

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:**

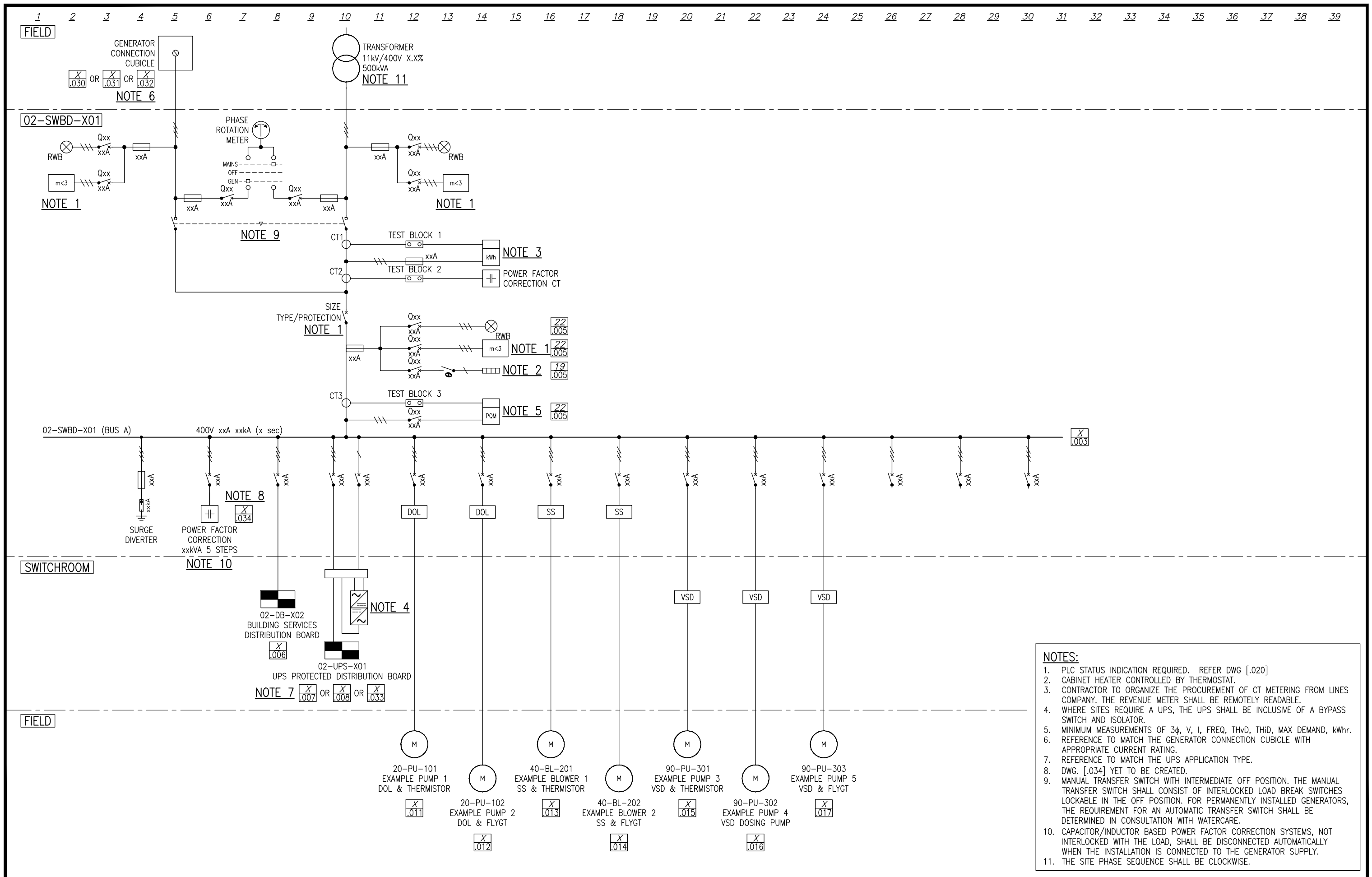
1. THE FOLLOWING DRAWING SET HAS BEEN CREATED TO PROVIDE ELECTRICAL CONSULTANTS AND DESIGNERS WITH THE LEVEL OF DETAIL REQUIRED BY WSL. IT IS EXPECTED THAT THE DESIGNER WILL UNDERTAKE DUE DILIGENCE TO CONFIRM ALL SPECIFIC DETAILS (e.g. TAG NUMBER, MODELS, TERMINALS NUMBERS, RATINGS, ETC) WHILE UNDERTAKING 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'R APP'D				DWG No.		B	
ISSUE	DATE	AMENDMENT		BY	APPD.					2010140		.001	



WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
DRAWING SCHEDULE

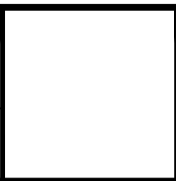
CAD FILE 2010140.001B		DATE 28:09:2016	
ORIGINAL SCALE A3		CONTRACT No.	
-		-	
REF No.		ISSUE	
-		-	
DWG No.		B	
2010140		.001	



- 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. THE REVENUE METER SHALL BE REMOTELY READABLE.
  4. WHERE SITES REQUIRE A UPS, THE UPS SHALL BE INCLUSIVE OF A BYPASS SWITCH AND ISOLATOR.
  5. MINIMUM MEASUREMENTS OF 3 $\phi$ , 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.
  9. MANUAL TRANSFER SWITCH WITH INTERMEDIATE OFF POSITION. THE MANUAL TRANSFER SWITCH SHALL CONSIST OF INTERLOCKED LOAD BREAK SWITCHES LOCKABLE IN THE OFF POSITION. FOR PERMANENTLY INSTALLED GENERATORS, THE REQUIREMENT FOR AN AUTOMATIC TRANSFER SWITCH SHALL BE DETERMINED IN CONSULTATION WITH WATERCARE.
  10. CAPACITOR/INDUCTOR BASED POWER FACTOR CORRECTION SYSTEMS, NOT INTERLOCKED WITH THE LOAD, SHALL BE DISCONNECTED AUTOMATICALLY WHEN THE INSTALLATION IS CONNECTED TO THE GENERATOR SUPPLY.
  11. THE SITE PHASE SEQUENCE SHALL BE CLOCKWISE.

ISSUE	DATE	AMENDMENT	BY	APPD.
D	03/19	ADDED MANUAL TRANSFER SWITCH	M.W	
C	10/18	ADDED PFC, PHASE SEQUENCE, METER & UPS REQUIREMENTS	M.W	
B	10/18	ADDITION OF PHASE LAMPS AND PHASE FAILURE RELAYS	M.W	
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



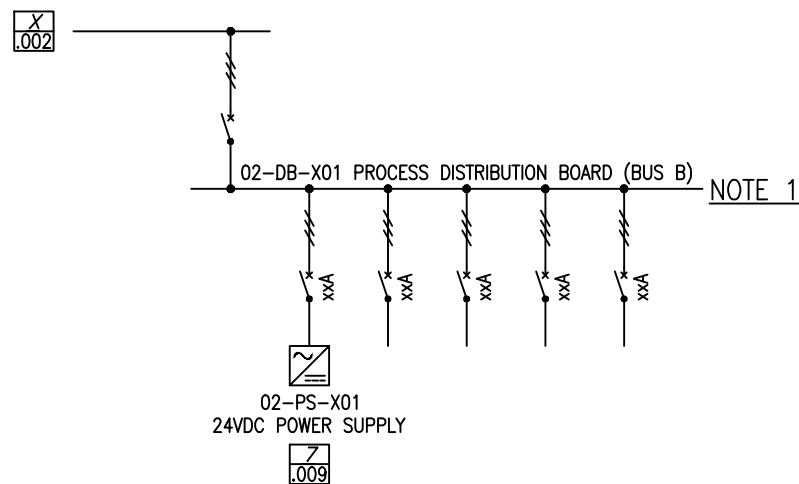
**WATERCARE SERVICES LIMITED**  
STANDARD DRAWING  
02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 1 OF 2

CAD FILE	2010140 .002D	DATE	29/03/19
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	DWG No.	2010140 .002
ISSUE	D		

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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

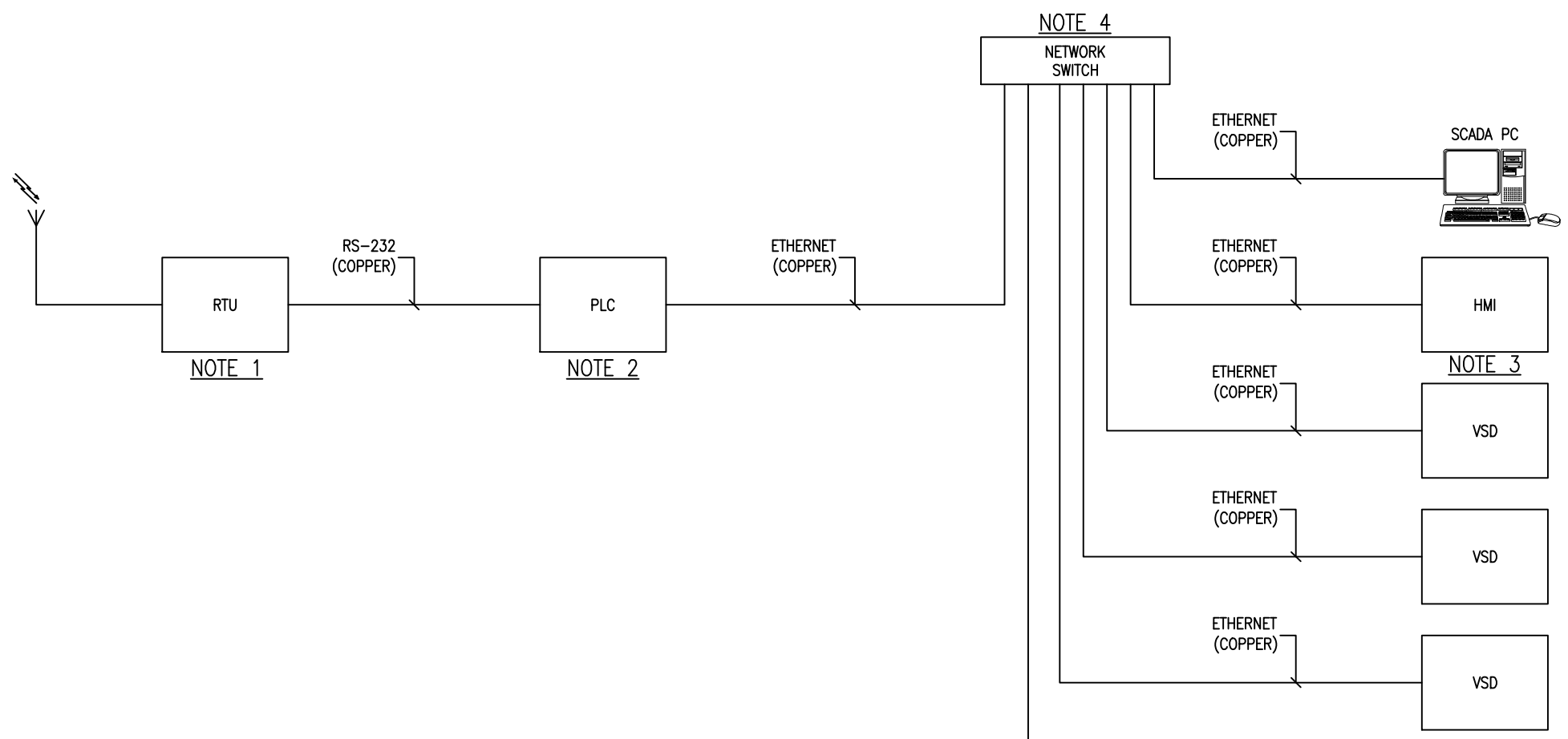
OPERATIONS	
INFRASTRUCTURE	



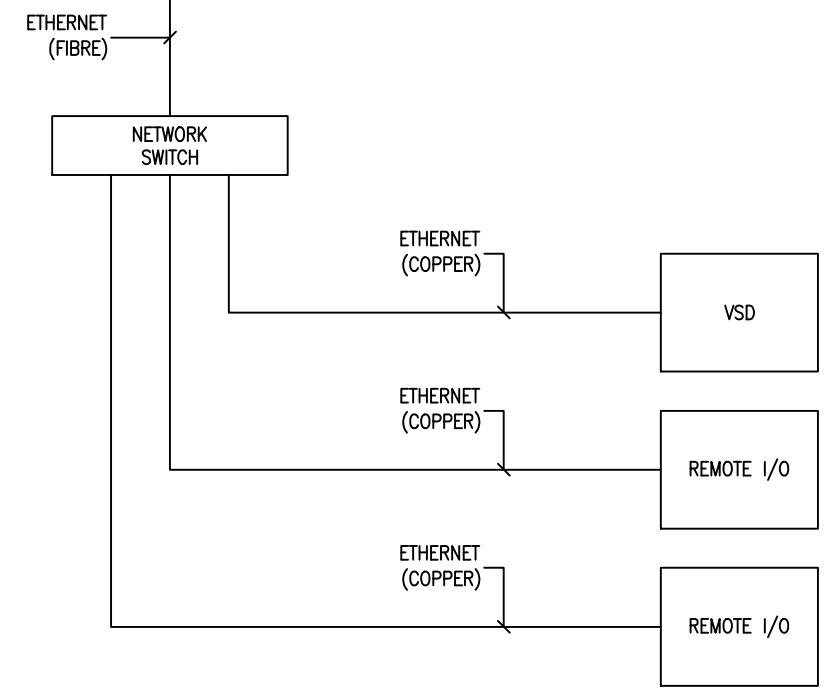
WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
02-SWBD-X01 SINGLE LINE DIAGRAM SHEET 2 OF 2

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.

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

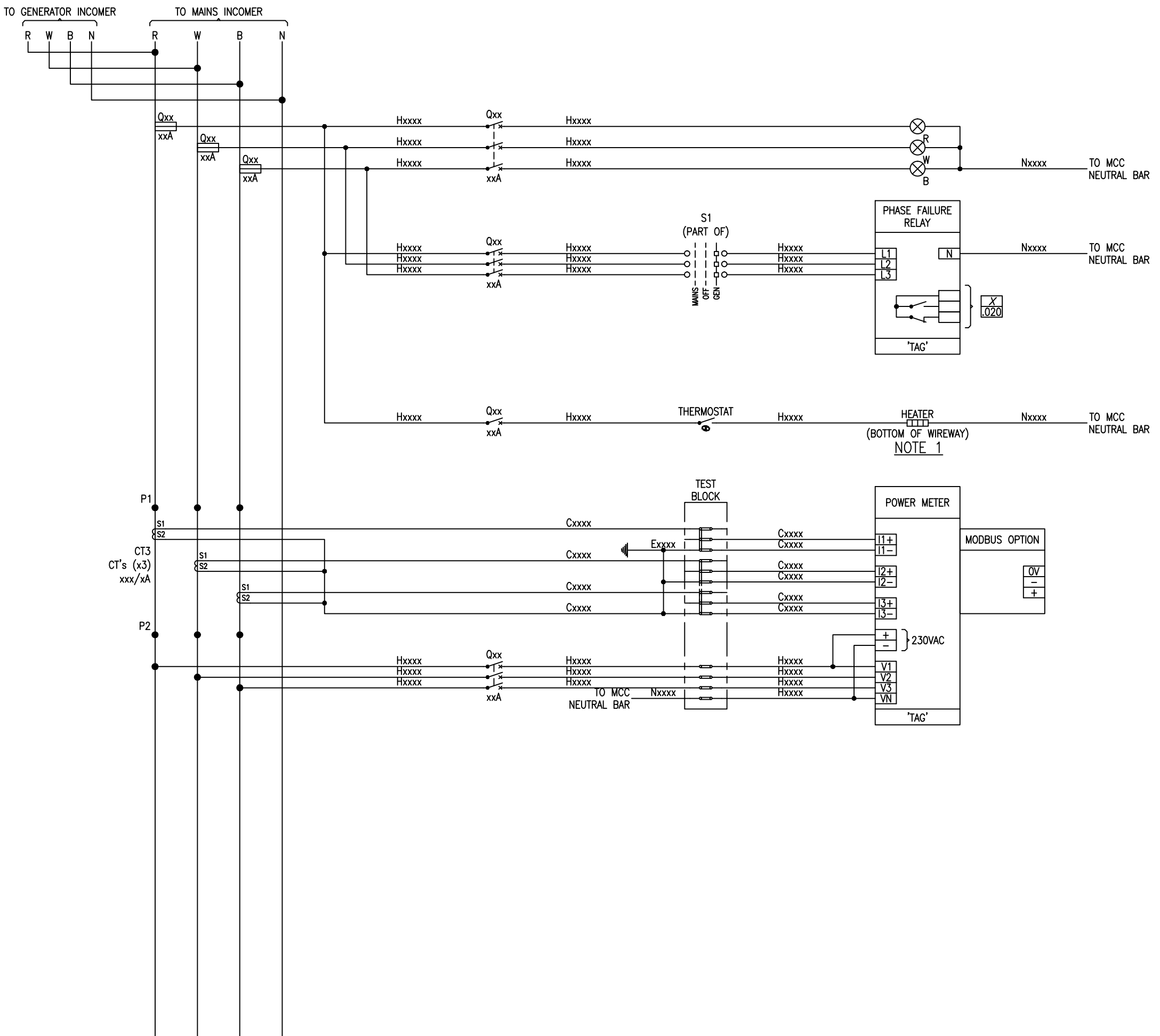


INFRASTRUCTURE


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WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
COMMUNICATIONS ARCHITECTURE

