Project:	**Phoenix Ironworks**	Doc No:	**240010-KOD-ZZ-ZZ-RP-C-0000001**
Subject:	**Drainage Planning Condition 6**	Rev:	**P02-S2**
Prepared by:	**M Fenton**	Date:	**06/06/2025**
Approved by:	**P Graveney**	Date:	**06/06/2025**

Introduction

Koda have been appointed by Eric Wright Construction to undertake a drainage design to support a planning application (ref 137346/FO/2023) for the 'Phoenix Ironworks' development in Manchester. Several Appendices have been included in this technical note:

- Appendix A – Existing Site Information
- Appendix B – Correspondence
- Appendix C – Proposed Design Drawings
- Appendix D – Hydraulic Calculations
- Appendix E – Exceedance Flood Route Analysis

Current proposals are to deliver a residential development within a building ranging from 5 to 10 storeys. The site will contain ground floor commercial space, cycle provision, hard and soft landscaping, access and servicing and other associated works.

The proposed scheme is located and land bound by Jersey Street to the south, Naval Street to the north, Radium Street to the west and Poland Street to the east. The address is Phoenix Ironworks, Ancoats, Manchester, M4 6LN. A site location plan is available in Appendix A.

A detailed Flood Risk Assessment was carried out by Curtins in June 2023 and is available upon request.

Planning Condition 6

Planning condition 6 specifically relates to drainage and the stipulations are listed below. Each requirement has been assigned a reference number, which correspondence to a response within this technical note. The requirements are unchanged, but have been rearranged to suit the order of this technical note.

- *Progression through the drainage hierarchy shall be evidence based and supported by site investigation. Results of ground investigation carried out under Building Research Establishment Digest 365. Site investigations should be undertaken in locations and at proposed depths of the proposed infiltration devices. Proposal of the attenuation that is achieving half emptying time within 24 hours. If no ground investigations are possible or infiltration is not feasible on site, evidence of alternative surface water disposal routes (as follows) is required. (1)*
- *Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice. (2)*
- *A finalised drainage layout showing all components, outfalls, levels and connectivity. (3)*
- *Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable. (4)*
- *Construction details of flow control and SuDS elements. (5)*
- *Runoff volume in the 1 in 100 year, 6 hours rainfall shall be constrained to a value as close as is reasonable practicable to the greenfield runoff volume for the same event, but never to exceed the runoff volume from the development site prior to redevelopment. (6)*
- *Hydraulic calculation of the proposed drainage system, including all parameters. (7)*
- *Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building. (8)*

• *Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.* *(9)*
• *The development shall then be constructed in accordance with the approved details, within an agreed timescale.*

Correspondence

Lead Local Flood Authority (LLFA)

An extract of previous correspondence with the LLFA is available in Appendix B, the full correspondence is available on request. In summary:
• In principle the LLFA accept the only feasible proposed outfall is the United Utilities (UU) sewer network. *(1)*
• Infiltration testing revealed that infiltration is not feasible due to naturally high ground water. *(1)*
• The site is not located within proximity to any watercourses or surface water sewers. *(1)*

United Utilities (UU)

An extract of previous correspondence with UU is available in Appendix B, the full correspondence is available on request. In summary:
• "*United Utilities request that any agreed rate does not exceed 14l/s.*" *(2)*

Correspondence Notes

The 14l/s flow rate was based on a 50% reduction in existing site flows, assuming a rainfall intensity of 50mm/hr. The proposals consider a rainfall intensity of ≈130mm/hr, therefore, the reduction in surface water flow will be significantly higher than UU anticipated.

The proposed site incorporates some soft/free draining areas which aren't formally drained. This will reduce the volume of water leaving the site when compared to the existing scenario *(6).* However, as infiltration is not possible, the volume of water is directly proportional to the amount of rain that falls on the formally drained areas. It cannot be reduced by the drainage design proposals. *(6)*

Proposed Drainage Strategy

Drainage Design

This section should be read in conjunction with the 'Proposed Drainage GA' (3) and associated details *(5)* in Appendix C.

As shown on the drainage plan, surface water flows are collected and diverted underground via slot drains, RWDP's and porous SuDS features. From here, flows are conveyed in a southwest direction, through 2No. online attenuation tanks before discharging into a proposed combined manhole at a restricted rate of 14.0l/s. Flows are conveyed from the proposed combined manhole into the existing combined public sewer within Radium Street, via a new online manhole.

The site will remain under one ownership and therefore the drainage system will remain private within the development boundary.

SuDS

The proposed surface water drainage network incorporates 2No. attenuation tanks and a permeable pavement. Additionally, wherever possible, free draining gravel areas will be specified to reduce the burden on the downstream network. *(4)*

It should be pointed out that there are no (external) trafficked areas within the site, which would normally be a major source of pollutants, such as hydrocarbons. The drainage design should not place primary emphasis on water quality treatment, as user behaviour will have a far greater influence on run-off pollution. The most significant sources of contamination are likely to result from actions such as failing to dispose of litter properly or neglecting to pick up animal waste. *(4)* Additionally, all surface water

flows will discharge to a combined public sewer, which will be processed at a waste-water treatment works.

Hydraulic Modelling

The hydraulic modelling results available in Appendix D *(7)* show:

- The drainage network incorporates an orifice plate and hydrobrake to restrict the flows and ensure both attenuation tanks fill.
- No flooding of any sewer occurs during a 1:100 year event with an additional 45% allowance for climate change. *(8)*

Exceedance / Overland Surface Water Flood Routes

This section should be read in conjunction with the drawings available in Appendix E. The FRA (available upon request) reviews the surface water flood risk in more detail.

Existing Surface Water Flood Risk

- The 'Defra Existing Risk of Flooding from Surface Water' drawing categorises very low / low / medium / high risk areas.
- It can be seen that the majority of the site is identified as being at a 'very low' risk of flooding from surface water. Two 'low risk' areas are shown within the site, adjacent to northern and southern boundary of the site. Low risk areas are vulnerable between the 1:100 and 1:1000 year events, which is beyond the usual design criteria of a drainage network.
- There is a medium risk flood route on Naval and Jersey Street. However, the streets are at lower level than the development site and the risk of this flooding impacting the site is low.
- The area around the site is generally identified as being at very low risk from surface water flooding.

Proposed Exceedance Flow Routes

- The 'Proposed Exceedance Flow Routes' drawing (Appendix E) shows the overland flow route of surface water flows.
- All proposed levels have been designed to fall away from the proposed buildings.
- In the event of a blockage, surface water flows will channel along the lowest point of the site until the blockage is cleared. Flows cannot escape the low point without overtopping into the Main Entrance lobby and onto Jersey Street. However, as established in the 'Existing Surface Water Flood Risk' section, the proposed site is higher than Jersey Street and is at either very low or low risk of flooding.
- The low risk (as opposed to very low risk) of flooding to the FFL fronting Jersey Street replicates the exiting scenario, whereby the existing building is also at low risk. It's worth noting, the Jersey Street FFL couldn't be raised as step free, disabled access is required.

Proposed Foul Water Drainage Strategy

Foul water flows are collected from the buildings and conveyed into the existing combined public sewer within Radium Street, via a new online manhole.

Conclusion

The drainage design seeks to address the requirements of Planning Condition 6. In summary, the design:

- Discharges surface water flows into the combined public sewer as other methods have been discounted.
- Restricts flows to 14.0l/s with no flooding for the 1:100 year +45% return period.
- Uses attenuation tanks and a permeable pavement to achieve this discharge restriction.
- Considers the existing and proposed overland flood routing, ensuring the downstream land will not be impacted by the proposed development in a blockage/exceedance scenario.
- Ensures foul water flows can be drained via gravity into the combined public sewer network.

Based on the above, planning condition 6 (ref 137346/FO/2023) should be discharged.

