

SURFACE WATER DRAINAGE STRATEGY

**FOR THE ERECTION OF A SEMI-PERMANENT
BUILDING FOR WAREHOUSE PURPOSES
AT
RAYBURN TRADING
NORTH STREET MANCHESTER**



**FOR
RAYBURN TRADING**

REPORT VERIFICATION

SITE ADDRESS	Rayburn Trading North Street Manchester
REPORT TITLE	Surface Water Drainage Strategy
JOB NUMBER	720-21
PREPARED BY	JRS

ISSUE NO.	DATE	STATUS	REPORT VERSION	ISSUED BY
1	17-11-21	for Planning	01	JRS

INDEX

DESCRIPTION	PAGE
1. Brief	3
2. General	3
3. Site Information	3
4. Drainage Proposals	3
5. Conclusion	3

APPENDICES

Appendix 1	Site Location Plan
Appendix 2	Site Plan drawing 720-21-01
Appendix 3	The Planning Group's plans for the proposed semi-permanent building
Appendix 4	The Alan Johnson Partnership As Built Drainage General Arrangement drawing 12H
Appendix 5	United Utilities Sewer Records
Appendix 6	Drainage drawing 720-21-15
Appendix 7	720-21 SW Calculations 02

1. BRIEF

- 1.1. Sumner Consultancy has been appointed by Rayburn Trading to produce a Surface Water Drainage Strategy in connection with their proposed erection of a semi-permanent building.

2. GENERAL

- 2.1. This Surface Water Drainage Strategy has been produced to following a request by the Planning Department before the planning application by Rayburn Trading can be validated.
- 2.2. The Site is located approximately 1 mile to the north of the centre of Manchester and is located on the eastern side of North Street and the southern side of Rayburn Way which is within a business/industrial site, at Grid Reference X384428 Y399967 with the nearest post code of M8 8RA. The Site Location Plan is in Appendix 1.

3. SITE INFORMATION

- 3.1. The Site is an existing car park which has a hard paved area of 1365m² as shown on the Site Plan drawing 720-21-01 in Appendix 2.
- 3.2. The proposal for the Site is to construct a semi-permanent building for warehouse purposes on a concrete pad. The area of the building is 1104.5m² and the area of the concrete pad is 1162.5m². The Planning Group's plans for the proposed semi-permanent building are in Appendix 3.
- 3.3. Rayburn Trading have provided a copy of the drainage plan for the Site which shows a drainage channel across the middle and southern side of the car park. The drainage channels then outfall to a manhole located at the entrance to the car park. The surface water passes through a petrol interceptor and then links up with the building drainage and together outfalls to crate system storage tank and subsequently via a 225mm diameter drain into a combined 375mm diameter sewer in North Street. A copy of the As Built Drainage General Arrangement drawing 12H by The Alan Johnson Partnership is in Appendix 4.
- 3.4. Adjoining the Site Rayburn Way has a 150mm diameter foul sewer and a 375mm diameter surface water sewer falling in a westerly direction where both outfall to a combined chamber at the junction of Rayburn Way with North Street. A copy of United Utilities Sewer Records is in Appendix 5.

4. DRAINAGE PROPOSALS

- 4.1. The proposed building has an area of 1104.5m² which is a 19% reduction on the existing hard paved car park and surface water draining to the existing surface water drains.
- 4.2. The building will have 4 downpipes on the eastern side and 4 on the western side. A new drainage system will be provided along the eastern and western sides comprising 450mm diameter inspection chambers and 150mm pipes as shown on the Drainage drawing 720-21-15 in Appendix 6.
- 4.3. A copy of the proposed drainage calculations 720-21 SW Calculations 02 are in Appendix 7.

5. CONCLUSION

- 5.1. There will be a 19% reduction in the impermeable area of the Site and consequently a 19% reduction in the surface water entering the existing system and combined foul sewer in North Street.

