ESP

Mount Road, Gorton, Manchester

Surface Water Pumping Station

Developer:
Kellen Homes Limited

First Floor
103 Dalton Avenue
Birchwood Park
Warrington
WA3 6YF

Drainage Design;
Ironside Farrar
3 Worsley Court
High Street
Worsley
Manchester
M28 3NH

Prepared by:
Pump Supplies Ltd

[redacted]

Revision B

19/09/2025

Contents:

- Station Design
- Technical Specification
- Hydraulic Calculations for Wet Well
- System Specification and Storage Check
- Discharge Pipework and Rising Main Calculations
- Pump Selection and Performance Curves
- Electrical Schematic Drawings
- Pump Station Drawings
- Penstock Details
- Valve Specification
- Access Covers
- Lifting Equipment
- Hazardous Area Risk Assessment

STATION DESIGN

Pumping Station Technical Specification

Site Reference

Mount Road, Gorton - Surface Water Pumping Station.

Station Design

The Mount Road scheme is a residential development in Gorton, Manchester by Kellen Homes, where the surface & storm water can't be drained by gravity therefore a type 3 pumping station to be constructed. The pumping station has been designed in compliance with the ESP addendum. The maximum allowable discharge has been restricted to 10.0 lts/sec as specified, this has been achieved with the installation of a hydro break located in the upstream MH, and with the selected pumps having a maximum output of circa 10.1 lts/sec the total is deemed acceptable. The proposed pumps that we have selected are capable of delivering to the termination point some 236 meters away at the gravity manhole, whilst maintaining a self-cleansing velocity of 1.24mts/sec as per DCG V2.1 hydraulic design of rising mains.

We have opted for the new range of Xylem NP 3102 MT submersible pumps fitted with a semi-open channel impeller, ideal for most water applications where clogging may occur. The selected pumps are of a modular design fitted with a 3.1Kw 4-pole motor.

The station is designed to remove surface water from the site through a pumped main, [125mm HPPE PE SDR11] to a gravity discharge manhole 236 meters away with an invert of 61.953m. Following a site survey, it has been confirmed that the discharge will be open under all conditions. The main has an undulating profile with a washout chamber required at a low point on the rising main at chainage 87.569. An air release valve has been incorporated within the valve chamber to prevent air entrapment during the pumping cycles with this being a high point in the system.

In the event of pump failure all storage requirements as per DCG V2.1 and ESP addendum have been adhered to; all supporting documentation is supplied by Ironside Farrar under a separate cover.

The design of the control panel is a standard template as per the DCG specification, and is conforming to ESP addendum.

TECHNICAL SPECIFICATION

Pumping Station Technical Specification

Site Reference

Mount Road, Gorton – Surface Water P.S

No. of Pumps	:	**2**
Pump Type	:	**Xylem NP 3102 MT**
Liquid Handled	:	**Surface Water**
Capacity Per Pump	:	**10.0 lts per second**
Head Generated	:	**8.95 meters.**
Impeller Design	:	**462 Adaptive**
Motor Rating	:	**3.1 Kw**
Max. Motor Speed rpm	:	**1450 rpm**
Electric Supply	:	**3ph,415,50hz**
Full Load Current	:	**6.8 amps**
Method of Starting	:	**DOL**
Level Controls	:	**Siemens Hydroranger**
Chamber Diam. mm	:	**2400mm**
Internal Sump Diam. mm	:	**2400mm**
Total Chamber Depth m	:	**4.6 metres**
Pipes and Valves mm	:	**100mm EN598**
Final Discharge mm	:	**100mm Ductile Iron**
Baffle Plate	:	**Galvanised Steel Baffle Plate for the 225mm Inlet**
Access Cover (s)	:	**Wet Well:** **Twin lid 1500 x 900 clear opening** **Valve Chamber:** **Six lid 2700 x 1800 clear opening**
Inlet Connection (s)	:	**225mm**
M&E Layout Drawing	:	**24-073**

HYDRAULIC CALCULATIONS FOR WET WELL

IWNL

Pumping Station Technical Specification

Site Reference

Mount Road, Gorton - Surface Water Pumping Station.

Hydraulic Calculations to determine the capacity of the wet well.

Maximum Storm water inflow from area [REFA Specification] 10lts. /sec Max.

Volume between stop & start level in well 200mm = [Q of flow out – 50% of flow in] x time to empty.

Volume between stop & start in 2400mm wet well [200mm] = 904.8 lts

Assuming the pumping rate is 10.1 lts/sec. [Mid water level start].

Time for sump to empty = 904.8lts ÷ [10.1 – 5.05] = 179.16 seconds

Time taken for sump to fill [assuming 50% of max inflow] = 904.8 ÷ 5.05 = 179.16 seconds

Time taken for full cycle = 179.16 + 179.16 = 358.32 secs

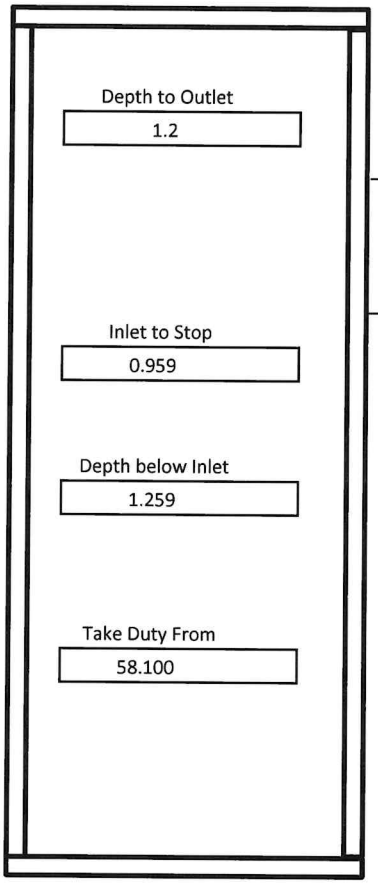
Max starts = 3600 ÷ 348 = 10.04 times/hour.

SYSTEM SPECIFICATION AND STORAGE CHECK

Clients Name	Kellen Homes
Site Address	Mount Road, Manchester

Adopting Auhtority	ESP	
Station Type	Duel Submersible	Surface
Total No. of Units	147	
Area A (Residential)	Not applicable	Litres per second
Area A (50% Design)		Litres per second
Area C (Non-Residential)	restricted to 10 l/s	Litres per second
Number of Pumps	2	
Number of Duty Pumps	1	

Cover Level	62.300
VC Outlet	61.100
Flood Level 1 in 30 year storm	60.390
225 Inlet	58.959
HLA	58.450
P2 Start	58.350
P1 Start	58.200
Mid Water	58.100
Stop Level	58.000
Dead Area	0.3000
Base Level	57.700



High Point
61.953

Discharge manhole
61.953
Static Head
3.853

Rising Main Length (mtrs)
236

Peak Inflow (Area C)	10 l/s
Max Pump Discharge Rate	10.4 l/s
Rising Main I.D (mtr)	0.1013
Velocity in Main	1.06 m/s
E Storage at 160L/dwell (m3)	N/A
Emergency storage at 1hr Peak	N/A
Total emergency storage	Ironside Fa
Pump Chamber capacity (m3)	8.78
above HLA/below inlet (m3)	2.30

Wet Well Diameter	2.40	mtr
Wet Well Radius	1.20	mtr
Pump Sump Diameter	2.40	mtr
Calc Chamber Depth	4.60	mtr
Actual Chamber Depth	4.60	mtr
Max Theoretical Starts	10.04	Per hr
Actual Starts	5.02	Per Pump.

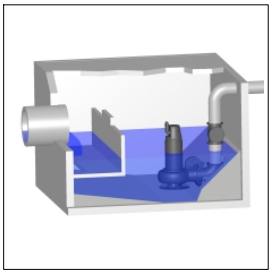
Volume Per M (M3)	4.524
Volume Per M (ltrs)	4524
Depth Between Starts (mtr)	0.20
Theoretical Op Volume	0.90
Actual Op Volume (ltrs)	904.8
Rising Main Volume (ltrs)	1,902.0
Combined Main & Op Vol (ltrs)	2,806.8

Dwf Inflow per Day	N/A
No. of Main Clears per Day	N/A
Retention Hrs Full Usage	N/A
Retention Hrs Half Usage	N/A

DISCHARGE PIPEWORK

&

RISING MAIN CALCULATIONS



Friction loss calculation

Pumped fluid Water, pure	**Static head** 3.85	**Layout** Wet well installation
Flow 10 l/s	**Number of pumps** 1	**Calculation model** Colebrook-White
Viscosity 1.569 mm²/s	**Nature of system** Single head pump	

Type	Ø (mm)	? or L	Qty.	v (m/s)	k (mm)	ΔH (m)
Ø = Diameter v = Velocity k = Pipe roughness ΔH = Head loss						
Common discharge side pipe - GB / Cast iron						
CLind / DN 100 (100) / K factor for Wastewater acc. DWA-A110						
Pipe length	96.6	9 m	1	1.364	0.15	0.2139
Discharge Connection	96.6	0.3	1	1.364		0.02847
Elbows	96.6	0.6	2	1.364		0.05693
Non-return valves	96.6	0.9	1	1.364		0.0854
T-piece	96.6	0.8	2	1.364		0.07591
Valve	96.6	0.6	2	1.364		0.05693
Total friction head						**0.5176**
Common discharge side pipe - GB / HPPE (PE100)						
SDR11 / DN 125 (125) / K factor for Wastewater acc. DWA-A110						
Pipe length	101.3	236 m	1	1.241	0.15	4.405
Elbows	101.3	0.6	2	1.241		0.04708
Outlet	101.3	1	1	1.241		0.07847
T-piece	101.3	0.4	1	1.241		0.03139
Valve	101.3	0.3	1	1.241		0.02354
Total friction head						**4.585**
Friction loss head						5.103 m
Total static head						3.85 m
Total head						**8.953 m**

PUMP SELECTION

&

PERFORMANCE CURVES

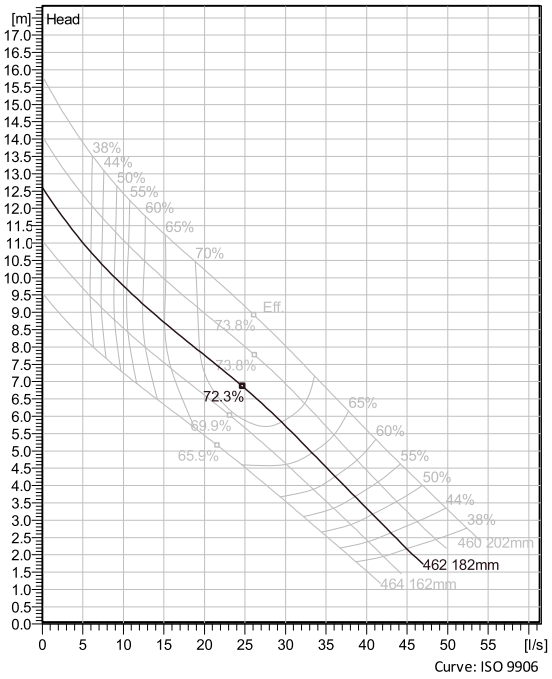
NP 3102 MT 3~ Adaptive 462

Patented self cleaning semi-open channel impeller, ideal for pumping in most waste water applications. Modular based design with high adaptation grade.

Technical specification



Curves according to: Water, pure Water, pure [100%],4 °C,999.9 kg/m³,1.5692 mm²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Configuration

Motor number
N3102.160 18-11-4AL-W 3.1KW

Installation type
P - Semi permanent, Wet

Impeller diameter
182 mm

Discharge diameter
100 mm

Pump information

Impeller diameter
182 mm

Discharge diameter
100 mm

Inlet diameter
100 mm

Maximum operating speed
1455 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Grey cast iron

Stator housing material
Grey cast iron

Project		**Created by**	Ben Barron		
Block		**Created on**	7/16/2025	**Last update**	7/16/2025

NP 3102 MT 3~ Adaptive 462

Technical specification

Motor - General

Motor number N3102.160 18-11-4AL-W 3.1KW	**Phases** 3~	**Rated speed** 1455 rpm	**Rated power** 3.1 kW
Approval No	**Number of poles** 4	**Rated current** 6.6 A	**Stator variant** 62
Frequency 50 Hz	**Rated voltage** 400 V	**Insulation class** H	**Type of Duty** S1
Version code 160			

Motor - Technical

Power factor - 1/1 Load 0.79	**Motor efficiency - 1/1 Load** 85.4 %	**Total moment of inertia** 0.0265 kg m²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.72	**Motor efficiency - 3/4 Load** 86.0 %	**Starting current, direct starting** 38 A	
Power factor - 1/2 Load 0.60	**Motor efficiency - 1/2 Load** 84.8 %	**Starting current, star-delta** 12.7 A	

Project		**Created by**	Ben Barron		
Block		**Created on**	7/16/2025	**Last update**	7/16/2025

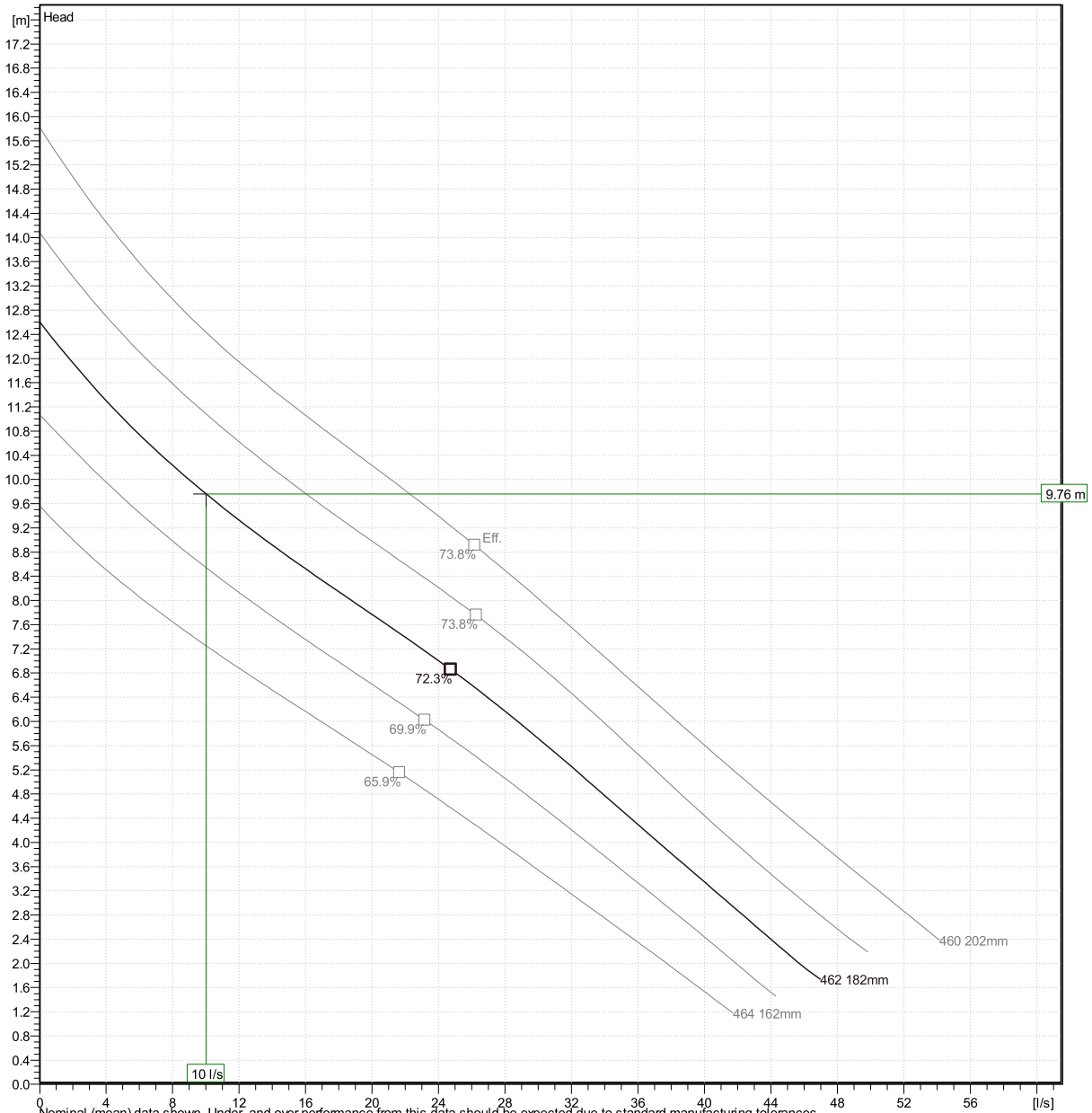
NP 3102 MT 3~ Adaptive 462

Performance curve

Duty point

Flow	Head
10 l/s	9.76 m

Curves according to: Water, pure Water, pure [100%],4 °C,999.9 kg/m³,1.5692 mm²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Curve: ISO 9906

