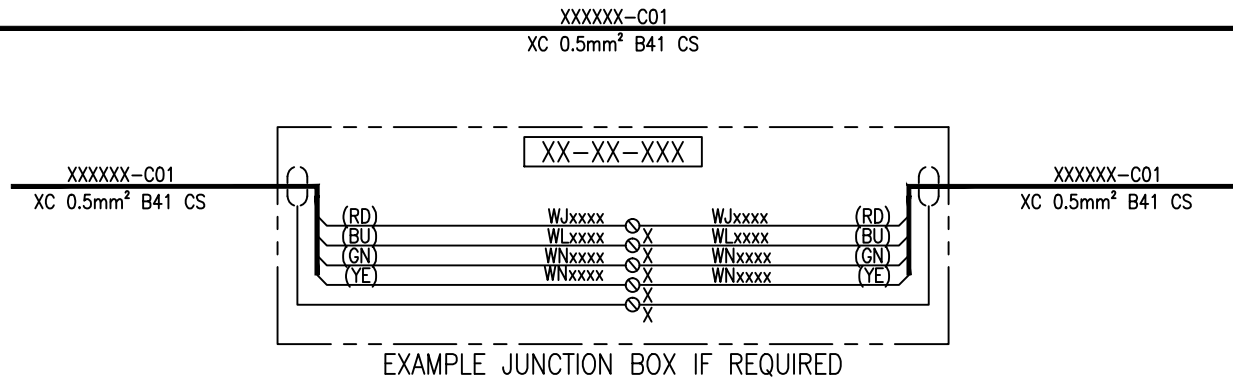
NOTE 1



OR



NOTE 1



NOTES:

- TYPE - TBC
- MAKE - TBC
- MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

ISSUE	DATE	AMENDMENT	BY	APPD.
A	02:15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER	INFRASTR'R APP'D

OPERATIONS

Watercare

INFRASTRUCTURE

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WATERCARE SERVICES LIMITED

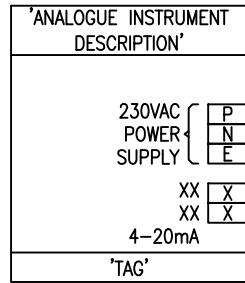
STANDARD DRAWING

4-WIRE INSTRUMENT LOOP DIAGRAM - 24VDC SUPPLY

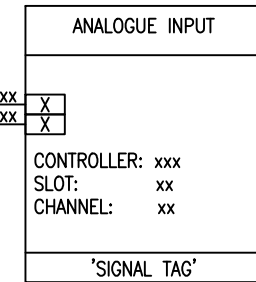
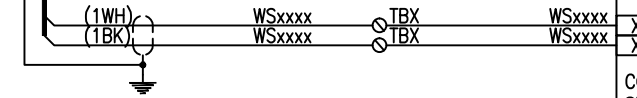
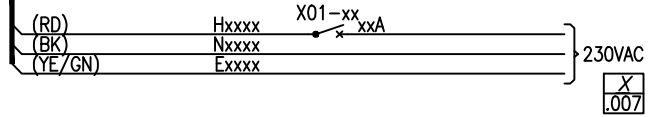
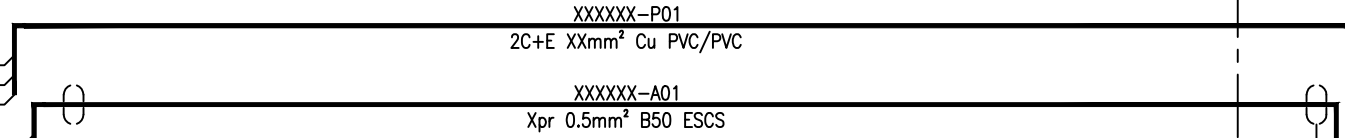
CAD FILE	DATE	ORIGINAL SCALE	CONTRACT No.	REF No.	ISSUE
2010140.023A	25:02:2015	A3	-	-	-
DWG No.	2010140	.023			A

FIELD

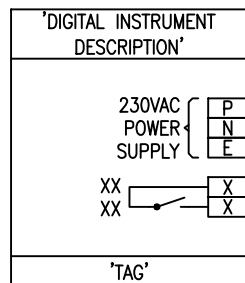
02-SWBD-X01



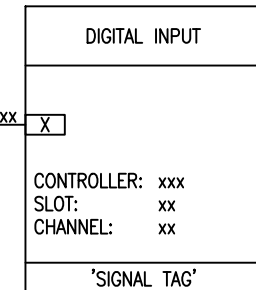
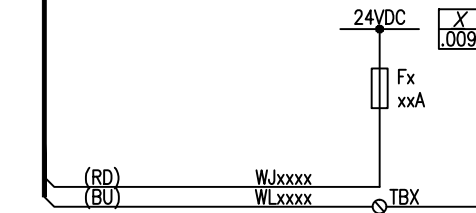
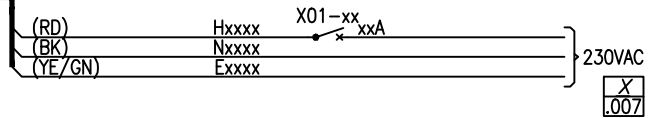
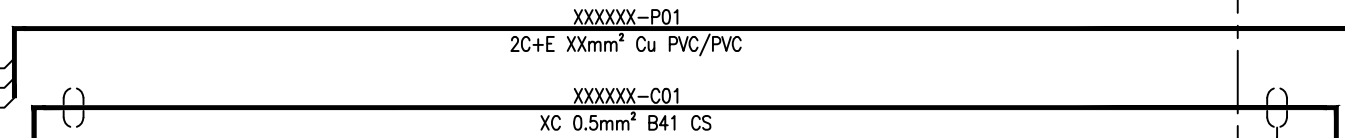
NOTE 1



OR



NOTE 1



NOTES:
1. TYPE - TBC
MAKE - TBC
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

DESIGNED			
DES. CHECKED			
DRAWN			
DWG. CHECKED			
PROJECT LEADER			
INFRASTR APP'D			
ISSUE	DATE	AMENDMENT	BY APPD.
A	02:15	MINOR CHANGES	L.M
-	01/15	TEMPLATE DRAWING	E.C L.M

OPERATIONS

Watercare

INFRASTRUCTURE

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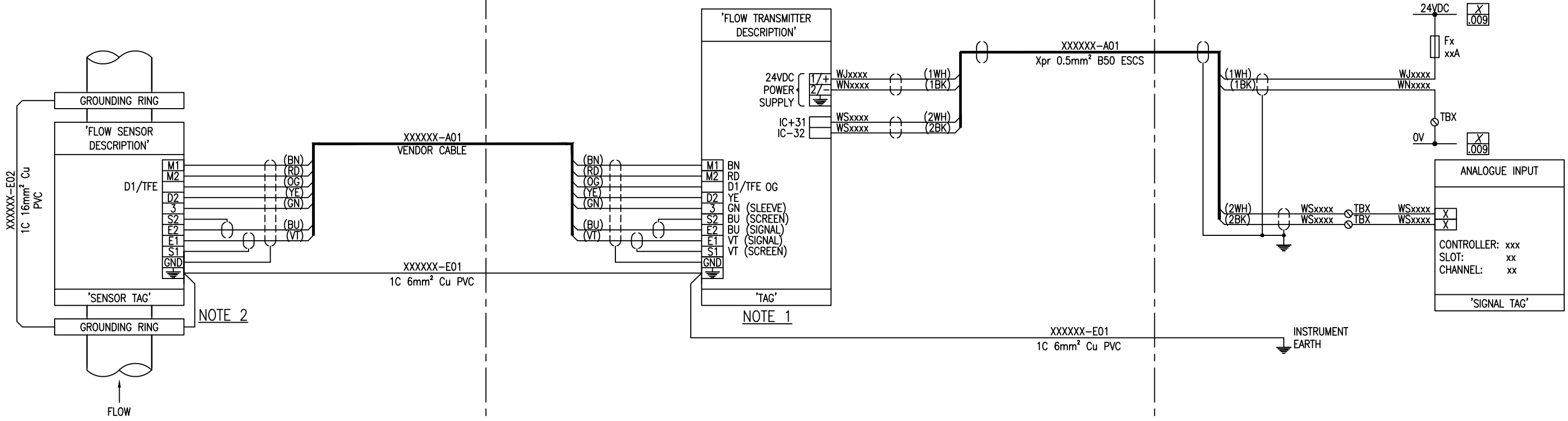
WATERCARE SERVICES LIMITED
STANDARD DRAWING
4-WIRE INSTRUMENT LOOP DIAGRAM - 230VAC SUPPLY

CAD FILE	2010140.024A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140		.024
			A

FIELD

SWITCHROOM

02-SWBD-X01




NOTE 2

NOTE 1

NOTES:

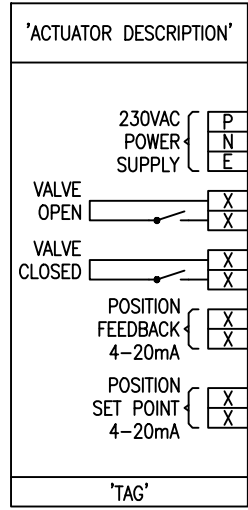
- TYPE - FLOW TRANSMITTER
MAKE - ABB
MODEL - WATERMASTER, MAGFLOW, 24VDC
- TYPE - FLOW SENSOR
MAKE - ABB
MODEL - WATERMASTER, MAGFLOW, GROUNDING RING INTERNAL TO XXmm MAGFLOW TUBE
- WSL PREFERENCE IS FOR 24VDC SUPPLY.