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




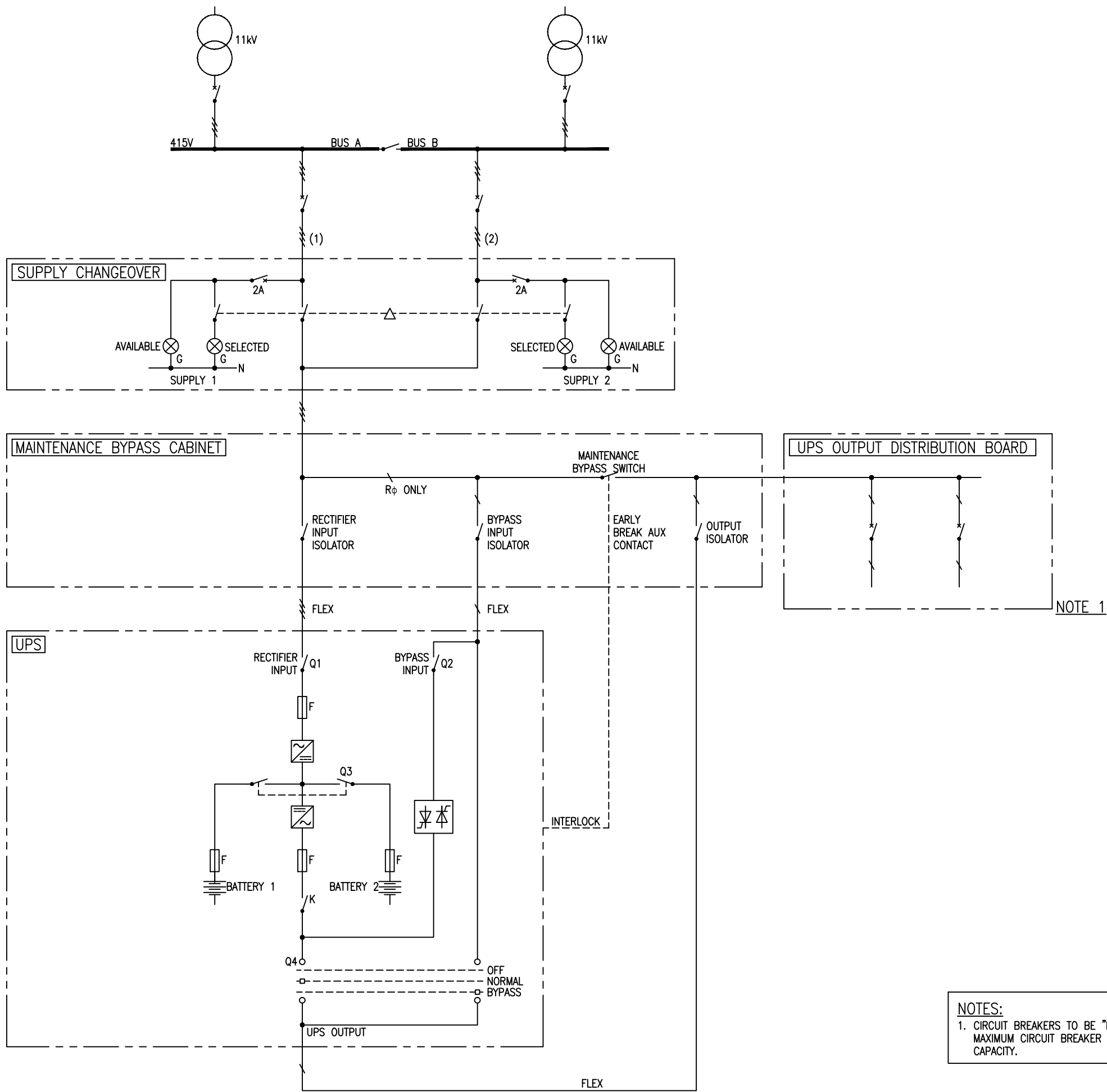
**NOTES:**  
 1. HEATER SIZE TO BE CONFIRMED BY THE SWITCHBOARD MANUFACTURER.

DESIGNED		OPERATIONS		 <b>Watercare</b> 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 STANDARD 3 LINE DIAGRAM	CAD FILE 2010140.005A	DATE 25:02:2015
DES. CHECKED		INFRASTRUCTURE				ORIGINAL SCALE A3	CONTRACT No.
DRAWN				REF No.	ISSUE		
DWG. CHECKED							
PROJECT LEADER							
INFRASTR APP'D							
ISSUE	DATE	AMENDMENT	BY	APPD.		DWG No.	
A	02:15	MINOR CHANGES	L.M			2010140	.005
-	01/15	TEMPLATE DRAWING	E.C	L.M			A

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
W10	-	.0XX
B10	-	.0XX
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
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B3	-	.0XX
R4	-	.0XX
W4	-	.0XX
B4	-	.0XX
R5	-	.0XX
W5	-	.0XX
B5	-	.0XX
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W6	-	.0XX
B6	-	.0XX
R7	-	.0XX
W7	-	.0XX
B7	-	.0XX
R8	-	.0XX
W8	-	.0XX
B8	-	.0XX
R9	-	.0XX
W9	-	.0XX
B9	-	.0XX
R10	-	.0XX
W10	-	.0XX
B10	-	.0XX
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


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						



**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

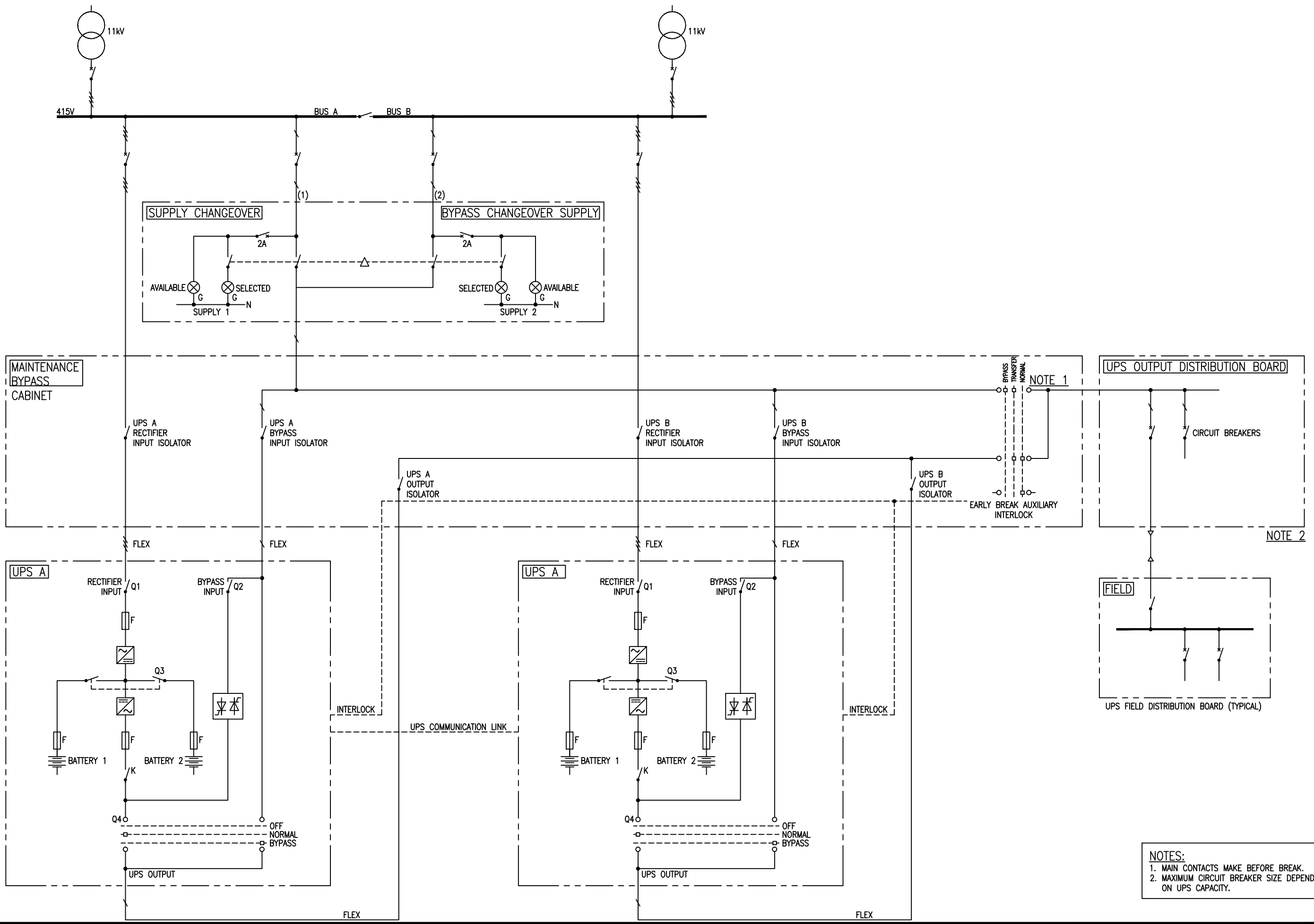


INFRASTRUCTURE

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


CAD FILE	2010140.007A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
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			
OPERATIONS			
INFRASTRUCTURE			

DESIGNED: \_\_\_\_\_  
 DES. CHECKED: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_  
 DWG. CHECKED: \_\_\_\_\_  
 PROJECT LEADER: \_\_\_\_\_  
 INFRAS'T'R APP'D: \_\_\_\_\_  
 OPERATIONS: \_\_\_\_\_  
 INFRASTRUCTURE: \_\_\_\_\_



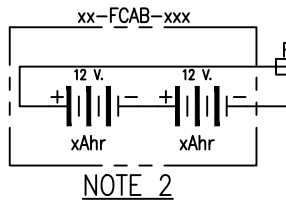
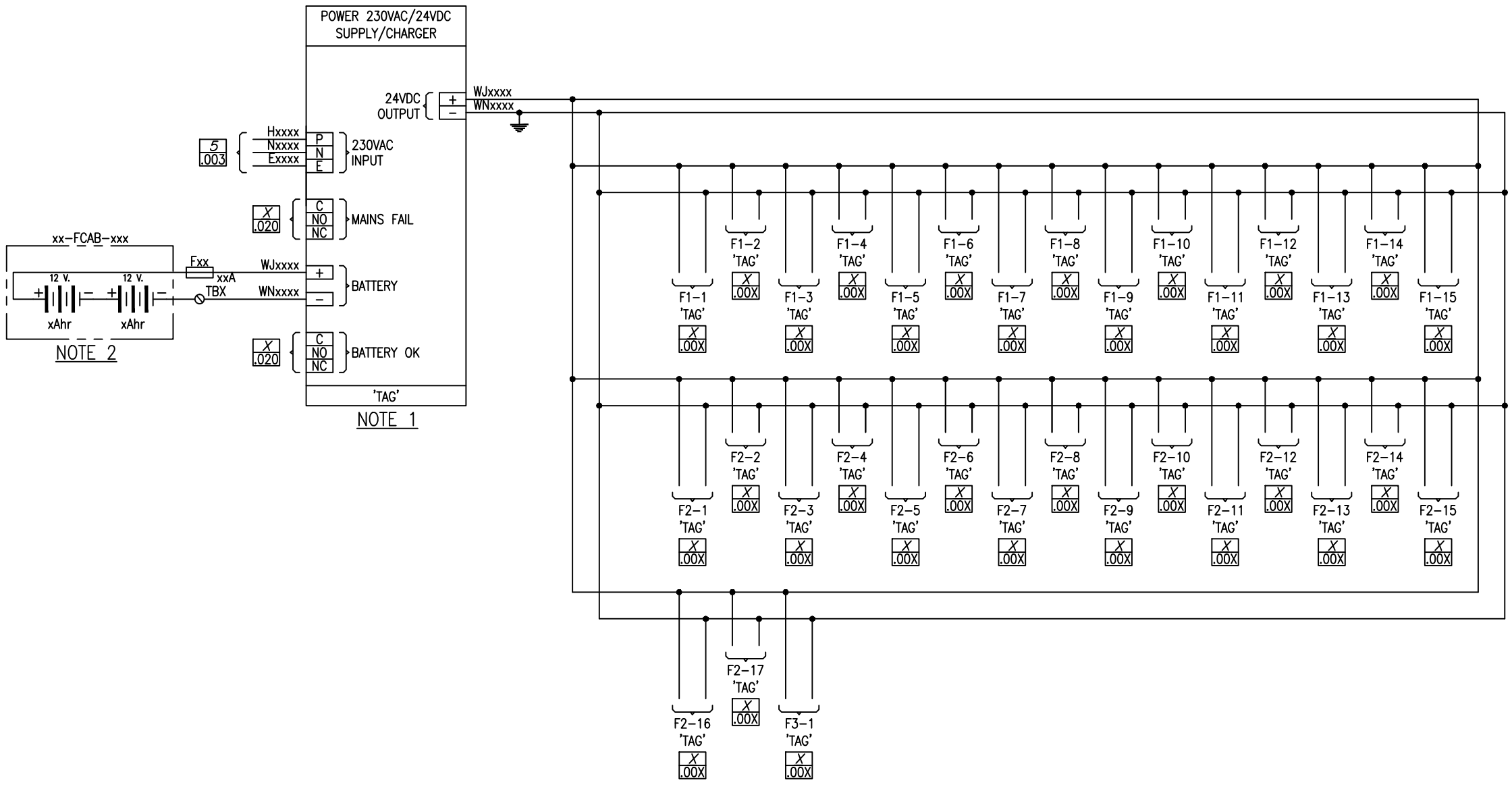
WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 TYPE 2 UPS INSTALLATION, DUAL PARALLEL REDUNDANT

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


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

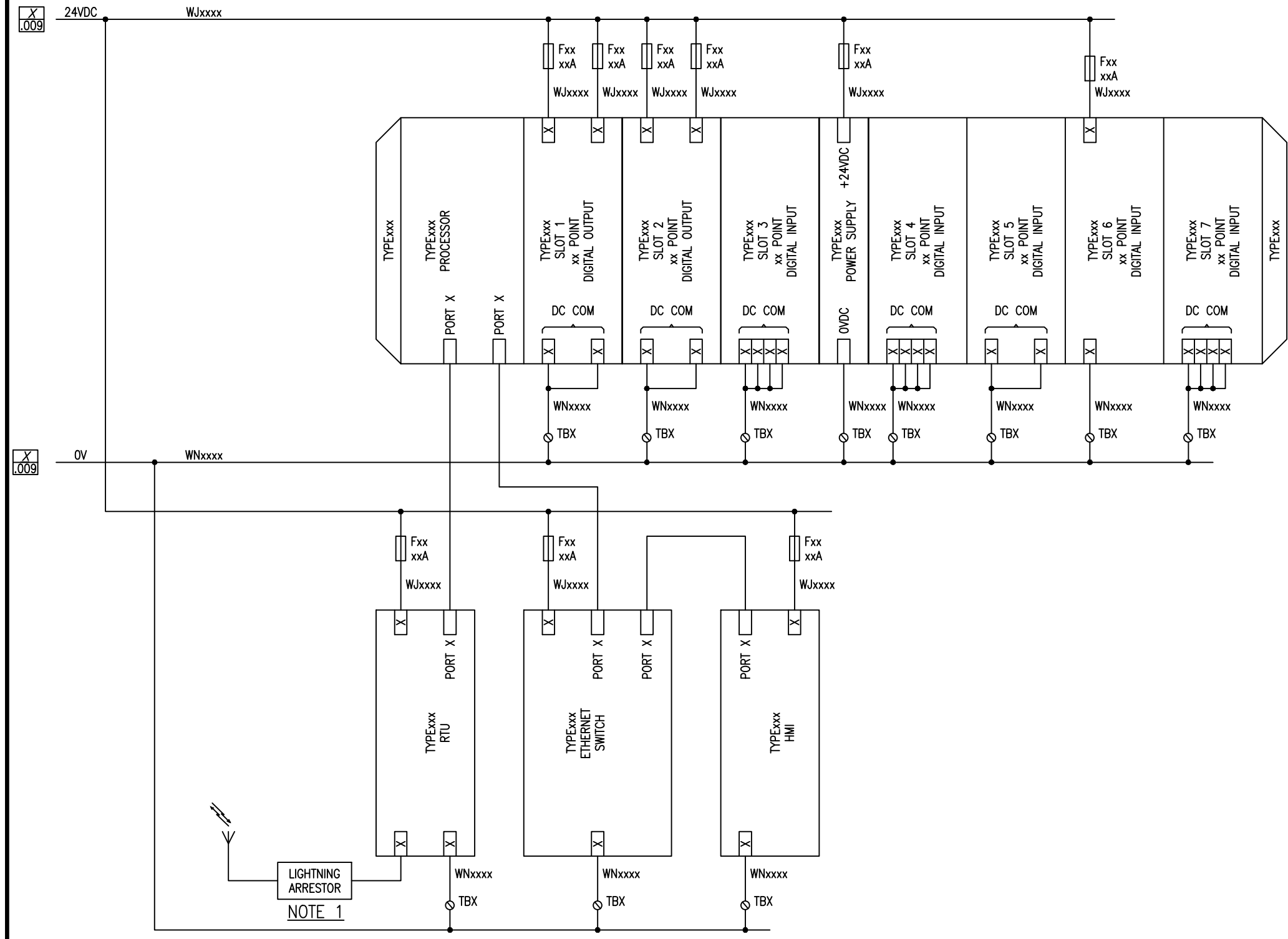




NOTE 1

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

DESIGNED		OPERATIONS		 WATERCARE SERVICES LIMITED STANDARD DRAWING 24VDC DISTRIBUTION	CAD FILE 2010140.009A DATE 25:02:2015	
DES. CHECKED		INFRASTRUCTURE			ORIGINAL SCALE A3 CONTRACT No. -	
DRAWN				REF No. -		
DWG. CHECKED				ISSUE -		
PROJECT LEADER				DWG No. 2010140 .009		
INFRASTR'R APP'D				A		
ISSUE	DATE	AMENDMENT	BY	APPD.		
A	02:15	MINOR CHANGES	L.M			
-	01/15	TEMPLATE DRAWING	E.C	L.M		