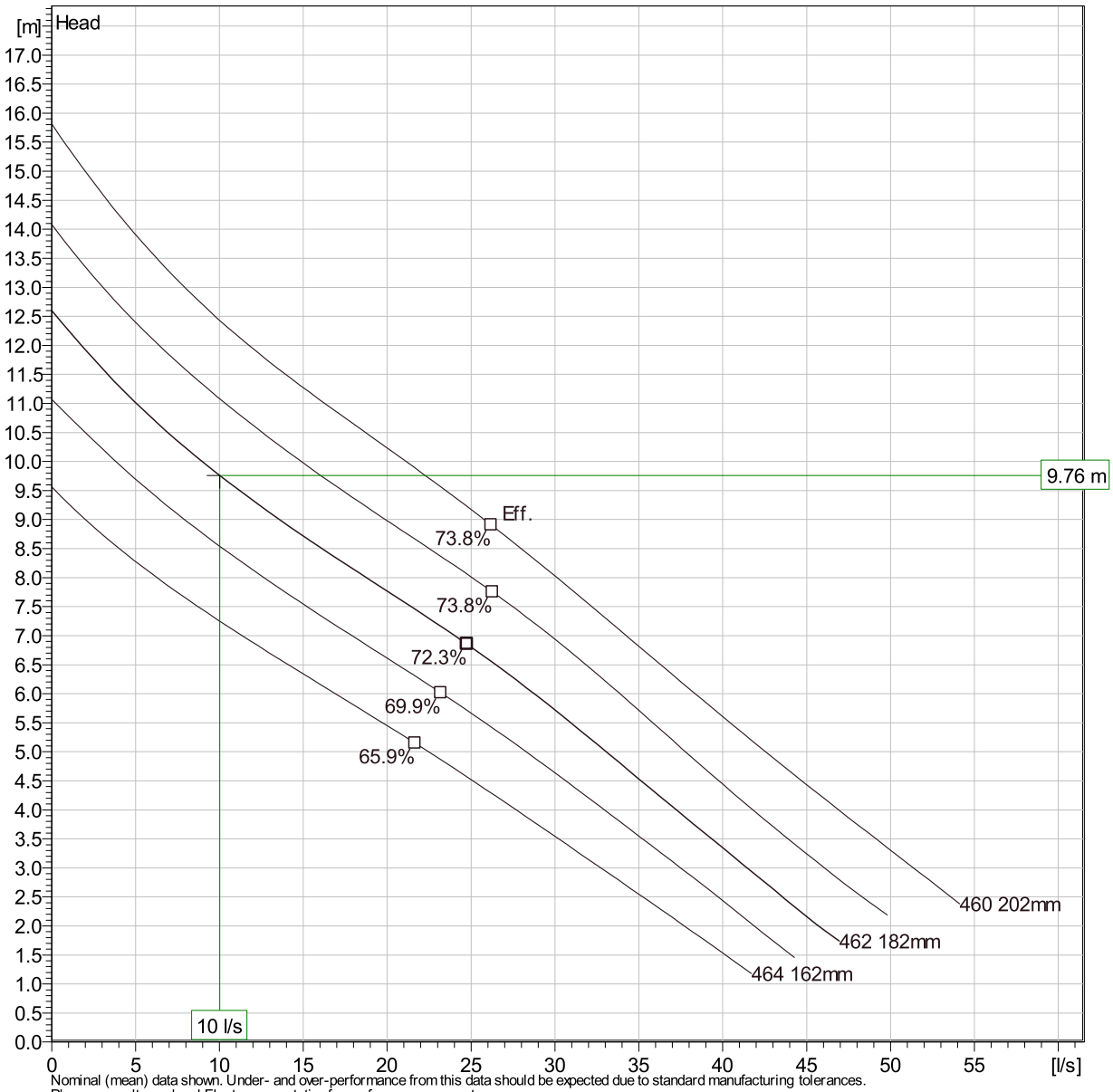
Ben Barron

Created on 7/16/2025 **Last update** 7/16/2025

NP 3102 MT 3~ Adaptive 462

Duty Analysis

Curves according to: Water, pure [100%] ; 4°C; 999.9kg/m³; 1.5692mm²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

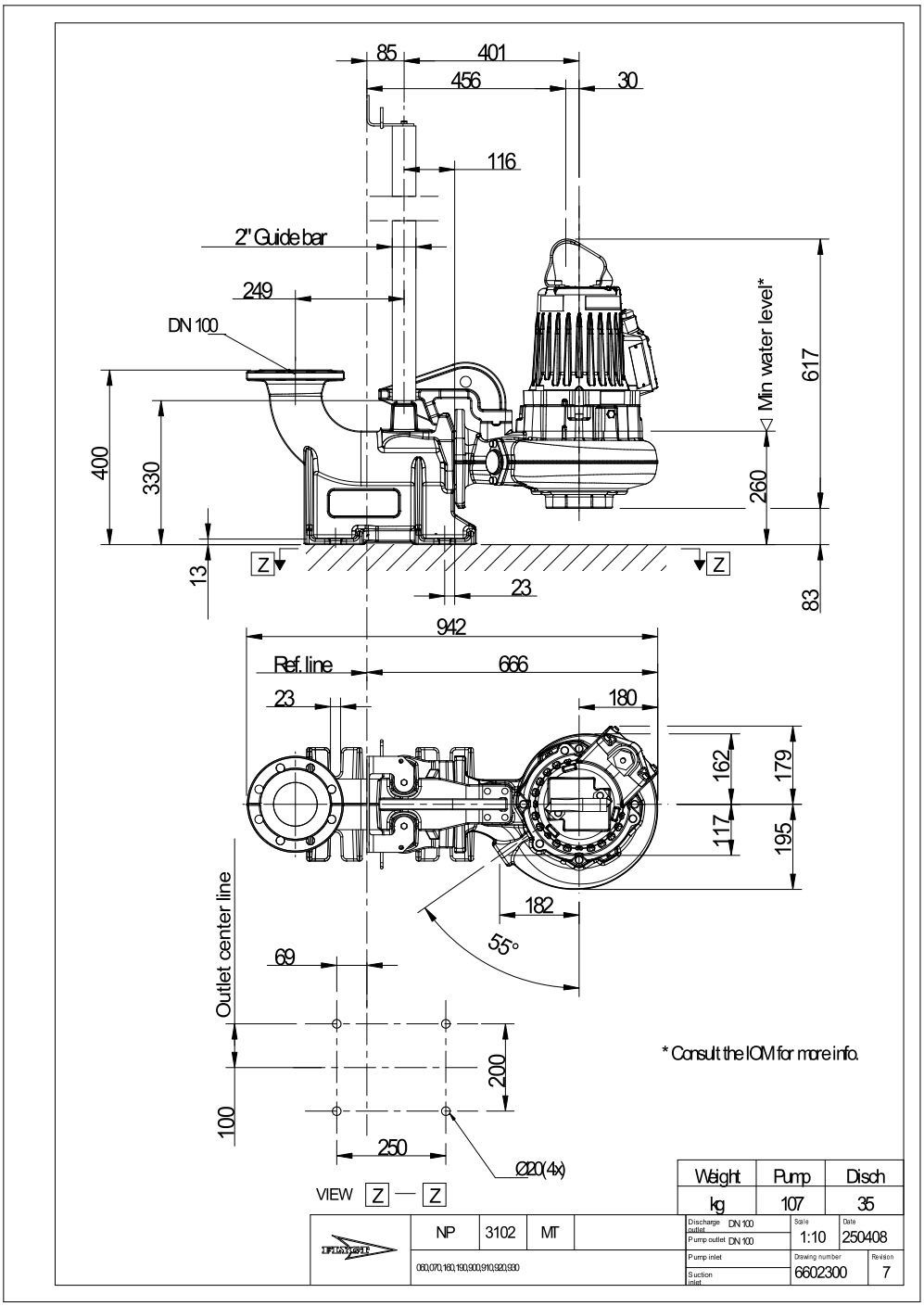
Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	l/s	m	kW	l/s	m	kW		kWh/m³	m
1	10	9.76	1.78	10	9.76	1.78	53.8 %	0.0583	3.25

Project		**Created by**	Ben Barron		
Block		**Created on**	7/16/2025	**Last update**	7/16/2025

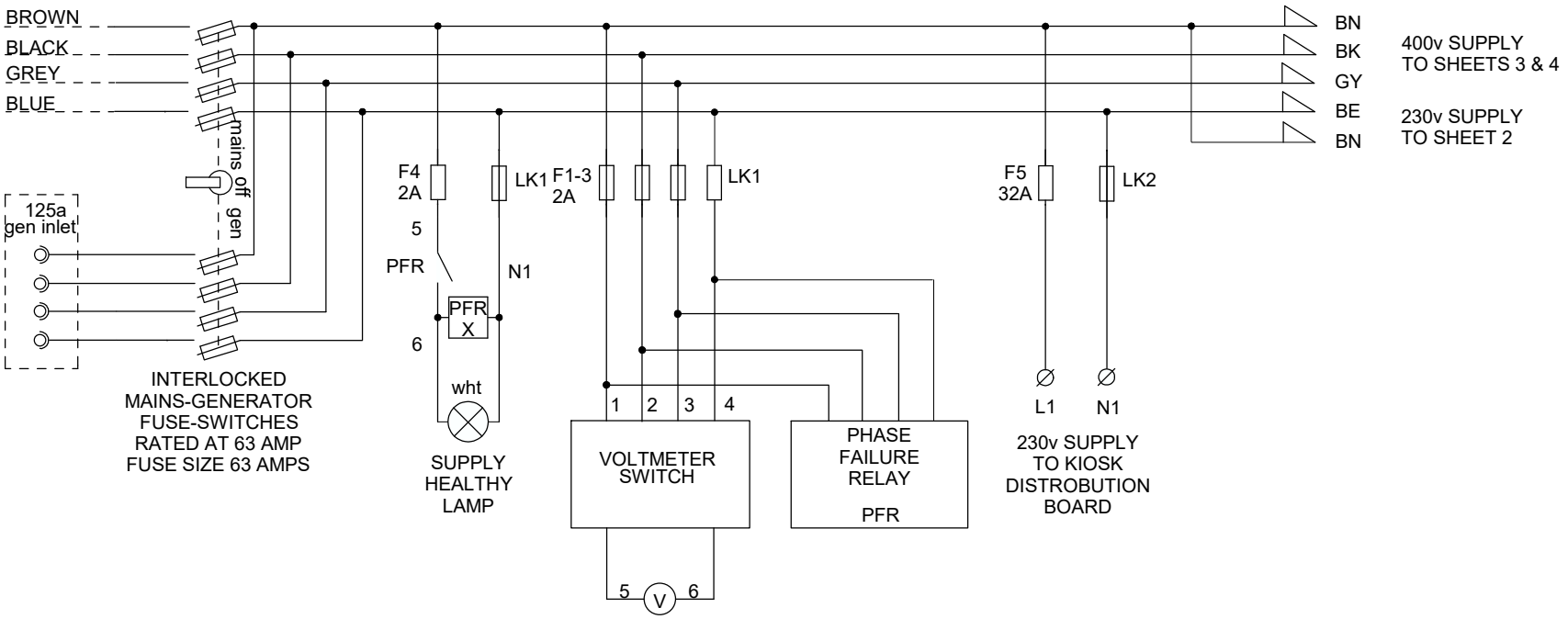
NP 3102 MT 3~ Adaptive 462

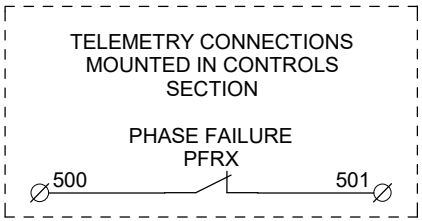
Dimensional drawing

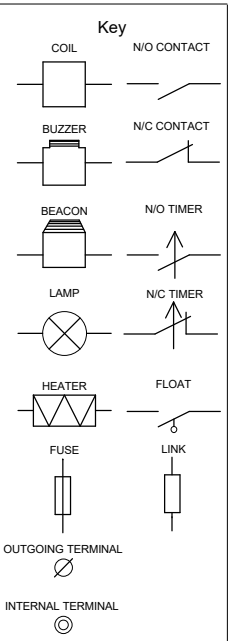


Project		**Created by**	Ben Barron		
Block		**Created on**	7/16/2025	**Last update**	7/16/2025