DESIGNED		OPERATIONS		 <p>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</p>	CAD FILE 2010140.025 DATE 25/01/15	
DES. CHECKED		INFRASTRUCTURE			ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.	ISSUE	
DWG. CHECKED				-	-	
PROJECT LEADER				DWG No.		
INFRAS'TR APP'D				2010140	.025	
ISSUE	DATE	AMENDMENT	BY	APPD.		
-	01/15	TAMPLATE DRAWING	E.C	L.M		

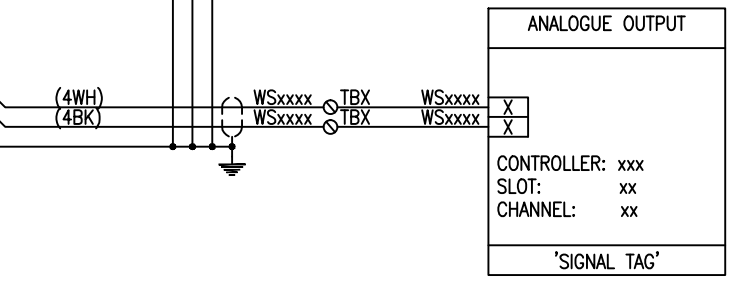
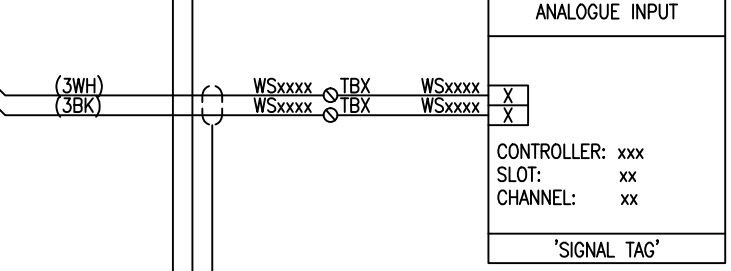
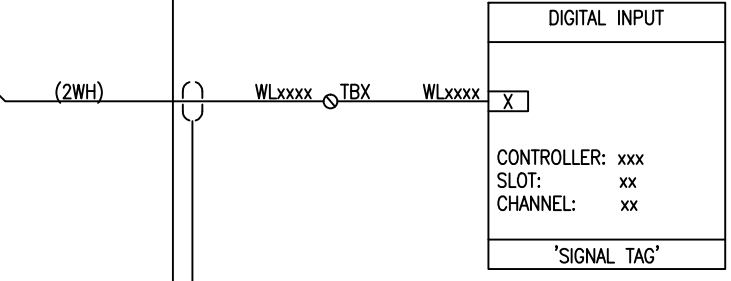
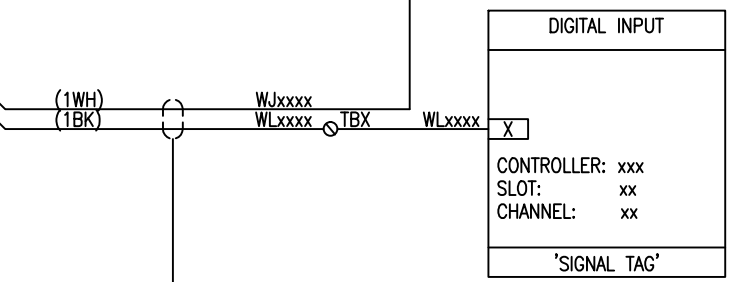
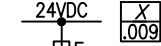
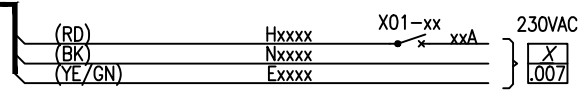
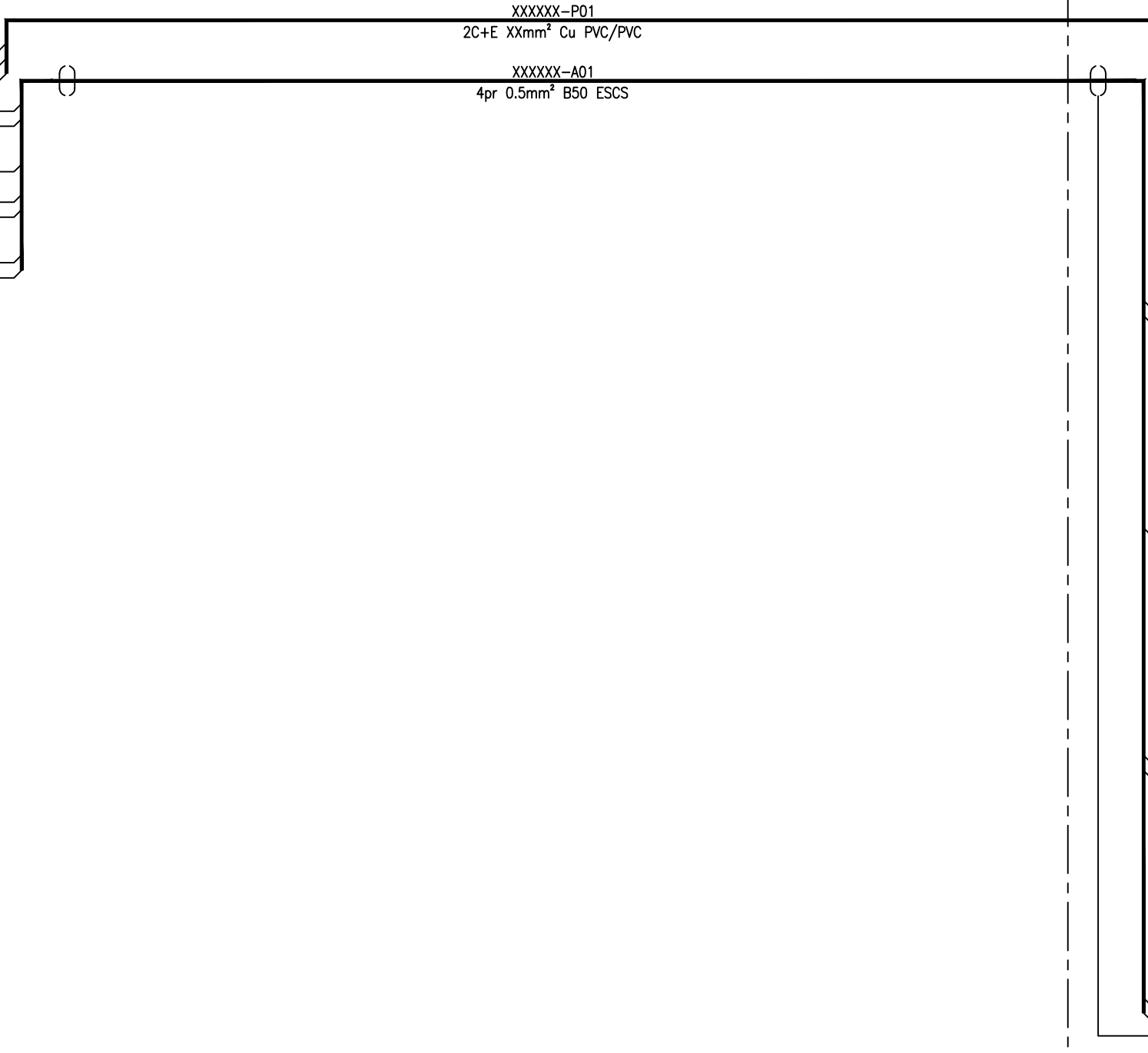
WATERCARE SERVICES LIMITED
STANDARD DRAWING
ABB WATERMASTER FLOWMETER LOOP DIAGRAM - 24VDC SUPPLY