Appendix A – Existing Site Information



GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

KEY

SITE BOUNDARY

SITE LOCATION:

PHOENIX IRONWORKS, ANCOATS, MANCHESTER, M4 6LN
E:385165, N:398773
GRID REF: SJ 85165 98773

S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

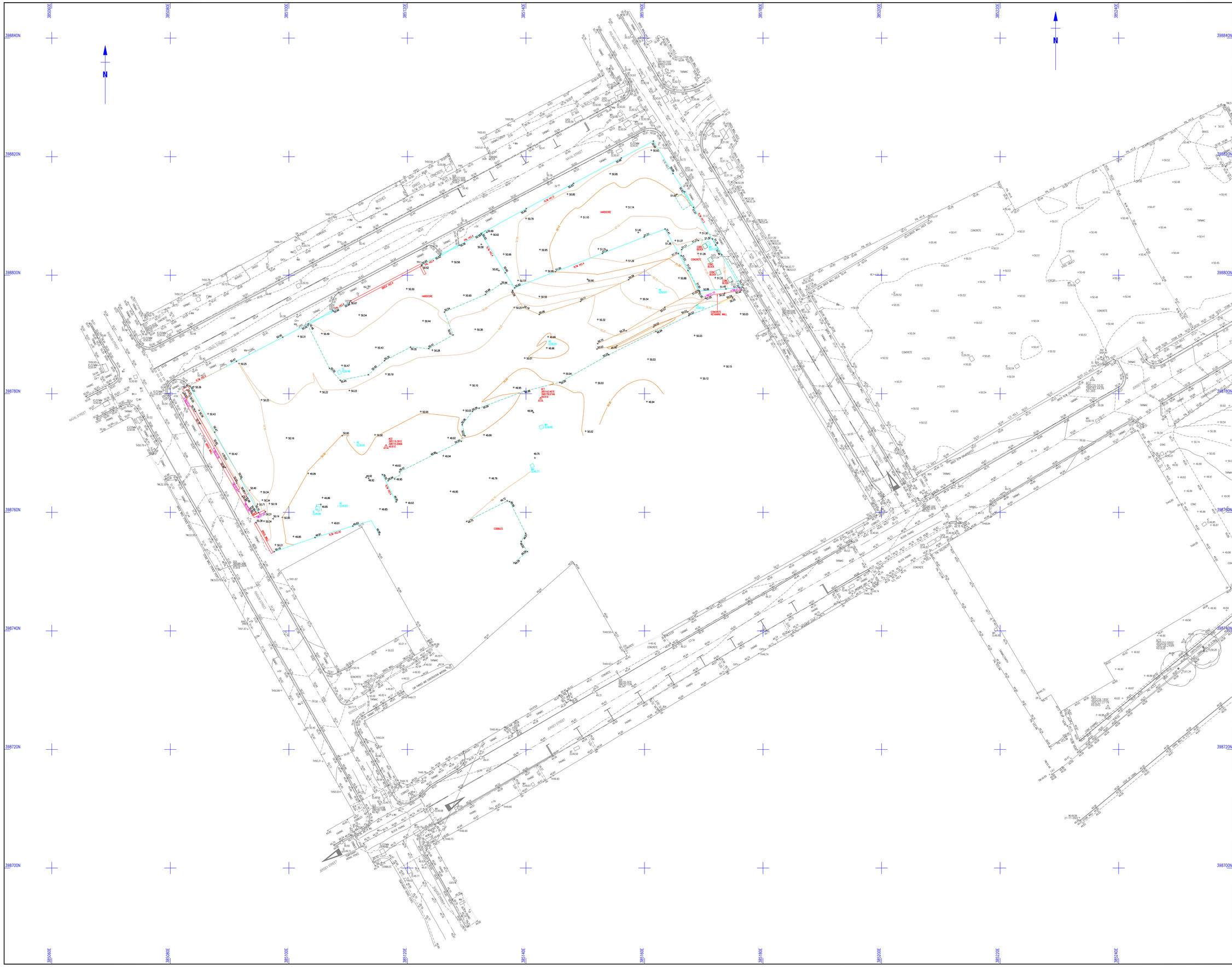
PROJECT:
PHOENIX IRONWORKS

TITLE:
SITE LOCATION PLAN

SCALE: 1:500 @A1	DRAWN BY: MF	CHECKED BY: KC	APPROVED BY: KC

DRAWING No: 240010-KOD-ZZ-00-D-C-0000010

REV: P01



Survey Notes

Grid: Local plane metric related to National Grid

Levels: OS datum from GNSS positioning converted using the National Geoid Model OSGM15

Notes

Topographical Survey Legend

BUILDINGS AND WALLS

Building
Building Open Sided
Ruin (RUIN)
Passage
Wall with Height (Wall +H1.3m)
Retaining Wall (R/W)

FENCE STYLES AND DESCRIPTIONS

Close Boarded C/B
Corrugated Iron C/I
Chestnut Paling C/P
Chainlink C/L
Handrail H/R
Intersecion IRN
Iron Railings I/R
Lattice L/T
Miscellaneous Misc
Palisade PAL
Post & Chain P/C
Post & Rail P/R
Post & Wire P/W
Rigid Mesh R/M
Wire mesh W/M
Stile
Gate
Fence linestyle

ROADS

Kerbs
Edge of Surfacing
Pedestrian Crossing (PC)
Track
Footpath

STREET FURNITURE

Bellsha Beacon
Bus Stop
Bollard
Cats Eye
Coal Chute
Closed Circuit TV
Drain
Electricity Pole
Flood Light
Flag Staff
Lamp Post
Letter Box
Name Plate (street)
Mooring Ring
Mile Post or Mooring Post
Service Marker
Mile Stone
Post
Parking Meter
Reflector Post
Rodding Eye
Road Sign
Speed Camera
Information Sign
Stop
Traffic Light
Telegraph Pole
Traffic Light Push Button Post
Traffic Light Control
Control Box (C/BOX)
British Telecom Box (BT BOX)
Electricity Box (EL BOX)
Gas Box (GAS BOX)

INSPECTION CHAMBERS AND PIPES

Inspection Cover
Inspection Cover (Elec) (C/ELL)
Manhole (MH)
British Telecom Cover (BT)
Inspection Cover (Comms) (C/COM)
Cable TV (CATV)
Inspection Cover Traffic Signals (C/TL)
Gully
Kerb Outlet (KO)
Vent Pipe (VP)
Down Pipe (DP)
Rain Water Pipe (RWP)
Soil Pipe (SVP)
Gas Pipe (G-PIPE)
Unable to lift cover (UTL)
Stop Tap (ST)
Stop Valve (SV)
Lamphole (LH)
Hydrant (HYD)
Earth Rod (ER)
Gas Valve (GV)
Water Meter (WM)
Washout (WO)
Rodding Eye (RE)

GEOTECHNICAL INFORMATION

Borehole (BH)
Trial Pit (TP)
Monitor Pin (+ MON)
Probe Hole (+ PH)
Window Sample (+ WS)

GENERAL INFORMATION

Petrol Pump (PP)
Basement Light (BL)
Footbridge (FB)
Dish Type Channel (0.225)
Slot Type Channel (0.225)
Grate Type Channel (0.225)
Tactile Paving (TAC)
Crash Barrier (C/BR)
Columns (+ COL)
Stanchion (STAN)
Car Vacuum (+ MC)
Offset FB (+ OF)
Air Valve (+ AV)
Trough (TR)
Chimney (+ CHY)
Telephone Call Box (TCB)

OVERHEAD FEATURES

Electricity Pylon (E/PYLON)
Electricity (E/L)
Telephone (T/L)

WATER FEATURES

Canal
Stream
Ditch
Weir
Culvert
Drip (Land Drain)
Spring (+ SPR)

RELIEF AND VEGETATION

Hedge
Edge of wood/Bushes
Stump (+ STUMP)
Individual Tree
Slopes with Height Greater than 1m
Cliff Face
Marsh
Reeds

LEVEL AND HEIGHT INFORMATION

Standard Spot Height (+ 123.45)
Protected Spot Height (+ 123.456)
Bridge Level (+ BL23.92)
Boller Level (+ BL24.92)
Soffit Level (+ SL25.92)
Threshold Level (+ TH26.98)
Cover Level (+ CL26.45)
Invert Level (+ IL25.15)
Pipe Soffit Level (+ PS5.00)
Floor Level (+ FL6.00)
Finished Floor Level (+ FFL6.00)
Arch Level (+ AL7.00)
Eave Level (+ EL7.00)
Ridge Level (+ RL8.00)
Roof Hip Level (+ RHL8.50)
Flat Roof Level (+ FRL7.00)
Top of Canopy Level (+ TOF/CY.00)
Underside of Canopy Level (+ SOF/CS8.00)
Window SSI Level (+ WSL8.00)
Window Head Level (+ WHL9.00)
Springing Level (+ SPL8.50)
Arch Level (+ AL7.00)
Cable Level (+ CHT8.50)
Top of Wall Level (+ TWL10.00)
Underside of Beam Level (+ UBL8.55)
General Height (+ HT8.00)

SURVEY INFORMATION SIGNS

Permanent Ground Marker
O.S. Trig Station
O.S. Bench Mark

Sheet Index

SHEET 1 | SHEET 2

Rev.	Date	Description
A	26/08/2020	Survey extended.
B	15/02/2021	Survey extended.
C	23/06/2022	Survey extended.
D	25/11/2022	Survey extended.
E	08/12/2022	Additional Annotation
F	10/02/2025	Survey extended.