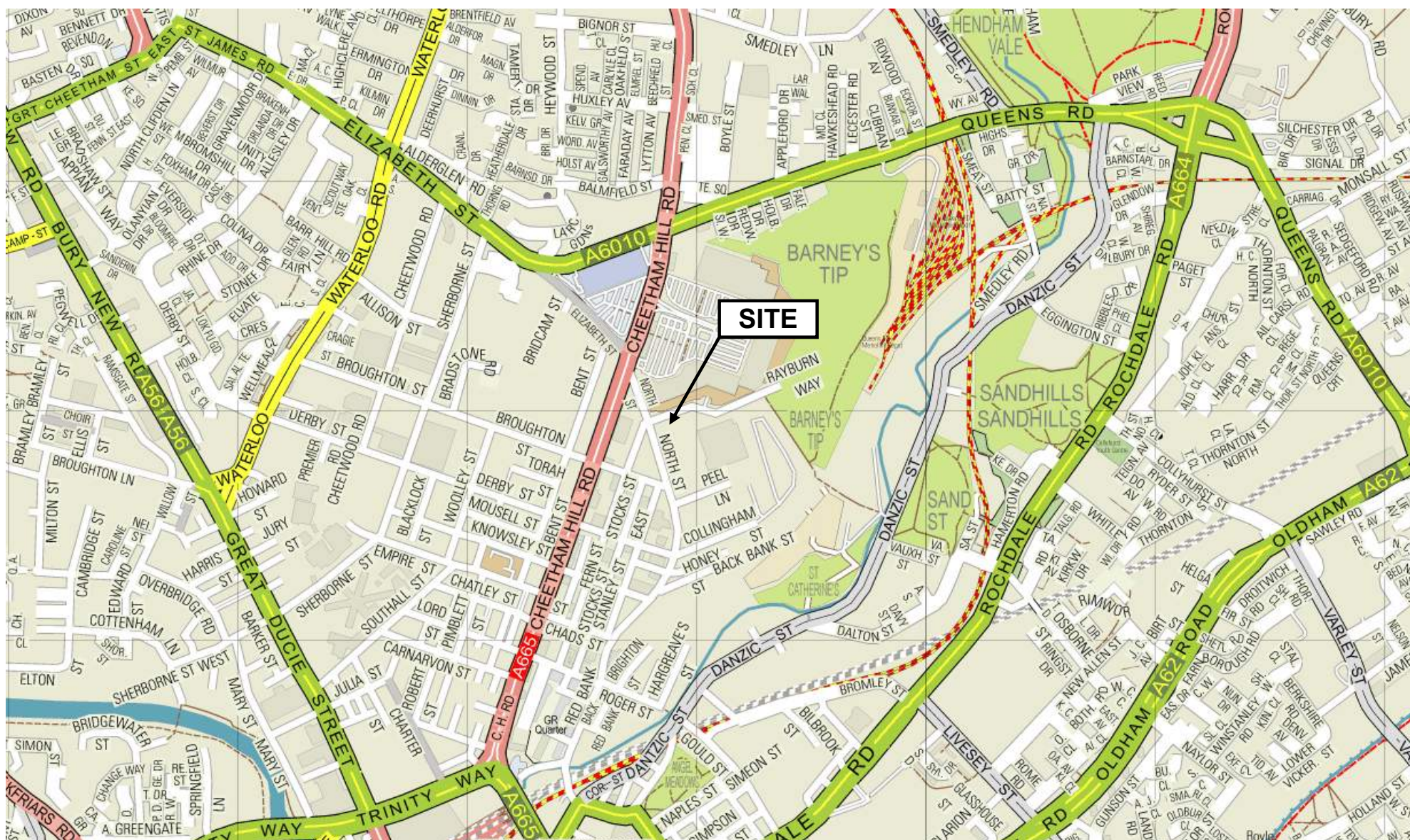
John Sumner IEng MICE
Director
Sumner Consultancy Ltd
November 2021

APPENDIX 1

SITE LOCATION PLAN

SITE LOCATION PLAN

Nearest Post Code M8 8RA
Grid Reference X384428 Y399967

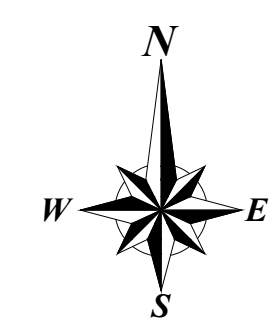


APPENDIX 2

SITE PLAN DRAWING 720-21-01

APPENDIX 3

THE PLANNING GROUP'S PLANS FOR THE PROPOSED SEMI-PERMANENT BUILDING



1. Do not scale from this drawing.
2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.
In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Summer Consultancy accepts no liability in the event of not being so notified and where construction work has commenced.
3. The Ordinance Survey details have been reproduced via Promap from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright.
Summer Consultancy Ltd Ordnance Survey Paper Mapping Licence Number 100059047.
4. The existing drainage has been taken off a pdf copy of the As Built Drainage General Arrangement drawing 12H by The Alan Johnston Partnership.