FIELD

02-SWBD-X01



NOTE 1



NOTES:

- TYPE - TBC
- MAKE - TBC
- MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509
- CURRENT RATING - xxA
- SIZE - xxkW

ISSUE	DATE	AMENDMENT	BY	APPD.
A	02/15	MINOR CHANGES	L.M	
-	01/15	TEMPLATE DRAWING	E.C	L.M

DESIGNED	DES. CHECKED	DRAWN	DWG. CHECKED	PROJECT LEADER	INFRASTR'R APP'D

OPERATIONS

INFRASTRUCTURE

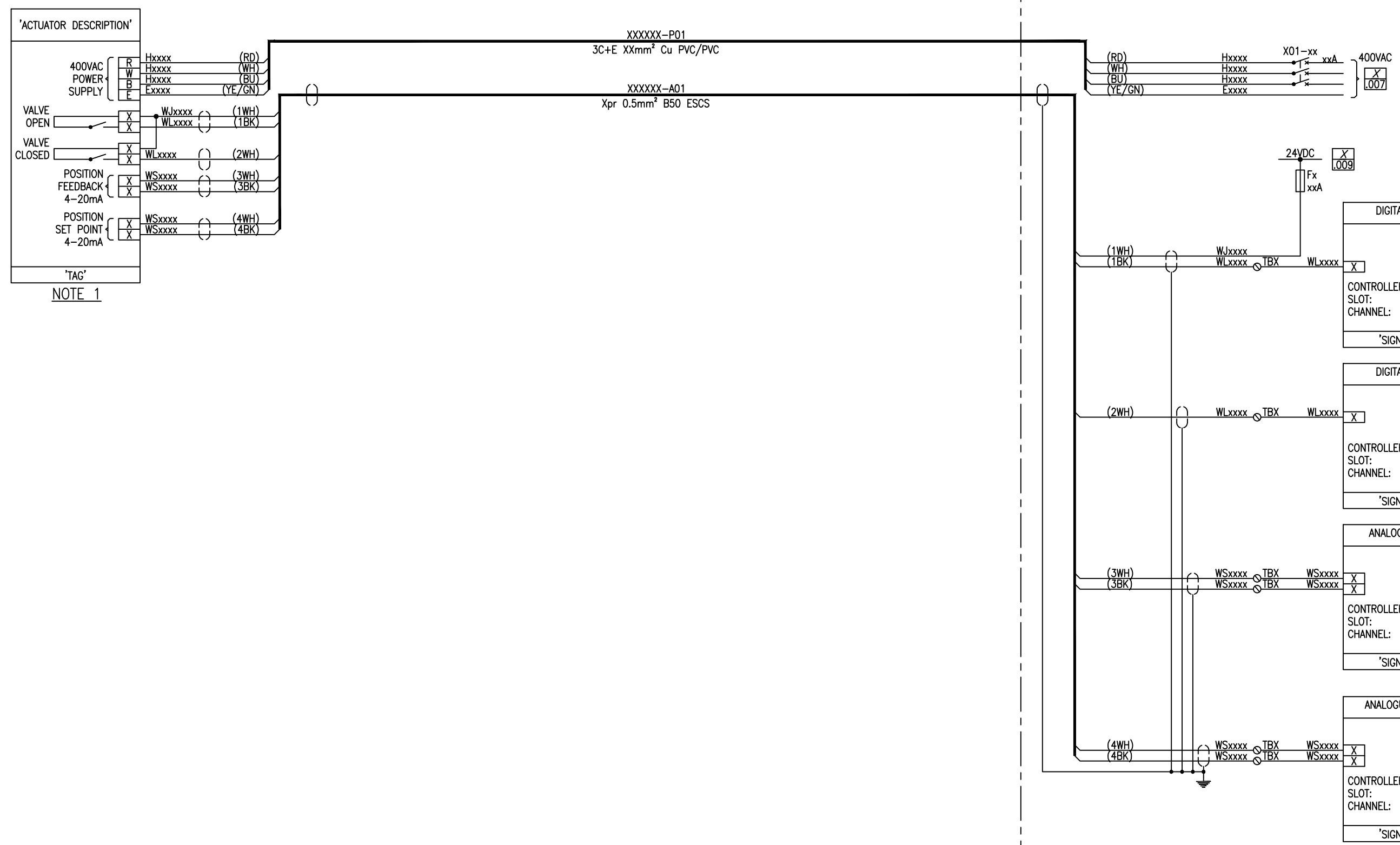
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WATERCARE SERVICES LIMITED
STANDARD DRAWING
VALVE ACTUATOR LOOP DIAGRAM - 230VAC SUPPLY

CAD FILE	2010140.026A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.026	A

FIELD

02-SWBD-X01



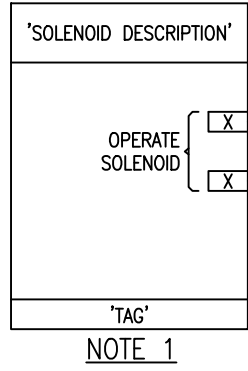
NOTE 1

NOTES:
 1. TYPE - TBC
 MAKE - TBC
 MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509
 CURRENT RATING - xxA
 SIZE - xxkW

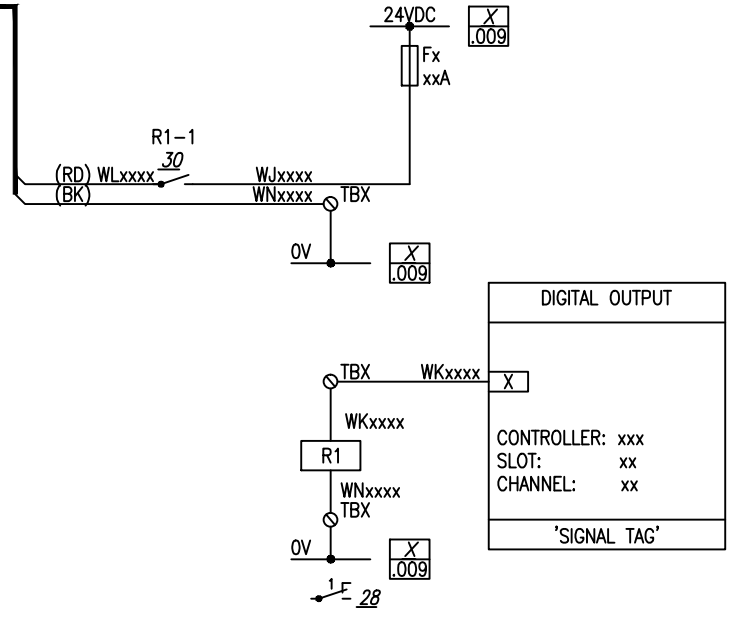
DESIGNED		OPERATIONS			WATERCARE SERVICES LIMITED STANDARD DRAWING VALVE ACTUATOR LOOP DIAGRAM - 400VAC SUPPLY	CAD FILE 2010140.027A DATE 25:02:2015	
DES. CHECKED		INFRASTRUCTURE				ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.		ISSUE	
DWG. CHECKED				-		-	
PROJECT LEADER				2010140		.027	
INFRASTR APP'D				A			
ISSUE	DATE	AMENDMENT	BY	APPD.			