ELECTRICAL SCHEMATIC DRAWINGS





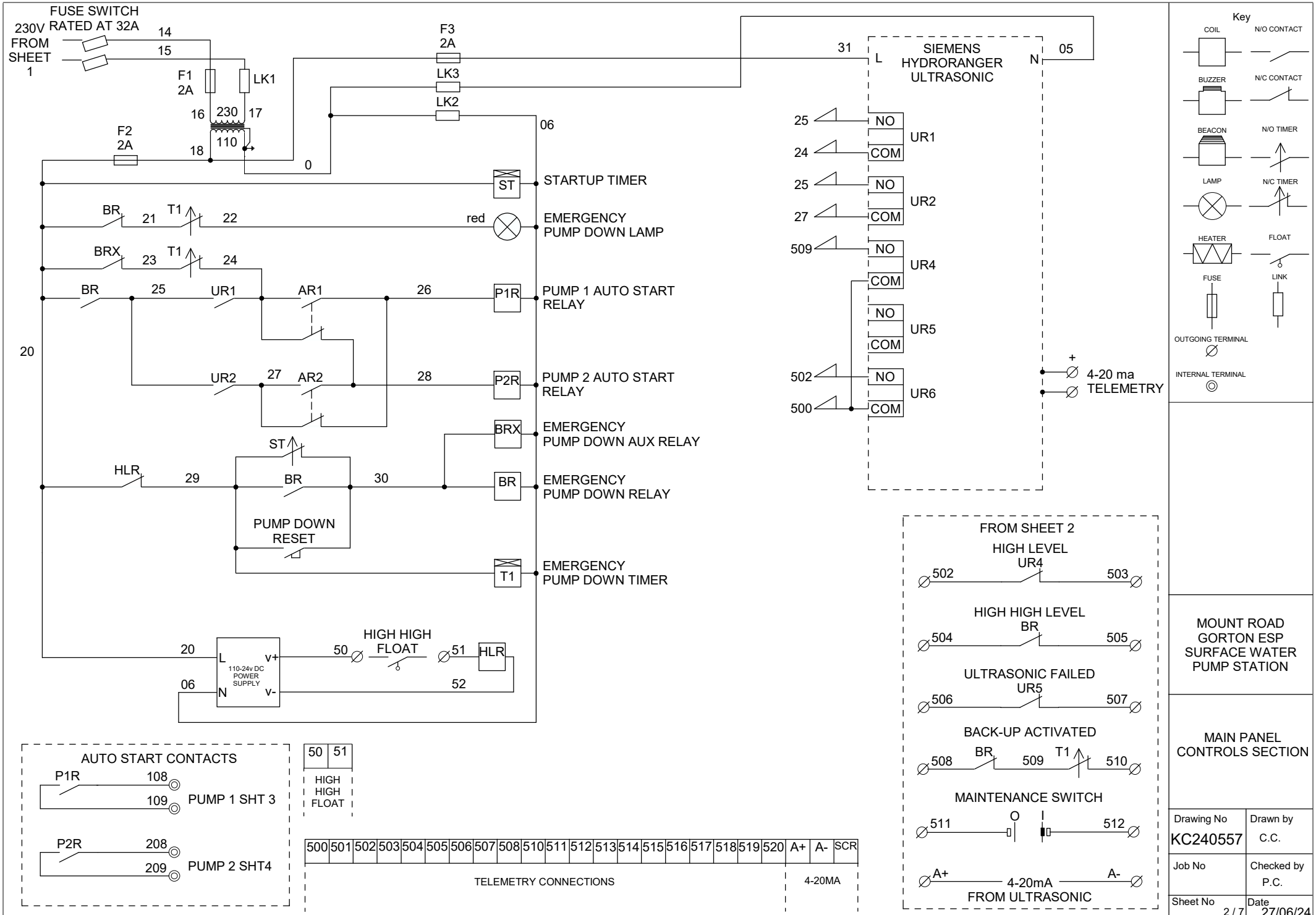


MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

MAIN PANEL
INCOMER SECTION

Drawing No	Drawn by
KC240557	C.C.
Job No	Checked by P.C.
Sheet No 1 / 7	Date 27/06/24

Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date

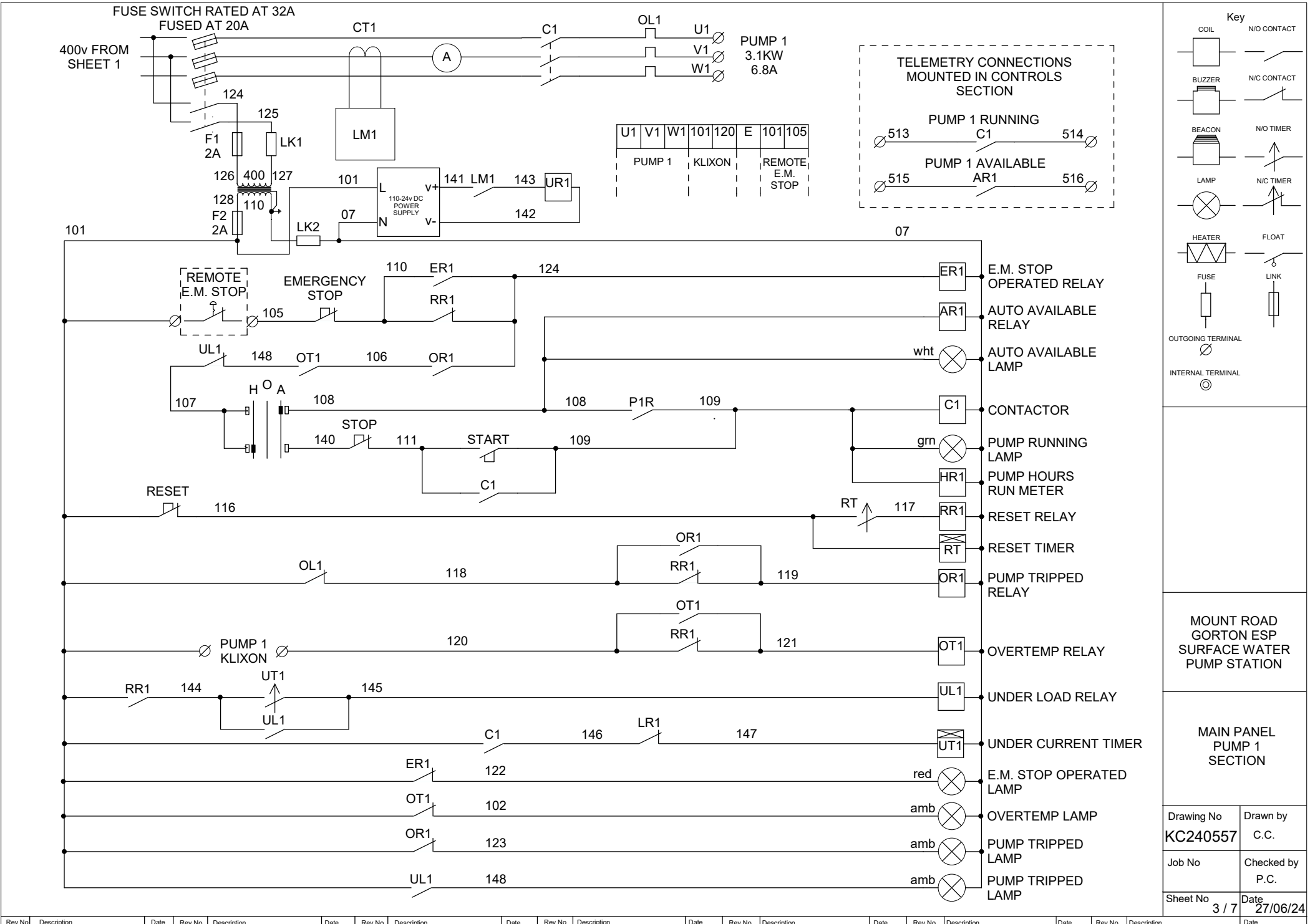


MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

MAIN PANEL
CONTROLS SECTION

Drawing No	Drawn by
KC240557	C.C.
Job No	Checked by
	P.C.
Sheet No 2 / 7	Date 27/06/24

Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date

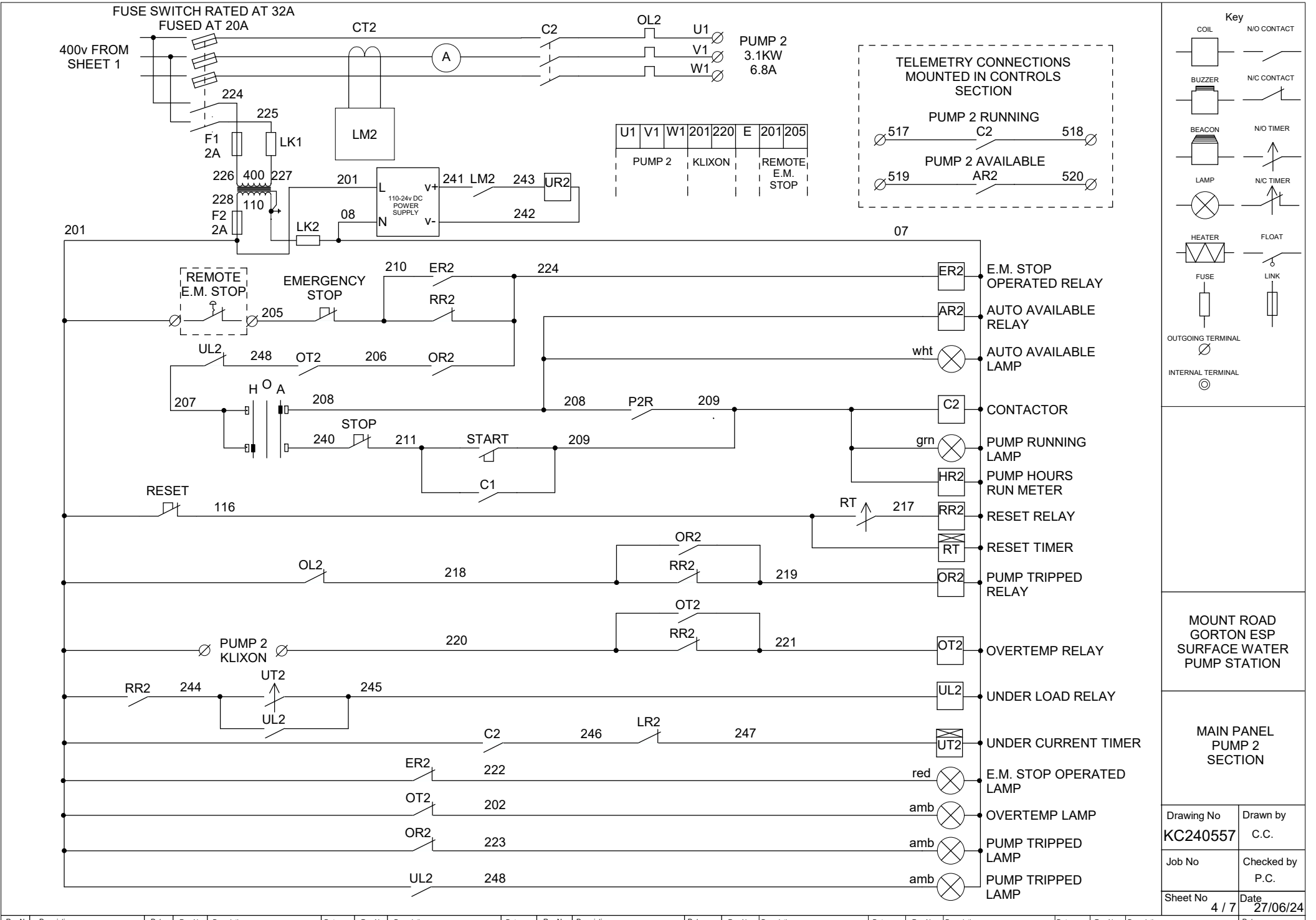


MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

MAIN PANEL
PUMP 1
SECTION

Drawing No	Drawn by
KC240557	C.C.
Job No	Checked by
	P.C.
Sheet No 3 / 7	Date 27/06/24

Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date



MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

MAIN PANEL
PUMP 2
SECTION

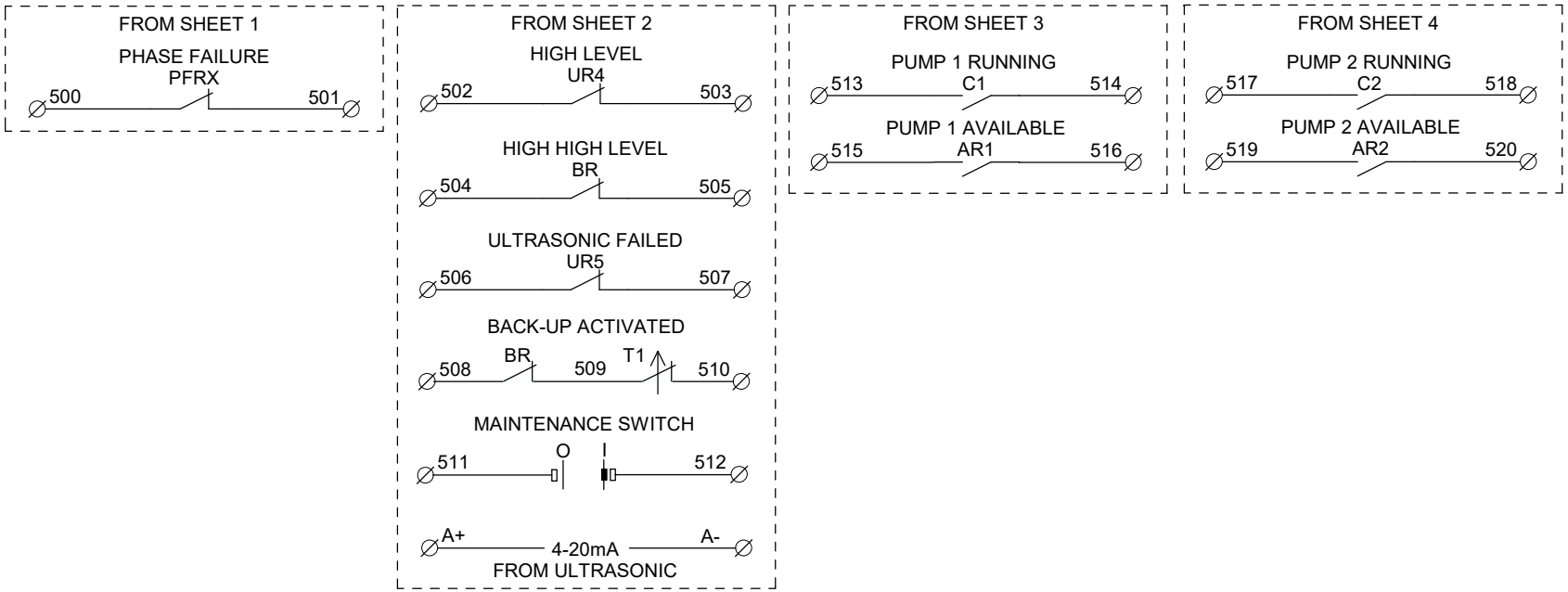
Drawing No	Drawn by
KC240557	C.C.
Job No	Checked by
	P.C.
Sheet No 4 / 7	Date 27/06/24

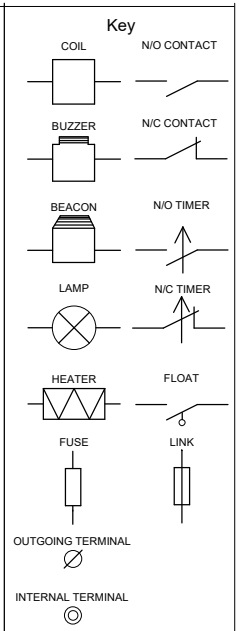
Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date