Rev	Date	Description
-----	------	-------------

Client: RAYBURN TRADING

Client: RAYBURN TRADING

Project: **PROPOSED WAREHOUSE
RAYBURN TRADING NORTH
STREET MANCHESTER**

Drawing Title: SITE PLAN

Scale: 1:200	Drawn by: JRS	Date: November 2021
--------------	---------------	---------------------

Drawing Number:	720-21-01	Revision:
-----------------	-----------	-----------

APPENDIX 4

**THE ALAN JOHNSON PARTNERSHIP
AS BUILT DRAINAGE GENERAL
ARRANGEMENT DRAWING 12H**

DEDICATED GAS METER ROOM TO BE 2.5x1.7x2 IH, 2% VENTILATED 50% LOW LEVEL, 50% HIGH LEVEL INTERNAL GAS METER

150R X 4 DUCTS BY DEVELOPER ELECTRIC ONLY

EXCAVATE FOR CONNECTION BY TRANSCO 24" X 100 UPT

EX 6.6KV SUB STATION

EXISTING

2 x 185HV

125 PE

634H P/L

110MM P/L

25M METER IN

4" CHECK VALVE IN

ROAD GULLY

EXISTING 24"

11.85.930

125M INTERCEPTOR

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

125M

CD-COORDINATES			
MANHOLE REF.	EASTINGS	NORTHINGS	INVERT LVL.
F1	4348.831	4488.381	53.094
F2	4348.848	4488.381	52.982
F3	4348.762	4471.732	52.402
F4	4350.732	4484.262	51.901
F5	4351.899	4487.419	51.845
F6	4375.468	4487.367	51.282
F7	4328.130	4493.473	50.830
F8	4355.442	4483.702	50.537
F9	4353.284	4455.884	49.880
F1	4374.436	4487.272	53.766
F2	4324.657	4453.262	52.260
F3A	4353.018	4488.973	52.175
F3	4327.819	4487.536	52.191
F4	4326.491	4479.363	52.038
F5	4346.883	4472.797	52.838
F6	4352.435	4485.680	52.280
F7	4328.819	4496.718	52.128
F8	4357.681	4484.453	51.865
F9	4357.825	4485.262	52.089
F10	4358.953	4485.255	52.080
F11	4357.292	4485.448	52.780
F12	4358.896	4485.030	52.036
F13	4345.813	4484.574	52.870
F14	4352.255	4487.682	52.875
F15	4324.128	4483.881	52.427
F16	4352.488	4484.296	52.271
F17	4352.754	4484.396	51.780
F18	4376.422	4483.638	51.260
F19	4326.152	4484.498	51.822
F20	4358.419	4487.513	51.181

AS BUILT

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	WATER STORAGE TANK REMOVED - AS BUILT	25/09/04	
2	DRAINAGE SYSTEMS REMOVED - AS BUILT	01/11/01	
3	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
4	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
5	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
6	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
7	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
8	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
9	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
10	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
11	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
12	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
13	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
14	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
15	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
16	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
17	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
18	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
19	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
20	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
21	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
22	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
23	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
24	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
25	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
26	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
27	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
28	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
29	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
30	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
31	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
32	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
33	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
34	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
35	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
36	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
37	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
38	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
39	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
40	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
41	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
42	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
43	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
44	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
45	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
46	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
47	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
48	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
49	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
50	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
51	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
52	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
53	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
54	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
55	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
56	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
57	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
58	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
59	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
60	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
61	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
62	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
63	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
64	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
65	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
66	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
67	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
68	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
69	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
70	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
71	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
72	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
73	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
74	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
75	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
76	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
77	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
78	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
79	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
80	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
81	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
82	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
83	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
84	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
85	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
86	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
87	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
88	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
89	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
90	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
91	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
92	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
93	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
94	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
95	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
96	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
97	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
98	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
99	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	
100	DRAINAGE SYSTEMS TO SAT NEW PUMP HOUSE	04/01/02	