FIELD

02-SWBD-X01

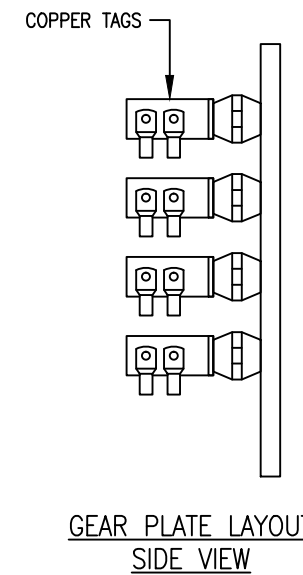
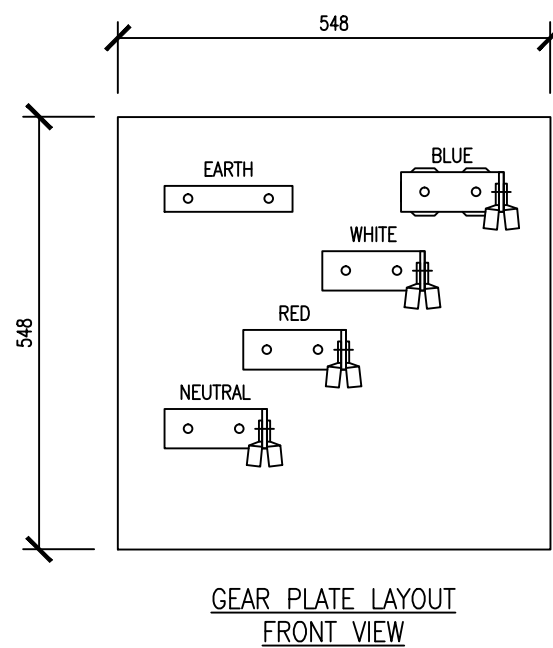
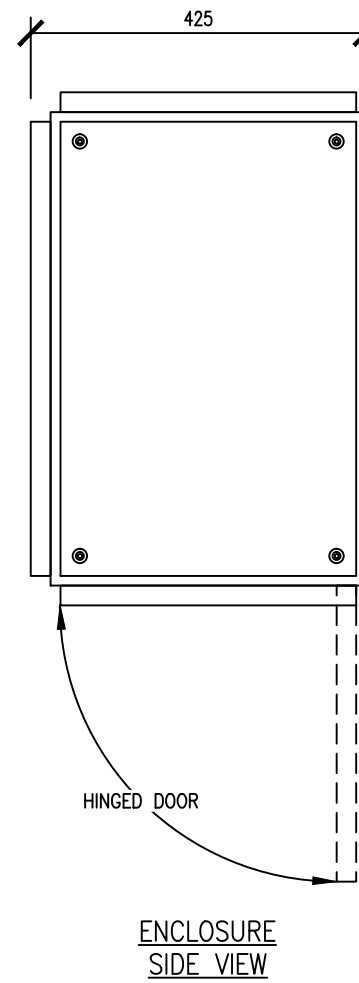
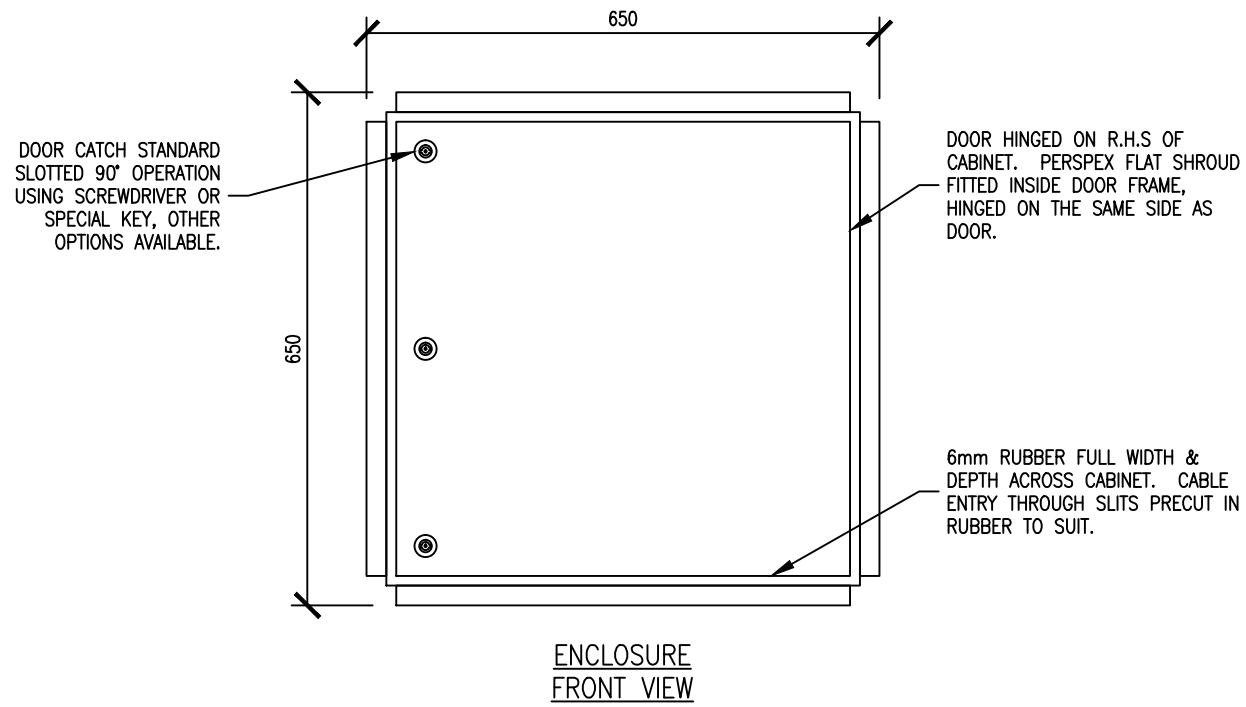