MALCOLM HUGHES
CHARTERED LAND SURVEYORS
2 Allen Road, Livingston, West Lothian
EH54 6TQ, Tel: 01506 467 910
www.malcolmhughes.co.uk
livingston@mhls.co.uk

Accreditations: RICS, The Survey Association, ICES, APAS, RISQS

Client
MANCHESTER LIFE STRATEGIC DEVELOPMENT COMPANY LTD
UNIT 5, ROYAL MILL, 17 REDHILL STREET
MANCHESTER M4 5BA

Project
MANCHESTER LIFE BACK OF ANCOATS

Drawing Title
TOPOGRAPHICAL SURVEY
SHEET 1

Drawn By	ER 22/11/19	Survey Date	NOV 2019
Checked by	EAD 06/12/19	Scale	1:200@A0

Drawing No: 56777_01_01
Revision: F



Survey Notes

Grid: Local plane metric related to National Grid

Levels: OS datum from GNSS positioning converted using the National Geoid Model OSGM15.

Notes

Topographical Survey Legend

BUILDINGS AND WALLS

Building
Building Open Sided
Ruin
Passage
Wall with Height
Retaining Wall

FENCE STYLES AND DESCRIPTIONS

Close Boarded
Corrugated Iron
Chestnut Paling
Chainlink
Handrail
Interwoven
Iron Railings
Lattice
Miscellaneous
Palisade
Post & Chain
Post & Rail
Post & Wire
Rigid Mesh
Wire mesh
Stile
Gate
Fence linestyle

ROADS

Kerbs
Edge of Surfacing
Pedestrian Crossing
Track
Footpath

STREET FURNITURE

Bellaire Beacon
Bus Stop
Bollard
Cable Eye
Coal Chute
Closed Circuit TV
Drain
Electricity Pole
Flood Light
Flag Staff
Lamp Post
Letter Box
Name Plate (street)
Mooring Ring
Mile Post or Mooring Post
Service Marker
Mile Stone
Post
Parking Meter
Reflector Post
Rodding Eye
Road Sign
Speed Camera
Information Sign
Stop
Traffic Light
Telegraph Pole
Traffic Light Push Button Post
Traffic Light Control
Control Box
British Telecom Box
Electricity Box
Gas Box

INSPECTION CHAMBERS AND PIPES

Inspection Cover
Unknown Cover (Elec)
Manhole
British Telecom Cover
Inspection Cover (Comms)
Cable TV
Inspection Cover Traffic Signals
Gully
Kerb Outlet
Vent Pipe
Down Pipe
Rain Water Pipe
Soil Pipe
Gas Pipe
Unable to lift cover
Stop Tap
Stop Valve
Lamphole
Hydrant
Earth Rod
Gas Valve
Water Meter
Washout
Rodding Eye

GEOTECHNICAL INFORMATION

Borehole
Trial Pit
Monitor Pit
Probe Hole
Window Sample

GENERAL INFORMATION

Petrol Pump
Basement Light
Footbridge
Dish Type Channel
Slot Type Channel
Grate Type Channel
Tactile Paving
Crash Barrier
Column
Stanchion
Car Vacuum
Offset FB
Air Valve
Trough
Chimney
Telephone Call Box

OVERHEAD FEATURES

Electricity Pylon
Electricity
Telephone

WATER FEATURES

Canal
Stream
Ditch
Weir
Culvert
Drip (Land Drain)
Spring

RELIEF AND VEGETATION

Hedge
Edge of wood/Bushes
Stump
Individual Tree
Slopes with Height Greater than 1m
Cliff Face
Marsh
Reeds

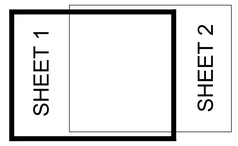
LEVEL AND HEIGHT INFORMATION

Standard Spot Height
Precision Spot Height
Bridge Level
Boiler Level
Soffit Level
Threshold Level
Cover Level
Invert Level
Pipe Soffit Level
Floor Level
Finished Floor Level
Arch Level
Eave Level
Ridge Level
Roof Hip Level
Flat Roof Level
Top of Canopy Level
Underside of Canopy Level
Window Sill Level
Window Head Level
Springing Level
Arch Level
Cable Level
Top of Wall Level
Underside of Beam Level
General Height

SURVEY INFORMATION SIGNS

Permanent Ground Marker
O.S. Trig Station
O.S. Bench Mark

Sheet Index



Rev.	Date	Description
A	26/08/2020	Survey extended.
B	15/02/2021	Survey extended.
C	23/06/2022	Survey extended.
D	25/11/2022	Survey extended.
E	08/12/2022	Additional Annotation
F	10/02/2025	Survey extended.

MALCOLM HUGHES
CHARTERED LAND SURVEYORS
2 Allen Road, Livingston, West Lothian
EH54 6TQ. Tel: 01506 467 910
www.malcolmhughes.co.uk
livingston@mmls.co.uk

Accreditations

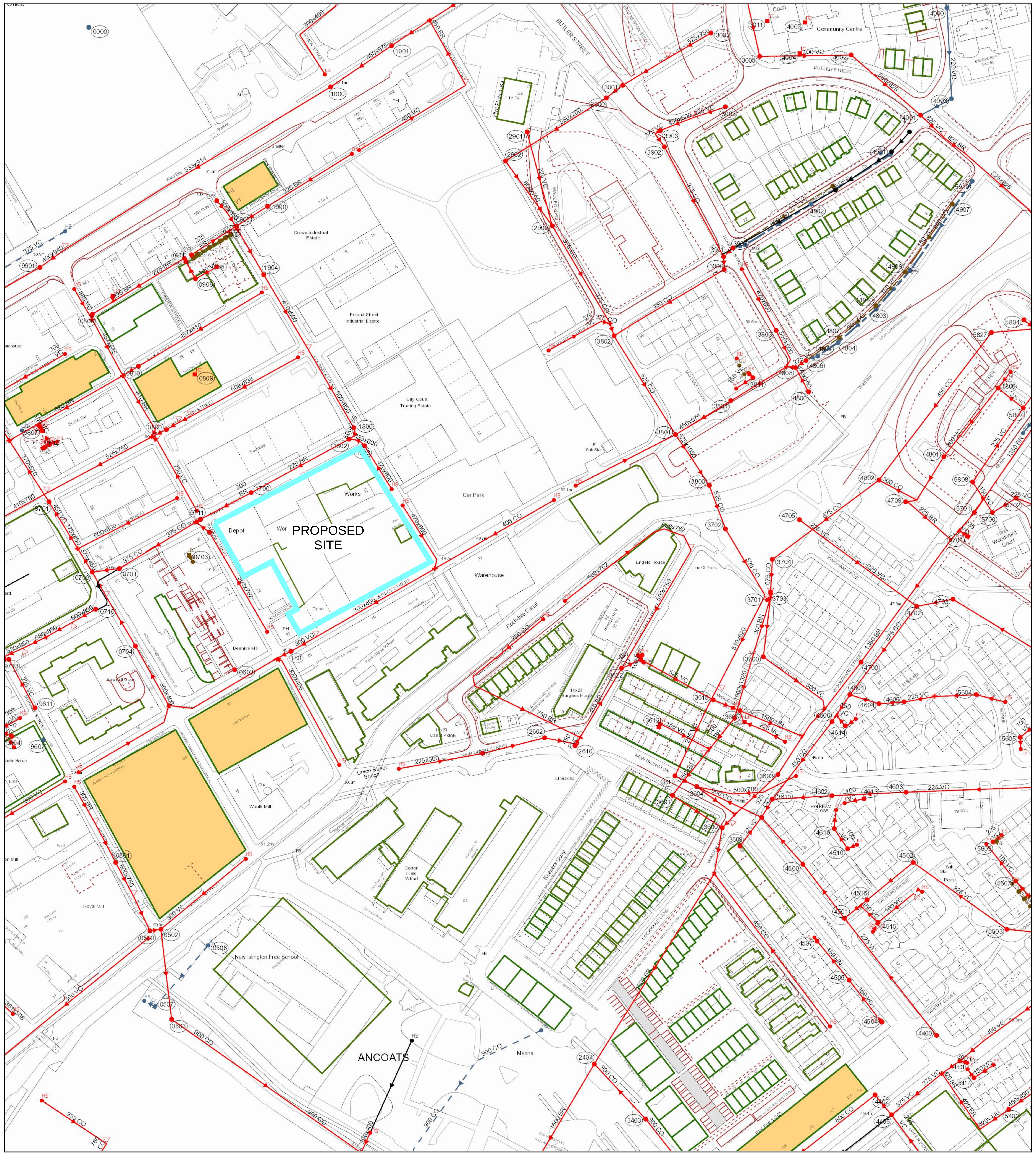
Client
MANCHESTER LIFE STRATEGIC DEVELOPMENT COMPANY LTD
UNIT 5, ROYAL MILL, 17 REDHILL STREET
MANCHESTER M4 5BA

