

NEW HADEN PUMPS

P U M P I N G S O L U T I O N S



Customer: Skanska

Project Reference: Lime Street

Customer Order No: 400/S1944/2081

NHP Reference: P-214344

Control Philosophy for 2 pump DOL, Float Control

The control panel contains 2 DOL starters & necessary equipment for the control and protection of the pumps.

The pumps are controlled via four float switches, situated in the sump, which are operated from a 24VAC low voltage circuit in the panel.

The four floats are

- | | |
|----|------------------------|
| 1) | Stop float |
| 2) | Duty float |
| 3) | Standby / Assist float |
| 4) | High float |

On a rising level in the sump the stop float lifts (at this point no action is taken) and the level continues to rise until the duty float is raised. The selected duty pump is then started. The level falls in the sump until the stop float is in the down position and the duty pump stops.

After each pumping cycle the duty and standby pumps are rotated by the stepping relay situated in the panel.

In Duty Standby

If after reaching the Duty float the level continues to rise so that the Standby / Assist float is in the upright position the following action will be taken:

- The duty pump currently running will stop.
- The standby pump will then start, this will run until the stop float is in the down position.

In Duty Assist

If after reaching the Duty float the level continues to rise so that the Standby / Assist float is in the upright position the following action will be taken:

- The duty pump currently running will continue to run.
- The standby pump will then start, both pumps will run until the stop float is in the down position.

If the level in the sump continues to rise above the standby / assist level, the high level float is raised, sounding a buzzer, illuminating a lamp on the panel and closing a volt free contact. The volt free contact may be used to give an alarm signal to telemetry or remote alarm. The buzzer may be silenced at any time by pressing the cancel button located on the front door.

The Volt free contacts are:

- Pump 1 Over Load Trip
- Pump 2 Over Load Trip
- HLA

Protection

Short circuit protection is provided by HRC fuses.
Overload protection via a thermal overload relay situated in the control panel.
Supply to the panel is via a rotary mains isolator lockable in the off position.

Front Panel Layout

The following indicators are provided by multi cluster LED lamps:

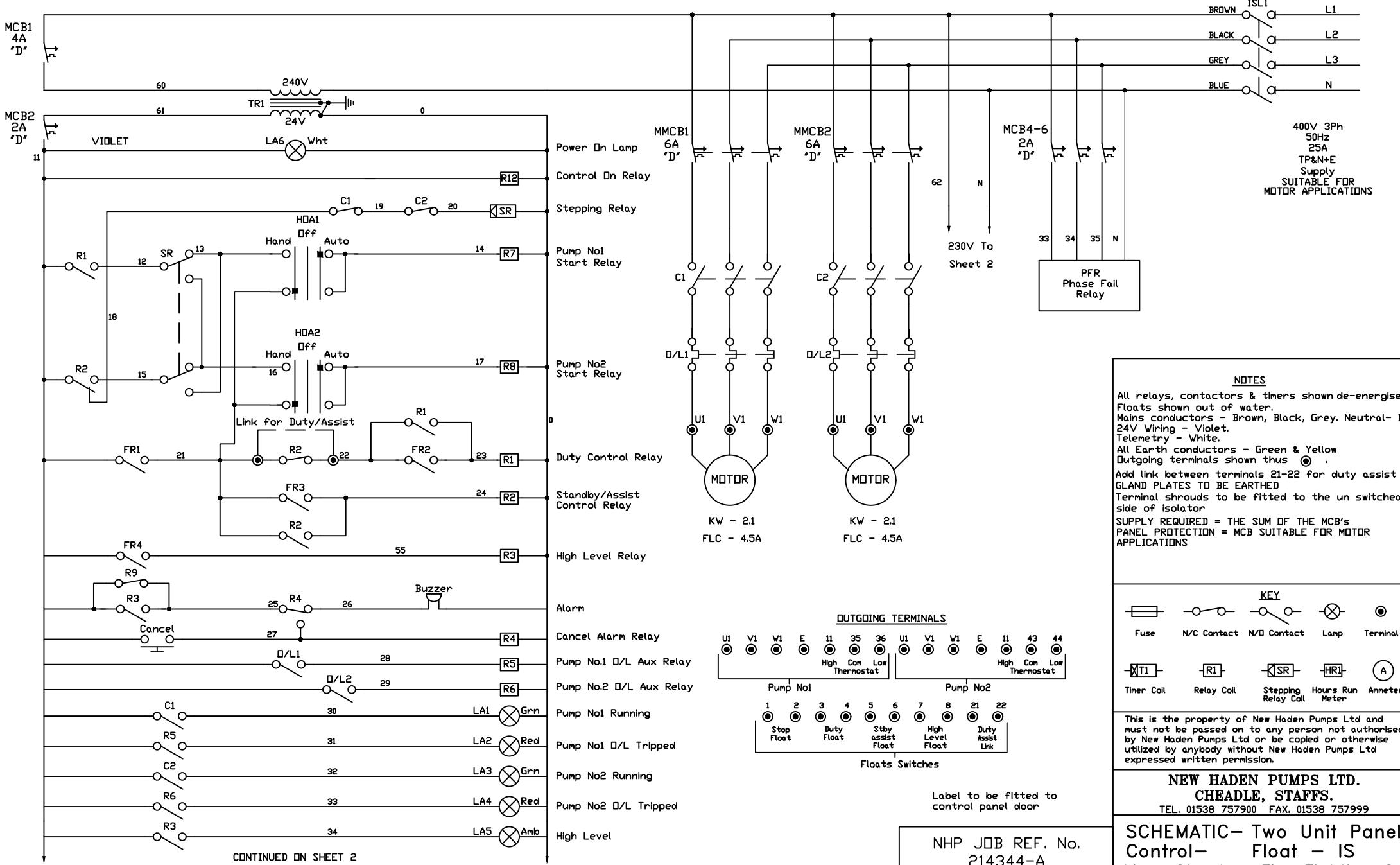
- Pump running Lamp for each pump.
- Pump Over load Tripped Lamp for each pump.
- Power available
- Hand-Off-Auto selector for each pump
- Cancel alarm push button
- Mains Rotary Isolator
- Wrong Rotation Indication – In the event of mains electrical power having incorrect phase rotation a lamp will indicate this fault which will enable a competent person to carry out remedial action without the need for NHP attendance.