XXXXXX-C01
2C XXmm² Cu PVC/PVC



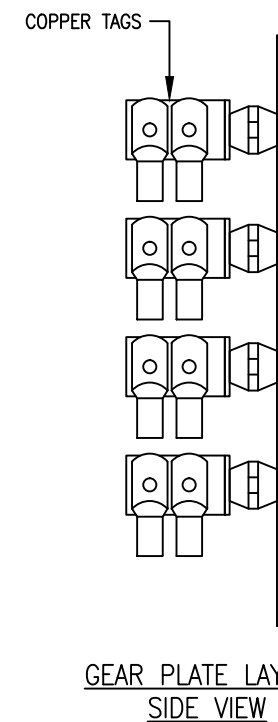
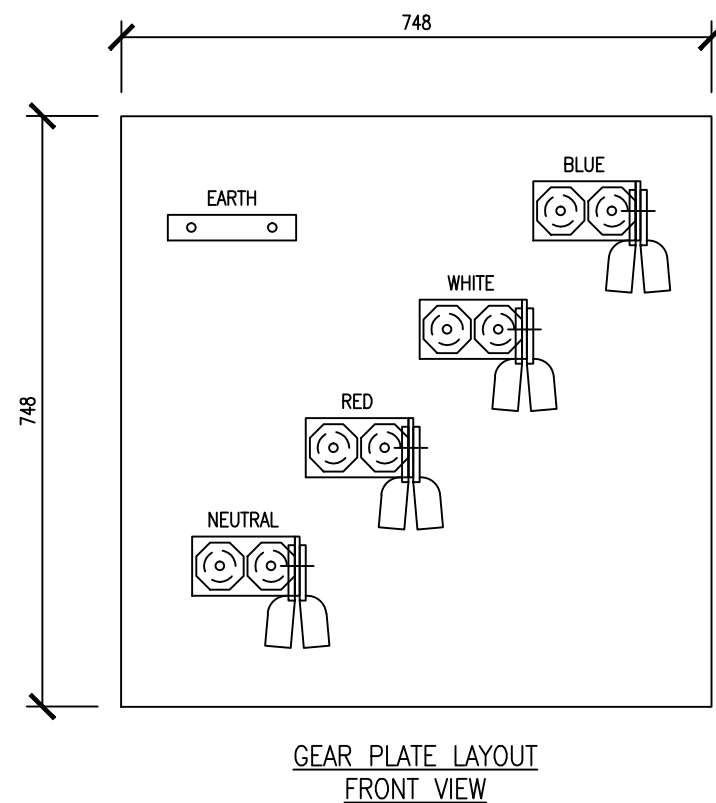
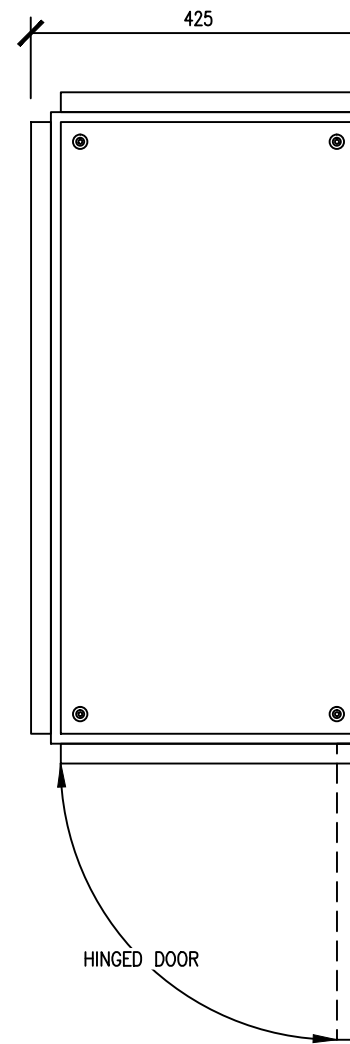
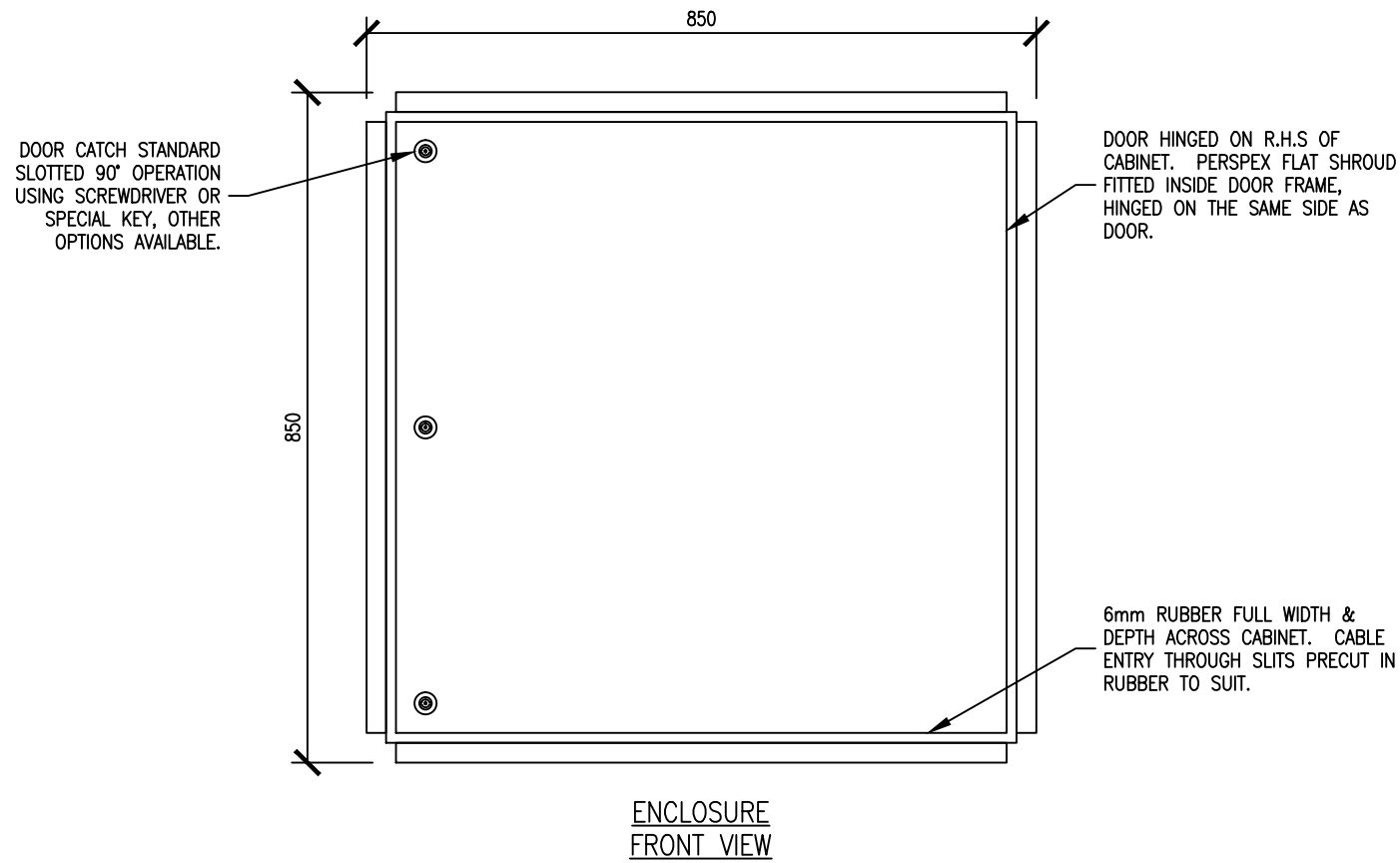
NOTES:
1. TYPE - TBC
MAKE - TBC
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

				DESIGNED				<p>Watercare</p> <p>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</p>	WATERCARE SERVICES LIMITED STANDARD DRAWING SOLENOID VALVE LOOP DIAGRAM		CAD FILE 2010140.029A		DATE 25:02:2015
				DES. CHECKED							ORIGINAL SCALE A3	CONTRACT No.	
				DRAWN									
				DWG. CHECKED							REF No.	ISSUE	
				PROJECT LEADER									
A	02:15	MINOR CHANGES		L.M									
-	01/15	TEMPLATE DRAWING		E.C	L.M	INFRASTR'R APP'D							
ISSUE	DATE	AMENDMENT		BY	APPD.					DWG No.	2010140	.029	A