TELEMETRY CONNECTIONS

230v SUPPLY FROM KIOSK DISTRIBUTION BOARD

L	TELEMETRY SUPPLY 230v
N	
E	



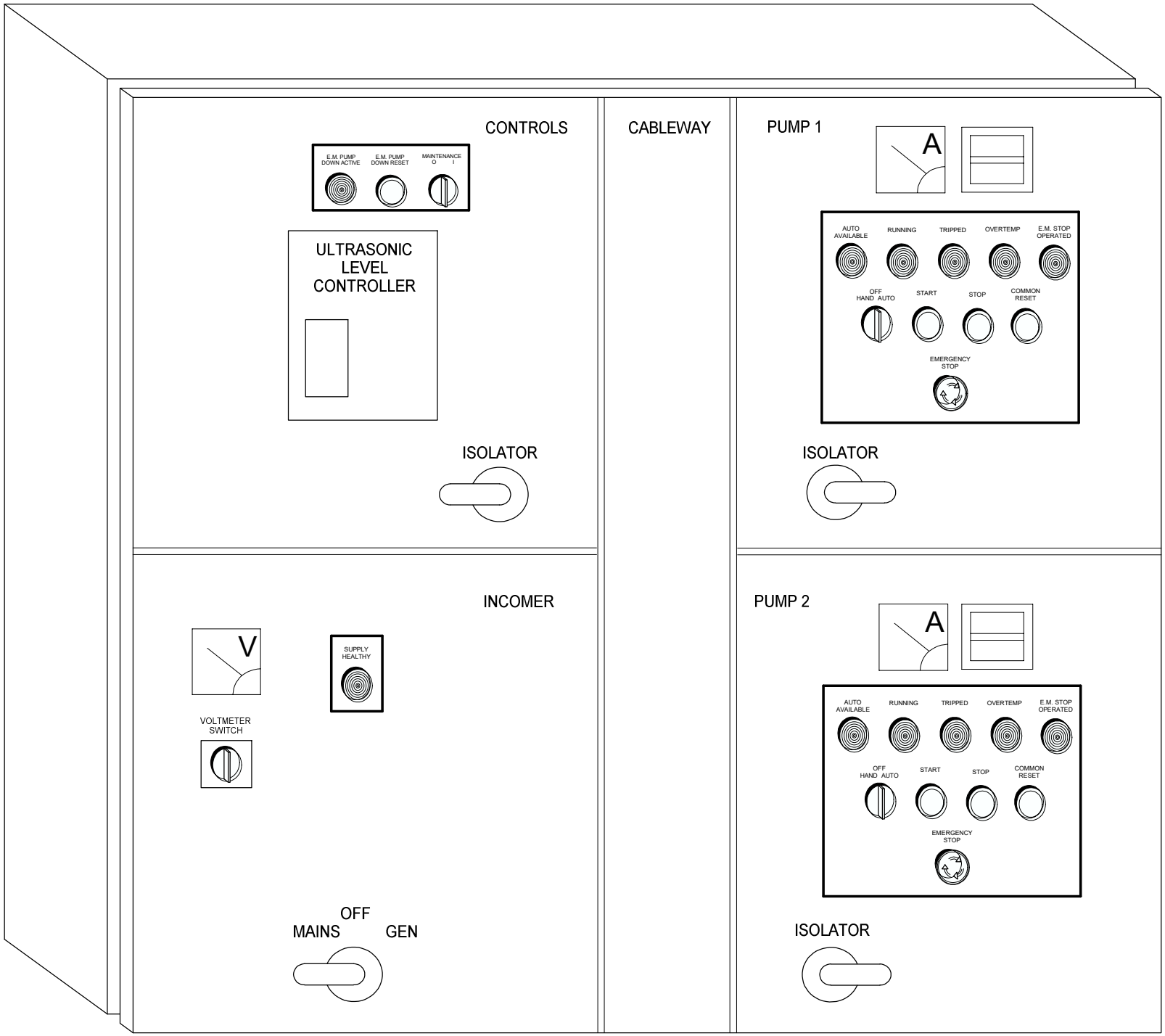


MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

TELEMETRY UNIT

Drawing No KC240557	Drawn by C.C.
Job No	Checked by P.C.
Sheet No 5 / 7	Date 27/06/24

Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date



PANEL SIZE
1200mm WIDE
1000mm HIGH
250mm DEEP

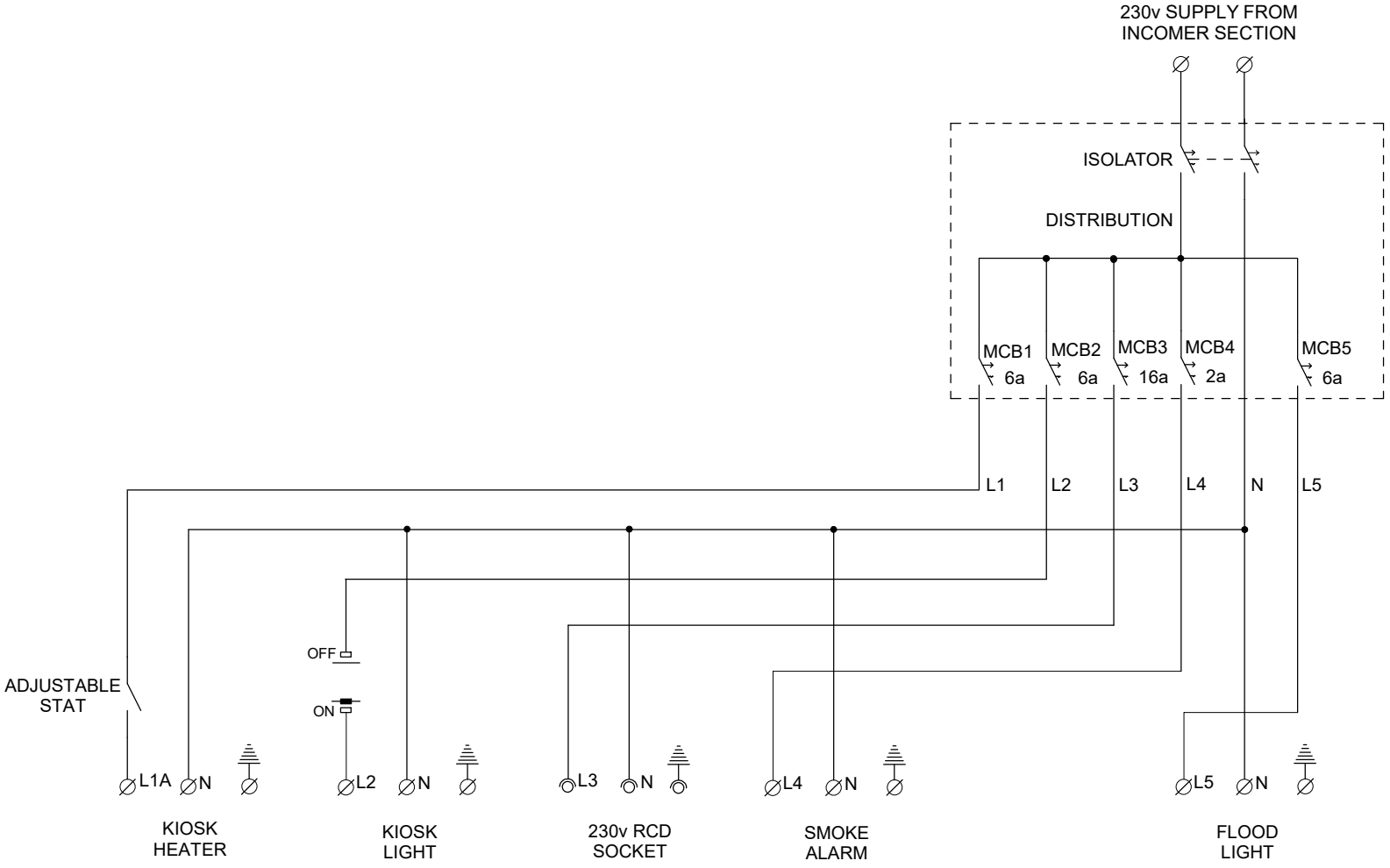
PANEL COLOUR
RAL 7035 GREY
TEXTURED
POWDER COAT
FINISH

MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

MAIN PANEL
GENERAL
ARRANGEMENT

Drawing No	Drawn by
KC240557	C.C.
Job No	Checked by
	P.C.
Sheet No 6 / 7	Date 27/06/24

Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date	Rev No	Description	Date



Key

COIL
N/O CONTACT
BUZZER
N/C CONTACT
BEACON
N/O TIMER
LAMP
N/C TIMER
HEATER
FLOAT
FUSE
LINK
OUTGOING TERMINAL
INTERNAL TERMINAL

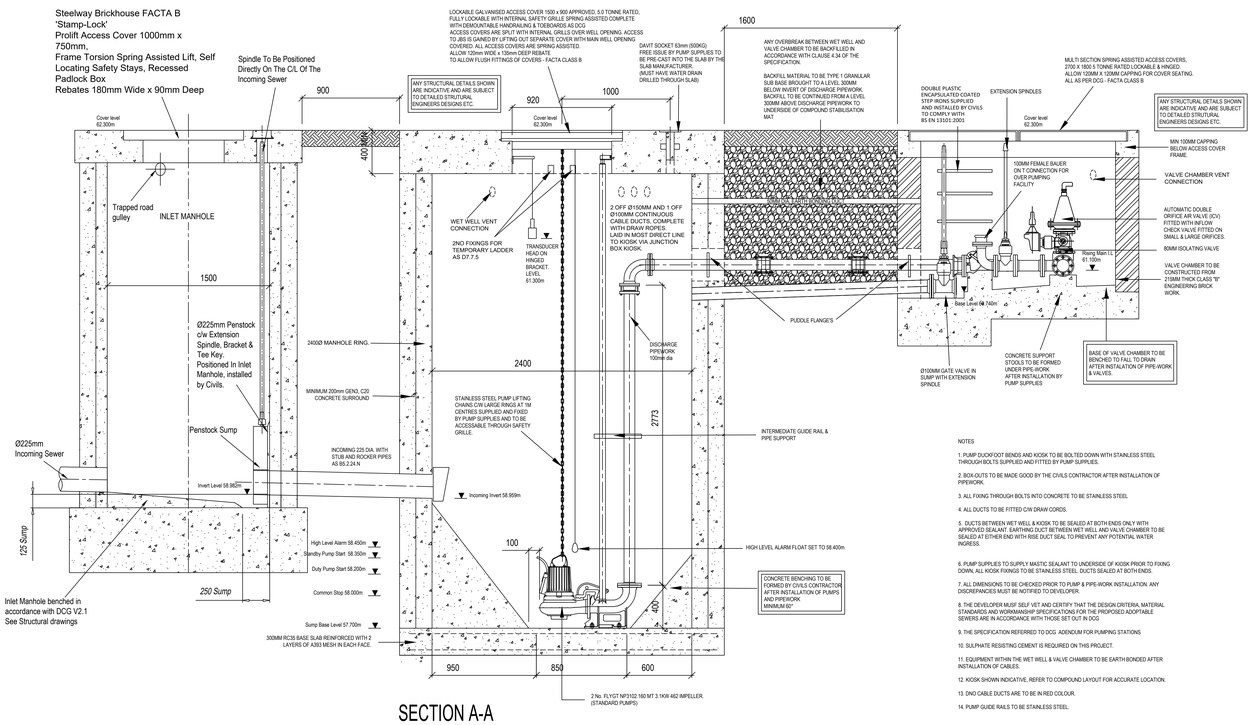
TITLE

KIOSK EQUIPMENT

MOUNT ROAD
GORTON ESP
SURFACE WATER
PUMP STATION

Drawing No	Drawn by
KC240557	C.C.
Job No 7 / 7	Checked by P.C.
Sheet No	

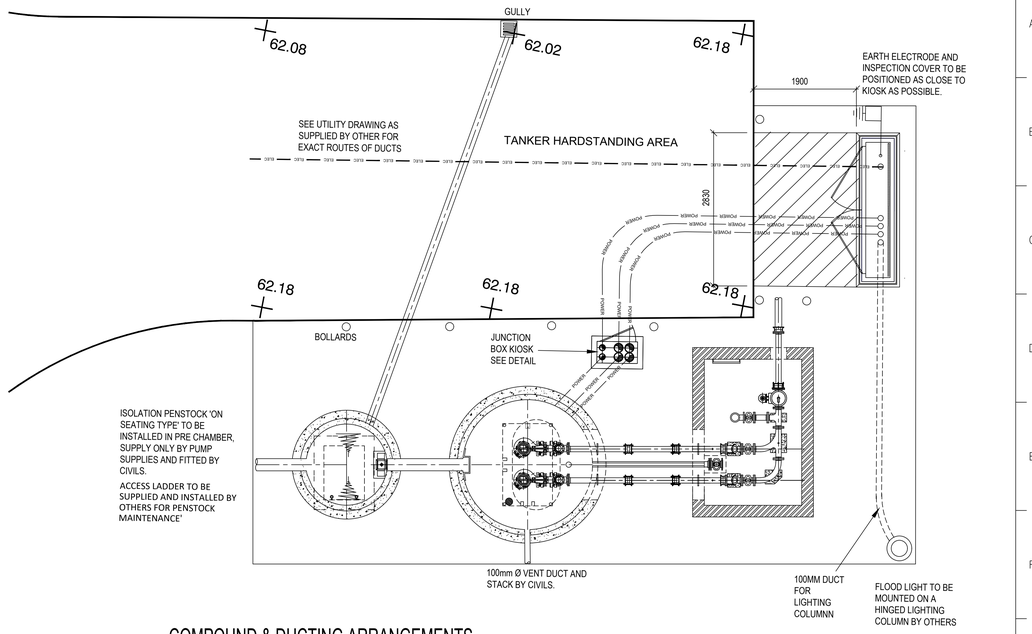
PUMP STATION DRAWINGS



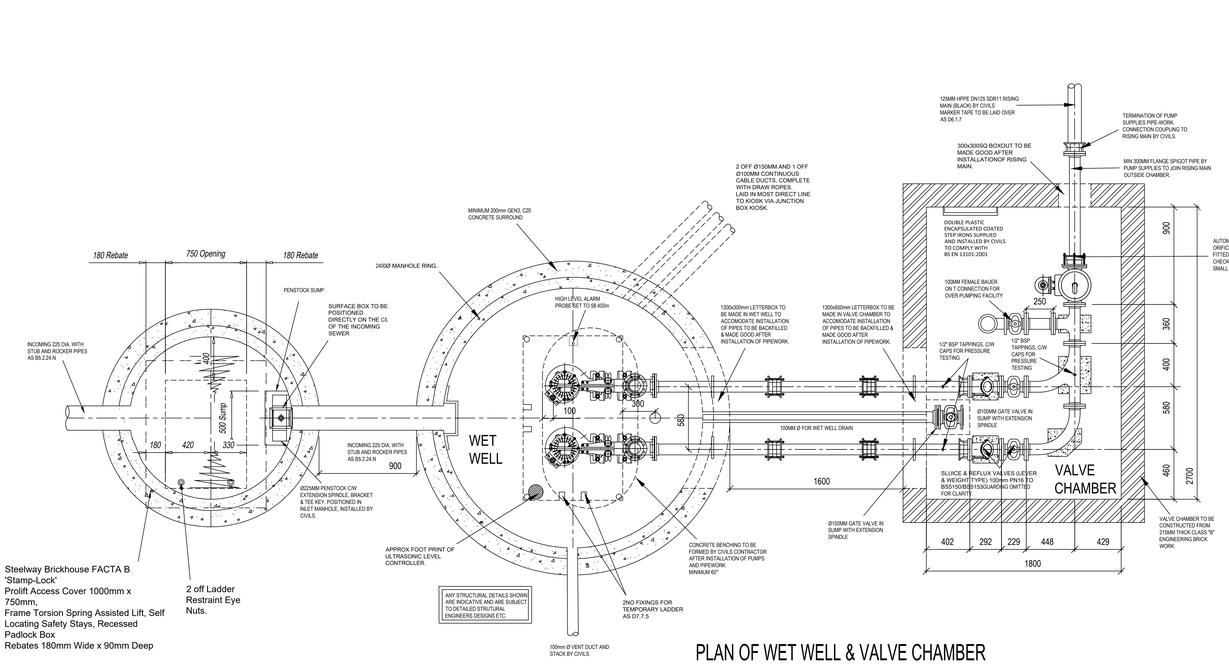
SECTION A-A

NOTES

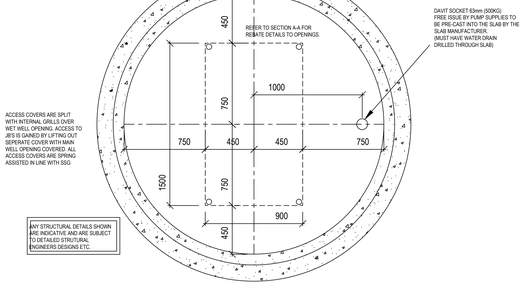
1. PUMP DUCKFOOT BENDS AND KIOSK TO BE BOLTED DOWN WITH STAINLESS STEEL THROUGH BOLTS SUPPLIED AND FITTED BY PUMP SUPPLIES.
2. BOX-OUTS TO BE MADE GOOD BY THE CIVILS CONTRACTOR AFTER INSTALLATION OF PIPEWORK.
3. ALL FIXING THROUGH BOLTS INTO CONCRETE TO BE STAINLESS STEEL
4. ALL DUCTS TO BE FITTED C/W DRAW CORDS.
5. DUCTS BETWEEN WET WELL & KIOSK TO BE SEALED AT BOTH ENDS ONLY WITH APPROVED SEALANT. EARTHING DUCT BETWEEN WET WELL AND VALVE CHAMBER TO BE SEALED AT EITHER END WITH RISE DUCT SEAL TO PREVENT ANY POTENTIAL WATER INGRESS.
6. PUMP SUPPLIES TO SUPPLY MASTIC SEALANT TO UNDERSIDE OF KIOSK PRIOR TO FIXING DOWN. ALL KIOSK FIXINGS TO BE STAINLESS STEEL DUCTS SEALED AT BOTH ENDS.
7. ALL DIMENSIONS TO BE CHECKED PRIOR TO PUMP & PIPE-WORK INSTALLATION. ANY DISCREPANCIES MUST BE NOTIFIED TO DEVELOPER.
8. THE DEVELOPER MUSF SELF VET AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED ADOPTABLE SEWERS ARE IN ACCORDANCE WITH THOSE SET OUT IN DCG
9. THE SPECIFICATION REFERRED TO DCG ADENDUM FOR PUMPING STATIONS
10. SULPHATE RESISTING CEMENT IS REQUIRED ON THIS PROJECT.
11. EQUIPMENT WITHIN THE WET WELL & VALVE CHAMBER TO BE EARTH BONDED AFTER INSTALLATION OF CABLES.
12. KIOSK SHOWN INDICATIVE, REFER TO COMPOUND LAYOUT FOR ACCURATE LOCATION.
13. DNO CABLE DUCTS ARE TO BE IN RED COLOUR.
14. PUMP GUIDE RAILS TO BE STAINLESS STEEL.