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

OPERATIONS	
INFRASTRUCTURE	

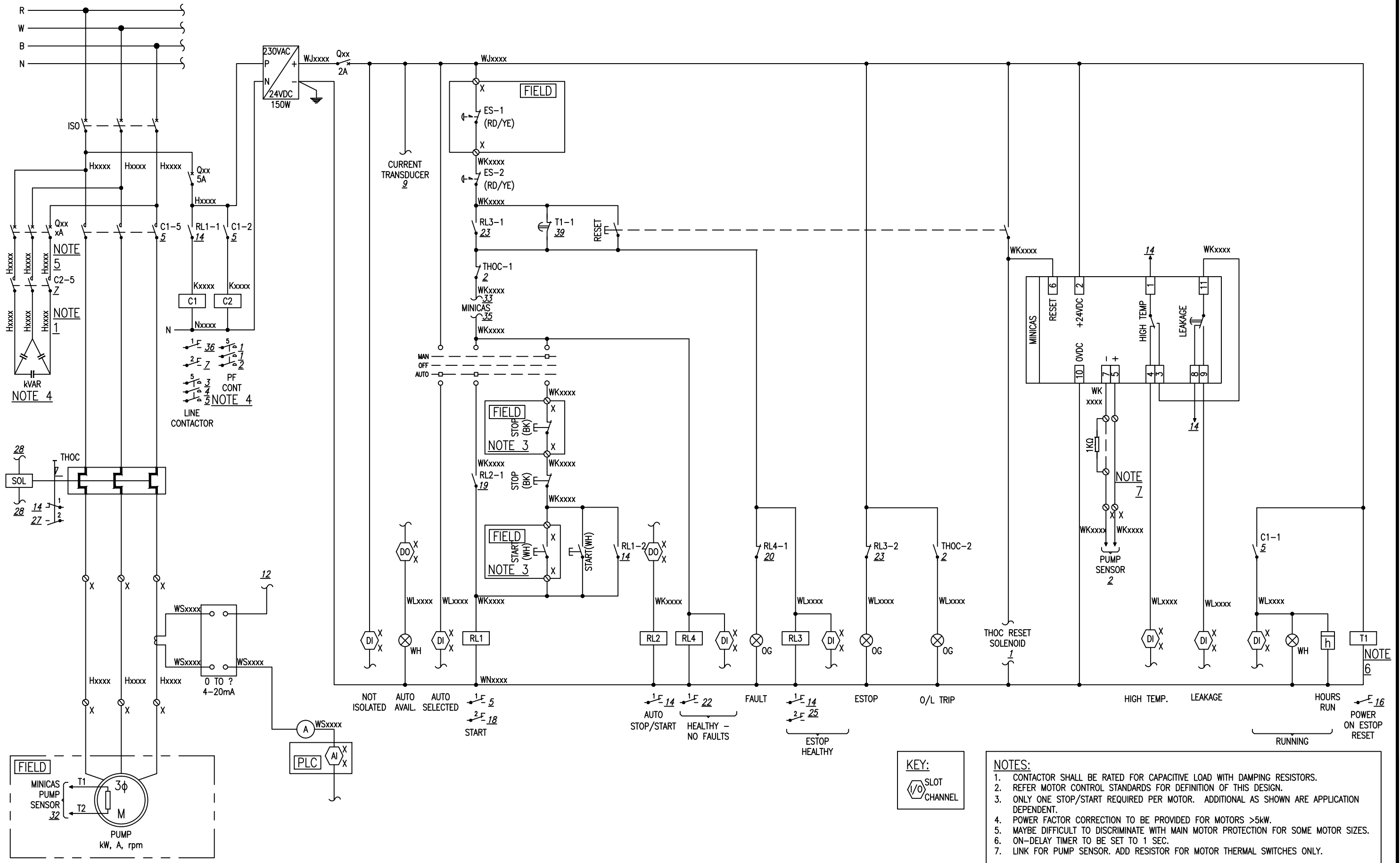
**Watercare**

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WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 CONTROL EQUIPMENT SCHEMATIC

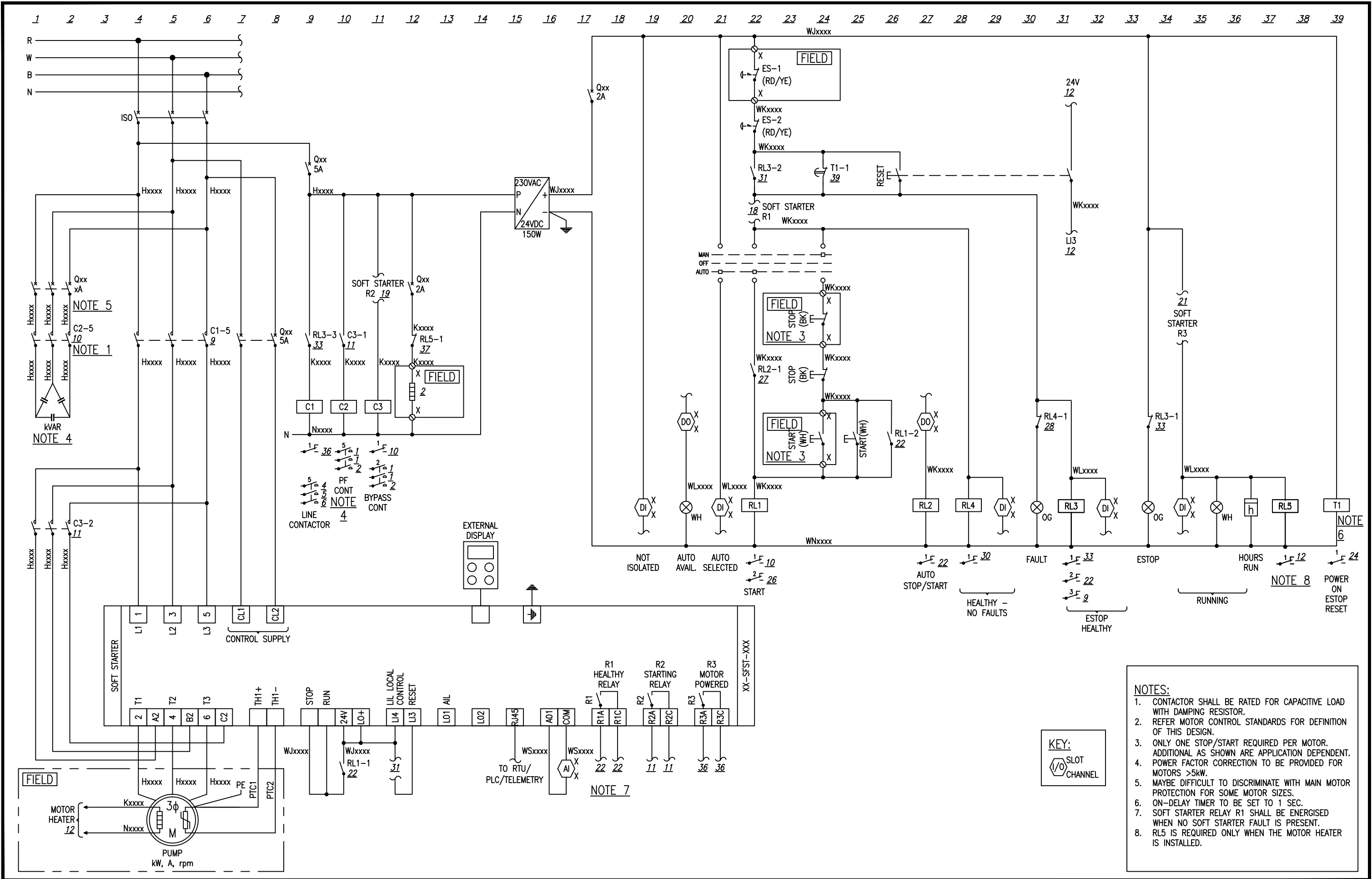
CAD FILE	2010140.010A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.010	A





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

DESIGNED	Designer	mm-yy	<p><b>Watercare</b>                  WATERCARE SERVICES LIMITED                  STANDARD DRAWING                  MOTOR CONTROL - D.O.L SCHEMATIC &amp; FLYGT</p>	CAD FILE	2010140.012C	DATE	04-09-18
DES. CHECKED	Design Checker	mm-yy		ORIGINAL SCALE	A3	CONTRACT No.	-
DRAWN	Drawn	mm-yy		REF No.	-	-	-
DWG. CHECKED	Drawing Checker	mm-yy		DWG No.	2010140 .012	ISSUE	C
PROJECT LEADER	Project Leader	mm-yy					
INFRASTR'R APP'D	Infrastructure app'd	mm-yy					
BY	DATE						
ISSUE	DATE	AMENDMENT	BY	APPD.			



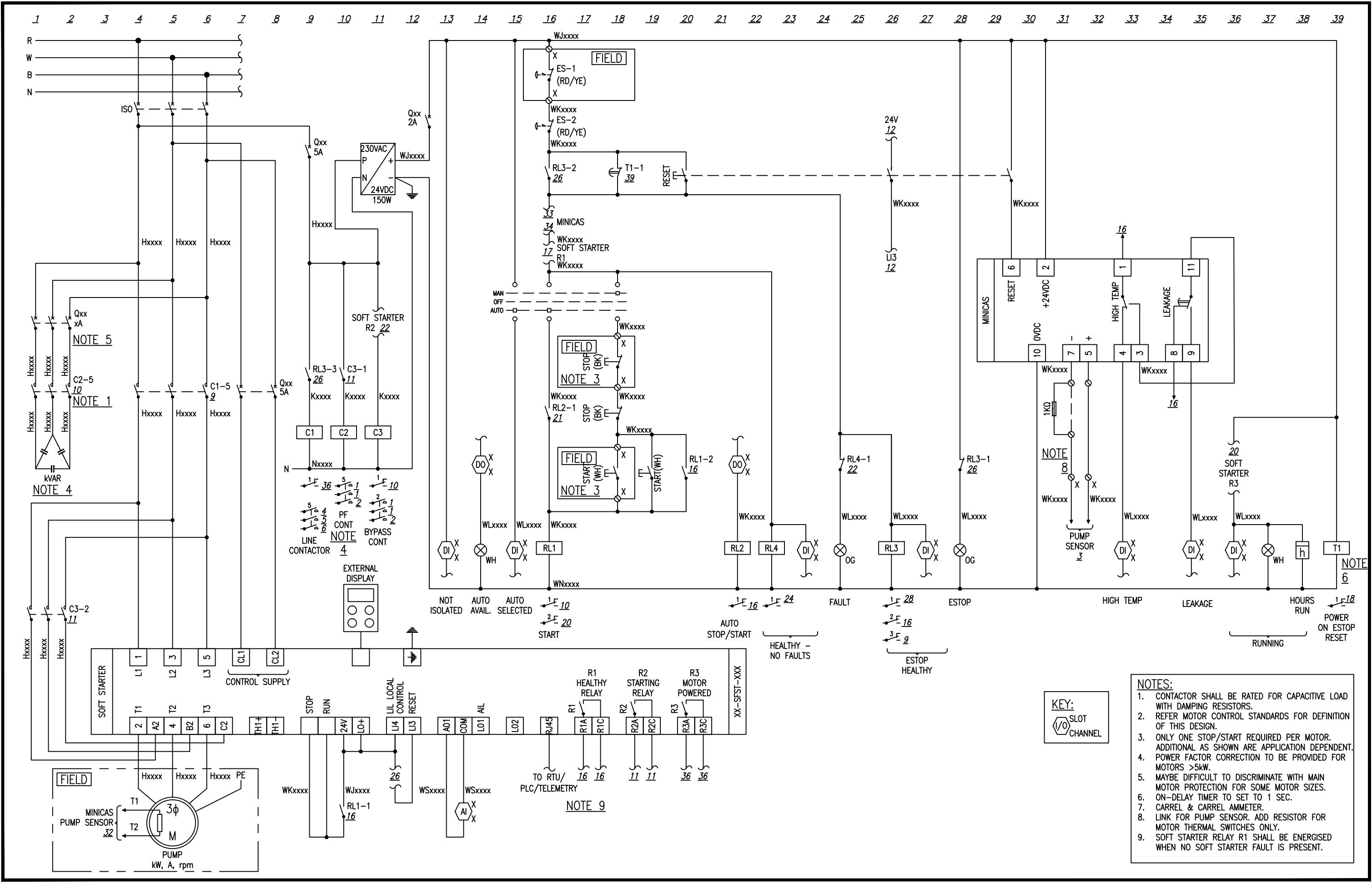
- NOTES:**
1. CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTOR.
  2. REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
  3. ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
  4. POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >5kW.
  5. MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
  6. ON-DELAY TIMER TO BE SET TO 1 SEC.
  7. SOFT STARTER RELAY R1 SHALL BE ENERGISED WHEN NO SOFT STARTER FAULT IS PRESENT.
  8. RL5 IS REQUIRED ONLY WHEN THE MOTOR HEATER IS INSTALLED.

ISSUE	DATE	AMENDMENT	BY	APPD.
C	09-18	ESTOP AND DC POWER SUPPLY CHANGE	R.X.	P.A.
B	06-18	STANDARD DRAWING TEMPLATE	M.W.	
A	02-15	MINOR CHANGES	L.M.	
-	01-15	DRAWING TEMPLATE	E.C.	L.M.

DESIGNED	Designer	mm-yy
DES. CHECKED	Design Checker	mm-yy
DRAWN	Drawn	mm-yy
DWG. CHECKED	Drawing Checker	mm-yy
PROJECT LEADER	Project Leader	mm-yy
INFRASTR'R APP'D	Infrastructure app'd	mm-yy

**Watercare**  
 WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 MOTOR CONTROL - SOFT STARTER SCHEMATIC

CAD FILE	2010140.013C	DATE	04-09-18
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.			
DWG No.	2010140 .013	ISSUE	C



- NOTES:**
- CONTACTOR SHALL BE RATED FOR CAPACITIVE LOAD WITH DAMPING RESISTORS.
  - REFER MOTOR CONTROL STANDARDS FOR DEFINITION OF THIS DESIGN.
  - ONLY ONE STOP/START REQUIRED PER MOTOR. ADDITIONAL AS SHOWN ARE APPLICATION DEPENDENT.
  - POWER FACTOR CORRECTION TO BE PROVIDED FOR MOTORS >5kW.
  - MAYBE DIFFICULT TO DISCRIMINATE WITH MAIN MOTOR PROTECTION FOR SOME MOTOR SIZES.
  - ON-DELAY TIMER TO SET TO 1 SEC.
  - CARREL & CARREL AMMETER.
  - LINK FOR PUMP SENSOR. ADD RESISTOR FOR MOTOR THERMAL SWITCHES ONLY.
  - SOFT STARTER RELAY R1 SHALL BE ENERGISED WHEN NO SOFT STARTER FAULT IS PRESENT.