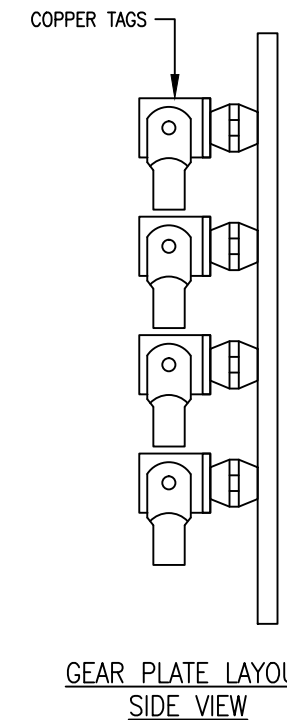
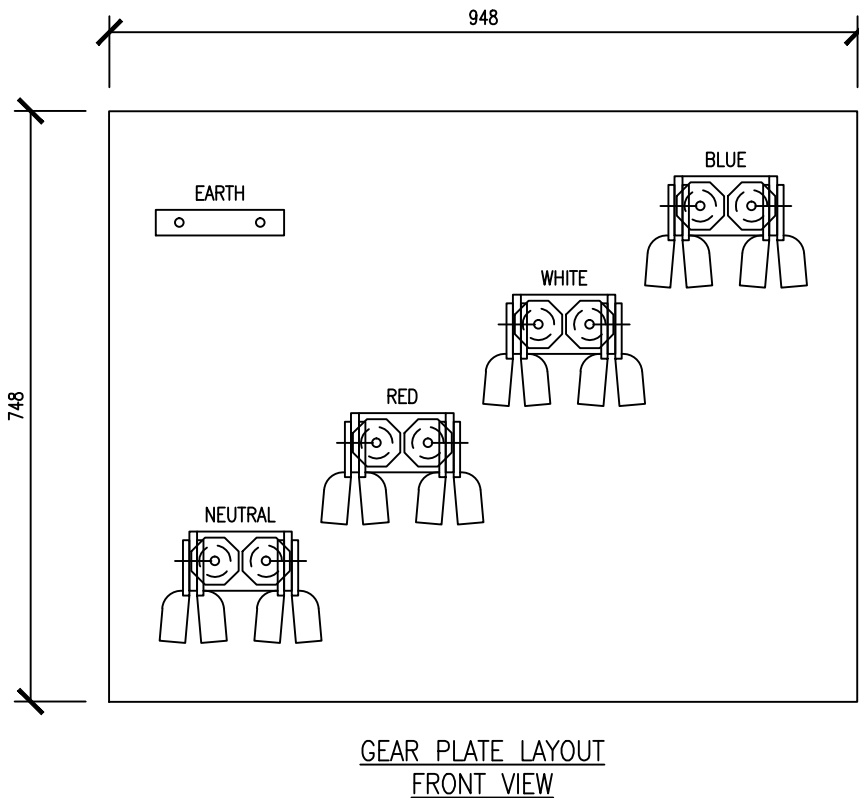
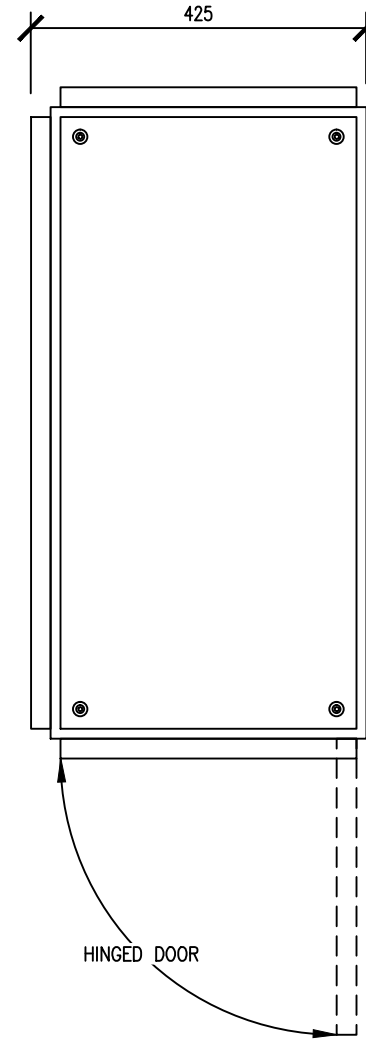
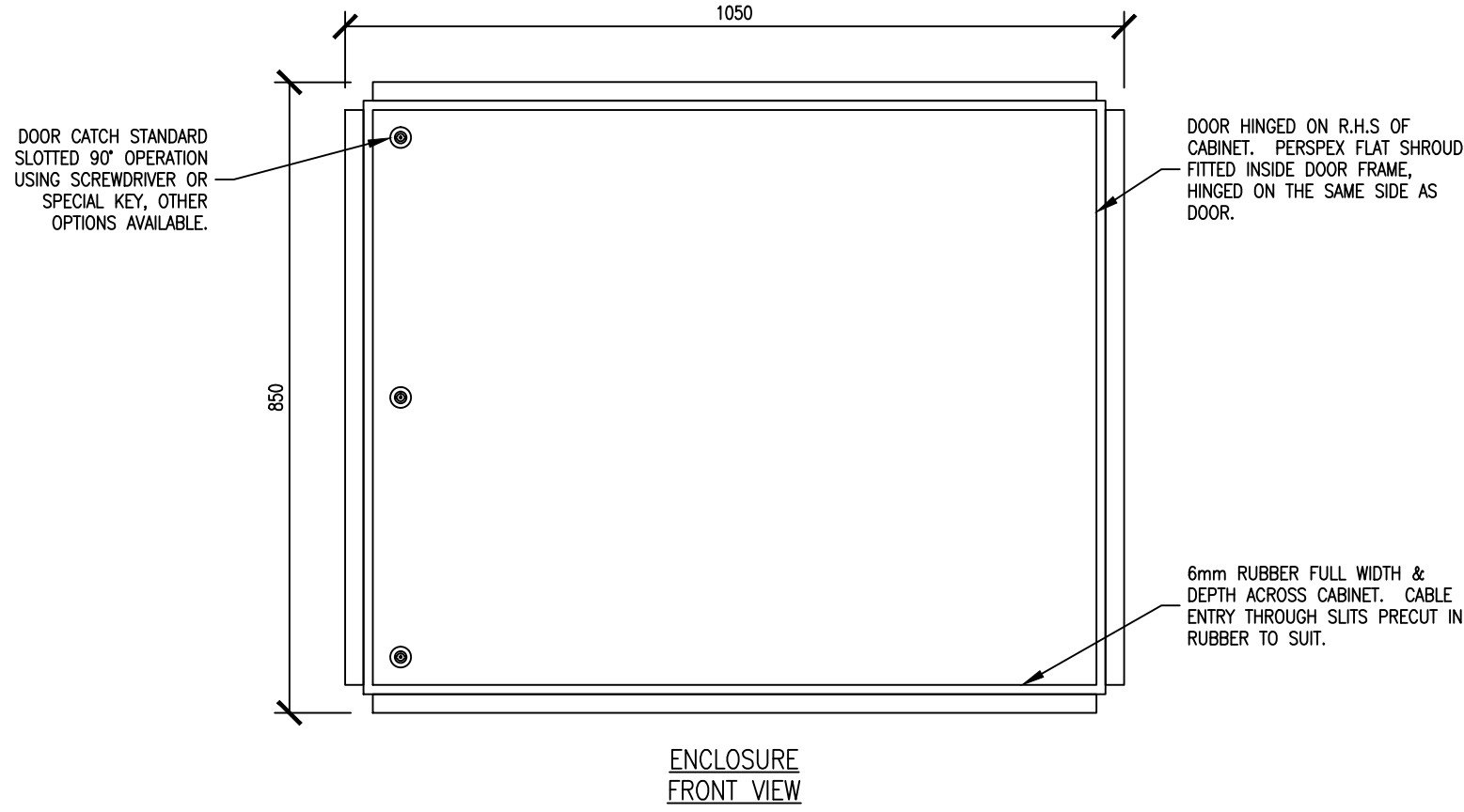
GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
400A	50x6mm	95mm ² Cu XLPE	16
		50mm ² Cu XLPE	4

- NOTES:**
- ENCLOSURE CONSTRUCTION 'TECHNO'
 - COLOUR LIGHT GREY RAL7032
 - INGRESS PROTECTION IP55
 - CABLE ENTRY BOTTOM VIA INTERNAL SPLIT RUBBER SECTION.
 - ENCLOSURE WALL MOUNTED.



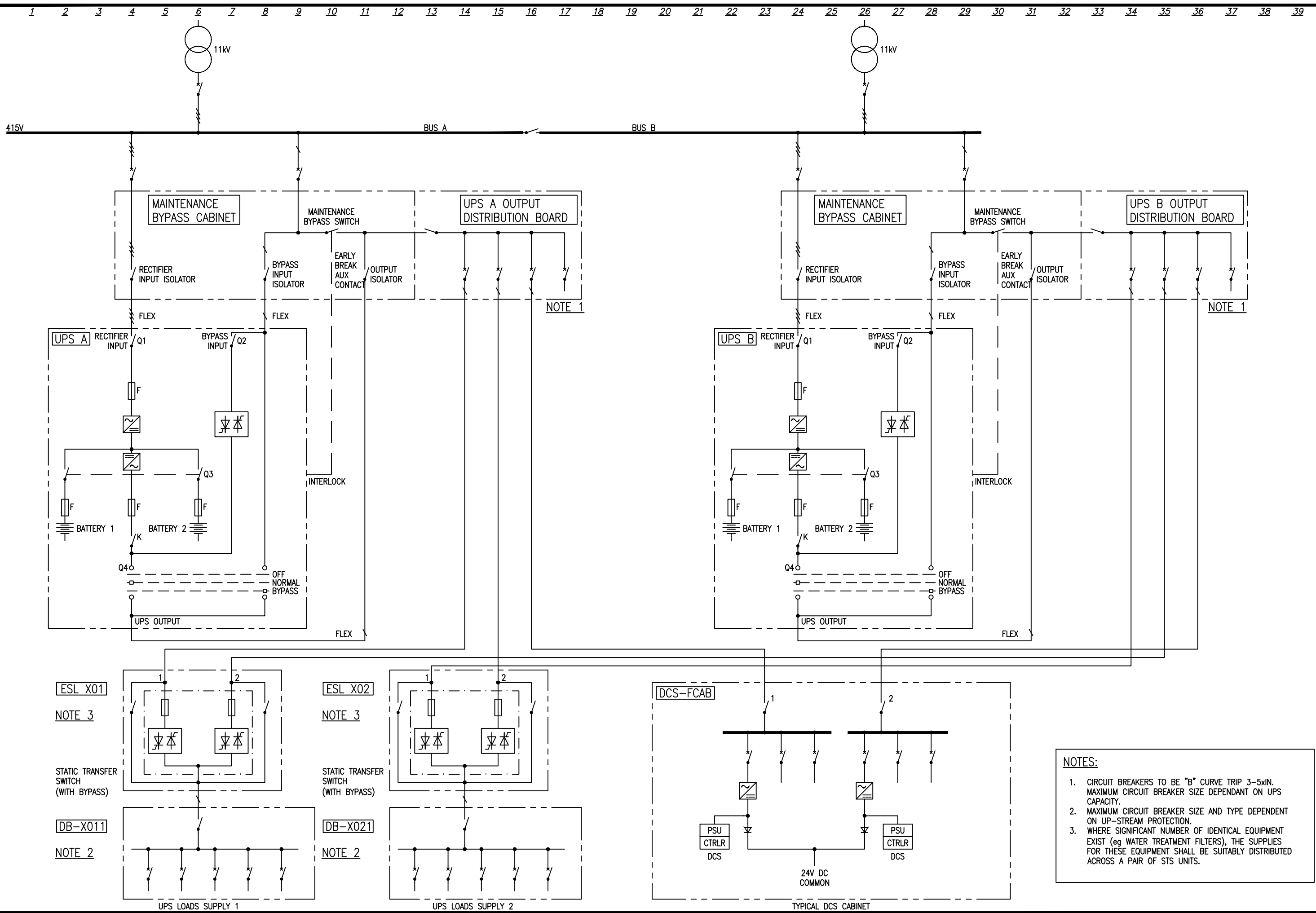
GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
800A	75x6mm	300mm ² Cu XLPE	16
		150mm ² Cu XLPE	4