Project
MANCHESTER LIFE BACK OF ANCOATS

Drawing Title
TOPOGRAPHICAL SURVEY
SHEET 2

Drawn By		Survey Date	
ER	22/11/19	NOV 2019	
Checked by		Scale	
EAD	06/12/19	1:200@A0	

Drawing No. 56777_01_02 Revision F



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
4803	50.85	SW	48.52	900			CO	28.18042	1 in 403
4605	49.52	CO	46.32	225			VC	14.03567	1 in 83
3900	51.18	CO	47.07	450			CO	71.40572	1 in 193
4808	50.62	CO	48.32	470			BR	4.831495	
4002	53.53	CO	50.73	550			VC	51.05408	
4002	53.53	CO	50.73	550			VC	51.05408	
9701	50.48	CO	44.21	370			BR	40.49691	
9701	50.48	CO	44.21	370			BR	40.49691	
0700	50.39	CO	44.9	375			VC	15.26434	
0700	50.39	CO	44.9	375			VC	15.26434	
4901	52.31	SW	47.82	900			CO	52.0643	1 in 400
4901	52.31	SW	47.82	900			CO	52.0643	1 in 400
0500	50.22	CO	43.23	600			CO	6.082763	1 in 7
4402		CO		600			CO	101.8557	
4903	51.8	FO	49.44	150			VC	65.12257	1 in 125
4903	51.8	FO	49.44	150			VC	65.12257	1 in 125
0704		CO	0	300			VC	31.38471	
5507		CO		100			VC	26.10942	
4510		CO		100			VC	13.45718	
4800	50.31	CO	47.91	470			BR	15.26665	
4600	47.43	CO	44.78	450			CO	54.20332	1 in 151
4103	53.55	SW	51.96	225			VC	53.33643	1 in 92
4001		CO	0	825			VC	17.77393	
4001		CO	0	825			VC	17.77393	
2610	47.54	CO	44.47	450			PVC	1.067193	
1904		CO	0	470			BR	48.8774	
3608	46.96	CO	43.18	600			CO	39.81206	
0806	50.9	CO	0	457			BR	3	
0806	50.9	CO	0	457			BR	3	
4613		CO		100			VC	10.95113	
2900	51.28	CO	47.68	375			CO	62.76942	
2900	51.28	CO	47.68	375			CO	62.76942	
1803		CO	0	425			BR	9.969375	
4703	49.03	CO	46.18	375			CO	20.39608	1 in 185
4502	49.44	CO	46.87	225			VC	16.05242	1 in 134
4910	50.86	FO	48.76	150			VC	27.11263	1 in 129
5700	49.11	CO	46.36	150			VC	20.24846	1 in 34
0705		CO	0	508			BR	9.442676	
3605	45.96	CO		1500			UN	37.46088	
1001	53.21	CO	46.38	450			BR	41.04875	1 in 373
1001	53.21	CO	46.38	450			BR	41.04875	1 in 373
0903	51.19	CO	49.17	225			BR	29.18145	1 in 224
3811		CO		150			VC	11.04069	
2902	51.78	CO	49.93	600			BR	22.2036	1 in 19
2902	51.78	CO	49.93	600			BR	22.2036	1 in 19
5808	48.11	CO	45.52	225			VC	49.64877	
3001	52.04	CO	49.22	580			BR	11.40175	
3001	52.04	CO	49.22	580			BR	11.40175	
4909	51.2	FO	49.07	150			VC	24.6411	1 in 79
1800	50.45	CO	47.61	500			BR	8.124181	1 in 62
4805	50.49	SW	48.42	225			VC	7.060821	1 in 141
3602	46.34	CO	43.75	300			BR	27.01851	1 in 61
3005		CO	0	100			VC	50.6484	
3005		CO	0	100			VC	50.6484	
0710	50.46	CO	45.94	600			BR	15.24757	
0710	50.46	CO	45.94	600			BR	15.24757	
9901	51.21	CO	43.93	490			BR	62.26556	
9901	51.21	CO	43.93	490			BR	62.26556	
0910		FO		100			GRC	2.298455	
0910		FO		100			GRC	2.298455	
3615	47.4	CO	40.63	1500			VC	16.0003	
3901	51.08	CO	47.14	450			CO	7.112387	1 in 102
3907	50.94	CO	47.51	150			VC	7.043519	1 in 101
3907	50.94	CO	47.51	150			VC	7.043519	1 in 101
5402	50.4	CO	47.62	420			BR	19.41649	
0909		CO		100			VC	13.68026	
3906	50.94	SW	47.58	150			VC	6.950301	1 in 99
3906	50.94	SW	47.58	150			VC	6.950301	1 in 99
4702	48.61	CO	46.07	375			CO	61.40033	1 in 60
5806	48.54	CO	45.51	300			VC	48.41488	
5702	49.17	CO	46.47	225			VC	15.26434	1 in 139
4804	50.49	SW	48.45	900			CO	13.40712	1 in 447
5807	48.73	CO	45.99	225			VC	17.80449	1 in 40
0800	50.65	CO	47.34	525			BR	8.944272	
4907	51.83	FO	49.64	150			VC	45.97432	1 in 81
4907	51.83	FO	49.64	150			VC	45.97432	1 in 81
0908		CO		100			VC	11.03464	
0913		FO		100			GRC	3.723282	
0913		FO		100			GRC	3.723282	
3800	50.37	CO	45.46	525			CO	25.63201	1 in 35
2000	52.34	CO	49.31	580			BR	66.03786	
2000	52.34	CO	49.31	580			BR	66.03786	
0711	50.53	CO	46.85	375			CO	2.877241	
0501	50.16	CO	44.29	600			BR	21.47091	1 in 41
0501	50.16	CO	44.29	600			BR	21.47091	1 in 41
4610		CO		100			VC	10.29758	
0917		FO		100			GRC	7.842798	
0916		FO		100			GRC	6.639525	
0916		FO		100			GRC	6.639525	
4902	51.55	SW	47.69	900			CO	42.84325	1 in 428
4902	51.55	SW	47.69	900			CO	42.84325	1 in 428
3601	46.69	CO	42.87	900			CO	32.9511	1 in 412
5910	52.09	SW	48.74	900			CO	60.39719	1 in 403
5910	52.09	SW	48.74	900			CO	60.39719	1 in 403
5604		CO	0	225			VC	23.02173	
3903	51.55	CO	48.78	375			VC	3.605551	1 in 15
3903	51.55	CO	48.78	375			VC	3.605551	1 in 15
4000	53.11	SW	51.38	225			VC	50.30959	
4000	53.11	SW	51.38	225			VC	50.30959	
3609	47.07	CO	44.65	225			VC	20	1 in 26
4505		CO		150			UN	27.94673	
0905	51.32	CO	48.82	470			BR	2.037535	
0905	51.32	CO	48.82	470			BR	2.037535	
3611	46.55	CO	40.28	225			VC	13.41641	1 in 103
4500	48.27	CO	45.05	225			VC	34.71311	1 in 46
4502	49.44	CO	46.87	225			VC	32.98838	1 in 409
3704	48.23	CO	43.83	675			CO	18.02776	1 in 258
4405		CO		600			CO	14.30672	
3801	50.45	CO	46.18	525			BR	17.24482	1 in 49
0912		FO		100			GRC	3.318789	
0912		FO		100			GRC	3.318789	
4601	48.2	CO	45.03	375			CO	18.02776	1 in 82
3600	46.49	CO	43.09	450			CO	25.83092	
4802		CO	0	675			CO	73.60027	
3703	48.41	CO	43.75	675			CO	1	
4604	48.97	CO	46.15	225			VC	16.76305	1 in 17
4906	51.24	SW	48.59	900			CO	28.39734	1 in 406
4003		SW		225			VC	19.44336	
4003		SW		225			VC	19.44336	
4603	49.4	CO	46.54	225			VC	41.04875	1 in 108
2404	45.87	CO	37.7	1500			BR	96.22354	1 in 116
4705	48.85	CO	46.51	225			VC	80.80223	1 in 184
3804		CO	0	450			BR	35.94758	
3004		CO	0	100			VC	31.7805	
5503	49.34	CO	47.52	225			VC	63.82006	1 in 100
1700	50.44	CO	47.11	300			BR	31.63168	1 in 122
3803	50.52	CO	47.84	550			BR	22.36068	
3622	47.86	CO		450			CO	11.64022	
3701	48.86	CO	44.33	510			VC	55.95925	1 in 28
4614		CO		150			VC	7.616911	
1802	50.41	CO	47.46	225			BR	61.76727	1 in 221
0911		FO		100			GRC	3.029749	
4807	50.51	FO	48.55	150			VC	22.27997	1 in 124
4602	48.2	CO	45.32	225			VC	33.06055	1 in 100
3902	51.78	CO	49.32	375			CO	69.17107	1 in 37
3902	51.78	CO	49.32	375			CO	69.17107	1 in 37
4400	49.5	CO	47.44	225			VC	82.61961	1 in 40
2901	51.78	CO	49.85	225			VC	53.85165	
2901	51.78	CO	49.85	225			VC	53.85165	
0701	50.45	CO	46.42	375			CO	15.13275	1 in 151
0701	50.45	CO	46.42	375			CO	15.13275	1 in 151
0900	51.43	CO	48.76	500			BR	9.219544	
0900	51.43	CO	48.76	500			BR	9.219544	
3702	49.49	CO	44.63	525			CO	43.04649	1 in 538
3002	52.82	CO	49.92	525			BR	27.78489	1 in 79
3002	52.82	CO	49.92	525			BR	27.78489	1 in 79
4806	50.54	CO	48.37	225			VC	6.97234	1 in 139
3003	52.01	CO	49.01	225			VC	18.97367	1 in 190
3003	52.01	CO	49.01	225			VC	18.97367	1 in 190
3802	50.78	CO	46.7	525			CO	64.53024	1 in 120
4501	48.23	CO	45.34	225			VC	37.80212	1 in 140
3403		CO		900			CO	41.62712	
0904		CO		100			VC	1.958096	
1900	51.32	CO	0	225			BR	21.62603	
1900	51.32	CO	0	225			BR	21.62603	
1000	53.1	CO	46.27	533			BR	172.3675	
1000	53.1	CO	46.27	533			BR	172.3675	
0902	51.15	CO	49.25	225			BR	59.6825	1 in 63
3610	47.44	CO	44.36	525			CO	11.6619	1 in 24
5605		CO		150			VC	6.525977	
3700	47.03	CO	41.1	300			VC	45.90343	
0810		CO		457			BR	9.923857	
5701	48.27	CO	41.09	1350			BR	104.2532	1 in 35
5414		CO		150			VC	5.870586	
1701	49.49	CO	46	300			VC	8.944272	
4801	48.41	CO	45.57	300			VC	28.26784	1 in 74
3604	46.58	CO	40.14	225			VC	26.25187	
0503	49	CO	41.32	900			CO	128.4562	1 in 51
0502	50.2	CO	42.32	900			CO	50.35872	1 in 50
5827		CO		450			CO	103.0316	
4401	49.94	CO	47.16	375			VC	12.20656	
9611	50.45	CO	47.52	225			VC	30.53921	1 in 127
9611	50.45	CO	47.52	225			VC	30.53921	1 in 127
4700	47.47	CO	44.72	1350			BR	77.5901	1 in 16
9713	50.3	CO	47.28	225			VC	5.754272	1 in 144
9713	50.3	CO	47.28	225			VC	5.754272	1 in 144
3603	47.41	CO	39.86	1350			BR	36.44084	
5804	49.13	CO	47.1	225			VC	9.599928	1 in 10