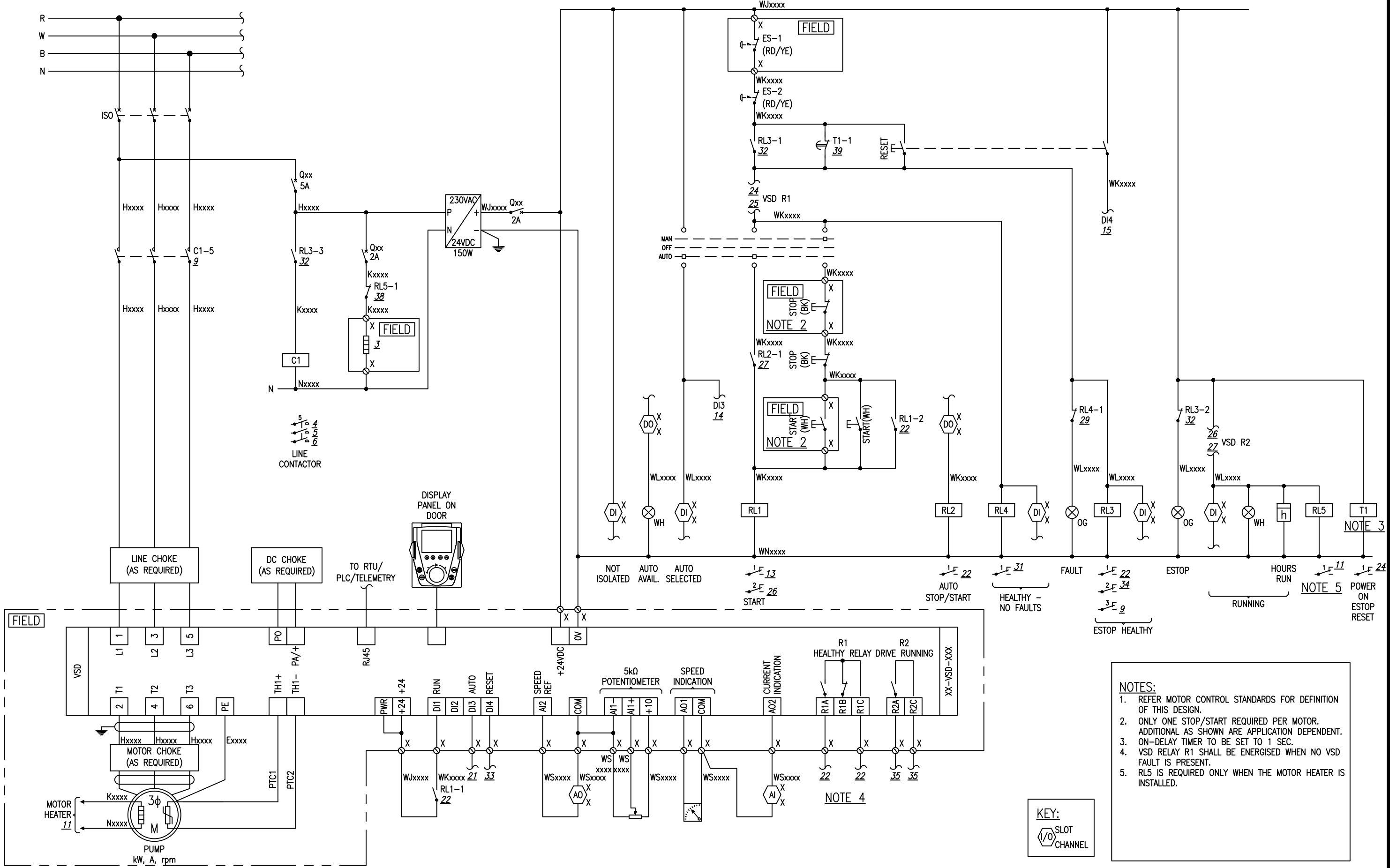
ISSUE	DATE	AMENDMENT	BY	APPD.
C	09-18	ESTOP AND DC POWER SUPPLY CHANGE	R.X.	P.A.
B	06-18	STANDARD DRAWING TEMPLATE	M.W.	
A	02-15	MINOR CHANGES	L.M.	
-	01-15	DRAWING TEMPLATE	E.C.	L.M.

DESIGNED	Designer	mm-yy
DES. CHECKED	Design Checker	mm-yy
DRAWN	Drawn	mm-yy
DWG. CHECKED	Drawing Checker	mm-yy
PROJECT LEADER	Project Leader	mm-yy
INFRASTR'R APP'D	Infrastructure app'd	mm-yy

**Watercare**  
 WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 MOTOR CONTROL - SOFT STARTER SCHEMATIC & FLYGT

CAD FILE 2010140.014C	DATE 04-09-18
ORIGINAL SCALE A3	CONTRACT No.
REF No.	
DWG No. 2010140 .014	ISSUE C





- 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.
  4. VSD RELAY R1 SHALL BE ENERGISED WHEN NO VSD FAULT IS PRESENT.
  5. RL5 IS REQUIRED ONLY WHEN THE MOTOR HEATER IS INSTALLED.

**KEY:**  
 SLOT CHANNEL

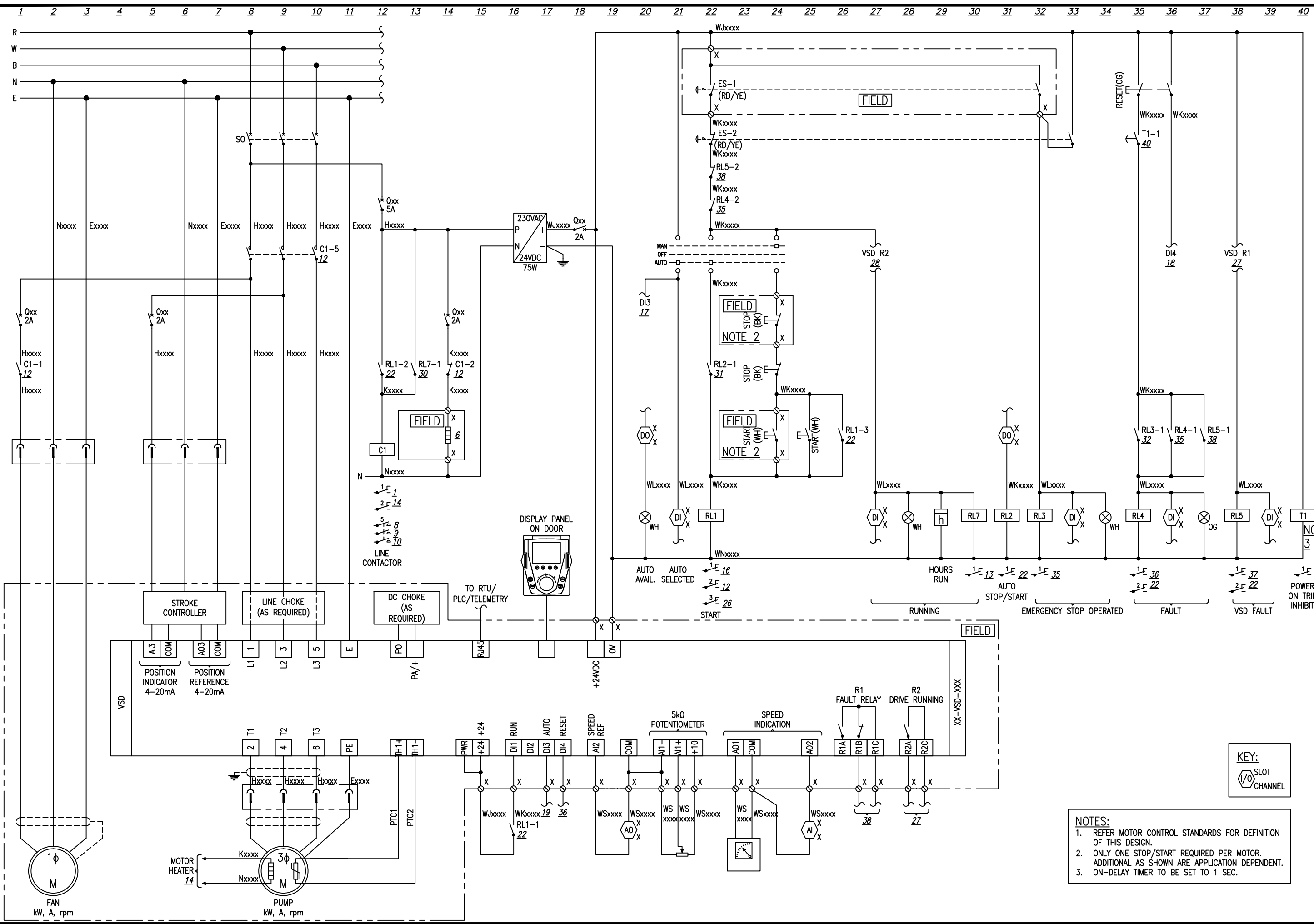
ISSUE	DATE	AMENDMENT	BY	APPD.
C	09-18	ESTOP AND DC POWER SUPPLY CHANGE	R.X.	P.A.
B	06-18	STANDARD DRAWING TEMPLATE	M.W.	
A	02-15	MINOR CHANGES	L.M.	
-	01-15	DRAWING TEMPLATE	E.C.	L.M.

DESIGNED	Designer	mm-yy
DES. CHECKED	Design Checker	mm-yy
DRAWN	Drawn	mm-yy
DWG. CHECKED	Drawing Checker	mm-yy
PROJECT LEADER	Project Leader	mm-yy
INFRASTR' APP'D	Infrastructure app'd	mm-yy

**Watercare**  
 WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 MOTOR CONTROL - VSD SCHEMATIC

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CAD FILE	2010140.015C	DATE	04-09-18
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.			
DWG No.	2010140 .015	ISSUE	C



- 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.

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

OPERATIONS

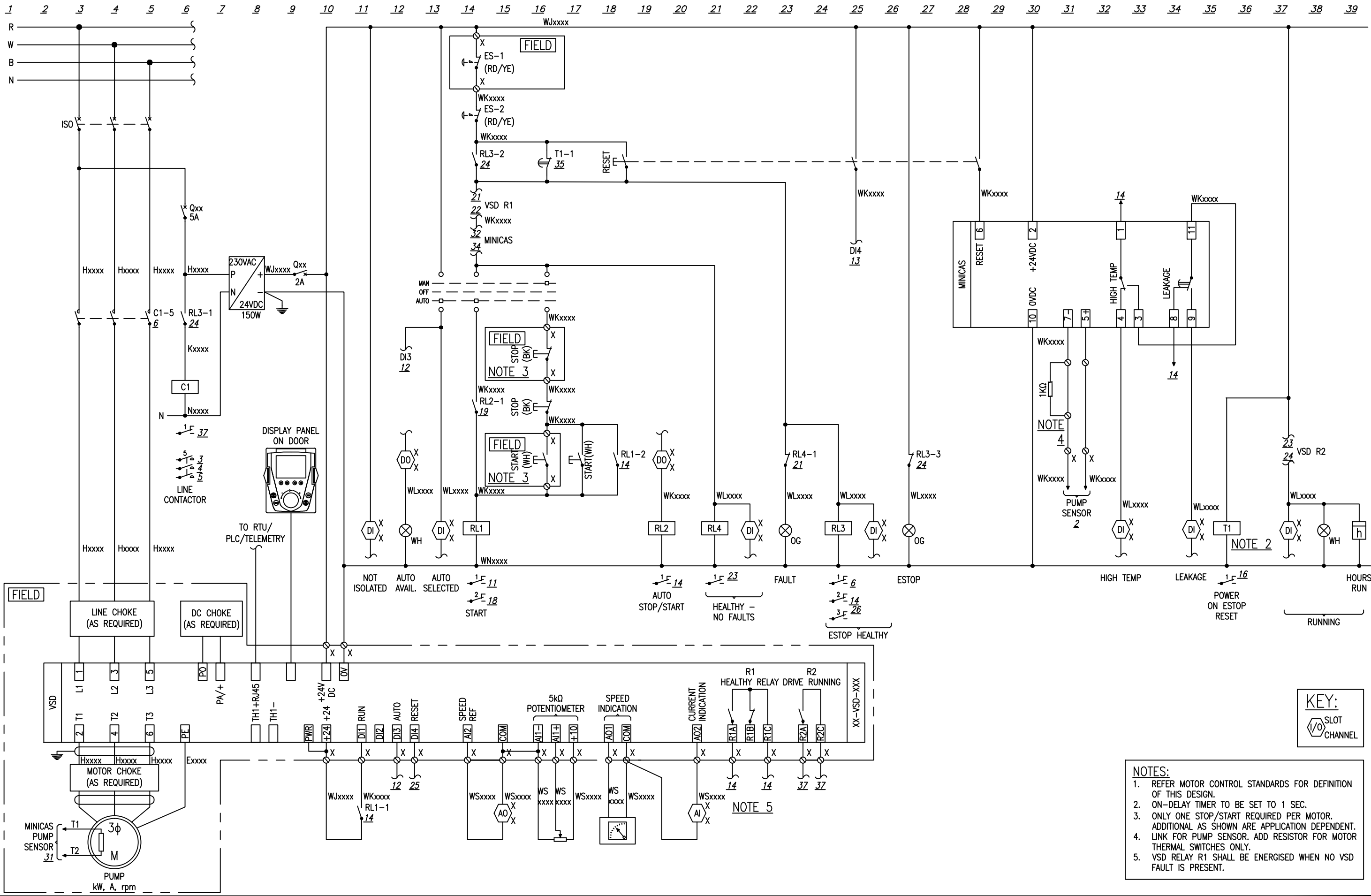
INFRASTRUCTURE

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WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 MOTOR CONTROL - VSD SCHEMATIC DOSING PUMP

CAD FILE	2010140.016A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.016	A





- 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.
  5. VSD RELAY R1 SHALL BE ENERGISED WHEN NO VSD FAULT IS PRESENT.

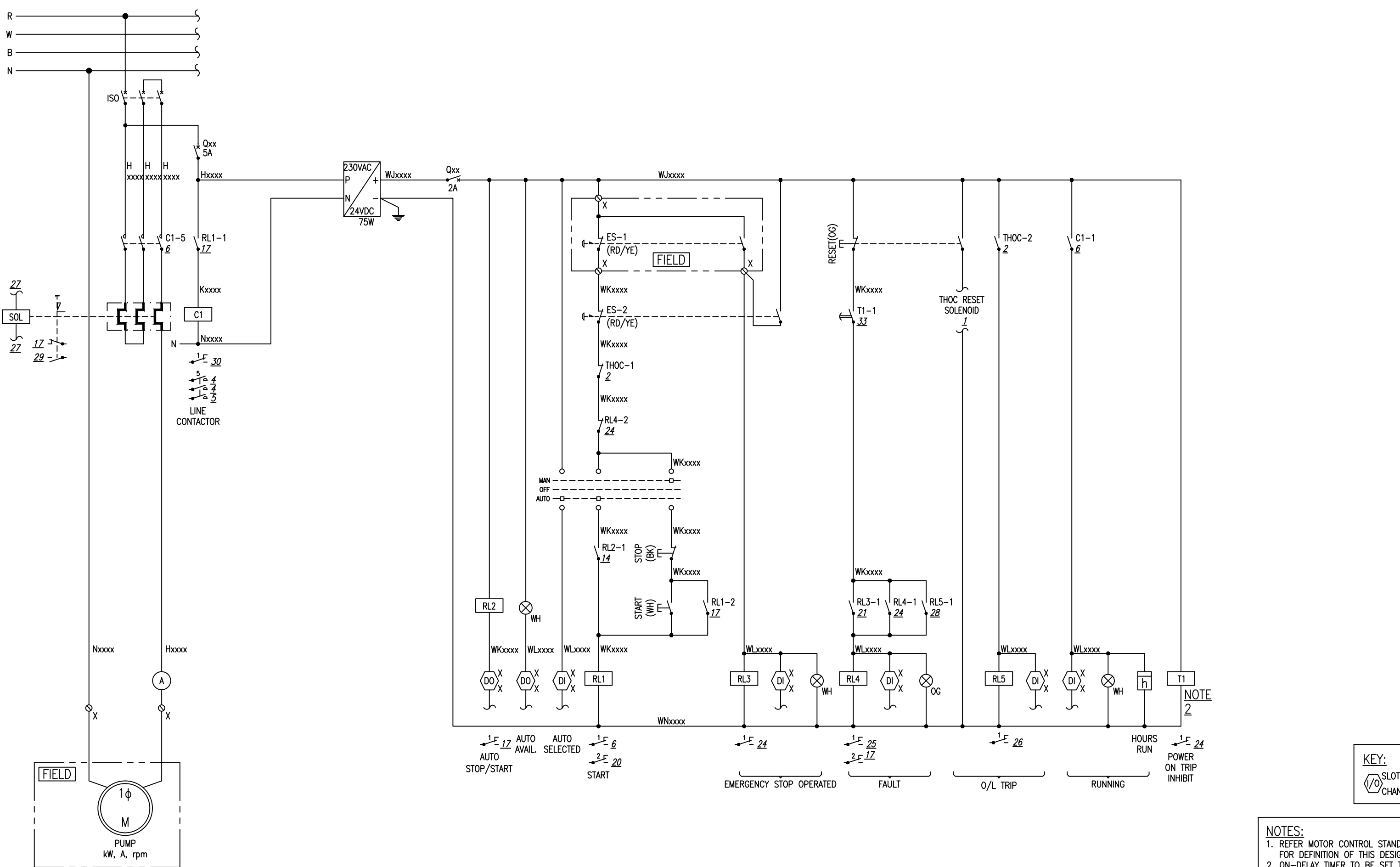
ISSUE	DATE	AMENDMENT	BY	APPD.
C	09-18	ESTOP AND DC POWER SUPPLY CHANGE	R.X.	P.A.
B	06-18	STANDARD DRAWING TEMPLATE	M.W.	
A	02-15	MINOR CHANGES	L.M.	
-	01-15	DRAWING TEMPLATE	E.C.	L.M.