- NOTES:**
- ENCLOSURE CONSTRUCTION 'TECHNO'
 - COLOUR LIGHT GREY RAL7032
 - INGRESS PROTECTION IP55
 - CABLE ENTRY BOTTOM VIA INTERNAL SPLIT RUBBER SECTION.
 - ENCLOSURE WALL MOUNTED.



GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
1600A	75x10mm	500mm ² Cu XLPE	16
		240mm ² Cu XLPE	4

- NOTES:**
- ENCLOSURE CONSTRUCTION 'TECHNO'
 - COLOUR LIGHT GREY RAL7032
 - INGRESS PROTECTION IP55
 - CABLE ENTRY BOTTOM VIA INTERNAL SPLIT RUBBER SECTION.
 - ENCLOSURE WALL MOUNTED.

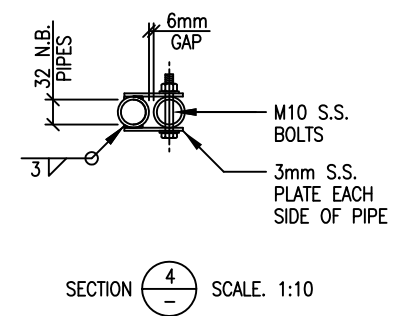
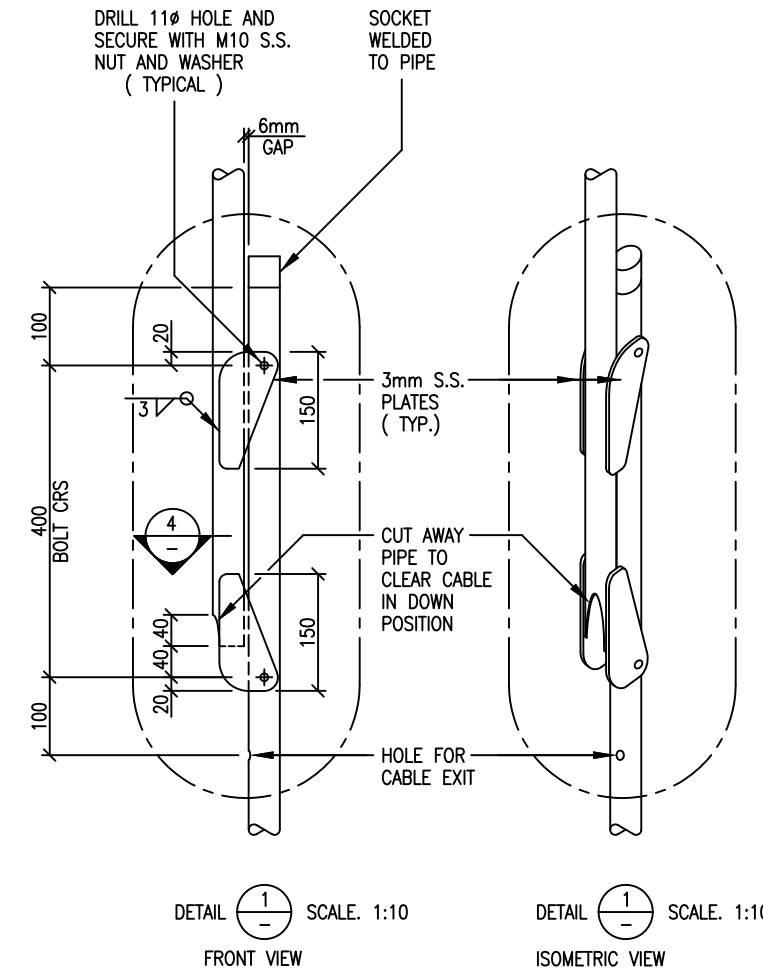
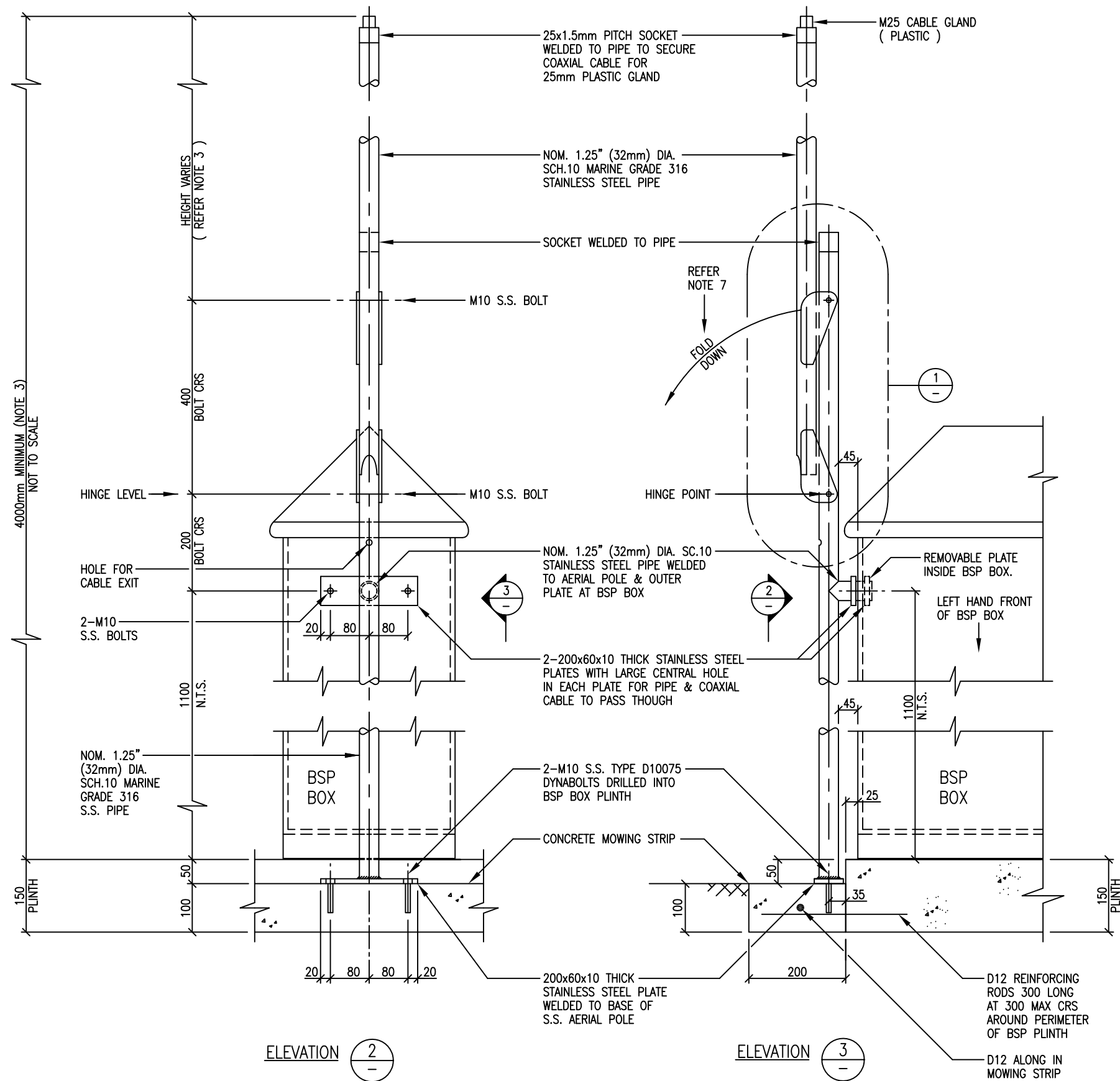


- NOTES:**
1. CIRCUIT BREAKERS TO BE "B" CURVE TRIP 3-5xIN. MAXIMUM CIRCUIT BREAKER SIZE DEPENDANT ON UPS CAPACITY.
 2. MAXIMUM CIRCUIT BREAKER SIZE AND TYPE DEPENDENT ON UP-STREAM PROTECTION.
 3. WHERE SIGNIFICANT NUMBER OF IDENTICAL EQUIPMENT EXIST (eg WATER TREATMENT FILTERS), THE SUPPLIES FOR THESE EQUIPMENT SHALL BE SUITABLY DISTRIBUTED ACROSS A PAIR OF STS UNITS.