COMPOUND & DUCTING ARRANGEMENTS

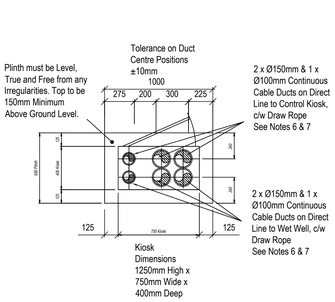


PLAN OF WET WELL & VALVE CHAMBER

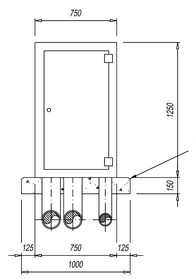


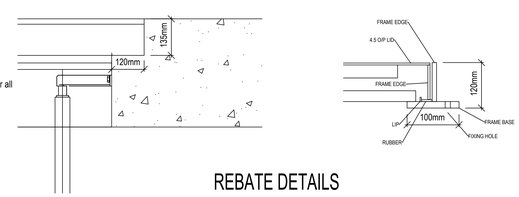
WET WELL ACCESS OPENING POSITION

VALVE CHAMBER ACCESS OPENING POSITION



JUNCTION BOX KIOSK PLINTH DETAIL





REBATE DETAILS

ISSUED FOR APPROVAL

REV	DATE	DESCRIPTION
F	14.09.25	REVISED IN ACCORDANCE WITH ESP COMMENTS
E	16.07.25	REVISED IN ACCORDANCE WITH ESP COMMENTS
D	27.03.25	REVISED IN ACCORDANCE WITH LATEST COMPOUND LAYOUT
C	04.03.25	INVERT LEVEL TO PENSTOCK MANHOLE AMENDED
B	28.01.25	COMPOUND GATES REMOVED
A	25.11.24	AMENDED TO NAV SPECIFICATIONS

CLIENT

KELLEN HOMES

PUMP & PUMPING STATION SPECIALISTS

BROWNING WAY, WOODFORD PARK INDUSTRIAL ESTATE
WINSFORD, CHESHIRE CW7 2JR
TEL :- 01606 863343
FAX:- 01606 863159

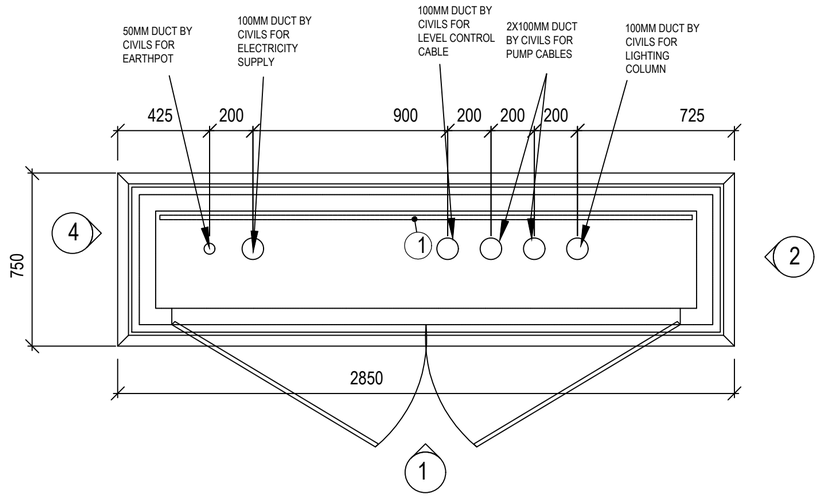
TITLE MOUNT ROAD, GORTON

TITLE GENERAL ARRANGEMENT OF 2 SUBMERSIBLE SURFACE WATER PUMPS

DRAWN	DATE	ORIGINAL SCALE	ORIGINAL SIZE
JL	26.06.24	1:20	A0

DRAWING NUMBER	SHEET	REV
24-073-1	001	F

DO NOT SCALE

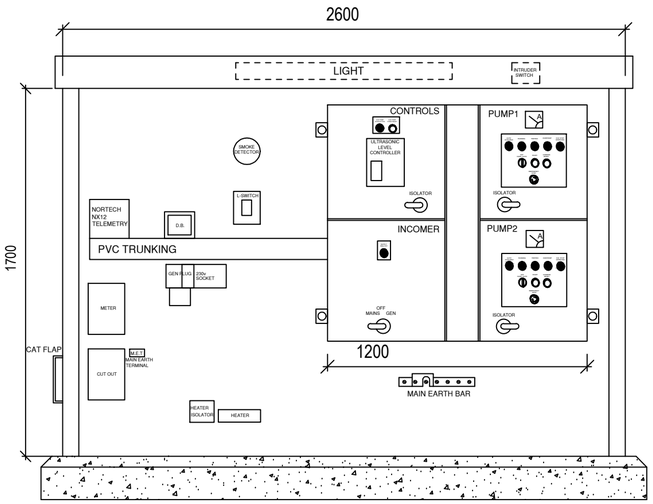


Ducts to be installed shall consist of ridged PVC-U, complying with BS EN 1401-1 & BS 4660;
DNO,s power supply = Red
BT =Grey
Pump and control cables =Black

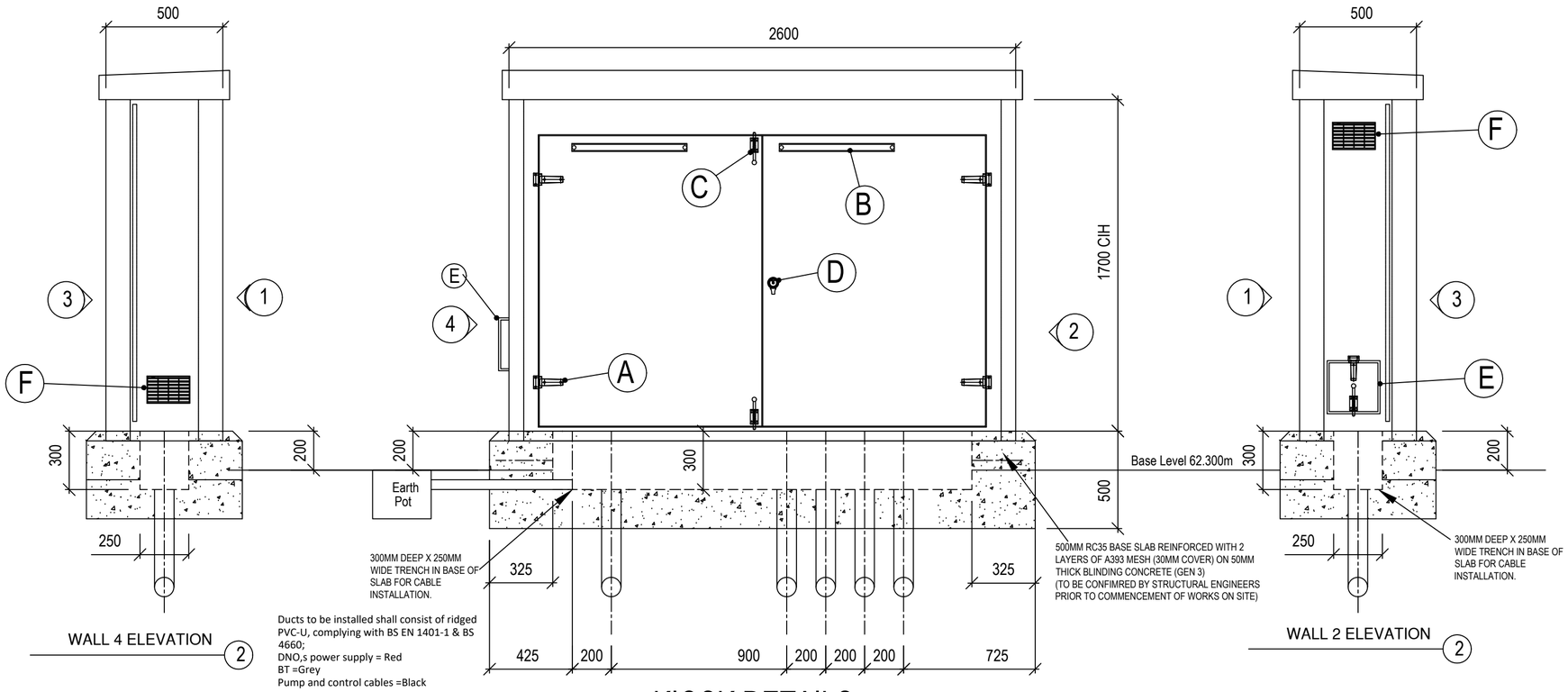
BASE SLAB DETAILS

1. A FLAT CONCRETE PLINTH - MINIMUM 300MM THICK OF RC35 CONCRETE REINFORCED WITH 1 LAYER OF A142 MESH IN THE BOTTOM. OVERALL DIMENSIONS OF BASE SLAB TO BE 2.85 X 0.750 X 0.500M.

2. THE KIOSK SHALL BE FIXED TO THE BASE SLAB WITH MINIMUM 6 NO. EXPANSION BOLTS (SPREAD EVENLY) WITH A MASTIC SEAL TO THE BASE.



CONTROL PANEL DETAILS



Ducts to be installed shall consist of ridged PVC-U, complying with BS EN 1401-1 & BS 4660;
DNO,s power supply = Red
BT =Grey
Pump and control cables =Black

KIOSK DETAILS

NOTES

CONSTRUCTION: GRP COMPOSITE
EXTERNAL FINISH: SATIN (GELCOAT)
COLOUR: 14-C-39 GREEN
INTERNAL FINISH: WHITE GRP

ITEM	QTY	FIXTURES & FITTINGS
A.	5	STAINLESS STEEL HINGES
B.	2	AUTO HOLD OPEN STAYS
C.	3	INTERNAL SPRING BOLTS
D.	1	ABLOY LOCK
E.	1	250x250mm HINGED CATFLAP C/W SPRING BOLT
F.	2	220x140mm WEATHER LOUVRES

ITEM	QTY	BOARDS AND PADS
1	1	FULL SIZE x 18mm SURFACE TREATED PLY BOARD

ISSUED FOR APPROVAL

REV	DATE	DESCRIPTION
C	16.09.25	FLOW METER DUCT REMOVED
B	13.02.25	CONTROL PANEL DETAILS AMENDED
A	19.11.24	AMENDED TO NAV SPECIFICATIONS

KELLEN HOMES

PUMP & PUMPING STATION SPECIALISTS

BROWNING WAY, WOODFORD PARK INDUSTRIAL ESTATE
WINSFORD, CHESHIRE CW7 2JR
TEL :- 01606 863343
FAX:- 01606 863159

TITLE: MOUNT ROAD, GORTON

TITLE: SURFACE WATER PUMPING STATION KIOSK & PLINTH DETAILS

DRAWN	DATE	ORIGINAL SCALE	ORIGINAL SIZE
JL	26.06.24	1:20	A2

DRAWING NUMBER	SHEET	REV
24-073-2	001	C

DO NOT SCALE

PENSTOCK DETAILS

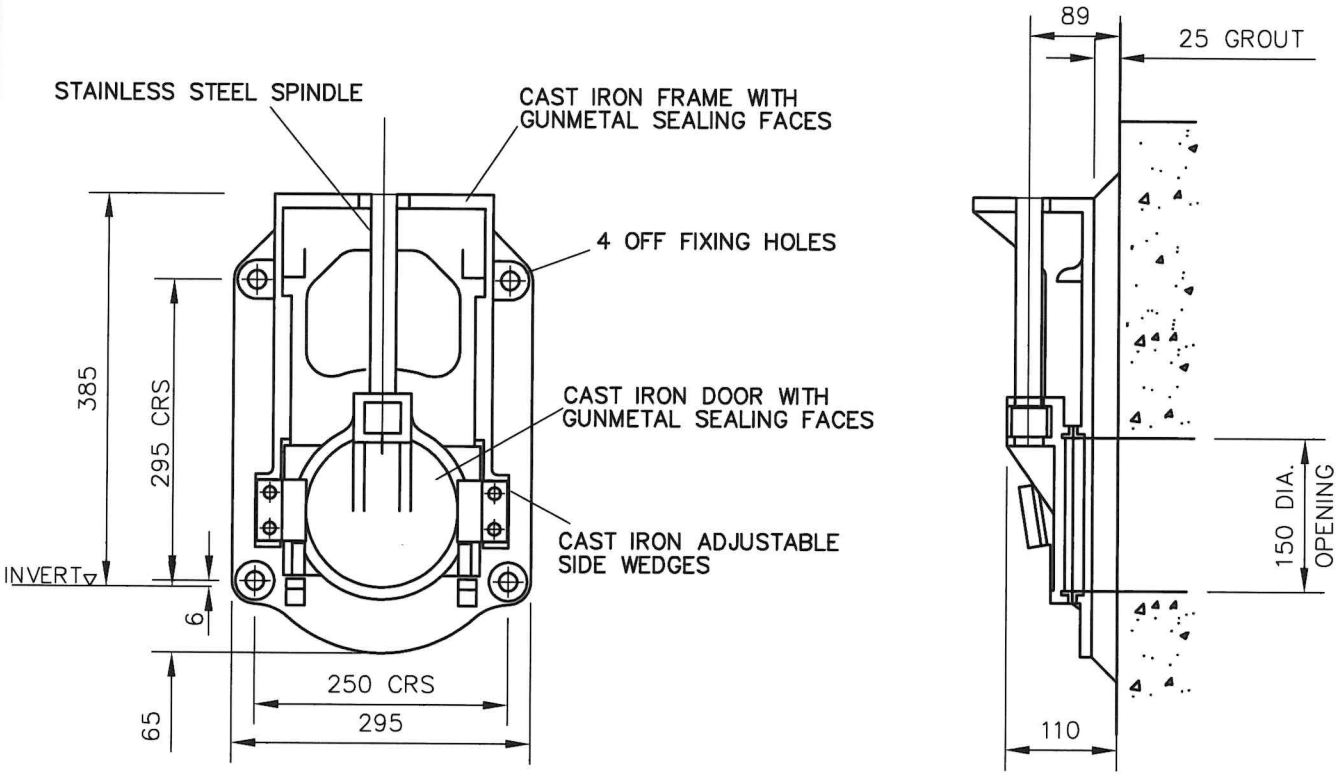
GENERAL TOLERANCES UNLESS OTHERWISE SPECIFIED
CASTING DETAILS: DIMENSIONS <1000mm ±1.5mm DIMENSIONS >1000mm ±2.0mm
MACHINED DETAILS: ±1.0mm FABRICATED DETAILS: ± 1.0mm PER STD METRE LENGTH

DO NOT SCALE IF IN DOUBT ASK

PROJECTION

ISS	ECR	BY	CHK	APP	DATE	REVISION
1	.	.	.	.	.	INITIAL ISSUE

FOR DETAILS OF OPERATOR REFER TO SEPARATE DRAWING ENCLOSED



WEIGHT OF PENSTOCK ASSEMBLY = 16 KG.