DESIGNED	Designer	mm-yy
DES. CHECKED	Design Checker	mm-yy
DRAWN	Drawn	mm-yy
DWG. CHECKED	Drawing Checker	mm-yy
PROJECT LEADER	Project Leader	mm-yy
INFRASTR'R APP'D	Infrastructure app'd	mm-yy

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 WATERCARE SERVICES LIMITED  
 STANDARD DRAWING  
 MOTOR CONTROL - VSD SCHEMATIC & FLYGT  
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CAD FILE	2010140.017C	DATE	04-09-18
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.			
DWG No.	2010140 .017	ISSUE	C





**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

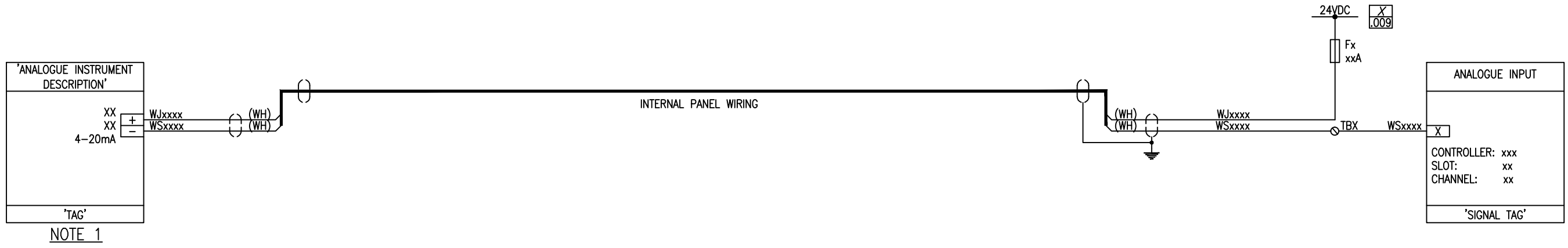
INFRASTRUCTURE

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

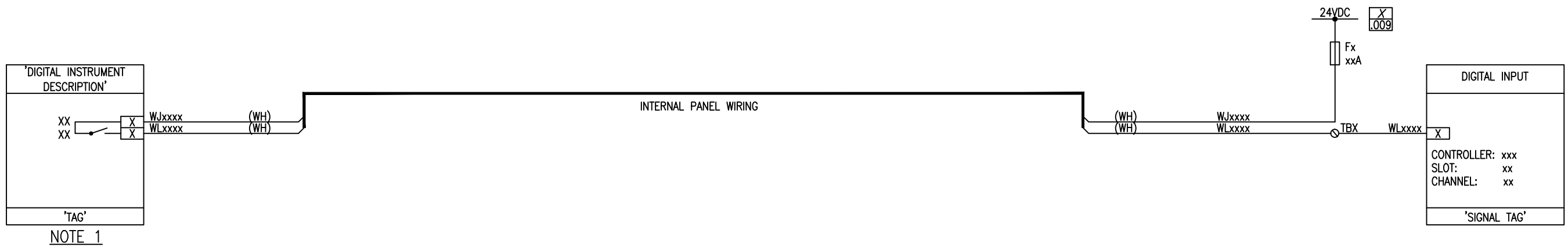
CAD FILE	2010140.019A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.019	A

02-SWBD-X01




NOTE 1

OR



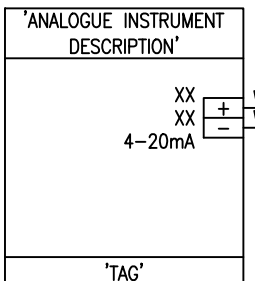
NOTE 1

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

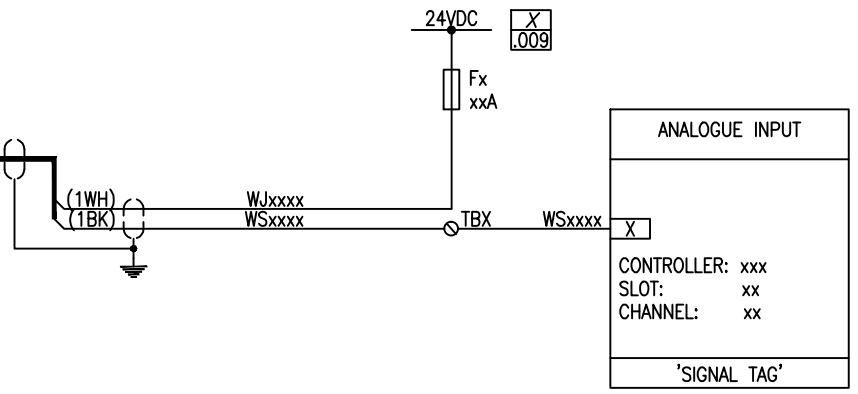
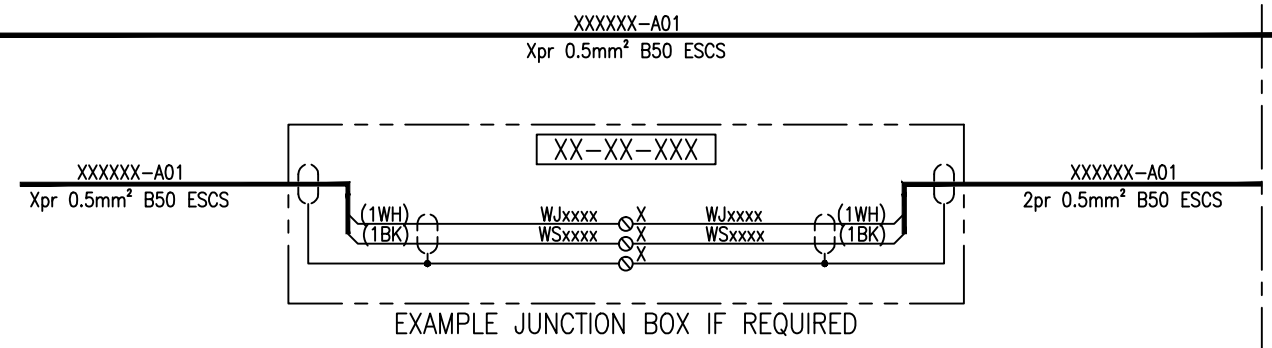
DESIGNED		DRAWN		OPERATIONS		 <p>COPYRIGHT - This drawing, the design concept, remain the exclusive property of Watercare Services Limited and may not be used without approval. Copyright reserved.</p>	WATERCARE SERVICES LIMITED		CAD FILE 2010140.020A		DATE 25:02:2015	
DES. CHECKED		DWG. CHECKED		INFRASTRUCTURE			STANDARD DRAWING		ORIGINAL SCALE A3		CONTRACT No.	
PROJECT LEADER		PROJECT LEADER				PANEL EQUIPMENT LOOP DIAGRAM		REF No.		ISSUE		
INFRASTR APP'D		INFRASTR APP'D						DWG No.		ISSUE		
ISSUE	DATE	AMENDMENT	BY	APPD.					2010140	.020	A	

FIELD

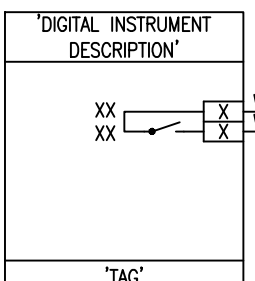
02-SWBD-X01



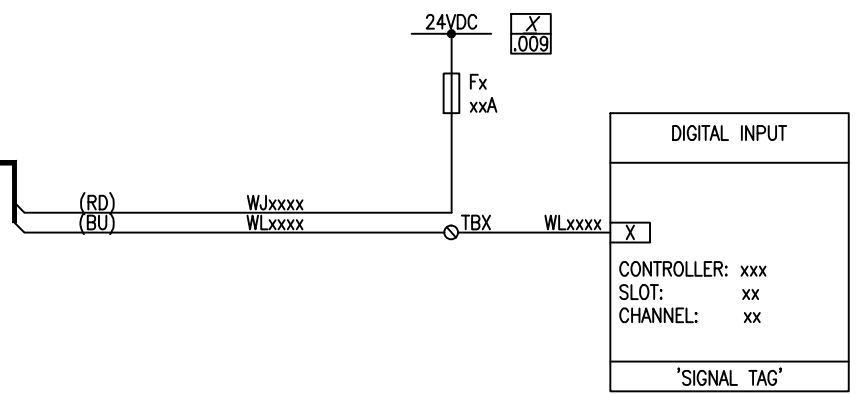
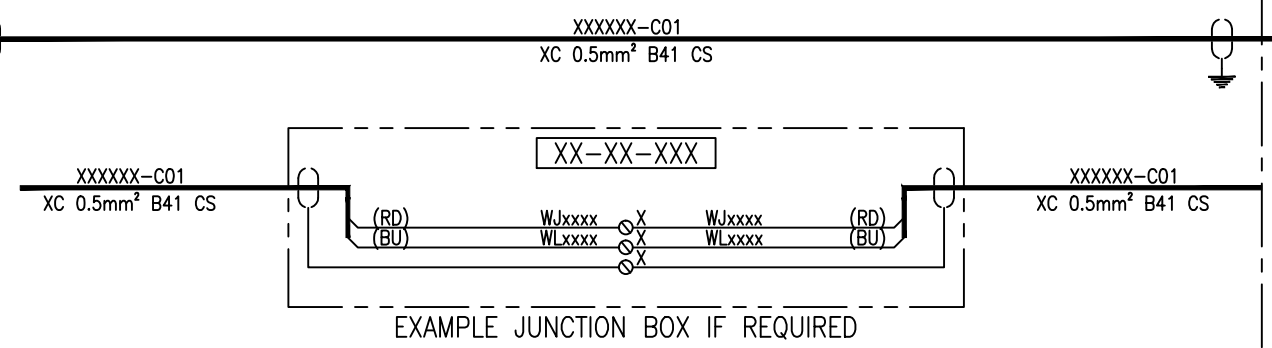
NOTE 1



OR



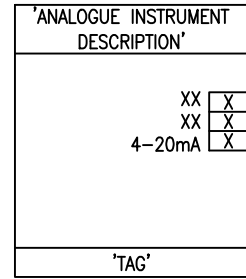
NOTE 1



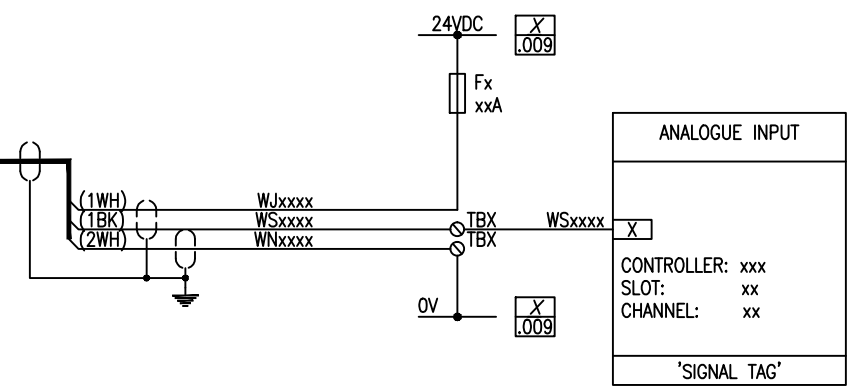
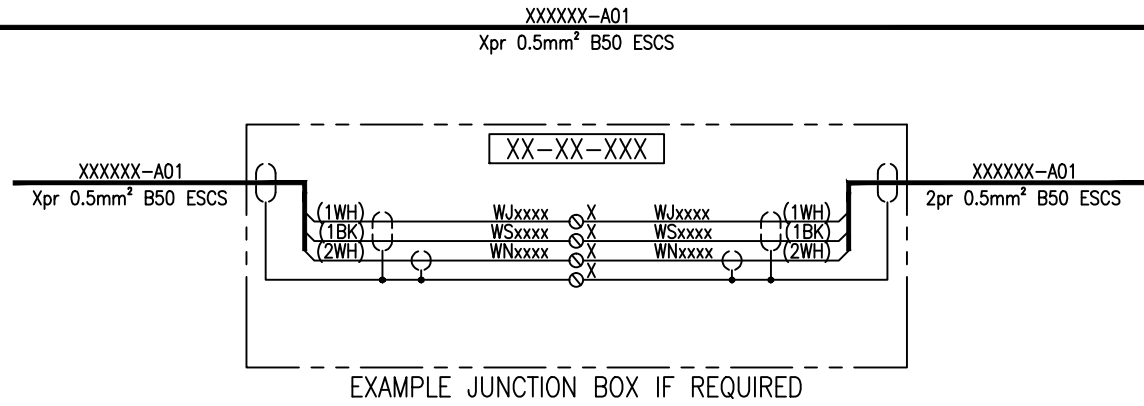
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MAKE - TBC  
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

FIELD

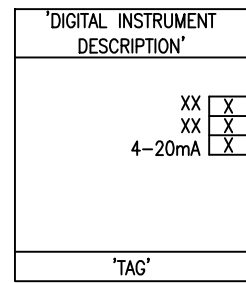
02-SWBD-X01



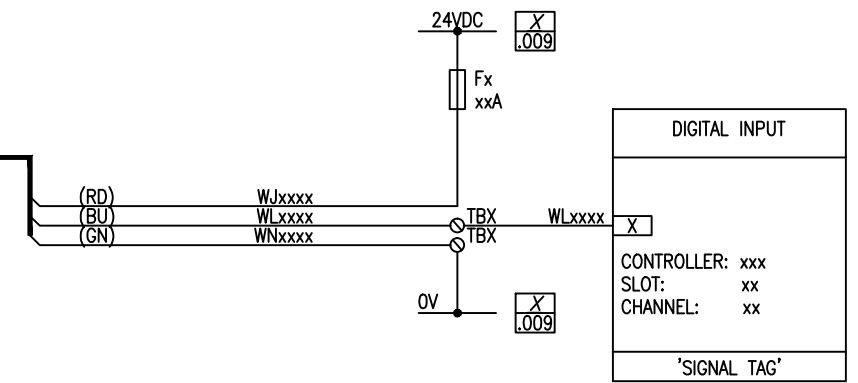
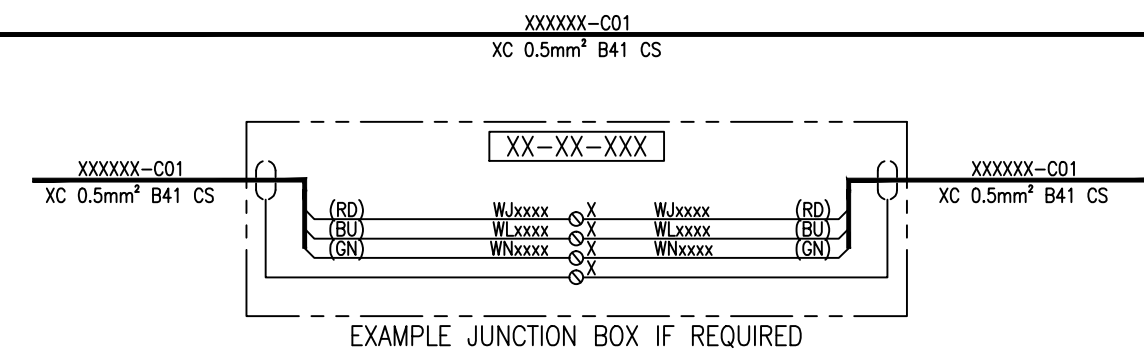
NOTE 1



OR



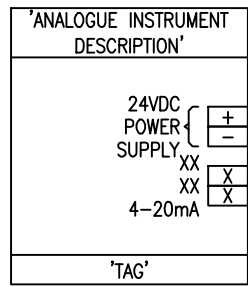
NOTE 1



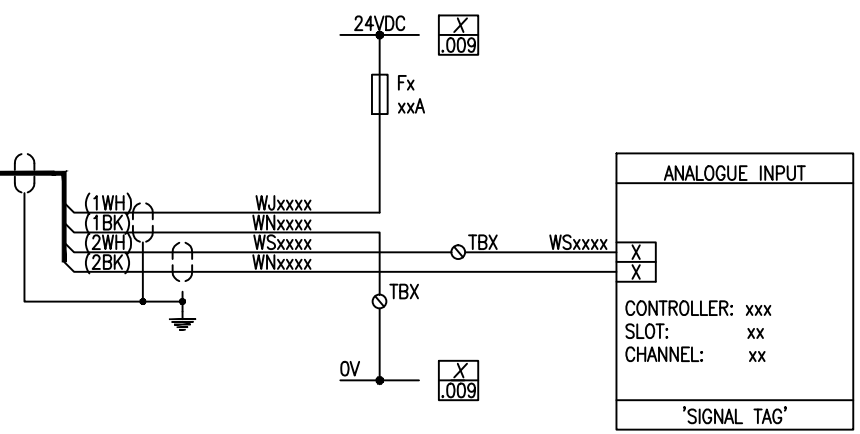
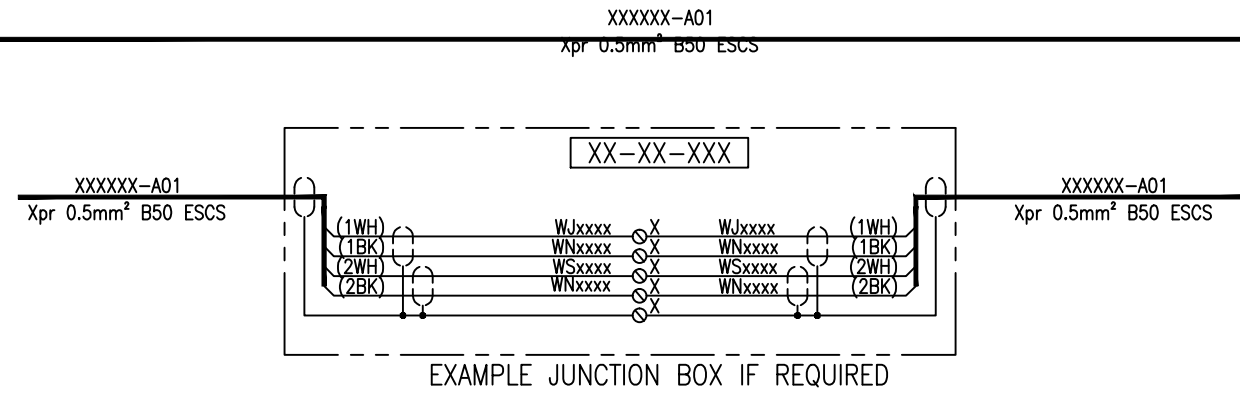
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FIELD