Special Notes

NHP Reference: P-214344/A

Customer Reference: FFLSP/B2/01

This set has Ex rated pumps with the additional feature of “Lock Out” in the event of pump over temperature, these pumps have to be manually reset in the event of pump over temperature via door mounted push buttons.



400V 3Ph
50Hz
25A
TP&N+E
Supply
SUITABLE FOR
MOTOR APPLICATIONS

NOTES

All relays, contactors & timers shown de-energised.
Floats shown out of water.
Mains conductors - Brown, Black, Grey. Neutral- Blue
24V Wiring - Violet.
Telemetry - White.
All Earth conductors - Green & Yellow
Outgoing terminals shown thus .
Add link between terminals 21-22 for duty assist
GLAND PLATES TO BE EARTHEDE
Terminal shrouds to be fitted to the un switched
side of isolator
SUPPLY REQUIRED = THE SUM OF THE MCB's
PANEL PROTECTION = MCB SUITABLE FOR MOTOR
APPLICATIONS

KEY	
	Fuse
	N/C Contact
	N/O Contact
	Lamp
	Terminal
	Timer Coil
	Relay Coil
	Stepping Relay Coil
	Hours Run Meter
	Ammeter

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CHEADLE, STAFFS.
TEL. 01538 757900 FAX. 01538 757999

NHP JOB REF. No.
214344-A

CLIENT: SKANSKA RASHLEIGH	
SHT 1 OF 2	W.D. REF P214344-A0
DRG. No. ED214344-A0	DATE 07/01/16 DR'N JG

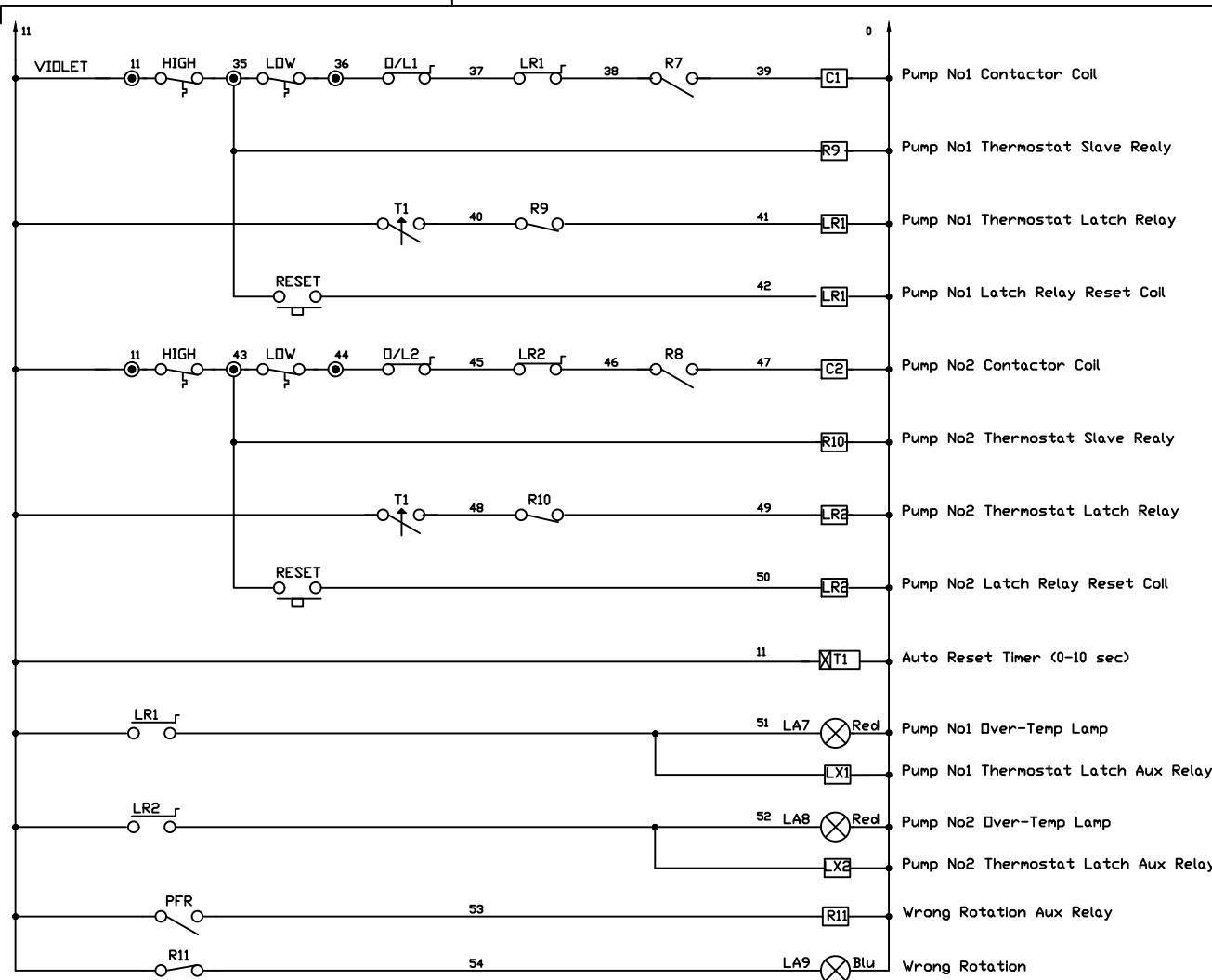
OUTGOING TERMINALS											
Pump No1						Pump No2					
U1	V1	W1	E	11	35	36	U1	V1	W1	E	11
High Com Low Thermostat						High Com Low Thermostat					
1	2	3	4	5	6	7	8	21	22		
Stop Float	Duty Float			Stby Assist Float		High Level Float		Duty Assist Link			