ALL CONSTRUCTION BOLTS ARE STAINLESS STEEL GR.A4

TO FIX PENSTOCK, WE SUGGEST THE USE OF "LIEBIG" EXPANDING ANCHOR BOLTS,(THESE NEED A HOLE 12 DIA x 70 MIN.DEEP)
TO ORDER THESE WITH PENSTOCK PLEASE QUOTE REF.I60150/A FOR STAINLESS STEEL BOLTS
I60150/Z FOR ZINC PLATED STEEL BOLTS

PLEASE REFER TO OUR INSTALLATION, OPERATION AND MAINTENANCE MANUAL FOR GUIDANCE ON INSTALLATION.

150 BORE. SERIES 60 CAST IRON PENSTOCK

TITLE
B.I.D FOR 150MM BORE

Drawn	TMA	20/7/00	Approved		
Checked			Scale		Master Size 210x297 (A4)

HAMBAKER FlowControl
Ham Baker Flow Control Ltd.
Stoke-on-Trent
Staffordshire ST4 7BH
England
Tel: +44 (0) 1782 202300
Fax: +44 (0) 1782 203639

ISO 9001

DRAWING NUMBER DATA I60150

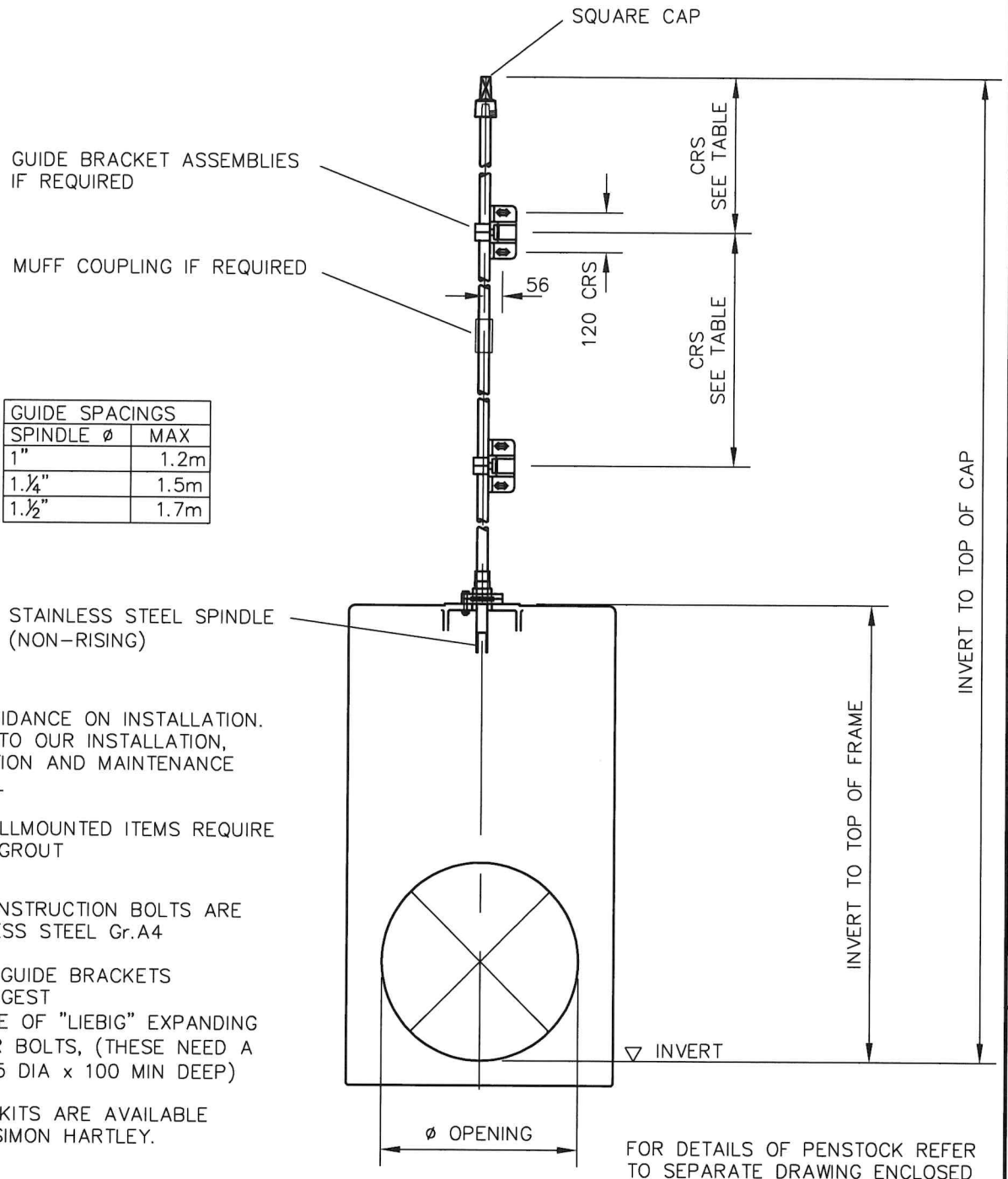
ISS 1

GENERAL TOLERANCES UNLESS OTHERWISE SPECIFIED
CASTING DETAILS: DIMENSIONS <1000mm ±1.5mm DIMENSIONS >1000mm ±2.0mm
MACHINED DETAILS: ±1.0mm FABRICATED DETAILS: ± 1.0mm PER STD METRE LENGTH

DO NOT SCALE IF IN DOUBT ASK

PROJECTION

ISS	ECR	BY	CHK	APP	DATE	REVISION
1	.	.	.	.	.	INITIAL ISSUE



GUIDE SPACINGS	
SPINDLE ø	MAX
1"	1.2m
1.¼"	1.5m
1.½"	1.7m

FOR GUIDANCE ON INSTALLATION. REFER TO OUR INSTALLATION, OPERATION AND MAINTENANCE MANUAL

ALL WALLMOUNTED ITEMS REQUIRE 25mm GROUT

ALL CONSTRUCTION BOLTS ARE STAINLESS STEEL Gr.A4

TO FIX GUIDE BRACKETS WE SUGGEST THE USE OF "LIEBIG" EXPANDING ANCHOR BOLTS, (THESE NEED A HOLE 15 DIA x 100 MIN DEEP)

FIXING KITS ARE AVAILABLE FROM SIMON HARTLEY.

FOR DETAILS OF PENSTOCK REFER TO SEPARATE DRAWING ENCLOSED

TITLE

REMOTE SQ CAP NON RISING

Drawn	PCC	18/07/00	Approved		
Checked			Scale		Master Size 210x297 (A4)

HAMBAKER FlowControl

ISO 9001

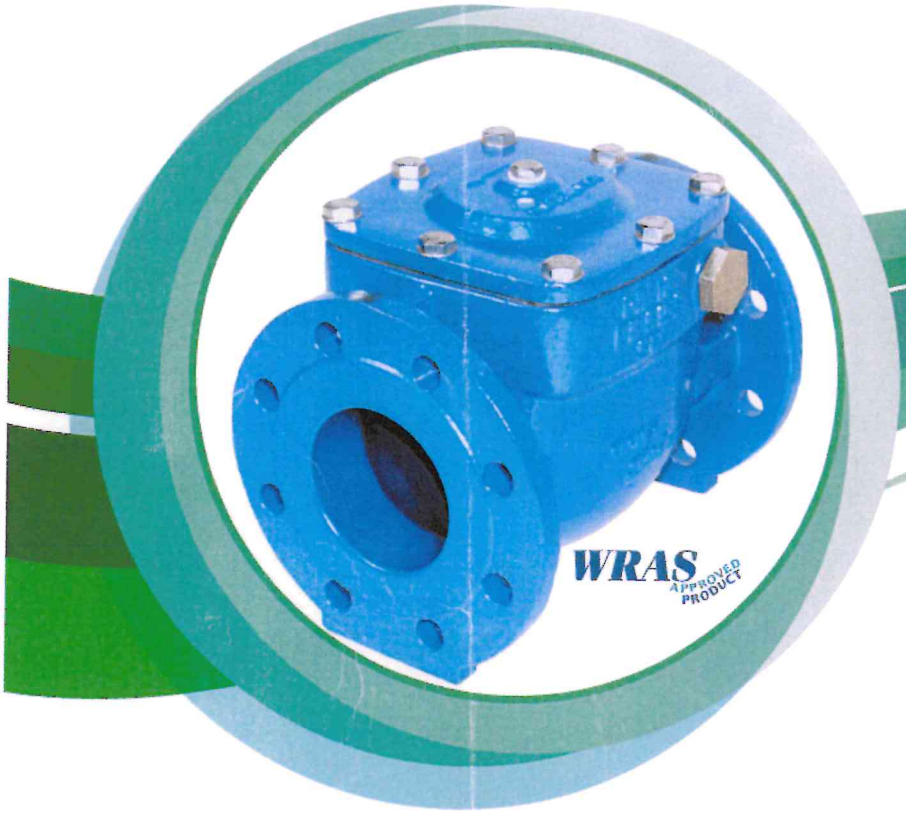
Ham Baker Flow Control Ltd.
Stoke-on-Trent
Staffordshire ST4 7BH
England
Tel: +44 (0) 1782 202300
Fax: +44 (0) 1782 203639

DRAWING NUMBER 160****RSN

ISS 1

VALVE SPECIFICATION

Swing Check Valve
Figure 2200



Application

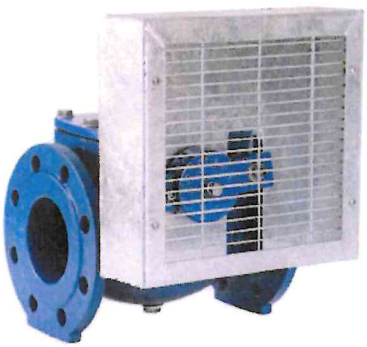
Metal seat swing check valve used to prevent reverse flow.

Suitable for potable water, wastewater and sewage applications.

Features

- Unique lightweight ductile iron design
- WRAS approved non-metallic components
- Durable fusion bonded epoxy coated
- Positive hexagonal drive between shaft and hanger
- Corrosion resistant construction
- Optional external lever arm and weight assembly
- Drilling bosses and ½" BSP air release as standard
- Robust low maintenance design
- Suitable for both horizontal and vertical installation





Options

- External lever arm and weight, can be mounted on either side
- Safety guards for external lever arm and weight
- Flow sensing switching options
- Alternative flange drillings

Accessories

- Lever and weight kit
- Galvanised steel guard (recommended for external lever arm and weight version)
- Limit switches

*Options maybe available subject to factory lead-times

Aquaflow Valves, Woore, Cheshire, CW3 9RU
Tel: 01630 647111 Fax: 01630 647734
www.aquaflowvalves.com e-mail: info@aquaflowvalves.com

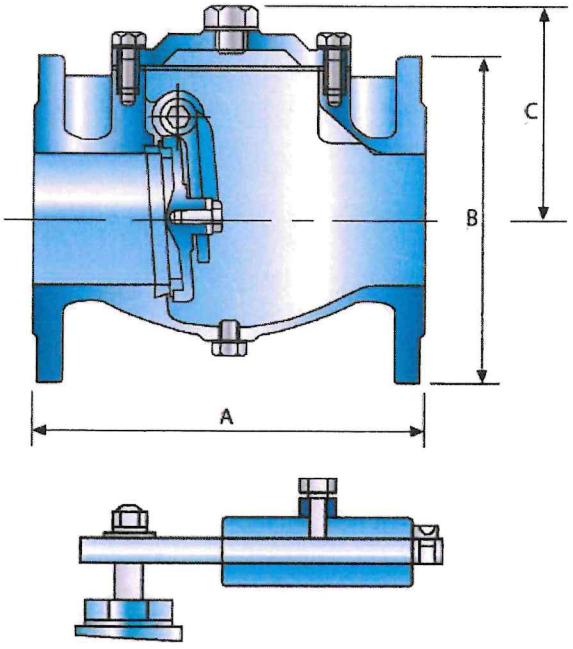
T-T PUMPS T-T Controls T-T Service T-T Pumping Stations

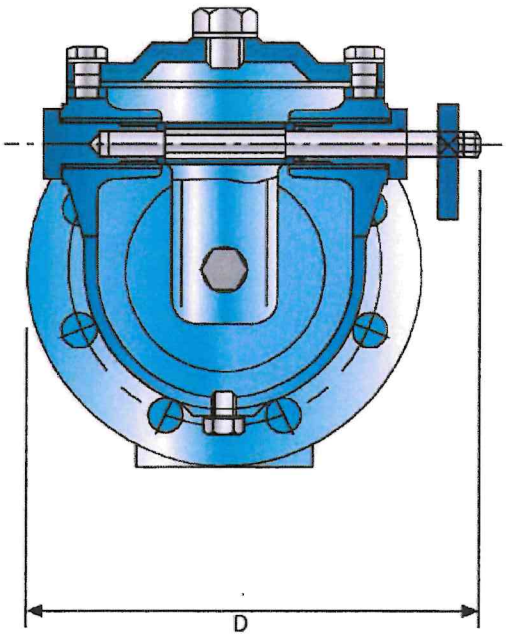
Swing Check Valve
Figure 2200

Technical Specification	
Standard	BS EN 1074 Pt.3:2000.BS EN 12334:2001 and BS 5153:1974
Range	DN50 - DN400
Flanged Drillings: Alternatives:	BS EN 1092-2:1987 Table 9 (PN16) BS EN1092-2:1987 Table 8 (PN10) BS10 Table D or E
Face to Face Dimensions	EN558-1, 1986 Table 3, Basic Series 3
Maximum Working Pressure	16 Bar
Hydrostatic Pressure Tests	Seat: 1.1 x PN (17.6 Bar) & Body: 1.5 x PN (24.0 Bar)
Temperature Range	-10°C to 70 °C (insulate at 0°C and below)
Coating	Blue fusion bonded epoxy (WRAS listed)

Material Specification		
Description	Material	Grade
Body	Ductile Iron	BS EN 1563 Gr 500/7
Body Seat Ring	Copper Alloy	BS EN 1982
Door Seat Ring	Copper Alloy	BS EN 1982
Bolts	Stainless Steel	BS EN 1563 Gr 500/7
Washer	Stainless Steel	BS EN 10088
Hanger	Ductile Iron	BS EN 1563 Gr 500/7
Gasket	EPDM	WRAS Approved
Inspection Cover	Ductile Iron	BS EN 1563 Gr 500/7
Air Release Plug	Galvanised	-
Std.Bush Nut	Copper Alloy	BS EN 1982
Bush Seal	EPDM	WRAS Approved
Spindle	Stainless Steel	BS EN 10088
'O' Ring	EPDM	WRAS Approved
L/W Bush Nut	Copper Alloy	BS EN 1982
Drain Plug	Stainless Steel	BS EN 10088
Lever Arm	Mild Steel	BS EN 10025
Nut	Stainless Steel	BS EN 10088
Spring Washer	Stainless Steel	BS EN 10088
Counter Weight	Ductile Iron	BS EN 1563 Gr 500/7

Dimensions - Valve						
DN	A	B	C	D	Standard Weight	+ Lever/ Weight
50	203	165	135	188	14	15
65	216	185	141	207	18	19
80	241	200	132	235	20	22
100	292	220	140	268	26	28
125	330	250	170	300	38	41
150	356	285	186	313	50	52
200	495	340	218	378	96	98
250	622	405	272	493	155	163
300	698	460	311	535	215	223





This document is printed on paper from suitable sources. For up-to-date information and prices visit our website www.aquaflowvalves.com.