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned	Foul	Surface Water	Combined	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main
				Sludge Main
				Overflow
				Water Course
				Highway Drain

All point assets follow the standard colour convention:
red - combined blue - surface water
brown - foul purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE

CI Circular
TR Trapezoidal
EG Egg
AR Arch
OV Oval
BA Barrel
FT Flat Top
HO HorseShoe
RE Rectangular
UN Unspecified
SQ Square

SEWER MATERIAL

AC Asbestos Cement
BR Brick
PE Polyethylene
RP Reinforced Plastic Matrix
CO Concrete
CSB Concrete Segment Bolted
CSU Concrete Segment Unbolted
CC Concrete Box Culverted
PSC Plastic / Steel Composite
GRC Glass Reinforecd Plastic
DI Ductile Iron
PVC Polyvinyl Chloride
CI Cast Iron
SI Spun Iron
ST Steel
VC Vitrified Clay
PP Polypropylene
PF Pitch Fibre
MAC Masonry, Coursed
MAR Masonry, Random
U Unspecified

Address or Site Reference:

EASY EQUIPMENT LTD 66 JERSEY STREET, MANCHESTER, M4 6JW

OS sheet Number: SJ8598NW
Scale: 1:1250 **Date:** 23/07/2020
Nodes: 178
Sheet: 2 of 3

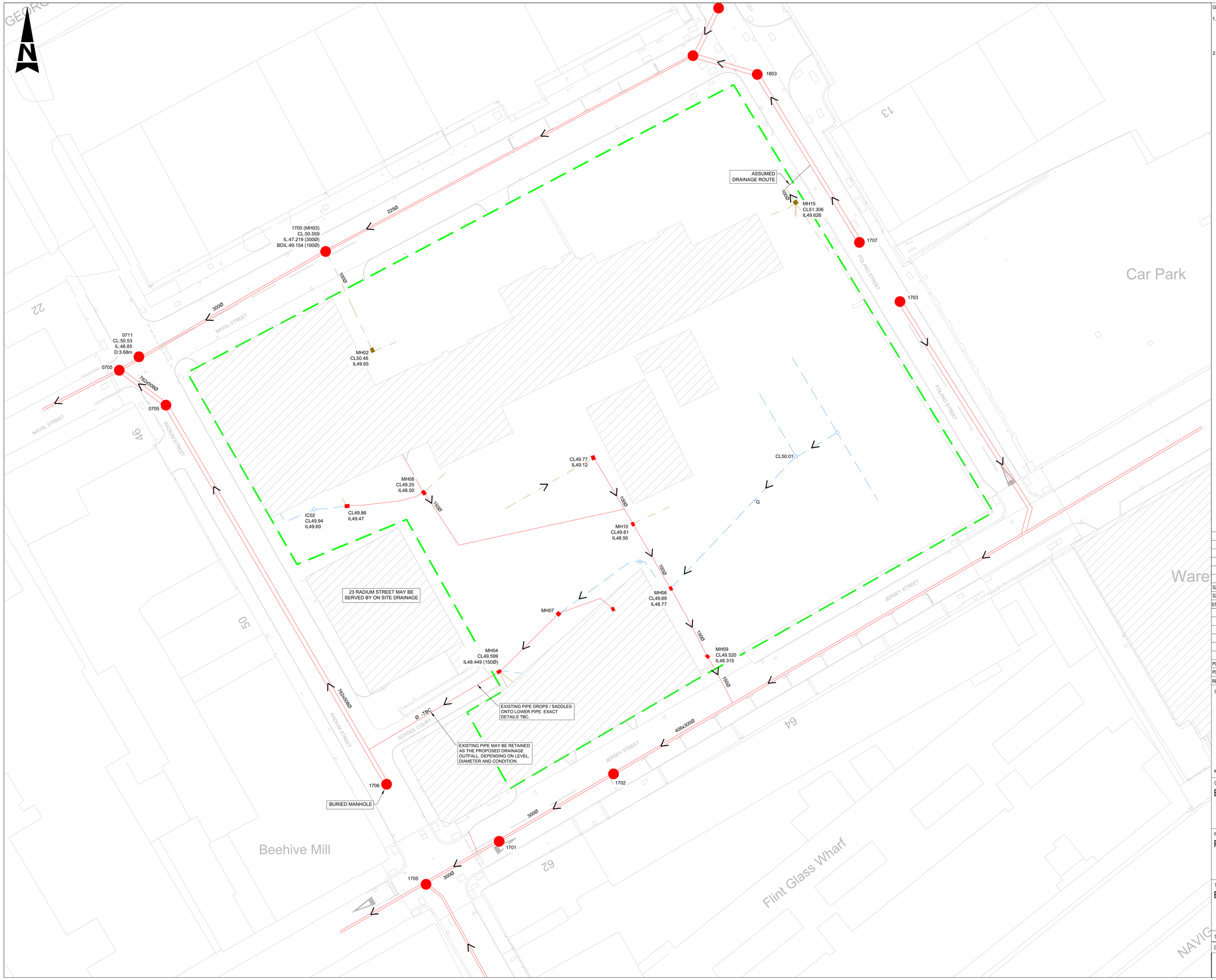
Printed by: Property Searches

SEWER RECORDS

United Utilities
helping life flow smoothly

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.



GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

GENERAL KEY

PLANNING BOUNDARY (APPROX)

EXISTING DRAINAGE

EX PUBLIC COMBINED WATER SEWER & MANHOLE

EX PRIVATE FOUL WATER SEWER & MANHOLE

EX PRIVATE SURFACE WATER SEWER & MANHOLE

EX PRIVATE COMBINED WATER SEWER & MANHOLE

EX PRIVATE SEWER ROUTE ASSUMED

EXISTING BUILDING OUTLINE

S2	FOR INFORMATION	06.06.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P02	OUTFALL REFERENCES AMENDED	06.06.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

TITLE:
EXISTING DRAINAGE GA

SCALE: 1:250 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000100

REV: P02

Appendix B – Correspondence

Chloé Grimsley

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 25 August 2022 11:09
To: Charlie Smith
Subject: RE: 080866 - Manchester Life Plot A

Good Morning Charlie,

In principle we accept the below calculations based on the fact that infiltration is not feasible and that the calculations are in line with the MCC Local Flood Risk Management Strategy.

However, as the proposed outfall is to the United Utilities network, we would request that you seek confirmation from them that they approve of the below calculations before we can formally agree the proposed discharge rates.

Kind Regards,

Oliver

Oliver Timmins
Engineer (Flood Risk Management)
Mobile: 07814082200
Email: oliver.timmins@manchester.gov.uk

Lead Local Flood Authority
Highways
Growth & Development and Neighbourhoods Directorate
Manchester City Council
PO Box 532 Town Hall
Manchester
M60 2LA

Web: http://www.manchester.gov.uk

From: Charlie Smith <Charlie.Smith@curtins.com>
Sent: 12 August 2022 15:15
To: Oliver Timmins <oliver.timmins@manchester.gov.uk>
Cc: Chloé Grimsley <Chloe.Grimsley@curtins.com>
Subject: 080866 - Manchester Life Plot A

Good afternoon,

We are currently producing a drainage strategy for a site located off Jersey Street, Ancoats, Manchester M4 6BD (NGR – X:385138, Y:398775)

The scheme is to redevelop existing warehouse buildings and associated storage yard. The buildings are to be demolished and the area to be redeveloped for residential and commercial end use.

Infiltration testing has been undertaken and due to a naturally high water level infiltration has been proven as not feasible.

The site not located within close proximity to any watercourses.

Following SuDs hierarchy the next option is to discharge surface water flows to the public SW sewer. Reviewing United Utilities Sewer maps there are no SW Sewers within close proximity to the site.

EXTRACT FROM - wastewaterdeveloperservices@uuplc.co.uk
25 August 2022 13:45
Charlie Smith
Chloé Grimsley
RE: 080866 - Manchester Life Plot A - UU Ref. 02665143

by the Lead Local Flood Auth
We have noted that you hav , we don't agree with the impermeable area estimation, according to the provided existing drainage details, it shows that the existing parking area and hard standing area are not positively drained to the public sewer.
We have calculated the building footprint is draining to our network which is the positive drainage area = 0.2ha. Using the Wallingford Procedure Methodology Calculation = 2.78*CiA = 2.78*1*50*0.2= 27.8 l/s, after 50% betterment it became 14l/s.
And as such United Utilities request that any agreed rate does not exceed 14l/s (anticipated QBar rate from the site impermeable areas only).

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the pubic sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

Appendix C – Proposed Design Drawings

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

KEY

- 51.0 — PROPOSED MAJOR CONTOUR (0.5m)
- 50.9 — PROPOSED MINOR CONTOUR (0.1m)
- PROPOSED HB2 125mm KERB (REFER TO S278 DRAWINGS FOR DROPPED KERBS)
- FFL:69.800 — PROPOSED FINISHED FLOOR LEVEL
- × 90.000 — PROPOSED SPOT LEVEL
- -1:11 — PROPOSED SURFACE GRADIENT
- × (C.90.000) — EXISTING CARRIAGEWAY LEVEL
- × (90.000) — EXISTING RETAINED LEVEL
- 0.2m — PROPOSED UNDERBUILD (& APPROX LEVEL DIFF)
- 0.2m — PROPOSED OVERBUILD (& APPROX LEVEL DIFF)
- 0.2m — PROPOSED RETAINING WALL (& APPROX LEVEL DIFF)
- METAL EDGING
- SOFTSCAPE / PLANTING AREA*
- FREE DRAINING GRAVEL AREA*
- FILTER DRAIN (SEE DRAINAGE GA)
- DRAINAGE CHANNEL / SLOT DRAIN (SEE DRAINAGE GA)

* REFER TO LANDSCAPE ARCHITECT PLANS

S2	FOR INFORMATION	16.05.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P02	REVISED LANDSCAPE LAYOUT	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