Label to be fitted to
control panel door

Pump No1	Pump No2
1 Stop Float	
2 Duty Float	
3 Stby Assist Float	
4 High Level Float	
5 Duty Assist Link	
6	
7	
8	
21	
22	

FLOATS SWITCHES

Label to be fitted to
control panel door



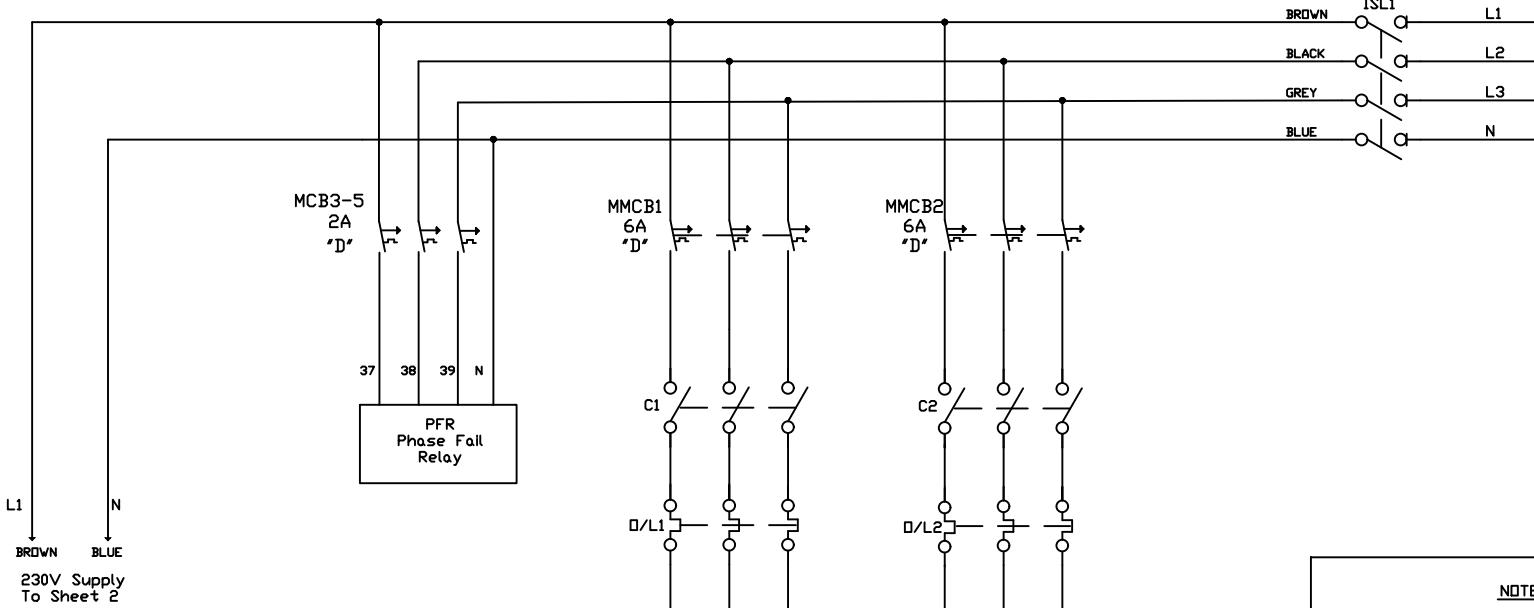
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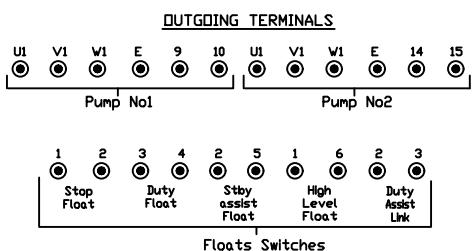
NHP JOB REF. NO.
214344-A

SCHEMATIC— Two Unit Panel
Control— Float – IS
Lime Street — Fire Fighting Set

REV.	DR/N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH									
												DUTY / ASSIST	SHT 2 OF 2 W.D. REF P214344-A0
												DUTY / ASSIST	DRG. No. ED214344-A0 DATE 07/01/16 DR/N JG



400V 3Ph
50Hz 4w
20A
TP&N+E
Supply
SUITABLE FOR
MOTOR APPLICATIONS



Label to be fitted to control panel door

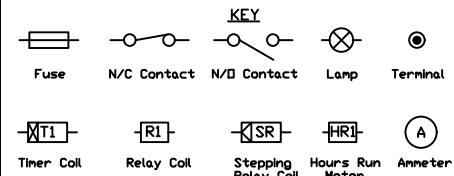
NHP JOB REF. No.
214344-B

CLIENT: SKANSKA RASHLEIGH

SHEET 1 OF 2	W.D. REF P214344-B0
DRG. No. ED214344-B0	DATE 07/01/16 DR'N JG

NOTES

All relays, contactors & timers shown de-energised.
Floats shown out of water.
Mains conductors - Brown, Black, Grey. Neutral- Blue.
24V Wiring - Violet.
Telemetry - White.
All Earth conductors - Green & Yellow
Outgoing terminals shown thus .
If there are no Thermostats fitted link between terminals 9 - 10 & 14 - 15.
Add link between terminals 2-3 for duty assist
GLAND PLATES TO BE EARTHED
Terminal shrouds to be fitted to the un switched side of Isolator
SUPPLY REQUIRED = THE SUM OF THE MCB's
PANEL PROTECTION = MCB SUITABLE FOR MOTOR APPLICATIONS