PROJECT			
PROJECT	DAYBURN PROPOSED WAREHOUSE		
DETAIL	DRAINAGE GENERAL ARRANGEMENT		
ARCHITECT	BIMMER SAGLER		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		
LOCATION	DAYBURN, NORTH ABERDEENSHIRE		
DATE	1/11/2004	SCALE	1:1
CLIENT	THE ALAN JOHNSON PARTNERSHIP		

APPENDIX 5

UNITED UTILITIES SEWER RECORDS



Water for the North West

SEWER RECORDS

Address or Site Reference

RAYBURN TRADING CO LTD 90
NORTH STREET,
MANCHESTER,
M8 8RA

Scale: 1:2500
Date: 20/10/2021

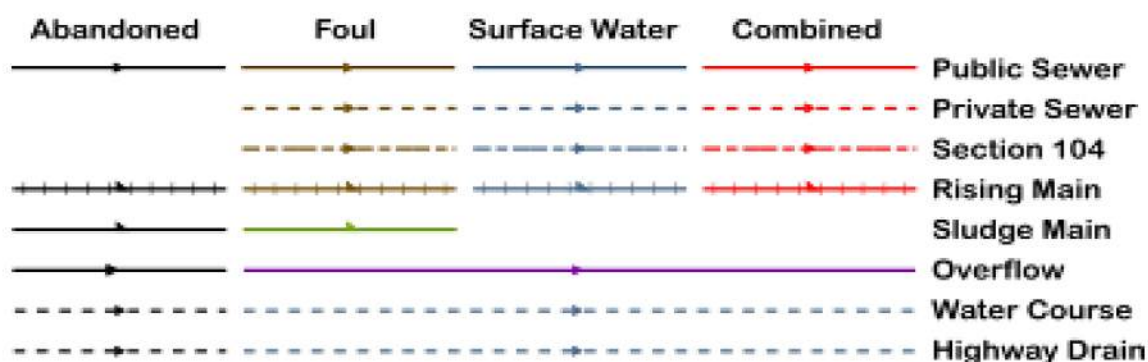
Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Crown copyright and database rights 2017
Ordnance Survey 100022432. Unauthorised
reproduction will infringe these copyrights.



Wastewater Symbolology



All point assets follow the standard colour convention:

red – combined	brown - foul
blue – surface water	purple - overflow

Manhole	Side Entry Manhole
HS Head of System	Outfall
ES Extent of Survey	Screen Chamber
RE Rodding Eye	IC Inspection Chamber
IN Inlet	Bifurcation Chamber
DP Discharge Point	LH Lamp Hole
VV Vortex	T Junction / Saddle
PE Penstock	Catchpit
WO Washout Chamber	Valve Chamber
VA Valve	Vent Column
AV Air Valve	Vortex Chamber
NRV Non Return Valve	Penstock Chamber
SO Soakaway	Network Storage Tank
GU Gully	Sewer Overflow
CA Cascade	Ww Treatment Works
FM Flow Meter	Ww Pumping Station
HA Hatch Box	Septic Tank
OI Oil Interceptor	Control Kiosk
SM Summit	
DS Drop Shaft	Change of Characteristic
OP Orifice Plate	

APPENDIX 6

DRAINAGE DRAWING 720-21-15



Notes

1. Do not scale from this drawing.
2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.
In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Sumner Consultancy accepts no liability in the event of not being so notified and where construction work has commenced.
3. The Ordnance Survey details have been reproduced via Promap from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright.
Sumner Consultancy Ltd Ordnance Survey Paper Mapping Licence Number 100059047.
4. The existing drainage has been taken off a pdf copy of the As Built Drainage General Arrangement drawing 12H by The Alan Johnston Partnership.
5. All drainage works are to be constructed in accordance with Sewers for Adoption Design & Construction Guide 8th Edition, Building Regulations 2015 Edition Approved Document H or current British Standards for Drainage.