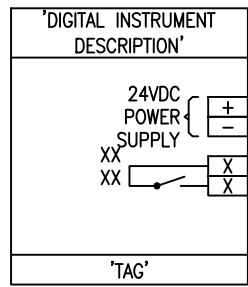
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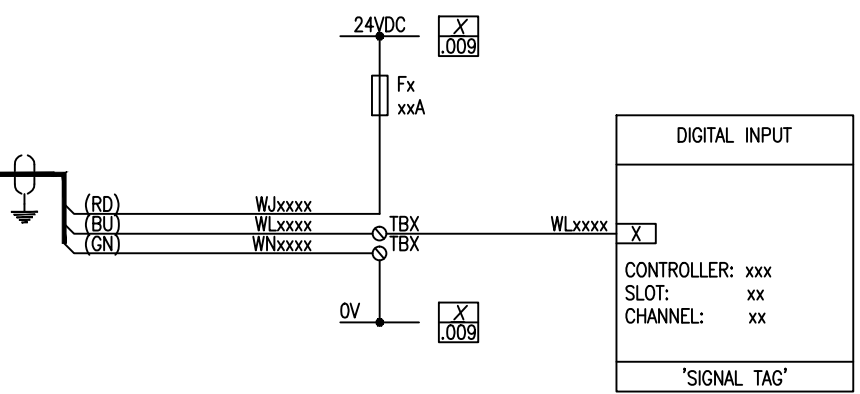
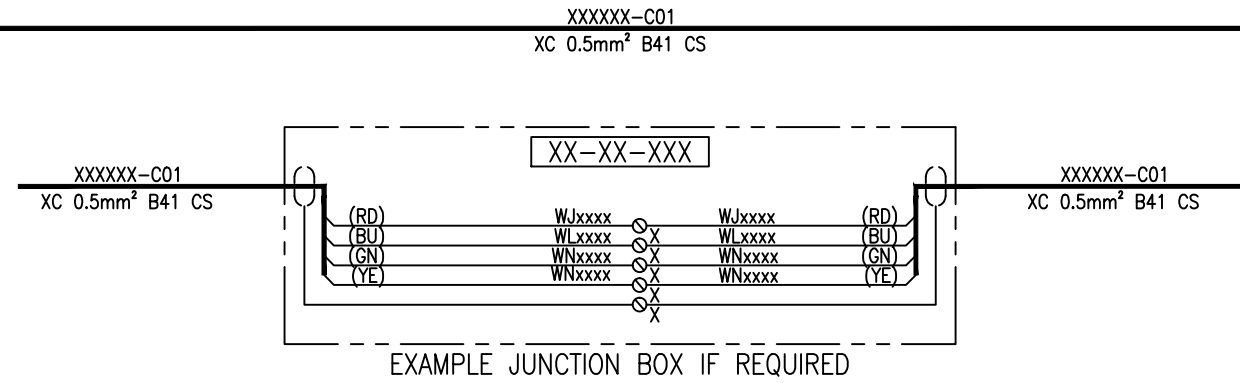
NOTE 1



OR



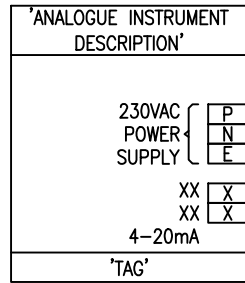
NOTE 1



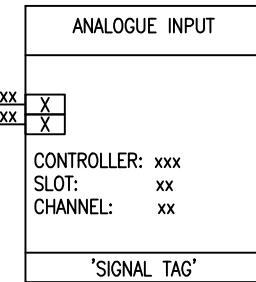
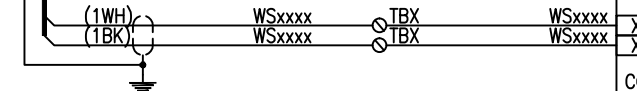
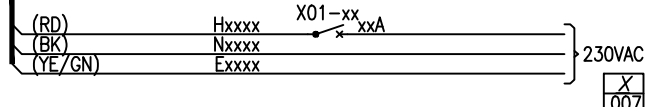
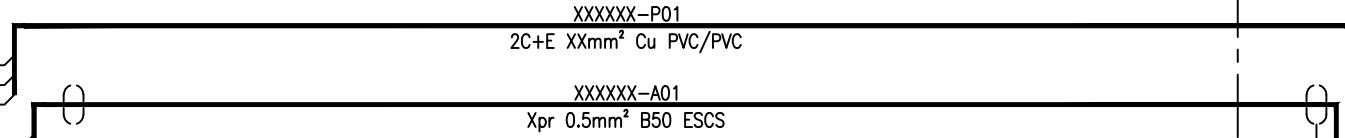
NOTES:  
1. TYPE - TBC  
MAKE - TBC  
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

FIELD

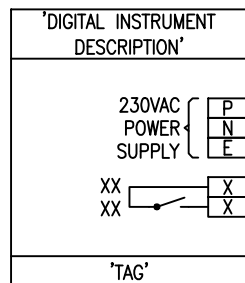
02-SWBD-X01



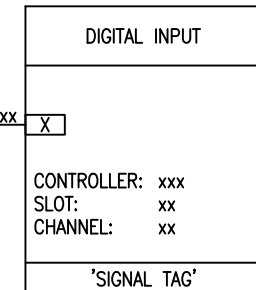
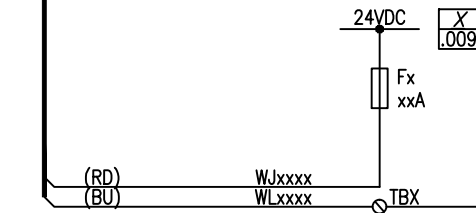
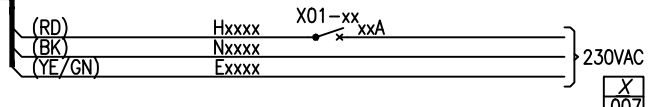
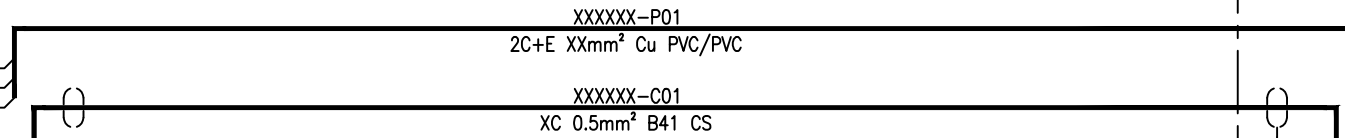
NOTE 1



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			
BY			
APPD.			

OPERATIONS	
INFRASTRUCTURE	

**Watercare**

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

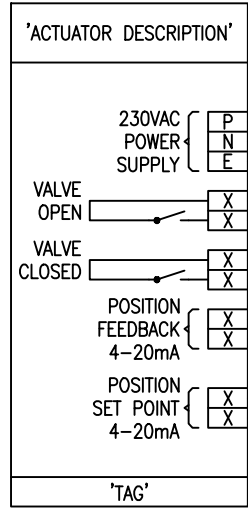
CAD FILE	2010140.024A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140		.024
			A



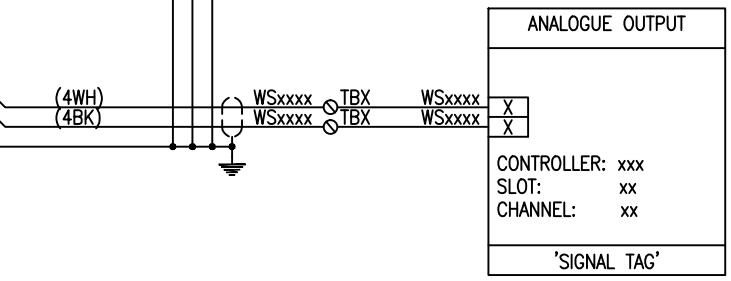
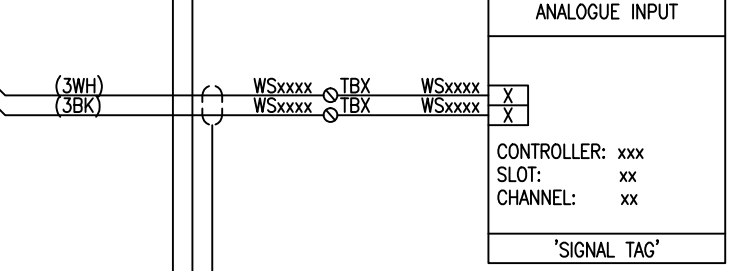
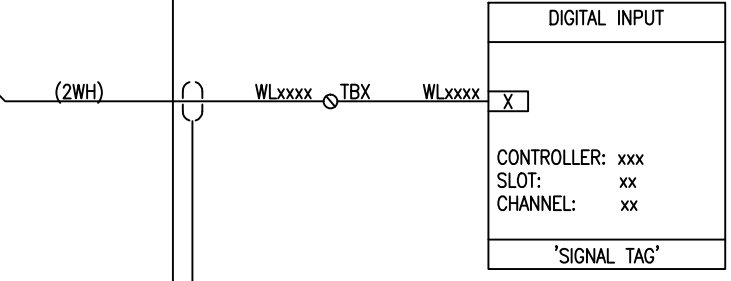
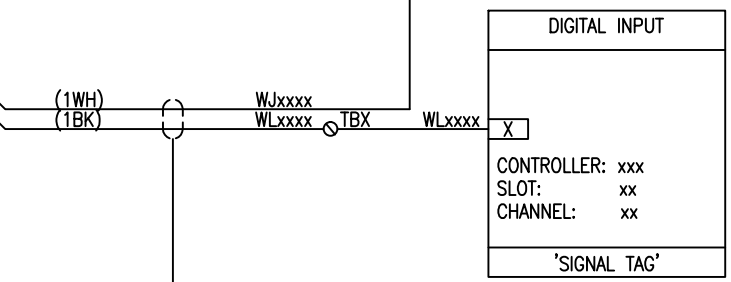
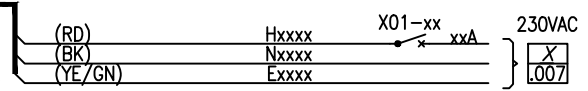
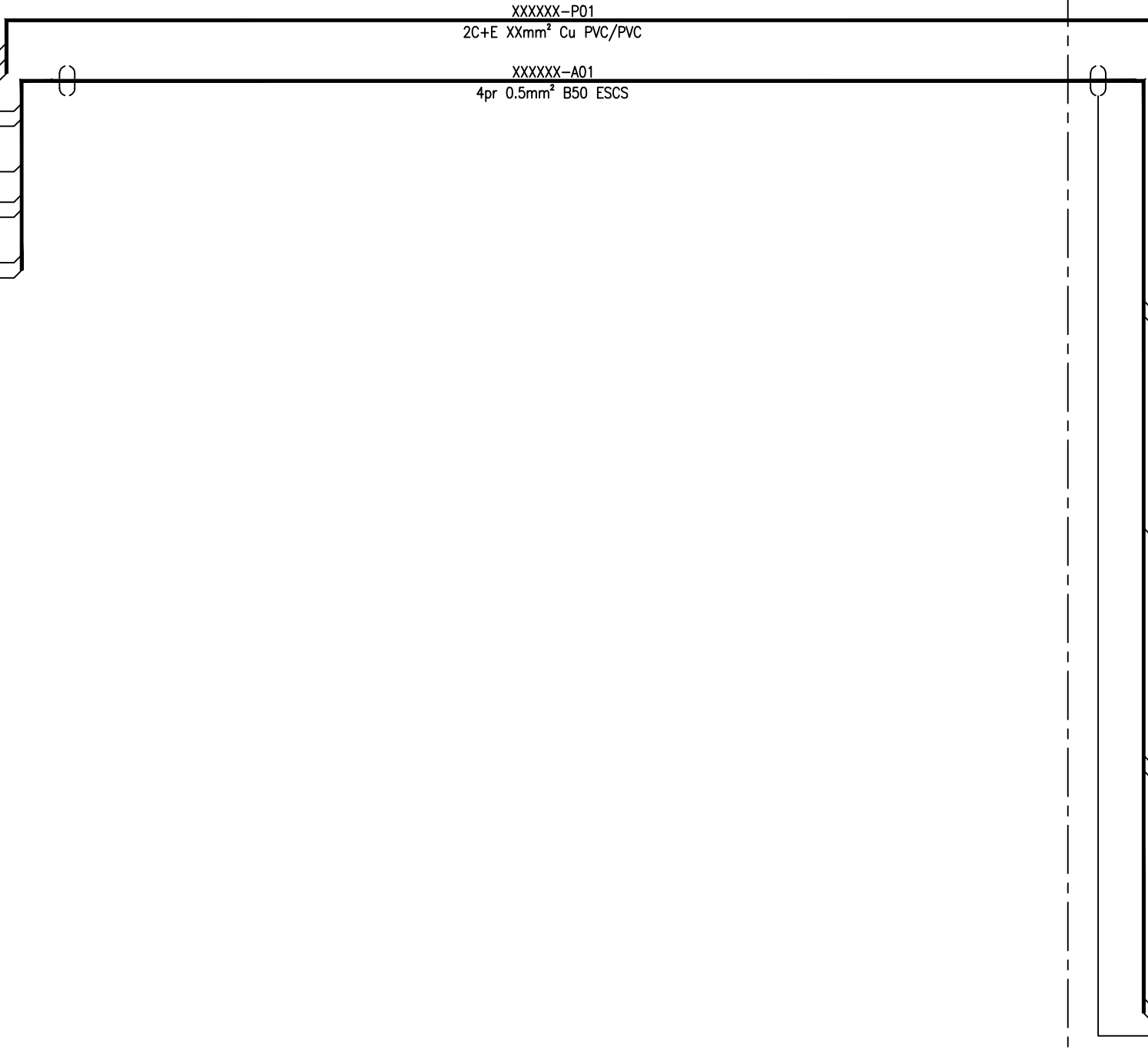


FIELD

02-SWBD-X01



NOTE 1



NOTES:

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

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

OPERATIONS

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

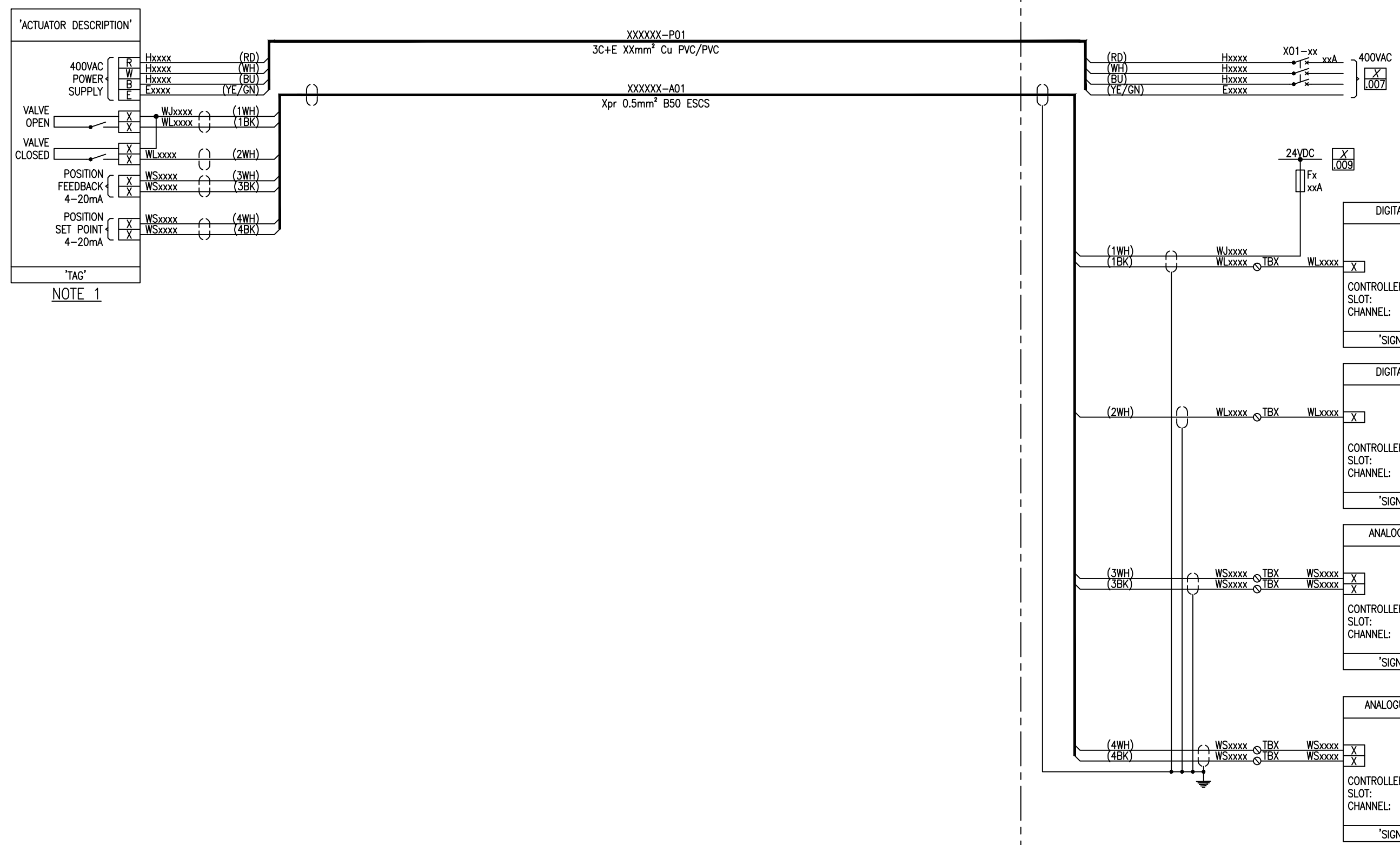
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CAD FILE	2010140.026A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140		.026