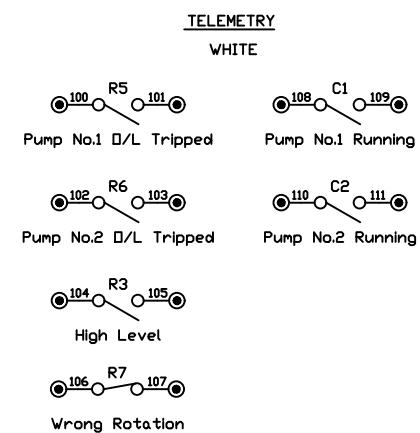
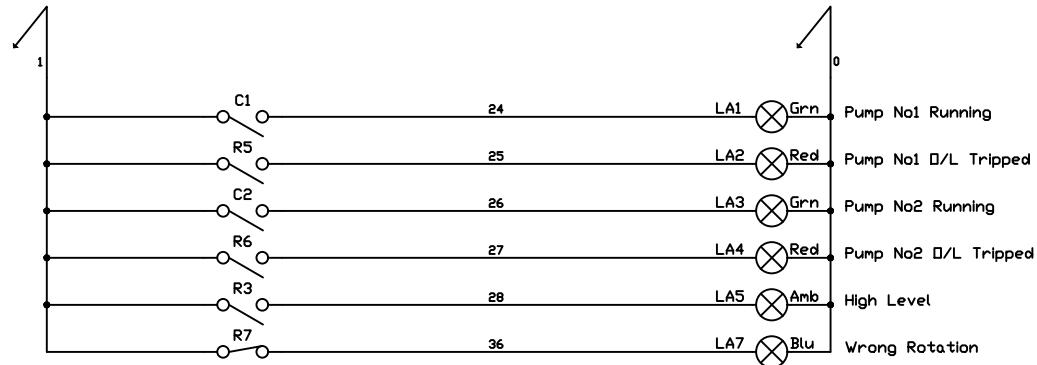
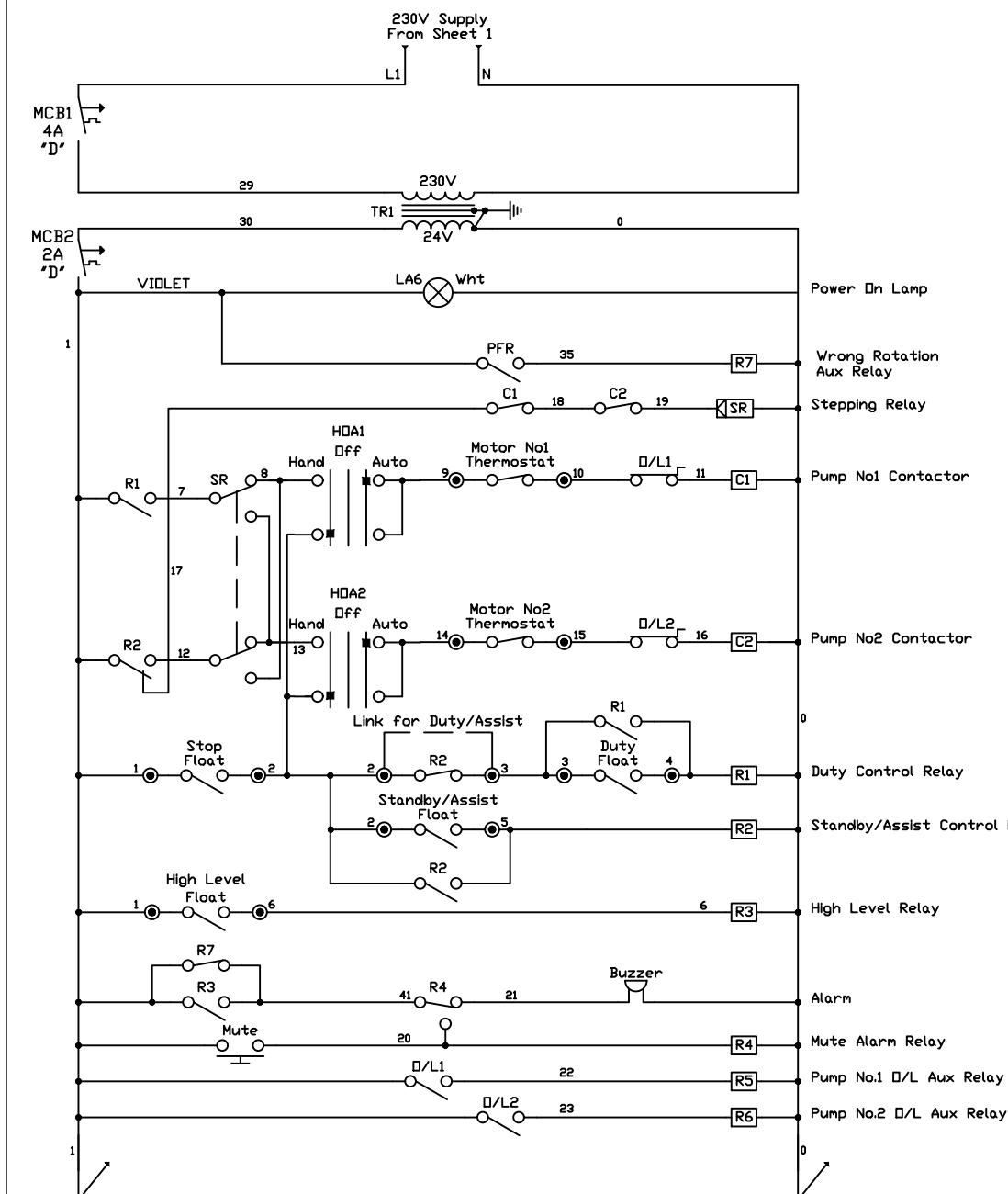
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CHEADLE, STAFFS.