Revisions

Rev	Date	Description
-----	------	-------------



The Old School
Astley
Shrewsbury
ST4 4BP
Tel: 01513 218 788
Email: info@sumnerconsultancy.co.uk
Web: www.sumnerconsultancy.co.uk

Client: RAYBURN TRADING

Project: PROPOSED WAREHOUSE
RAYBURN TRADING NORTH
STREET MANCHESTER

Drawing Title: DRAINAGE

Scale: 1:200	Drawn by: JRS	Date: November 2021
--------------	---------------	---------------------

Drawing Number: 720-21-15	Revision:
---------------------------	-----------

NOTE
The Existing drainage shown is approximate
The proposed levels are approximate

KEY

EXISTING DRAINAGE

- Surface Water Drain & Manhole
- Drainage Channel & Gully

PROPOSED DRAINAGE

- Surface Water Drain & Inspection Chamber 4500

APPENDIX 7

720-21 SW CALCULATIONS 02

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.000
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
S1	0.046	5.00	55.000	450	1.203
S2	0.018	5.00	54.410	450	1.295
S12			54.310	1200	2.099
S17			54.310		2.547
S3	0.046	5.00	55.000	450	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1 - S2	S1	S2	30.000	0.600	53.797	53.115	0.682	44.0	150	5.33	50.0
S2 - S12	S2	S12	36.500	0.600	53.115	52.286	0.829	44.0	150	5.73	50.0
S12 - S17	S12	S17	34.200	0.600	52.211	51.763	0.448	76.3	225	6.11	50.0
S3 - S12	S3	S12	30.000	0.600	54.000	52.286	1.714	17.5	150	5.21	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1 - S2	1.521	26.9	6.2	1.053	1.145	0.046	0.0	49	1.239
S2 - S12	1.520	26.9	8.7	1.145	1.874	0.064	0.0	58	1.355
S12 - S17	1.498	59.6	14.9	1.874	2.322	0.110	0.0	77	1.254
S3 - S12	2.419	42.7	6.2	0.850	1.874	0.046	0.0	38	1.727

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1 - S2	30.000	44.0	150	Circular	55.000	53.797	1.053	54.410	53.115	1.145
S2 - S12	36.500	44.0	150	Circular	54.410	53.115	1.145	54.310	52.286	1.874
S12 - S17	34.200	76.3	225	Circular	54.310	52.211	1.874	54.310	51.763	2.322
S3 - S12	30.000	17.5	150	Circular	55.000	54.000	0.850	54.310	52.286	1.874

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1 - S2	S1	450	Manhole	Private	S2	450	Manhole	Private
S2 - S12	S2	450	Manhole	Private	S12	1200	Manhole	Private
S12 - S17	S12	1200	Manhole	Private	S17		Junction	
S3 - S12	S3	450	Manhole	Private	S12	1200	Manhole	Private

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	55.000	1.203	450				
				0	S1 - S2	53.797	150
S2	54.410	1.295	450		1	S1 - S2	53.115
				0	S2 - S12	53.115	150
S12	54.310	2.099	1200		1	S3 - S12	52.286
				2	S2 - S12	52.286	150
				0	S12 - S17	52.211	225
S17	54.310	2.547			1	S12 - S17	51.763
							225
S3	55.000	1.000	450				
				0	S3 - S12	54.000	150

Simulation Settings

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m³/ha)	0.0
M5-60 (mm)	17.000	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.400	Skip Steady State	x	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440



Sumner Consultancy Ltd
The Old School
Astley
Shrewsbury SY4 4BP

File: 720-21 SW Calculations 02.pfd
Network: Storm Network
John Sumner
17/11/2021

Page 4
720-21 Rayburn Trading 90 North Street Manchester

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	40	0	0

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	11	53.992	0.195	24.2	0.0311	0.0000	SURCHARGED
15 minute winter	S2	11	53.512	0.397	32.6	0.0632	0.0000	SURCHARGED
15 minute winter	S12	11	52.379	0.168	52.3	0.1900	0.0000	OK
15 minute winter	S17	11	51.926	0.163	52.7	0.0000	0.0000	OK
15 minute winter	S3	10	54.082	0.082	24.2	0.0130	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	S1 - S2	S2	23.1	1.446	0.858	0.5281	
15 minute winter	S2	S2 - S12	S12	29.4	1.728	1.093	0.6361	
15 minute winter	S12	S12 - S17	S17	52.7	1.685	0.884	1.0690	26.8
15 minute winter	S3	S3 - S12	S12	24.1	2.322	0.564	0.3114	