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

FIELD

02-SWBD-X01



**NOTES:**

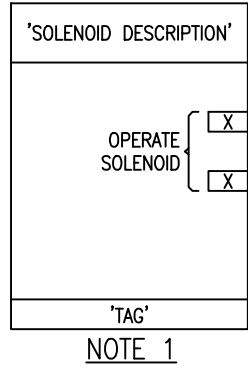
- TYPE - TBC
- MAKE - TBC
- MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509
- CURRENT RATING - xxA
- SIZE - xxkW

DESIGNED		DRAWN		OPERATIONS		<p><b>Watercare</b></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 2010140.027A DATE 25:02:2015		
DES. CHECKED		DWG. CHECKED		INFRASTRUCTURE			STANDARD DRAWING		ORIGINAL SCALE A3 CONTRACT No.		
PROJECT LEADER		PROJECT LEADER				VALVE ACTUATOR LOOP DIAGRAM - 400VAC SUPPLY		REF No.		ISSUE	
INFRASTR APP'D		INFRASTR APP'D						-		-	
ISSUE	DATE	AMENDMENT	BY	APPD.					DWG No.		
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-	01/15	TEMPLATE DRAWING	E.C	L.M							

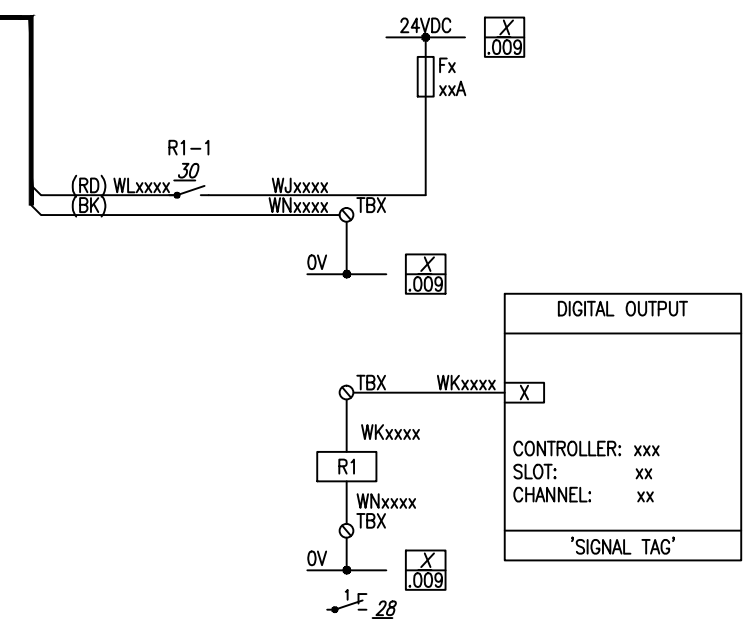


FIELD

02-SWBD-X01



XXXXXX-C01  
2C XXmm<sup>2</sup> Cu PVC/PVC



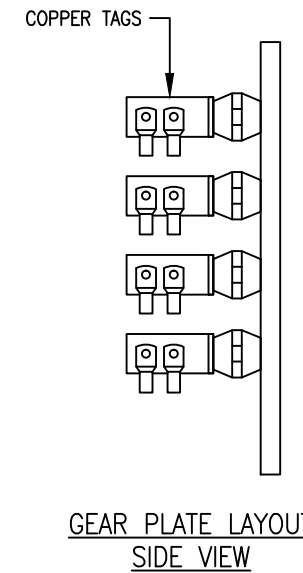
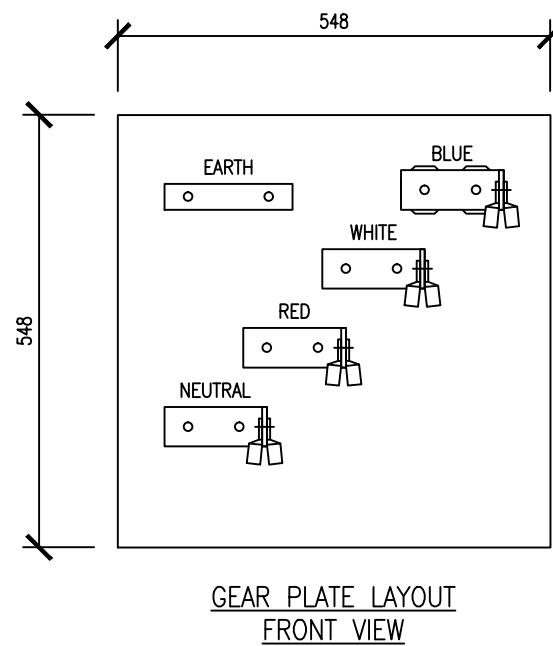
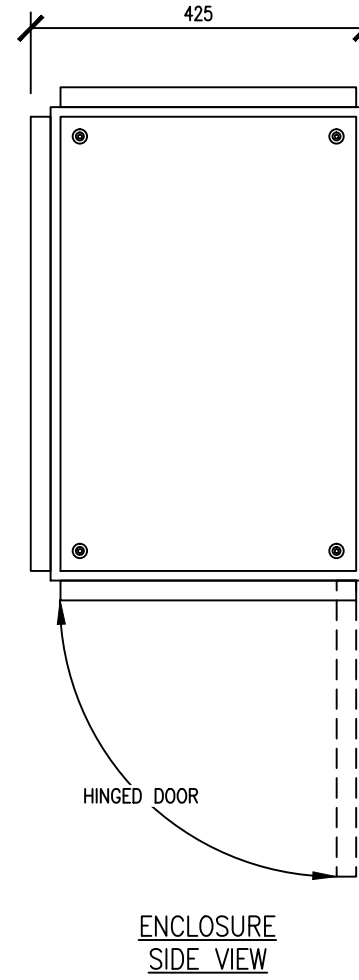
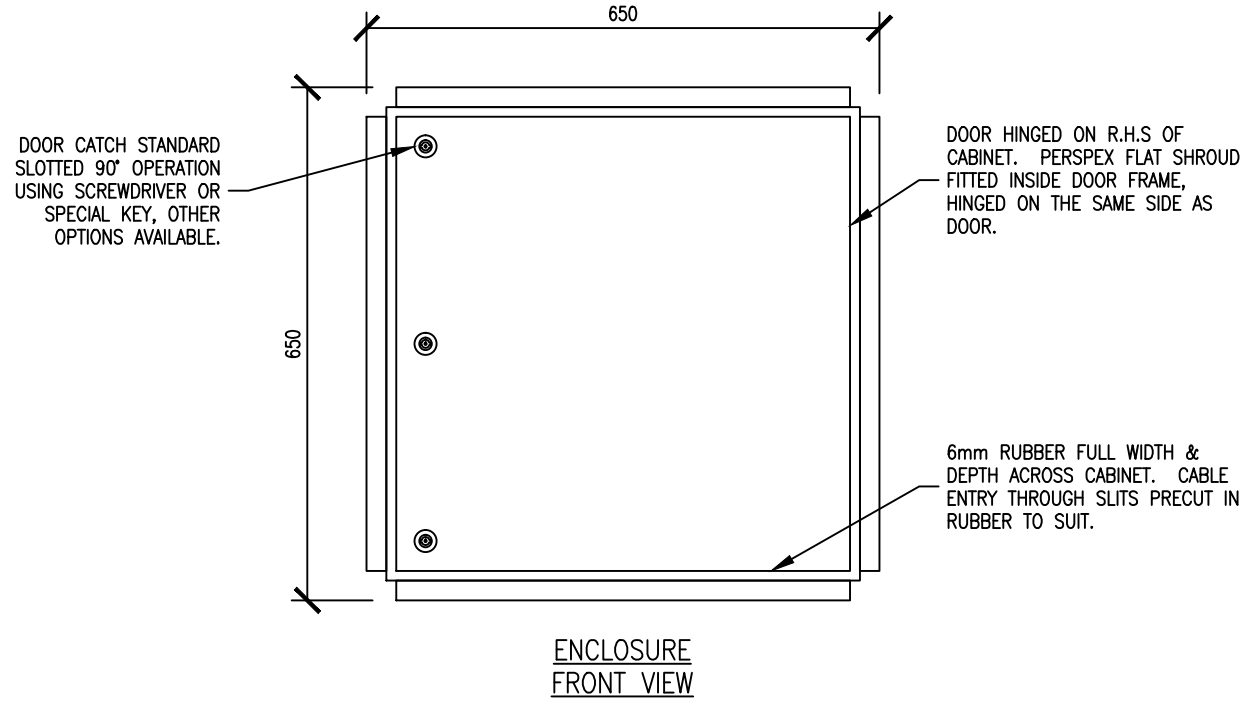
NOTES:  
1. TYPE - TBC  
MAKE - TBC  
MODEL - REFER WSL ELECTRICAL TECHNICAL SPECIFICATION, SECTION 509

				DESIGNED								CAD FILE 2010140.029A		DATE 25:02:2015	
				DES. CHECKED								ORIGINAL SCALE A3		CONTRACT No.	
				DRAWN											
				DWG. CHECKED											
A		02:15		MINOR CHANGES		L.M								ISSUE	
-		01/15		TEMPLATE DRAWING		E.C L.M		INFRASTR APP'D						-	
ISSUE	DATE	AMENDMENT		BY	APPD.							DWG No.		2010140 .029	
														A	



WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
SOLENOID VALVE LOOP DIAGRAM

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GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
400A	50x6mm	95mm <sup>2</sup> Cu XLPE	16
		50mm <sup>2</sup> 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.

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	

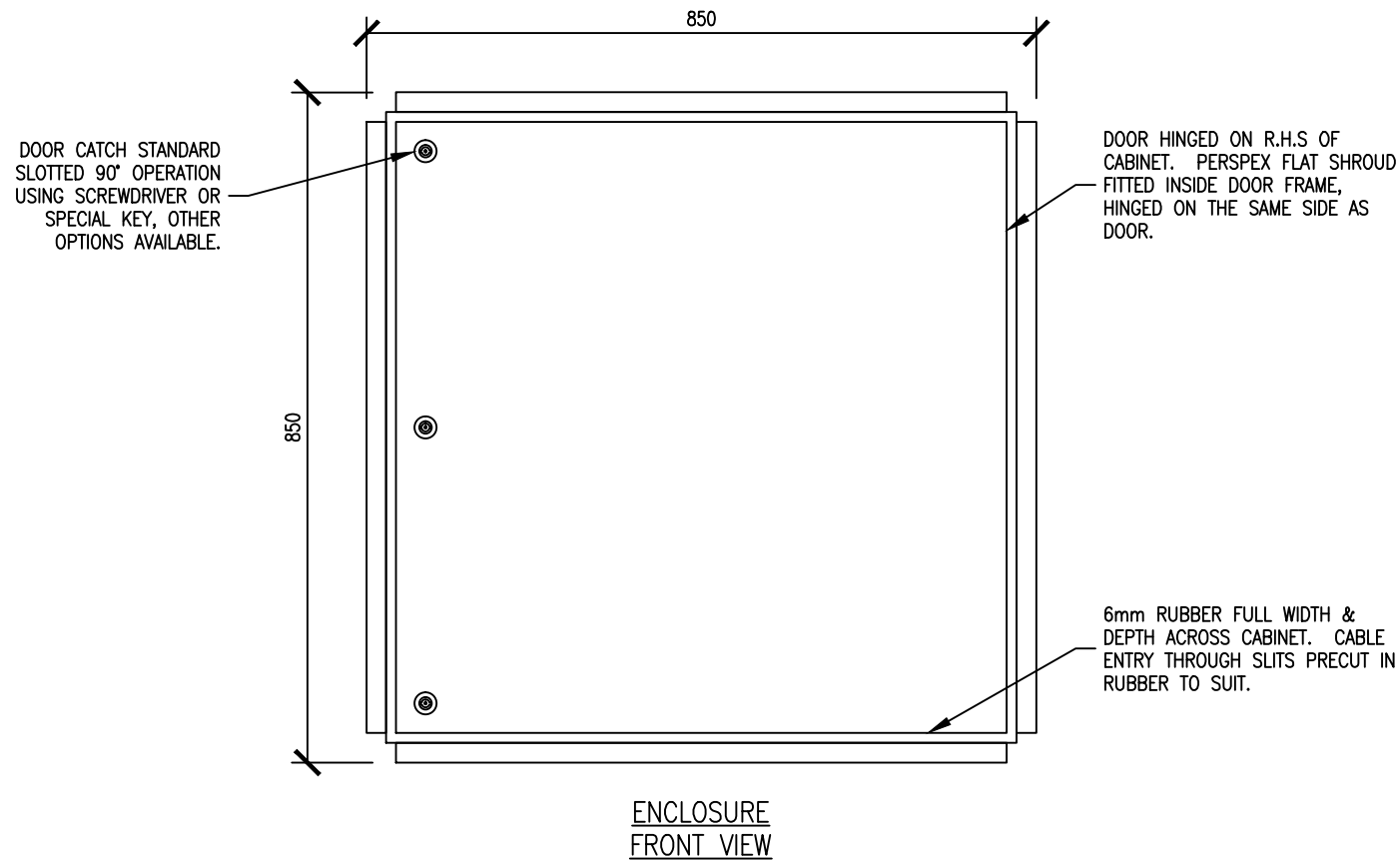
OPERATIONS

INFRASTRUCTURE

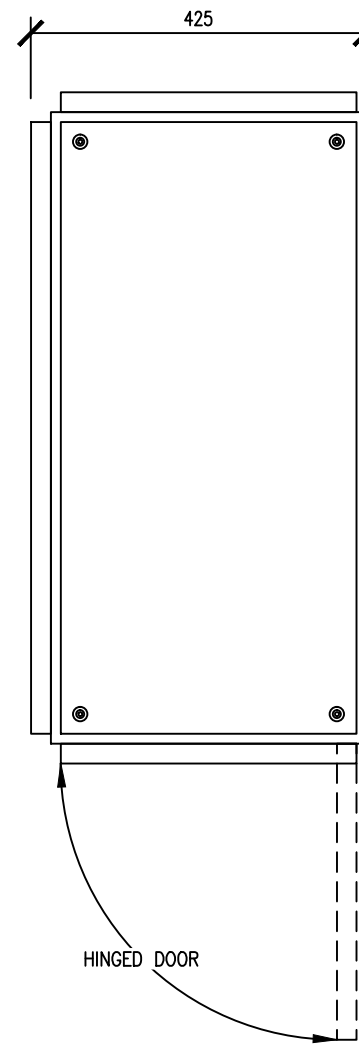
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WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
400A GENERATOR CONNECTION BOX

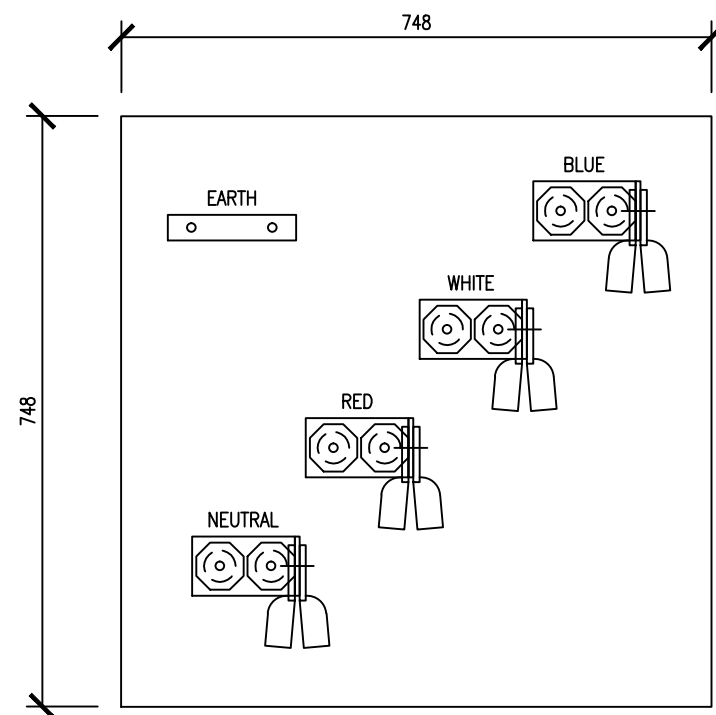
CAD FILE	2010140.030A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.030	A



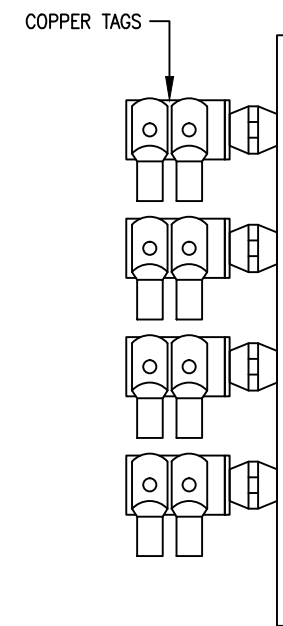
ENCLOSURE FRONT VIEW



ENCLOSURE SIDE VIEW



GEAR PLATE LAYOUT FRONT VIEW



GEAR PLATE LAYOUT SIDE VIEW

GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
800A	75x6mm	300mm <sup>2</sup> Cu XLPE	16
		150mm <sup>2</sup> 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.