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SCHEMATIC - Two Unit Panel Control - Float
LIME STREET - B3 SUMP SET

REV.	DR'N	DATE	REV.	DR'N	DATE	REV.	DR'N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH
									DUTY / STANDBY	



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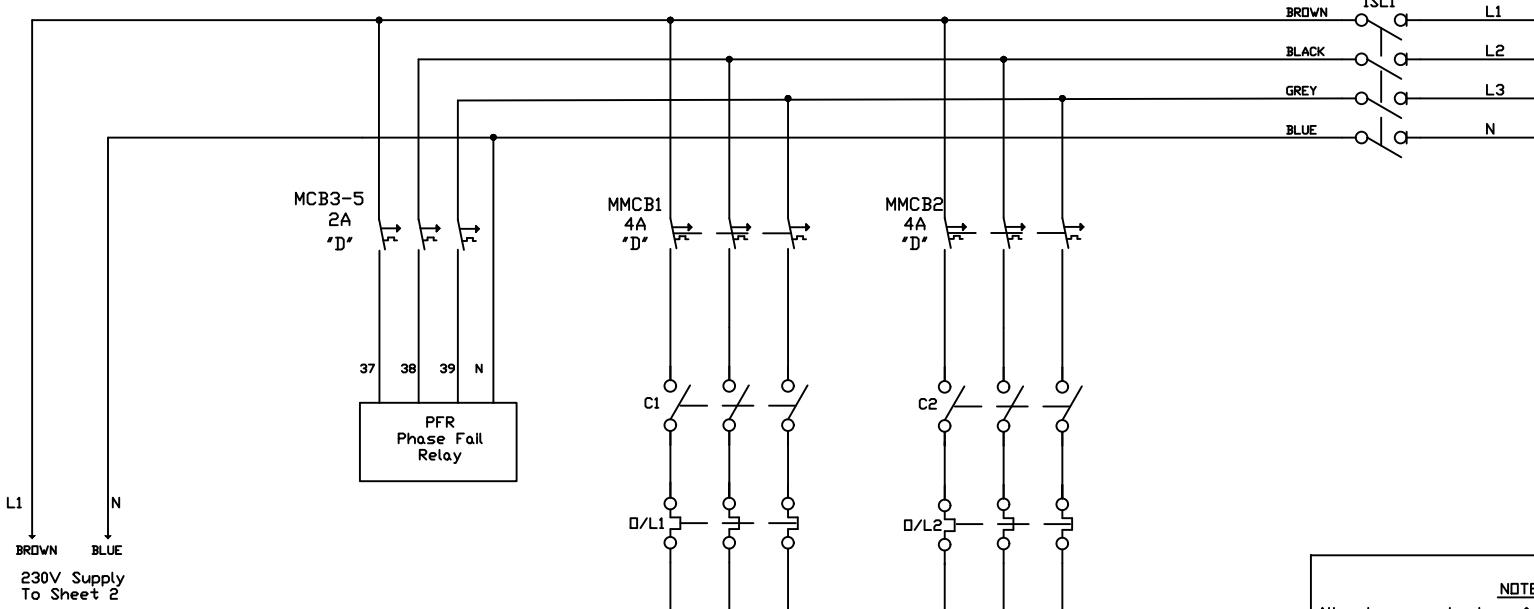
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SCHEMATIC— Two Unit Panel
Control— Float
LIME STREET — B3 SUMP SET

NHP JOB REF. No.
214344-B

CLIENT: SKANSKA RASHLEIGH

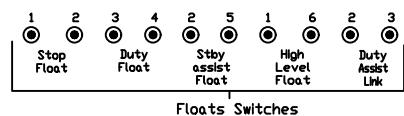
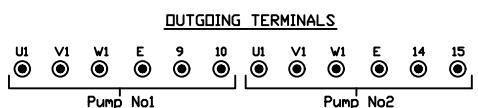
REV.	DR/N	DATE	CONTROL SEQUENCE										
												DUTY / STANDBY	
												SHEET 2 OF 2	W.D. REF P214344-B0
												DRG. No. ED214344-B0	DATE 07/01/16 DR/N JG



230V Supply
To Sheet 2

BROWN ISL1 L1
BLACK O O L2
GREY O O L3
BLUE O O N

400V 3Ph 50Hz 4w
16A TP&N+E Supply
SUITABLE FOR MOTOR APPLICATIONS



Label to be fitted to control panel door

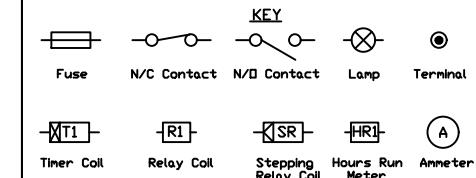
NHP JOB REF. No.
214344-C

SCHEMATIC— Two Unit Panel Control— Float
LIME STREET — B2 SUMP SET

REV.	DR/N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH									
												DUTY / STANDBY	SHEET 1 OF 2 W.D. REF P214344-C0
												DUTY / STANDBY	DRG. No. ED214344-C0 DATE 07/01/16 DR/N JG