DESIGNED		OPERATIONS		WATERCARE SERVICES LIMITED		CAD FILE 2010140.033A		DATE 25:02:2015	
DES. CHECKED		INFRASTRUCTURE		STANDARD DRAWING		ORIGINAL SCALE A3		CONTRACT No.	
DRAWN				UPS TYPE 3 - DUAL INDEPENDENT WITH STATIC TRANSFER SWITCHES		-		-	
DWG. CHECKED						REF No.		ISSUE	
PROJECT LEADER						-		-	
INFRAS'TR APP'D						DWG No.		2010140 .033	
BY		APPD.						A	
AMENDMENT									
A	02:15	MINOR CHANGES		L.M					
-	01/15	TEMPLATE DRAWING		E.C	L.M				



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- NOTES:**
1. ALL STAINLESS STEEL (S.S.) TO BE MARINE GRADE 316
 2. ANTENNA CABLE IS RG213 COAX.
 3. POLE HEIGHT IS SITE DEPENDANT.
 4. THE HINGE POINT SHALL BE CONSTRUCTED TO PROVIDE THE ABILITY OF HINGING THE POLE BY 135° TOWARD THE GROUND LEVEL WITH THE ANTENNA CABLE IN PLACE.
 5. THE HINGE POINT SHALL BE LOCATED AT 1350mm ABOVE STANDING LEVEL.
 6. TYPICAL ANTENNA FIXING TO BSP CABINET IS AS SHOWN ON THIS DRAWING. FOR ANTENNA FIXING TO A BUILDING OR STRUCTURE REFER 2010998.050
 7. ANTENNA AT HINGE TO FOLD DOWN TOWARDS MAINTENANCE STAND POINT TO ALLOW FOR CLEAR COLLAPSE.

AERIAL MOUNTING & PIPE FIXING DETAILS

FACILITY CODE	AREA
-	93

L:\---\EGCAD\FI \ 2015 \ BSP STANDARD DRAWINGS \ 2010998.039A .DWG

DESIGNED	M.W	09:16
DES. CHECKED		
DRAWN	J.B	09:16
DWG. CHECKED		
PROJECT LEADER		
INFRASTR APP'D		
ISSUE	DATE	AMENDMENT
-	09:16	TEMPLATE DRAWING
		BY APPD.

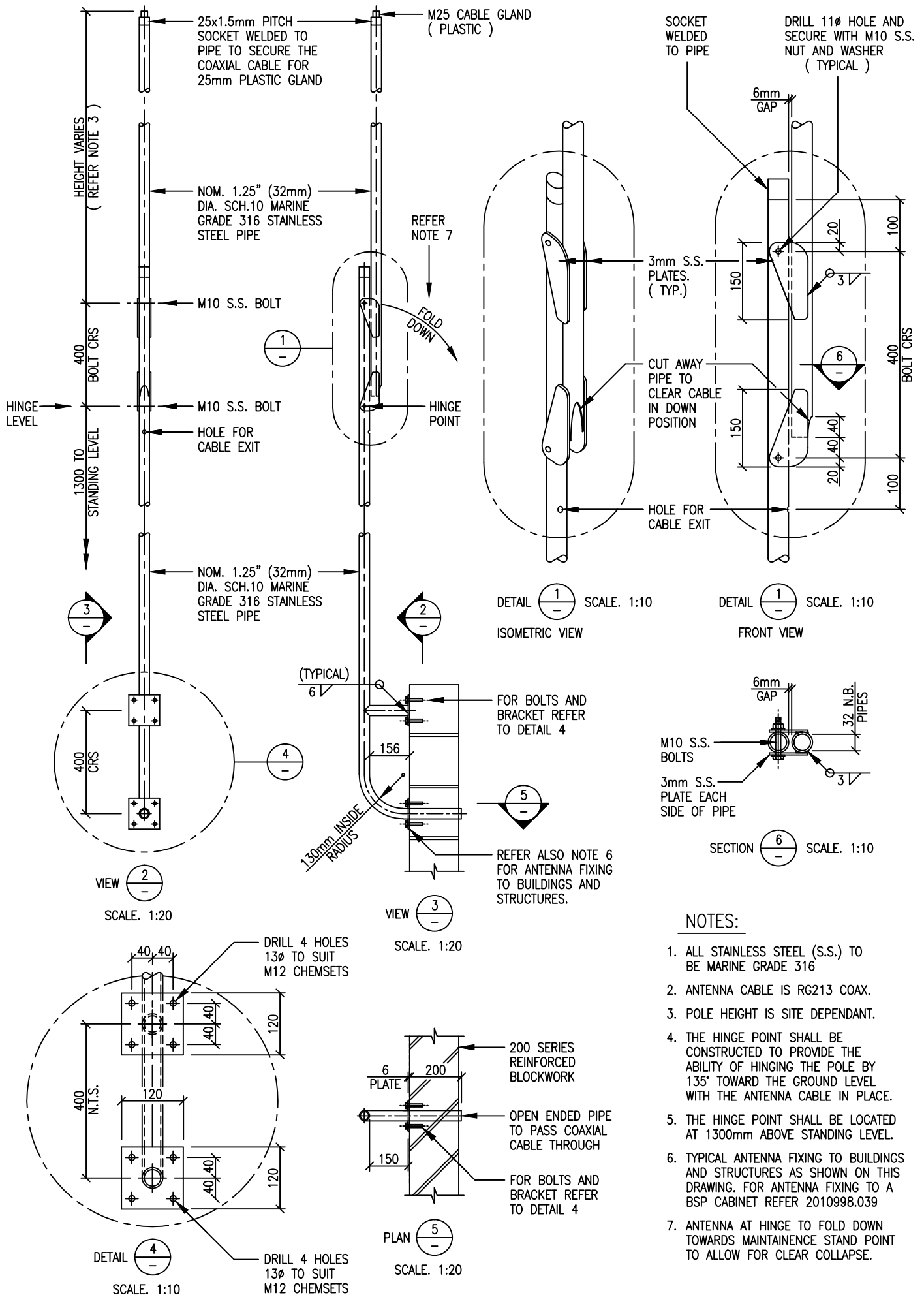
OPERATIONS

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INFRASTRUCTURE

WATERCARE SERVICES LIMITED
STANDARD DRAWING
TYPICAL ANTENNA INSTALLATION AT BSP CABINET

CAD FILE	2010140.034	DATE	28:09:2016
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140 .034		



NOTES:

1. ALL STAINLESS STEEL (S.S.) TO BE MARINE GRADE 316
2. ANTENNA CABLE IS RG213 COAX.
3. POLE HEIGHT IS SITE DEPENDANT.
4. THE HINGE POINT SHALL BE CONSTRUCTED TO PROVIDE THE ABILITY OF HINGING THE POLE BY 135° TOWARD THE GROUND LEVEL WITH THE ANTENNA CABLE IN PLACE.
5. THE HINGE POINT SHALL BE LOCATED AT 1300mm ABOVE STANDING LEVEL.
6. TYPICAL ANTENNA FIXING TO BUILDINGS AND STRUCTURES AS SHOWN ON THIS DRAWING. FOR ANTENNA FIXING TO A BSP CABINET REFER 2010998.039
7. ANTENNA AT HINGE TO FOLD DOWN TOWARDS MAINTENANCE STAND POINT TO ALLOW FOR CLEAR COLLAPSE.



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WATERCARE SERVICES LIMITED
STANDARD DRAWING
TYPICAL ANTENNA INSTALLATION AT STRUCTURE

SCALE: 1:20 & 1:10 (A3)

ISSUE DATE: 28:09:2016

REFERENCE No. —

DWG No. 2010140.035