Aquaflow is a division of T-T Pumps Ltd.
We reserve the right to amend specifications without prior notice.
© T-T Pumps Ltd 2013 Data 341:21/2014

Aquaflow Valves, Onneley Works,
Newcastle Road, Woore, Cheshire CW3 9RU

tel: 01630 647111
fax: 01630 647734
www.aquaflowvalves.com
e-mail: response@aquaflowvalves.com

aqua Flow®
VALVES for the WATER INDUSTRY

GATE VALVE

WRAS APPROVED PRODUCT

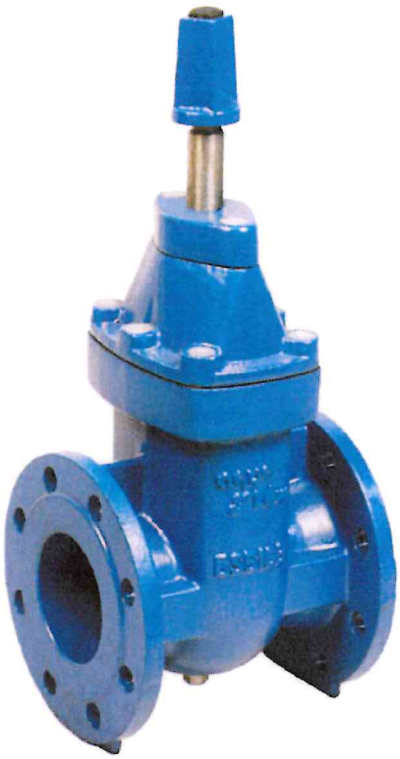




figure 3000

Metal seat wedge gate valve used for pipeline isolation.

Suitable for water, wastewater and sewage applications.

Features

Unique lightweight ductile iron design

WRAS listed non-metallic components

Durable fusion bonded epoxy coated

Stem seals replaceable under pressure

Clockwise closing spindle as standard, clockwise opening on request

Corrosion resistant construction

100% full bore

Drilling bosses and drain plug as standard

Integral feet to facilitate safe storage

Robust low maintenance design suitable for buried service

Options

Handwheel or stem cap operation

Actuation: electric or pneumatic

Gearboxes: bevel or spur

Position indicator

Locking device

By-pass

Extension spindles and tee keys

Alternative flange drillings

GATE VALVE

figure 3000

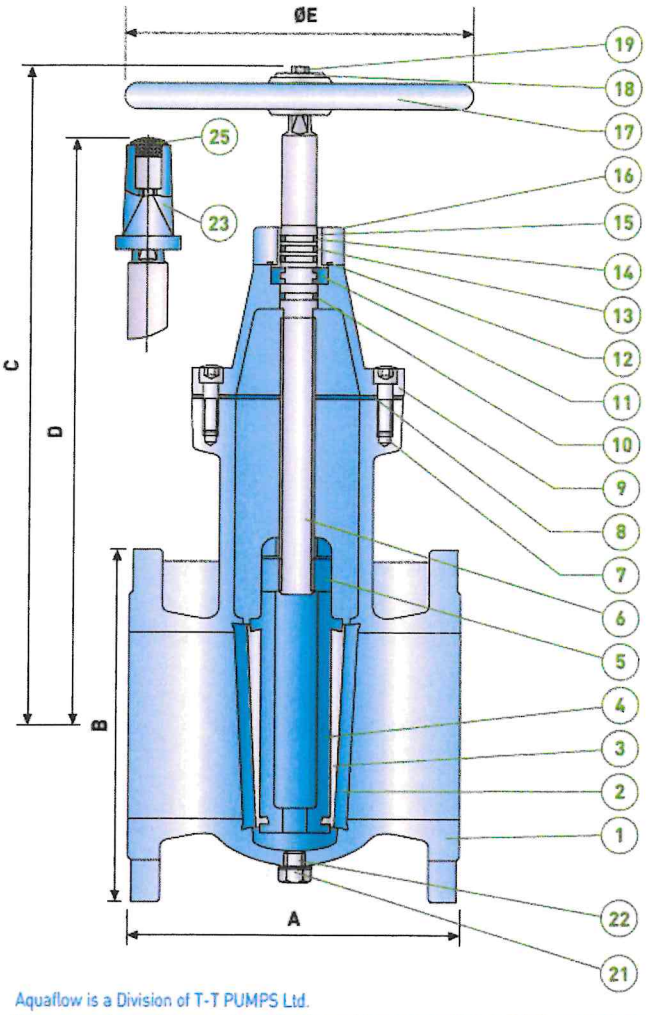
ACCESSORIES

Stem Cap / Handwheel	Extension Spindle / T Key
Position Indicator	Gearbox
Locking Device	By-pass
ISO Mounting Flange	Chainwheel

DIMENSIONS

DN	A	B	C	D	E	Approximate Weight (kg)		WRAS Approval
						Handwheel	Stem Cap	
50	178	165	282	312	180	23	21	✓
65	190	185	313	343	180	24	22	
80	203	200	398	428	205	26	24	✓
100	229	220	424	454	205	31	29	✓
125	254	250	445	475	250	41	39	
150	267	285	525	556	280	58	55	✓
200	292	340	638	668	320	87	82	
250	330	405	740	770	360	131	125	
300	356	460	840	870	450	186	177	

Larger sizes available upon request. Dimensions in mm.



TECHNICAL SPECIFICATION

Standard:	BS 5163 Pt. 1 & 2:2004 & EN 1171:2002
Range:	DN50 - DN300
Flanges & Drillings: Alternatives:	BS EN 1092-2:1987 Table 9 (PN16) BS EN 1092-2:1987 Table 8 (PN10) BS10 Table D or E
Maximum Working Pressure:	16 Bar
Hydrostatic Pressure Tests:	Seat: 1.1 x PN (17.6 Bar) Body: 1.5 x PN (24.0 Bar)
Temperature Range:	-10°C to 70°C Insulate at 0°C and below
Coating:	Blue fusion bonded epoxy (WRAS listed)
Face-to-Face Dimensions:	BS EN 558-1:1986 Table 3, Basic Series 3

MATERIAL SPECIFICATION

Item	Item Name	Material	Specification
1	Body	Ductile Iron	BS EN 1563 Gr 500/7
2	Body Seat Ring	Copper Alloy	BS EN 1982
3	Wedge Seat Ring	Copper Alloy	BS EN 1982
4	Wedge	Ductile Iron	BS EN 1563 Gr 500/7
5	Stem Nut	Copper Alloy	BS EN 1982
6	Stem	Stainless Steel	BS EN 10088
7	Bolt	BZP Steel	BS 3692 Gr 8.8
8	Body Gasket	EPDM	WRAS Listed
9	Bonnet	Ductile Iron	BS EN 1563 Gr 500/7
10	'O' Ring	EPDM	WRAS Listed
11	Thrust Collar	Copper Alloy	BS EN 1982
12	'O' Ring	EPDM	WRAS Listed
13	'O' Ring	EPDM	WRAS Listed
14	Dust Seal	EPDM	WRAS Listed
15	Bush	Copper Alloy	BS EN 1982
16	Seal Housing	Ductile Iron	BS EN 1563 Gr 500/7
17	Handwheel	Ductile Iron	BS EN 1563 Gr 500/7
18	Washer	Stainless Steel	BS EN 10088
19	Bolt	Stainless Steel	BS EN 10088
20*	Sealing Housing Bolt	BZP Steel	BS 3692 Gr 8.8
21	Drain Plug	Stainless Steel	BS EN 10088
22	Gasket	PTFE	WRAS Listed
23	Stem Cap	Ductile Iron	BS EN 1563 Gr 500/7
24*	Stem Cap Bolt	Stainless Steel	BS EN 10088
25	Grommet	EPDM	-

*Seal Housing Bolts and Stem Cap Bolt not shown.

WRAS APPROVED PRODUCT

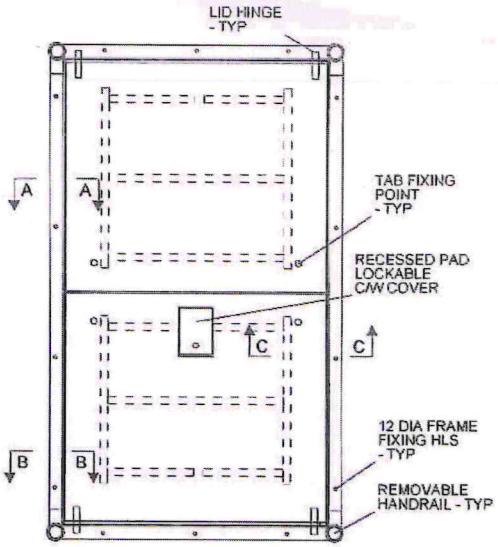
aquaFlow®

VALVES for the WATER INDUSTRY

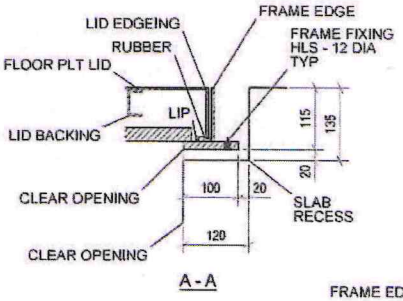
Aquaflow is a Division of T-T PUMPS Ltd.
We reserve the right to amend specifications without prior notice. © T-T Pumps Ltd. 2009. DATA 339: 10/2009

ACCESS COVERS

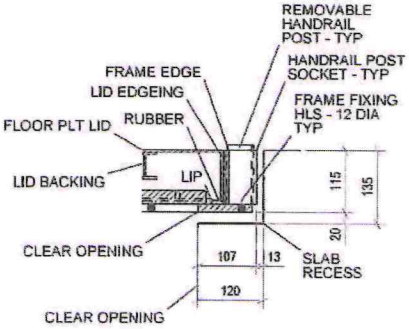
All Steelwork Manufactured to:
BS EN 1090-2 Execution Class: 1 U.N.O.



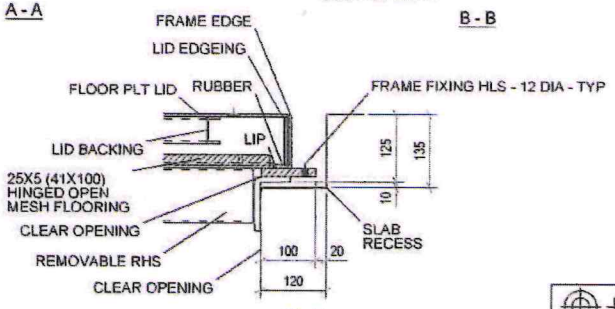
PLAN



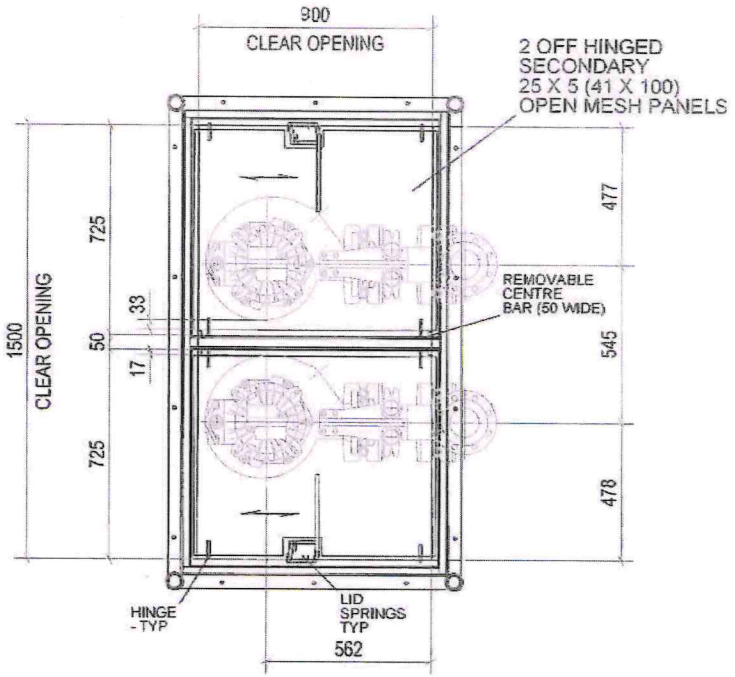
A - A



B - B



C - C



PLAN ON FRAME WITH LIDS REMOVED

= SPAN DIRECTION OF 25 X 5 (41 X 100) OPEN MESH PANELS

REV MARK	REVISION DESCRIPTION	REVISION DATE
A	1ST ISSUE FOR APPROVAL	12.02.2020

Client: PUMP SUPPLIES LTD

Project:

Title: 5 TONNE WET WELL SPRING ASSISTED COVER

Drawn: TY Date:

Chkd: Date:

Scale: 1:8 1:15

TOLERANCE U.N.O. ± 2mm

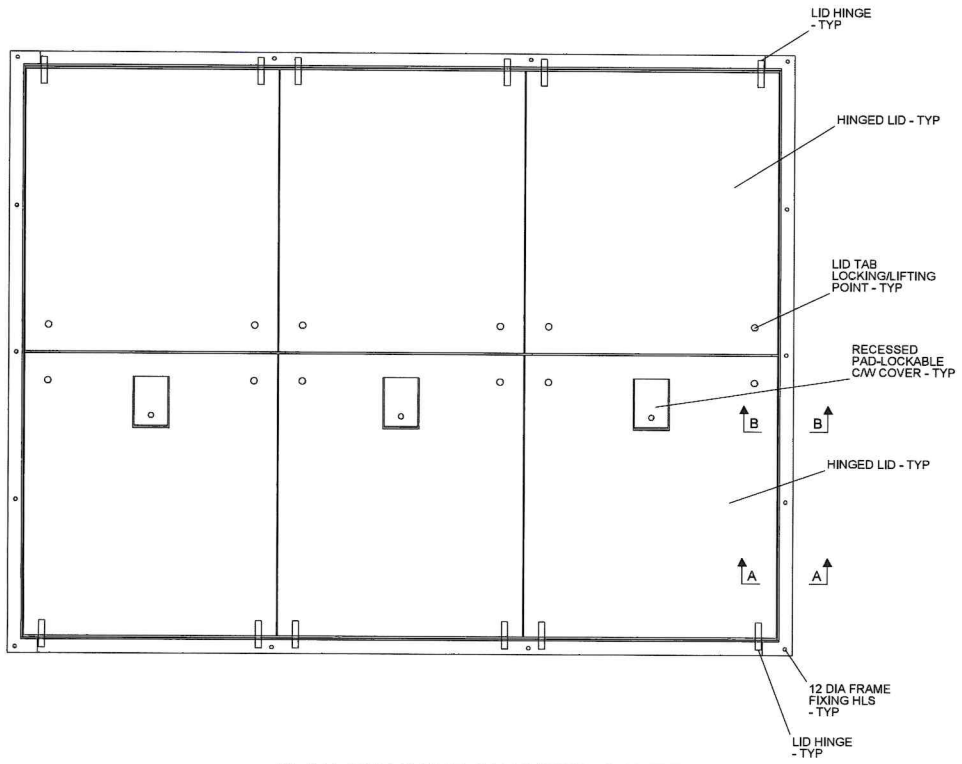
STRUCTURAL FABRICATIONS Ltd

2 Causeway Road, Sir Francis Ley Industrial Park, Derby DE21 6YL
Telephone 01332 749109 Facsimile 01332 749469
www.structural-fabrications.co.uk

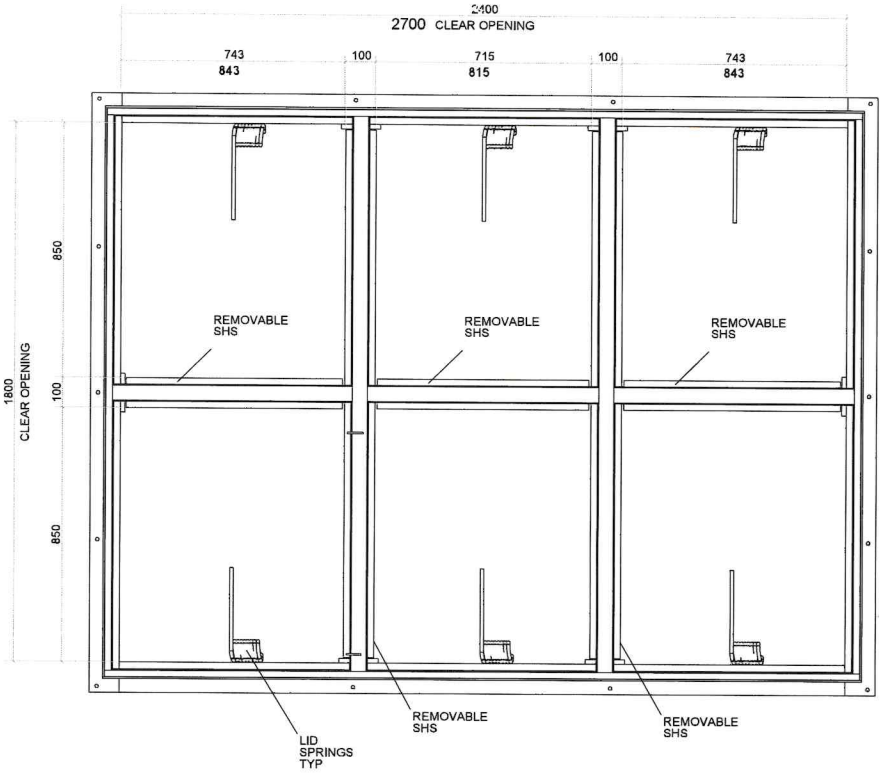
Job No. / Ref / Dwg No. / Rev

/ / /

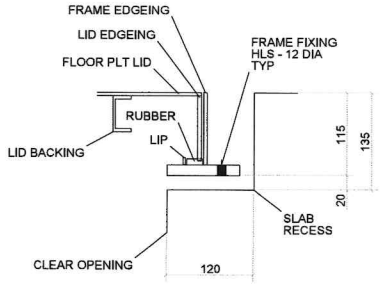
All Steelwork Manufactured to:
BS EN 1090-2 Execution Class: 1 U.N.O.



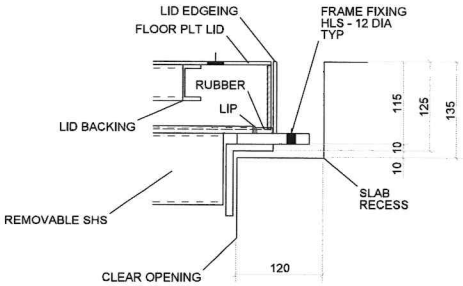
PLAN ON VALVE CHAMBER COVER



PLAN ON FRAME WITH LIDS REMOVED



A - A



B - B

REV MARK	REVISION DESCRIPTION	REVISION DATE
A	ISSUED FOR STANDARD 5TE 2400 X 1800 VALVE CHAMBER COVER	13.07.2020

Client: SF

Project: STD 5TE S/A VALVE COVER

Title: SPRING ASSISTED VALVE CHAMBER COVER

TOLERANCE U.N.O. ± 2mm

Drawn: TY **Date:** 13.07.2020
Chkd: RJ **Date:** 14.07.2020
Scale: 1:5 1:12

STRUCTURAL FABRICATIONS Ltd
2 Cravings Road Sir Frank Whittle Industrial Park South Derby DE73 8UL
Telephone 01332 747403 Facsimile 01332 747407
www.structural-fabrications.co.uk

Job No.	/ Ref /	Dwg No.	/ Rev
JWxxxx	/ JW /	SF500	/ A

LIFTING EQUIPMENT

3rd Angle Projection

TOLERANCE U.N.O. ± 2mm

DO NOT SCALE - IF IN DOUBT - ASK!

SHOP MATERIAL LIST FOR 1 ASSEMBLY

Mark	Size	Grade	No.	Length (mm)	Area (m^2)	Weight (kg)
F6	FLT5*40	S275	2	40	0.008	0.1
M13	CHS76.1*3.2	S275	1	255	0.061	1.4
M14	D76	S275	1	10	0.011	0.3
M17	D200	S275	1	10	0.061	2.0
				Total	0.142	3.9

GENERAL NOTES

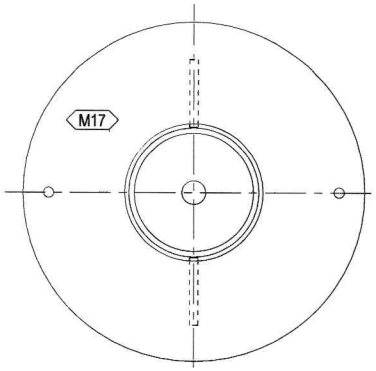
All Holes to be **22** Dia UNO
All Welds to be **6** FW. UNO
Slot hole length is to outside

All Steelwork Manufactured to:
BS EN 1090-2: Execution Class 1 U,N,O

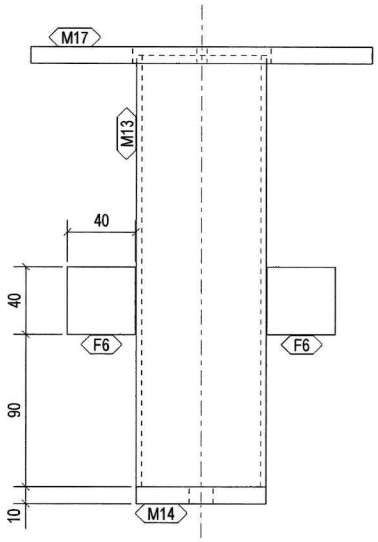
FINISH **Hot Dip Galv**
LOT **0** QTY **1**
PHASE **1** QTY **1**

FABRICATION STATUS

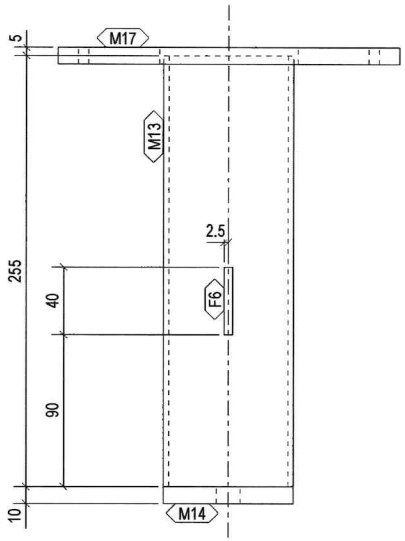
Material check by : _____ Date: _____
Fabricated by: _____ Date: _____
Fab checked by: _____ Date: _____
Welded by: _____ Date: _____
Weld checked by: _____ Date: _____



PLAN VIEW



FRONT VIEW



SIDE VIEW

Rev	Date	Revision Description

STRUCTURAL FABRICATIONS Ltd

Client: MANHOLES
Project: DAVIT 500kg

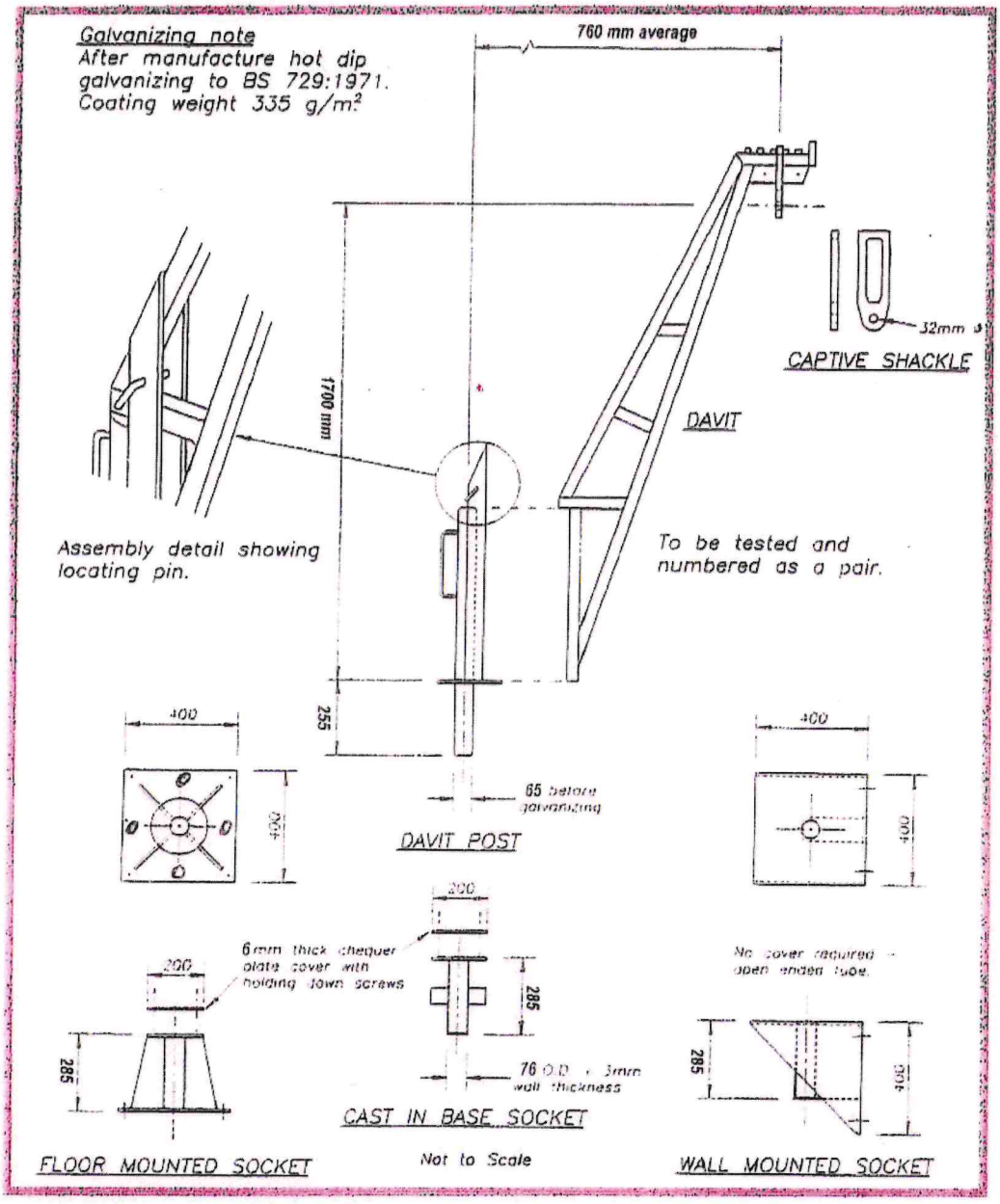
Scale	Drawn	Checked	Date
N.T.S.	TNH		20.02.2018

Job No.	Drawing No.	Ref.	Rev.	
SSK	5	JOB		A3

1 No. HOUSING REQUIRED AS DRAWN MARKED 5JOB LETTER

Assembly / Sub Assembly Status
1 ASSEMBLY

STRUCTURAL FABRICATIONS



DRAWN BY	PORTABLE LIFTING DAVIT AND DAVIT SOCKET S.W.L 500 KG	DRAWING NUMBER
S.S.KANG		SF 500
JANUARY 1998		

HAZARDOUS AREA RISK ASSESSMENT

Project Name: Mount Road, Gorton

	Risk Factor	Y/N	Evaluation & Comment
1	Is the catchment area solely domestic premises?	Yes	• Domestic dwellings are low risk as any potentially methane generating waste is diluted with grey water and rainfall. Alll domestic dwellings have high level vents from sewer pipes.
2	Are fuel filling stations located within the catchment area?	No	• Filling stations bring with them the risk of deliver tankers losing containment to drains.
3	Are the fuel filling stations independent?	No	• Large chain fillings stations such as BP are assumed to be low risk due to their compliance with APEA Blue Book.
4	Is there >1 independent fuel filling station located within the catchment area?	No	• Multiple fillings stations increases the risk due to number of road tanker movements and possible loss of containment following an incident.
5	Are there industrial premises located with the catchment area?	No	• If the criteria specified are met then a stage 2 RA is required. • Ensure each premise is evaluated individually with relation to the records made public by the EA & HSE.
5a	Does the premise's trade effluent certificate specify any risks relating to discharge of flamable effluent?	No	•Trade effluent certificates can be accessed through TEMS (Trade Effluent Management System).
5b	Does the quantity of road tank deliveries to the premise of flammable materials pose significant risk?	No	• The scale of the chemical or petroleum works should be considered, in terms of quantity of deliveries in addition to the inventories already present on site. •Emphasis here should be placed on the *quantity* of deliveries, with how this is directly related to increased risk of loss of containment following and incident.
5c	Does the premise have bulk storage of flammable liquids on site?	No	• Examples of these are storage tanks, IBC's and 250 litre drums. • This includes deliveries of flammable liquids in tankers or wagons.
5d	Is there bulk storage of LPG, requiring road tanker delivery, at the premise?	No	• Solely LPG cylinder storage, with no delivery, is classified as low risk.
6	Are catchment pipelines or boreholes routed or drilled through rock formations likely to contain methane?	No	•For further information relating to the risk associated with ground methane, see both the supporting document and [1]. •Shale rock formations, historical mine workings or landfill sites should be considered for methane risk

Result	**Stage 1 Risk Assessment Acceptable**
Additional Advisories	No Specific Additional Advisories

[redacted]