NOTES

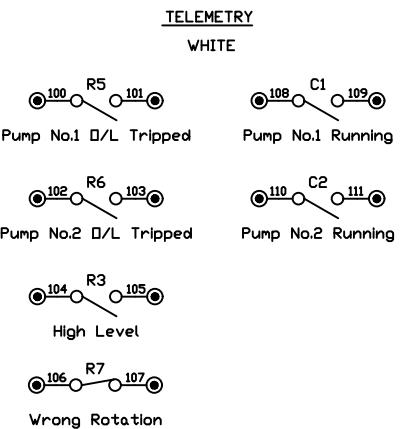
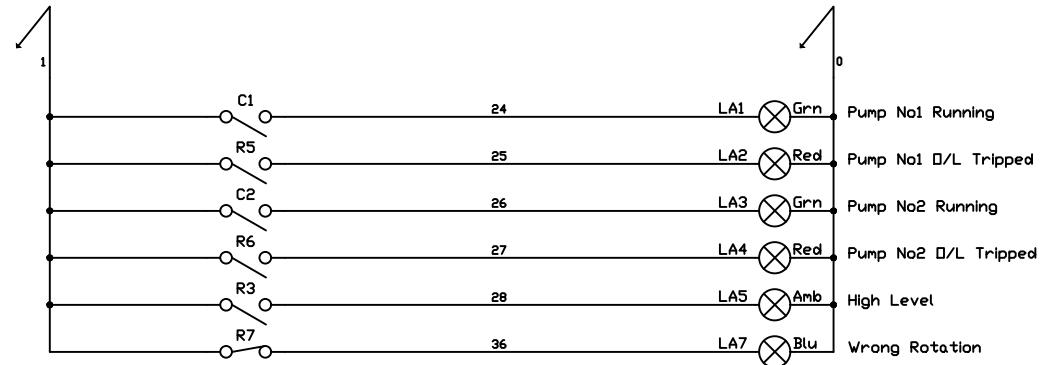
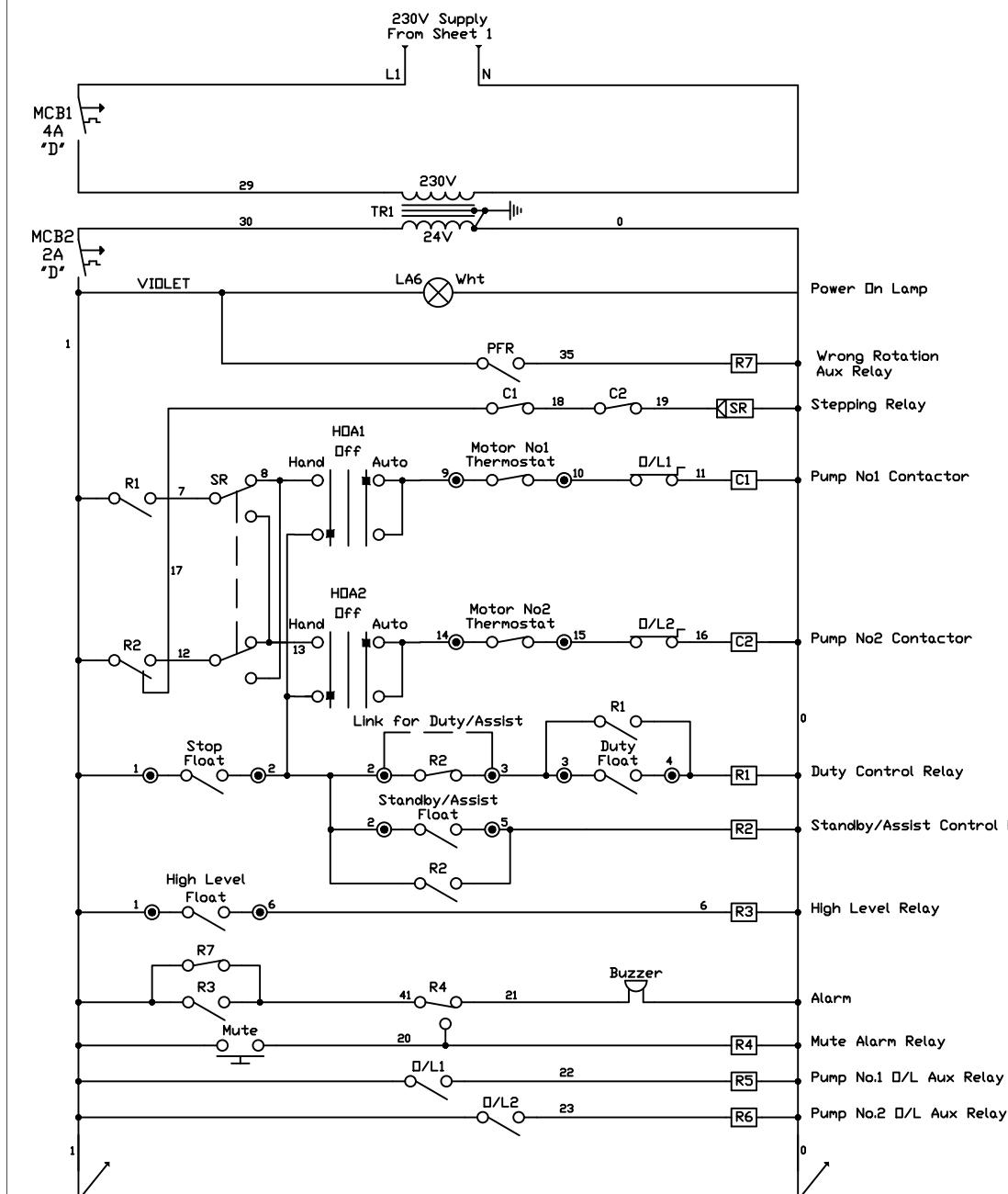
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 Floats shown out of water.
 Mains conductors - Brown, Black, Grey. Neutral- Blue.
 24V Wiring - Violet.
 Telemetry - White.
 All Earth conductors - Green & Yellow
 Outgoing terminals shown thus .
 If there are no Thermostats fitted link between terminals 9 - 10 & 14 - 15.