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	

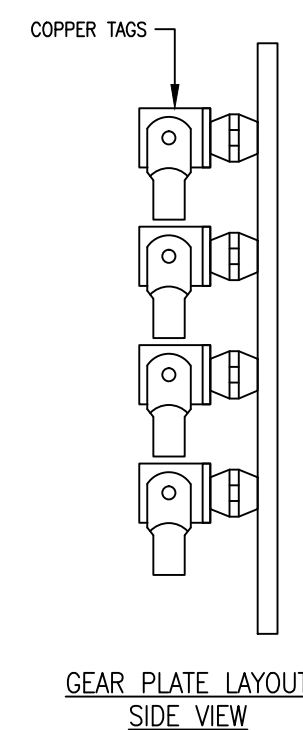
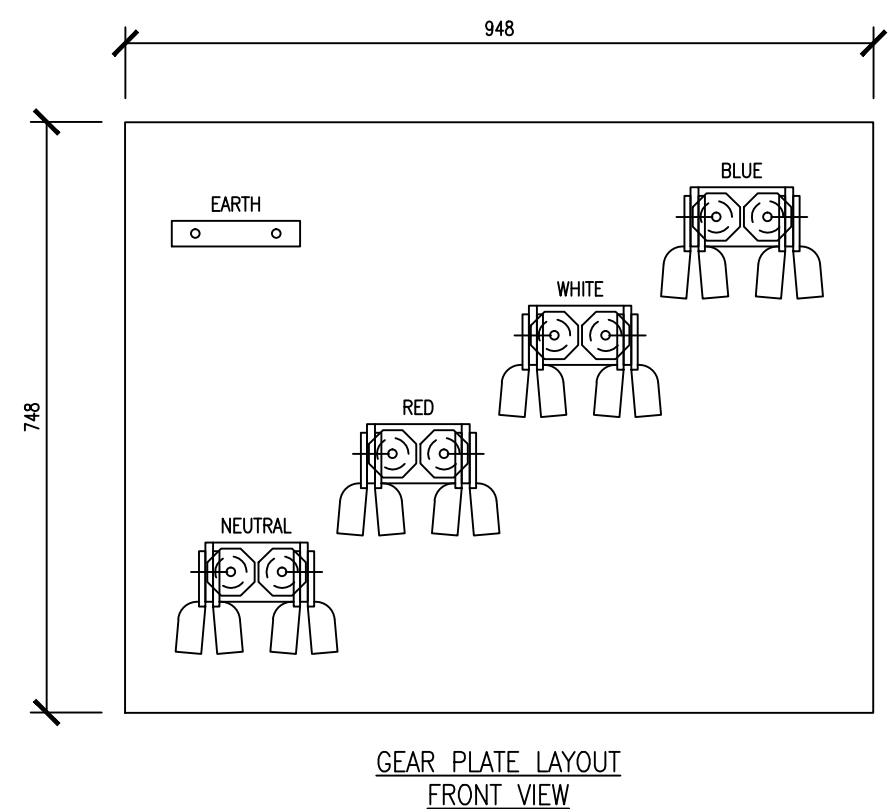
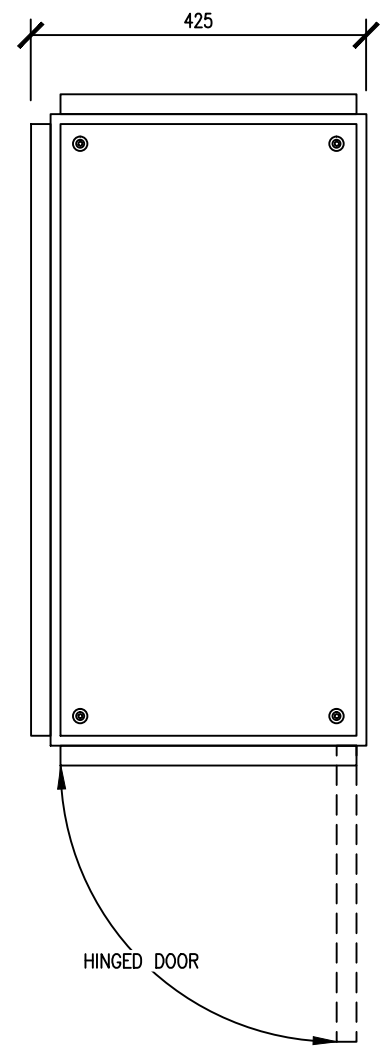
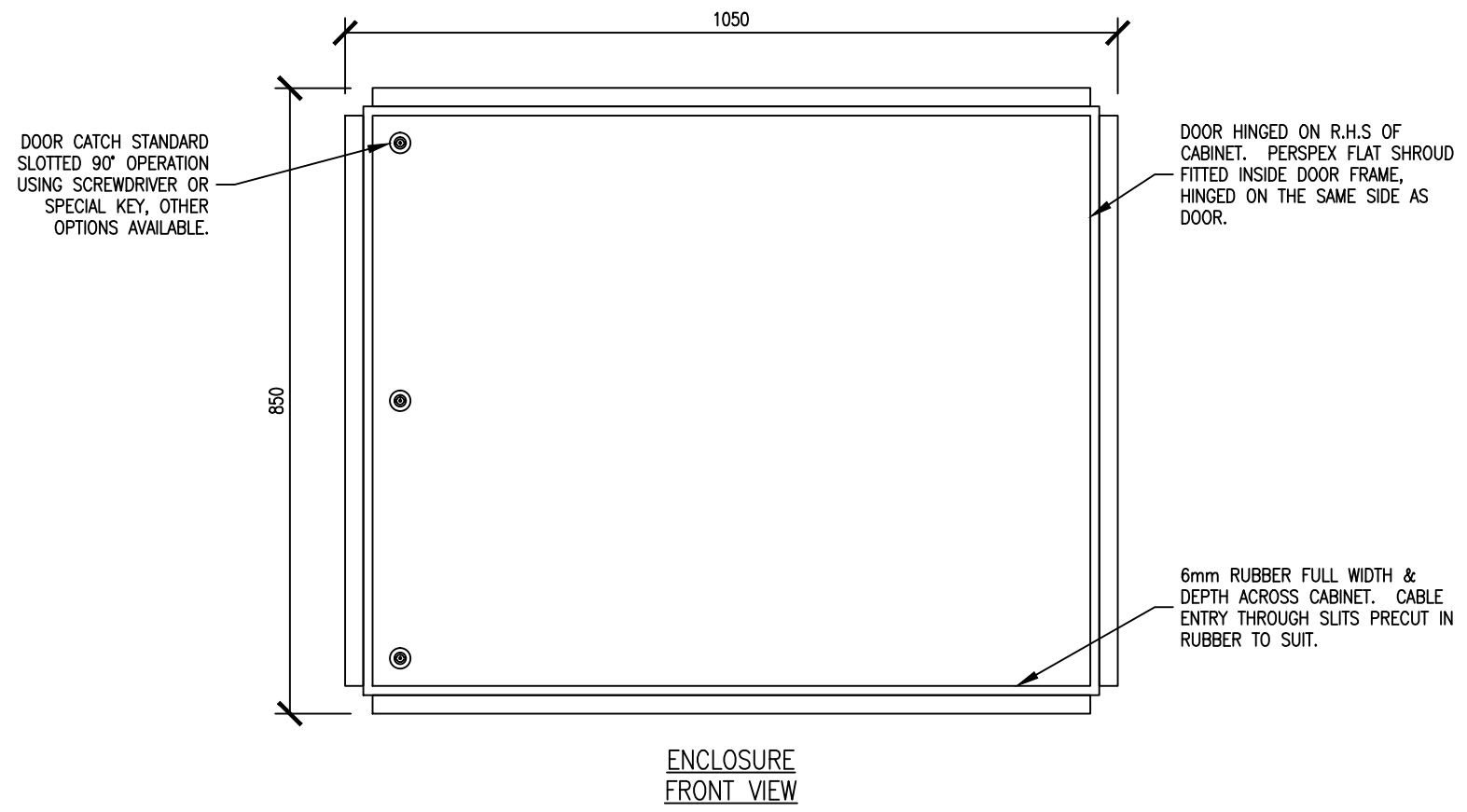
OPERATIONS

INFRASTRUCTURE

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WATERCARE SERVICES LIMITED  
STANDARD DRAWING  
800A GENERATOR CONNECTION BOX

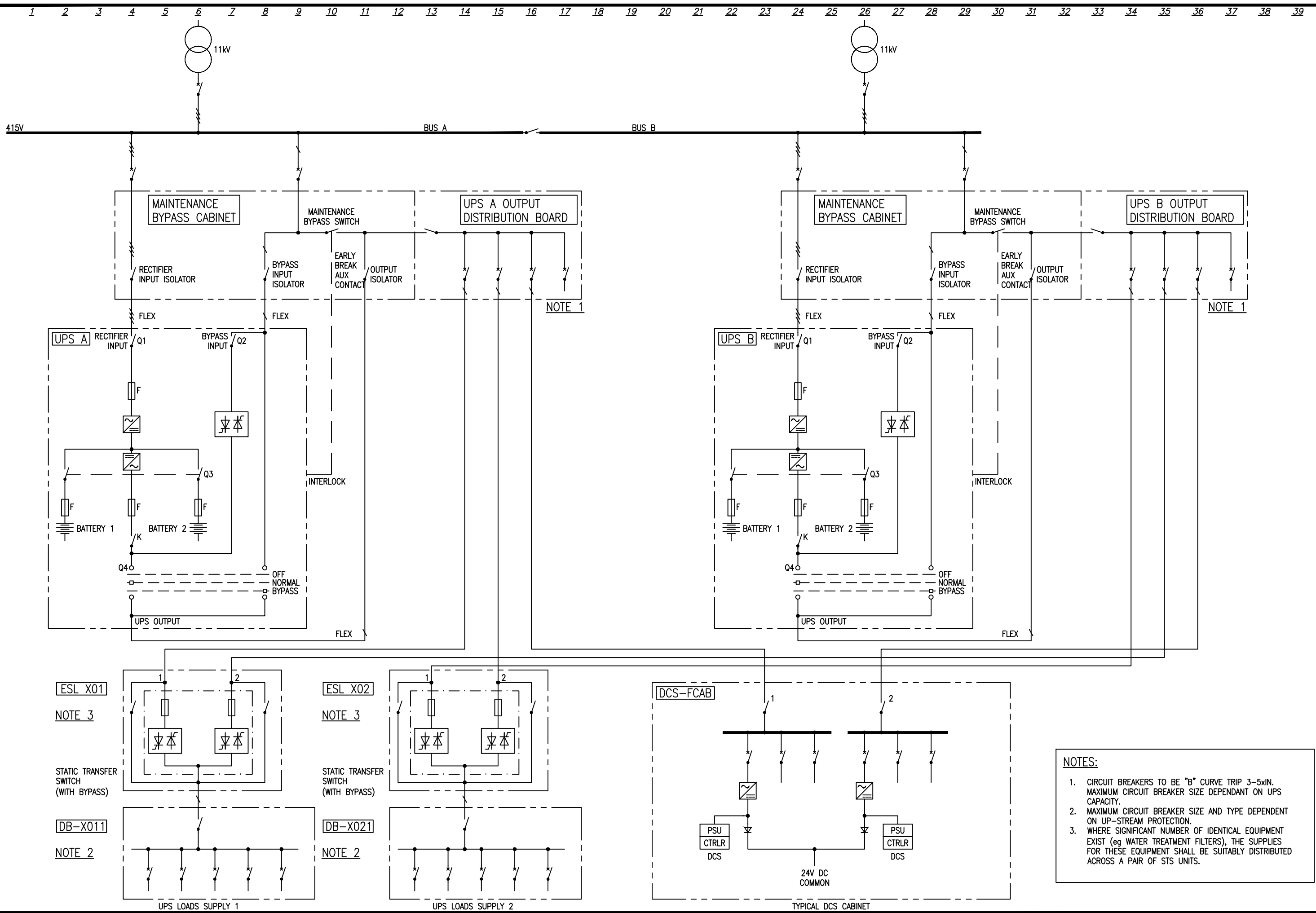
CAD FILE	2010140.031A	DATE	25:02:2015
ORIGINAL SCALE	A3	CONTRACT No.	-
REF No.	-	ISSUE	-
DWG No.	2010140	.031	A



GENERATOR CONNECTION BOX			
RATING	COPPER TAGS	CABLES	
		SIZE	QTY
1600A	75x10mm	500mm <sup>2</sup> Cu XLPE	16
		240mm <sup>2</sup> 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.



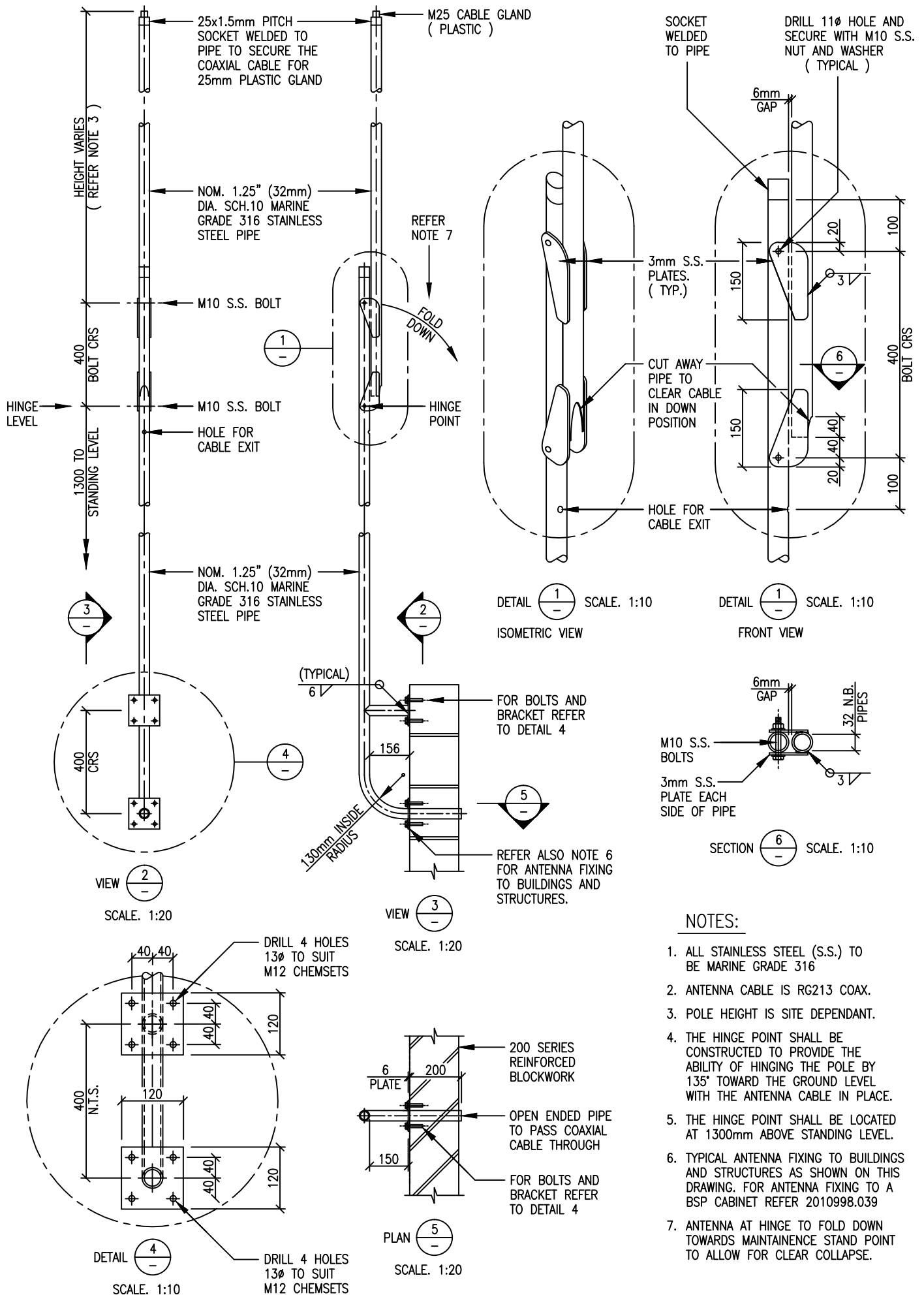


- NOTES:**
1. CIRCUIT BREAKERS TO BE "B" CURVE TRIP 3-5xIN. MAXIMUM CIRCUIT BREAKER SIZE DEPENDANT ON UPS CAPACITY.
  2. MAXIMUM CIRCUIT BREAKER SIZE AND TYPE DEPENDENT ON UP-STREAM PROTECTION.
  3. WHERE SIGNIFICANT NUMBER OF IDENTICAL EQUIPMENT EXIST (eg WATER TREATMENT FILTERS), THE SUPPLIES FOR THESE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







**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