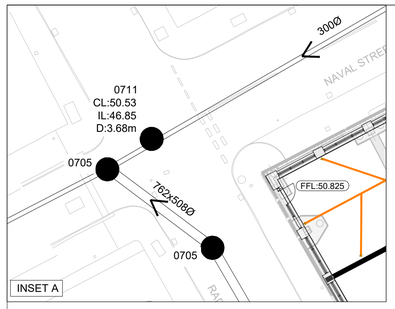
PROJECT:
PHOENIX IRONWORKS

TITLE:
PROPOSED LEVELS GA

SCALE: 1:200 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000001

REV: P02



GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

M&E DRAINAGE NOTES

1. BELOW GROUND DRAINAGE CONNECTIONS FROM AMEON DRAWING: 240010-AME-XX-GF-D-M-5200029.P04.

DRAINAGE NOTES

1. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES.
2. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
3. ALL PLOT DRAINAGE WITHIN THE SITE IS TO COMPLY WITH THE REQUIREMENTS OF BSEN752 AND BUILDING REGULATIONS PART H.
4. ALL PLOT DRAINAGE PIPES TO BE LAID IN TRENCHES BEDDED CLASS 'S' ON SINGLE SIZED AGGREGATE AND BACKFILLED WITH APPROVED SELECTED FILL (40mm DOWN) REUSED FROM EXCAVATED MATERIAL UNDER BUILDINGS AND WHERE COVER TO INVERT IS LESS THAN 600mm UNDER TRAFFICKED AREAS, PIPES TO BE CAST IN CONCRETE (CLASS Z BEDDING).
5. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM EXCAVATED MATERIAL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, CONTAMINATED MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. THE MATERIAL SHALL BE COMPACTED TO ACHIEVE NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN LABORATORY COMPACTION TESTS. SUFFICIENT TESTING SHALL BE CARRIED OUT, BY THE CONTRACTOR, TO DEMONSTRATE THIS IS ACHIEVED (NUMBER AND FREQUENCY OF TESTING TO BE AGREED). WHERE THE MOISTURE CONTENT OF THE MATERIAL PROHIBITS COMPLIANCE WITH THE ABOVE 6F1 OR SIMILAR IMPORTED MATERIAL SHALL BE USED.
6. ALL PIPEWORK WITHIN MANHOLES ARE TO BE LAID SOFFIT TO SOFFIT (UNO). ALL CHAMBER INVERT LEVELS ARE FOR THE OUTGOING PIPE LEVELS. BACKDROP PIPEWORK SHALL BE CONNECTED AT SOFFIT TO SOFFIT WITH THE RODDING ACCESS LEVEL SPECIFIED.
7. ALL DRAINS TO BE LAID IN ACCORDANCE WITH THE MANUFACTURERS GUIDANCE.
8. ANY GRADIENTS OF DRAINS INDICATED ARE INDICATIVE ONLY AND THE CONTRACTOR SHALL INSTALL THE DRAINS TO THE SPECIFIED LEVELS SHOWN FOR EACH MANHOLE. CATCHPIT INVERT LEVELS ARE FOR THE OUTGOING PIPE, REFER TO THE DRAINAGE DETAILS FOR THE SUMP LEVEL.
9. CO-ORDINATE SETTING OUT INFORMATION FOR MANHOLES IS TO THE INTERSECTION THE DRAINS AND NOT THE CENTRE OF THE MANHOLE.
10. COVER LEVELS OF THE MANHOLES ARE PROVISIONAL AND SUBJECT TO ADJUSTMENT ON SITE TO SUIT THE FINISHED GROUND LEVELS. ALL EXTERNAL WORKS CONSTRUCTION AREAS TO BE AS LOCATED BY THE ARCHITECT.
11. GULLY GRATINGS AND STEEL CHANNEL COVERS ARE TO BE IN ACCORDANCE WITH BSEN124 AS FOLLOWS:
    a) AREAS NOT SUBJECT TO REGULAR VEHICLE OVERRUN (ADJACENT TO KERBS ETC): CLASS C250
    b) GULLY GRATES ADJACENT TO KERBS SHALL BE HINGED ON THE SIDE OF THE TRAFFIC DIRECTION (LEFT HAND SIDE).
12. ALL BRICKWORK IN CONNECTION WITH DRAINAGE IS TO BE SOLID CLASS B ENGINEERING BRICK TO BS3921.
13. ALL PRECAST CONCRETE PIPES, CHAMBER PRODUCTS AND ROAD GULLIES SHALL BE TO BS5911 AND BE KITEMARKED.
14. ALL DRAINAGE INSITU CONCRETE SHALL BE GEN3.
15. ALL INSITU AND CONCRETE PRODUCTS SHALL COMPLY WITH THE REQUIREMENTS FOR SULPHATE EXPOSURE IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.
16. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM.
17. CONSTRUCTION JOINTS IN CONCRETE SURROUND MUST NOT BE WITHIN 150MM OF CHAMBER/SHAFT RING JOINTS. ROCKER PIPES TO BE SURROUNDED WITH CONCRETE LOCATED 150mm MINIMUM 200mm MAXIMUM FROM THE FIRST FLEXIBLE JOINT TO THE MANHOLE WALL.
18. SOFT SPOTS IN THE TRENCH FORMATION SHALL BE REMOVED AND REPLACED WITH GRANULAR BEDDING UNLESS INSTRUCTED OTHERWISE.
19. LATERAL CONNECTIONS IN BETWEEN MANHOLE RUNS SHALL BE FORMED BY USING PURPOSE MADE JUNCTION FITTINGS. BEND FITTINGS SHALL BE PROVIDED WHERE APPROPRIATE TO DIRECT THE FLOW INTO MAIN RUNS.
20. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LIAISE WITH BUILDING CONTROL FOR APPROVALS, INTERIM INSPECTION, SNAGGING AND FINAL INSPECTIONS OF THEIR WORK.
21. AT THE CONCLUSION OF THE WORKS THE CONTRACTOR SHALL PROVIDE A MARKED UP DRAWING TO RECORD ANY AS BUILT VARIATIONS.
22. ALL ROOF RWDP TO BE 150Ø, ALL SURFACE WATER DRAINAGE TO BE 150Ø UNLESS STATED OTHERWISE. ALL FOUL WATER PIPES TO BE 100Ø UNLESS STATED OTHERWISE.
23. ALL EXISTING RETAINED MANHOLE COVERS TO BE ADJUSTED TO SUIT THE PROPOSED GROUND LEVEL

GENERAL KEY

- PROPOSED RETAINING WALL (SEE LEVELS GA)
- SOFTSCAPE / PLANTING AREA (SEE LANDSCAPE GA)
- FREE DRAINING GRAVEL AREA
- SP — LIFT PIT (SP INDICATES SUMP PUMP REQ IN LIFT PIT)

EXISTING DRAINAGE

- EX PUBLIC COMBINED WATER SEWER & MANHOLE

PROPOSED DRAINAGE KEY:

- FILTER DRAIN
- PROPOSED SW SEWER & MH (H INDICATES HYDROBRAKE) (S INDICATES SILT TRAP) (O ORIFICE PLATE)
- PROPOSED SW SEWER & PPIC
- PROPOSED SW SEWER & GULLY (YG INDICATES YARD GULLY) (LG INDICATES LIFT PIT GULLY)*
- PROPOSED SLOT / CHANNEL DRAIN
- POLYSTORM ATTENUATION CRATES (WITH POLYSTORM INSPECT CELLS)
- PROPOSED POROUS PAVING (REFER TO DETAILS)
- PERMAVOID DIFFUSER UNIT (REFER TO DETAILS)
- PROPOSED FW SEWER & MH
- PROPOSED FW SEWER & PPIC (1m DEEP WHERE NO INVERT LVL)
- S — POP-UP TO FW DRAINAGE NETWORK (100Ø UNO) (S INDICATES SADDLE CONNECT)
- PROPOSED COMBINED SEWER & MH
- GROUND FLOOR RESIDENTIAL AREA**

*PIPE DOWNSTREAM OF LIFT GULLY REQUIRES A NON-RETURN VALVE, REFER TO DRAINAGE DETAILS.

**BRANCHES ARE NOT PERMITTED AS UPSTREAM RODDING ACCESS IS LIMITED. ALL PIPES GO STRAIGHT OUT TO A CHAMBER.

ALL EXISTING RETAINED MANHOLE COVERS TO BE ADJUSTED TO SUIT THE PROPOSED GROUND LEVEL

REV	DESCRIPTION	DATE	BY	CHKD
P04	LIFT PIT GULLIES ADDED. FOUL GULLY POSITIONS AMENDED.	02.06.25	MF	KC
P03	PUBLIC SEWER CONNECTION AMENDED	27.05.25	MF	KC
P02	REVISED LANDSCAPE LAYOUT	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
S2	FOR INFORMATION	02.06.25	MF	KC
S2	FOR INFORMATION	27.05.25	MF	KC
S2	FOR INFORMATION	16.05.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

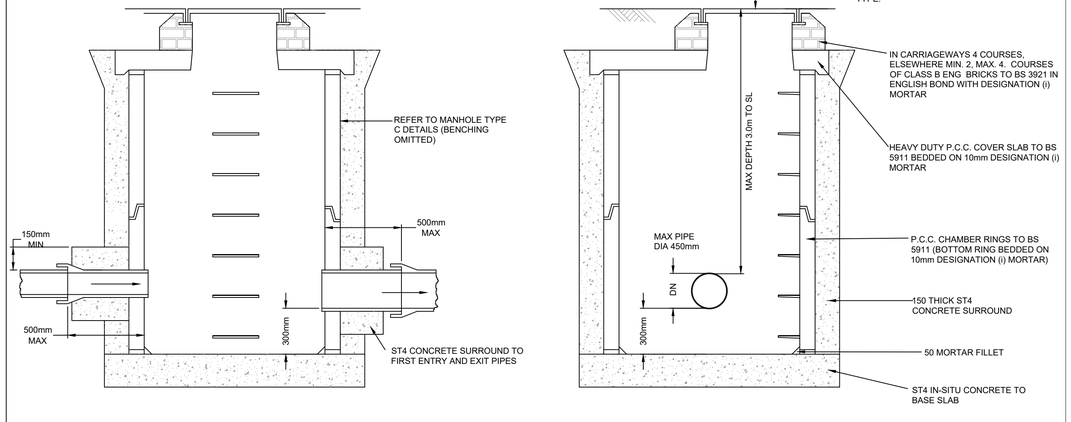
PROJECT:
PHOENIX IRONWORKS

TITLE:
PROPOSED DRAINAGE GA

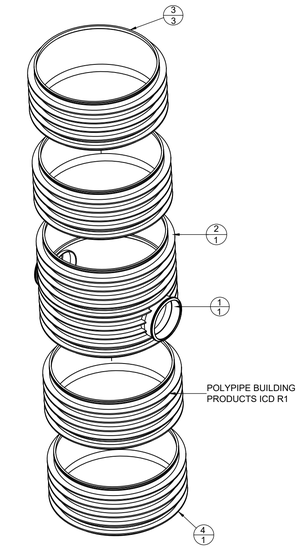
SCALE: 1:200 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000101