 Add link between terminals 2-3 for duty assist
 GLAND PLATES TO BE EARTHED
 Terminal shrouds to be fitted to the un switched side of Isolator
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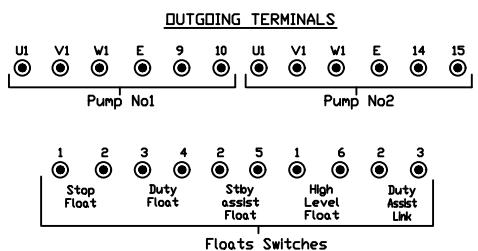
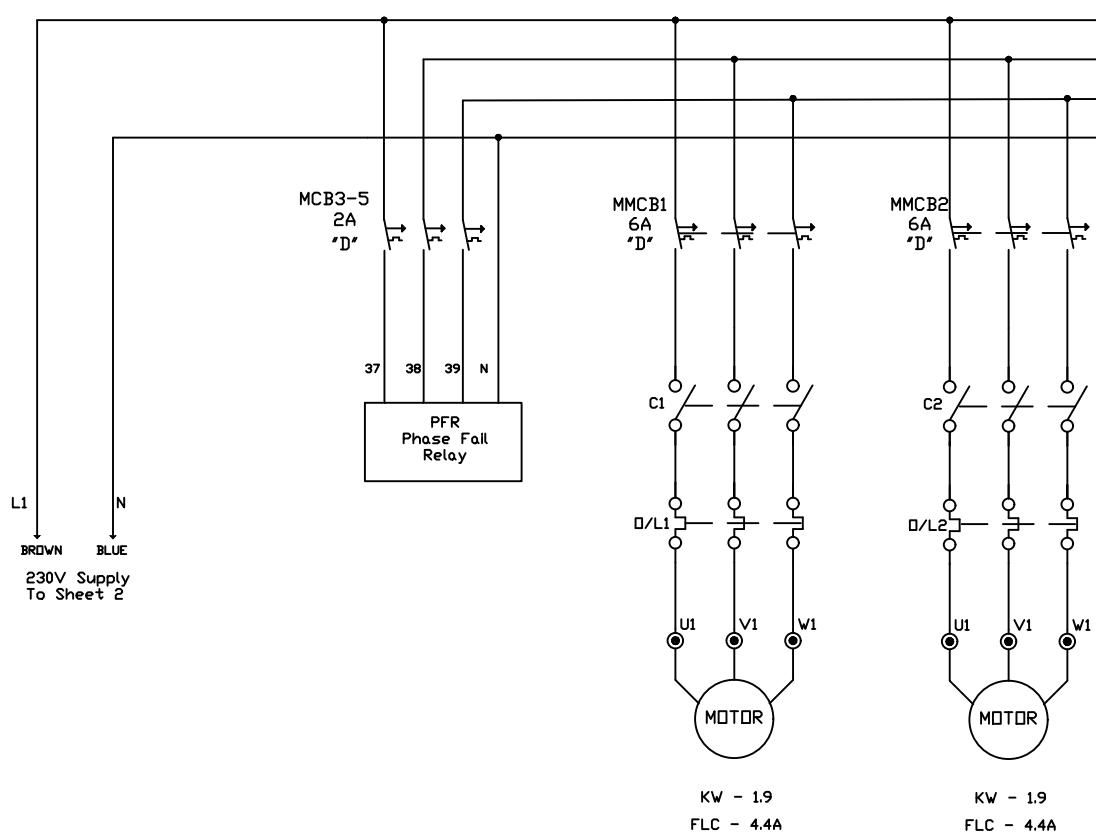
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SCHEMATIC— Two Unit Panel
Control— Float
LIME STREET — B2 SUMP SET

NHP JOB REF. No.
214344-C

REV.	DR/N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH									
												DUTY / STANDBY	SHEET 2 OF 2 W.D. REF P214344-C0
													DRG. No. ED214344-C0 DATE 07/01/16 DR/N JG

400V 3Ph
 50Hz 4w
 20A
 TP&N+E
 Supply
 SUITABLE FOR
 MOTOR APPLICATIONS



Label to be fitted to control panel door

NHP JOB REF. No.
214344-D

CONTROL SEQUENCE

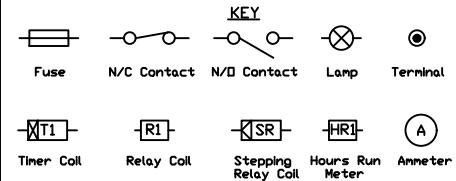
CLIENT: SKANSKA RASHLEIGH

SHEET 1 OF 2 W.D. REF P214344-D0

DRG. No. ED214344-D0 DATE 07/01/16 DR'N JG

NOTES

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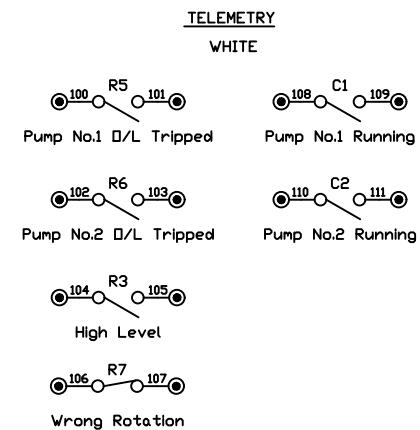
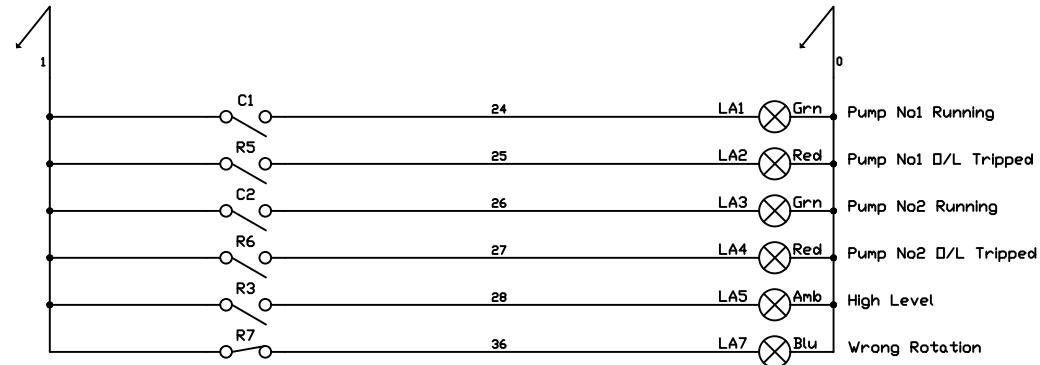
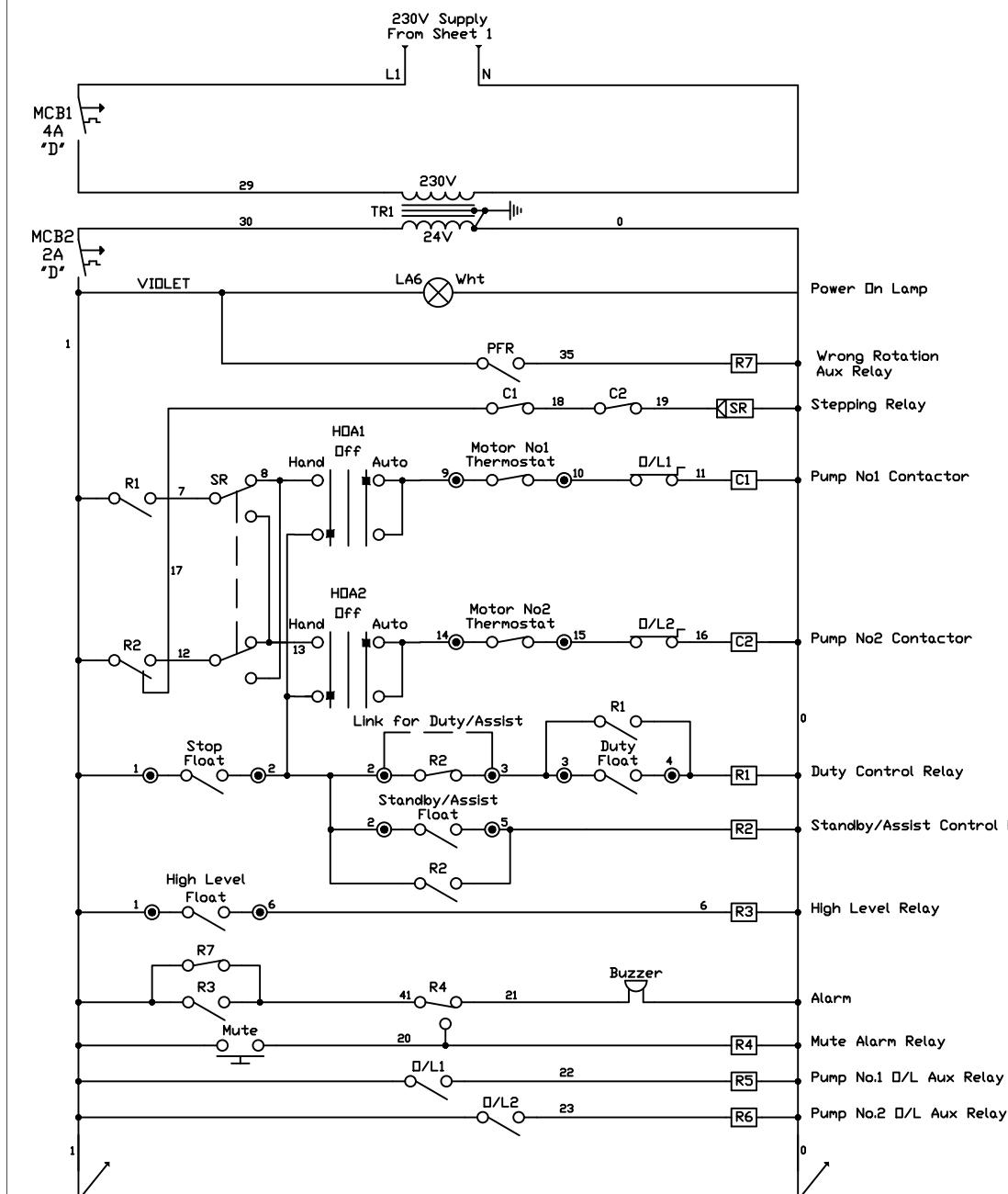
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SCHEMATIC - Two Unit Panel Control - Float
LIME STREET - FOUL SET

REV.	DR'N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH									
												DUTY / STANDBY	



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SCHEMATIC— Two Unit Panel
Control— Float
LIME STREET — FOUL SET

NHP JOB REF. No.
214344-D

REV.	DR/N	DATE	CONTROL SEQUENCE	CLIENT: SKANSKA RASHLEIGH									
												DUTY / STANDBY	SHEET 2 OF 2 W.D. REF P214344-D0
													DRG. No. ED214344-D0 DATE 07/01/16 DR/N JG