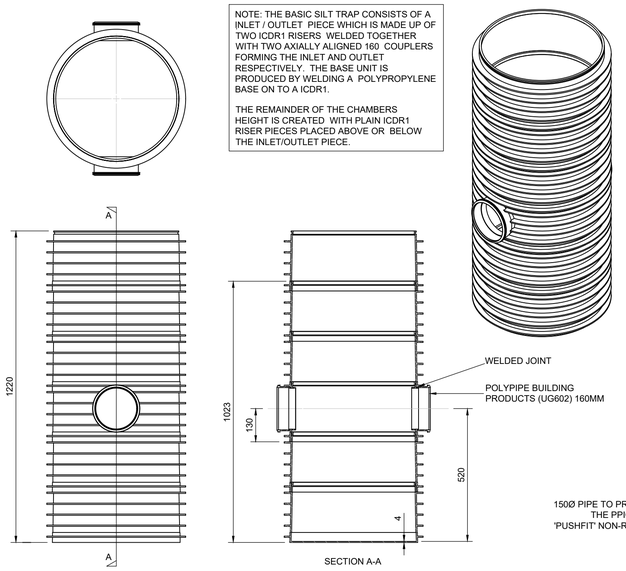
REV: P04



SILT TRAP DETAIL - SUMP DEPTH 300mm



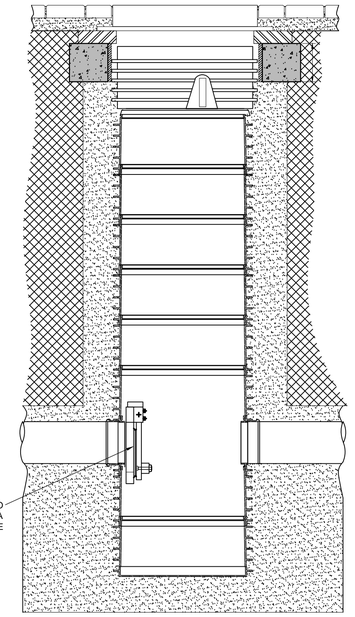
ITEM NUMBER	TITLE	MATERIAL	QUANTITY
1	FABRICATED INLET/OUTLET CHAMBER RISER	PP	1
2	INLET/OUTLETUNIT TOP PIECE	PP	1
3	INSPECTION CHAMBER RISER UNIT	PP	3
4	FABRICATED BASE UNIT	PP	1



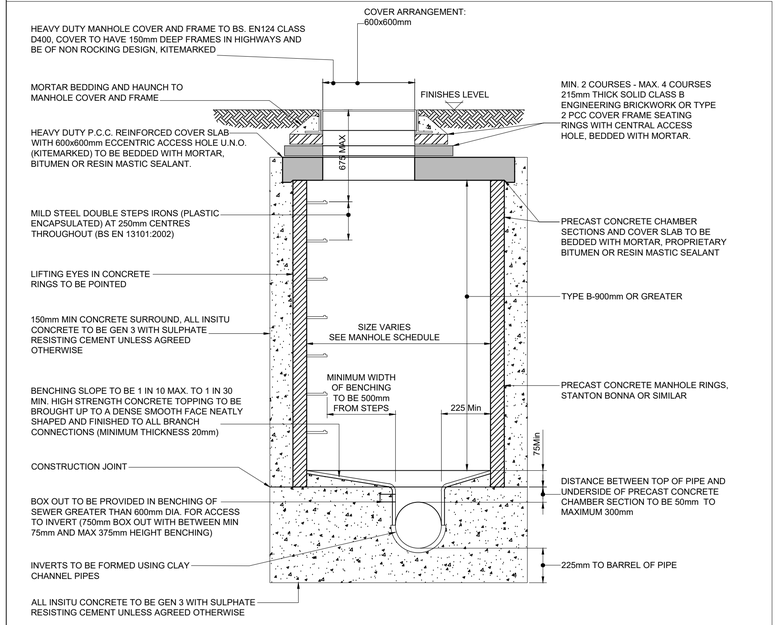
NOTE: THE BASIC SILT TRAP CONSISTS OF A INLET / OUTLET PIECE WHICH IS MADE UP OF TWO ICDR1 RISERS WELDED TOGETHER WITH TWO AXIALLY ALIGNED 160 COUPLERS FORMING THE INLET AND OUTLET RESPECTIVELY. THE BASE UNIT IS PRODUCED BY WELDING A POLYPROPYLENE BASE ON TO A ICDR1.

THE REMAINDER OF THE CHAMBERS HEIGHT IS CREATED WITH PLAIN ICDR1 RISER PIECES PLACED ABOVE OR BELOW THE INLET/OUTLET PIECE.

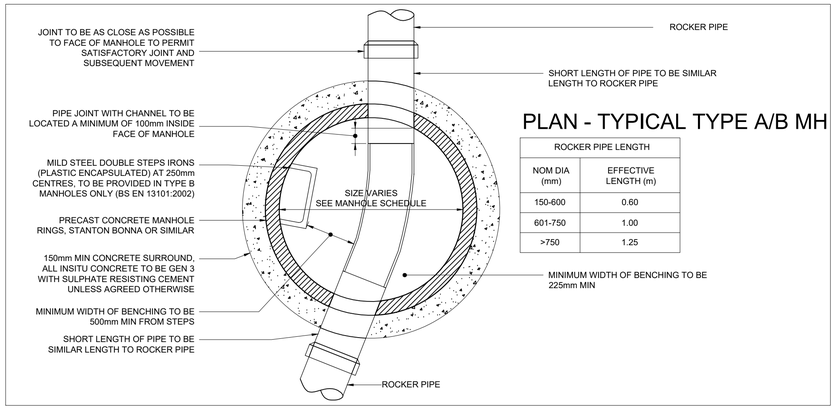
POLYSTORM BASIC SILT TRAP



NON-RETURN VALVE

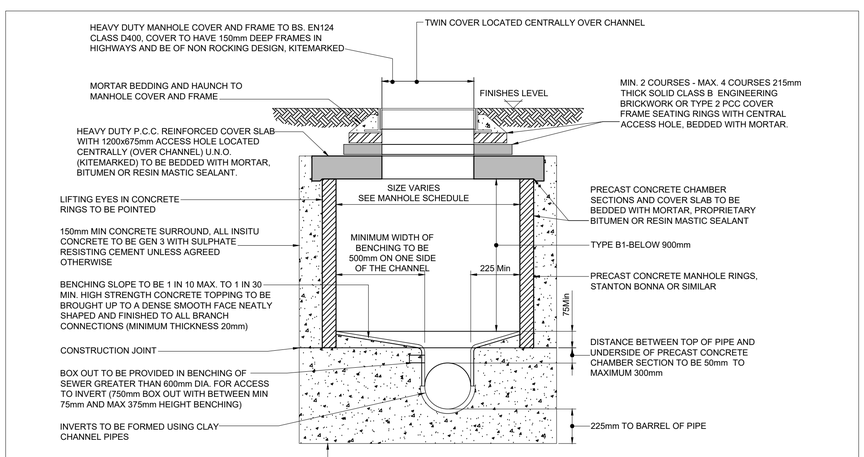


SECTION MANHOLE TYPE B - DEPTH 1.5-3.0m SOFFIT

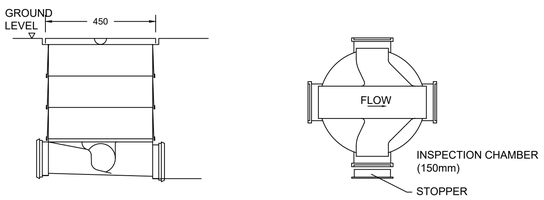


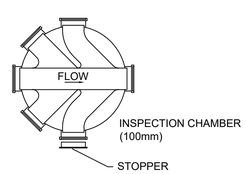
PLAN - TYPICAL TYPE A/B MH

ROCKER PIPE LENGTH	
NOM DIA (mm)	EFFECTIVE LENGTH (m)
150-600	0.60
601-750	1.00
>750	1.25



SECTION MANHOLE TYPE C - DEPTH 1-1.5m SOFFIT





NOTES

1. CAST IRON COVER AND PLASTIC FRAME ARE SUITABLE FOR USE WHERE WHEEL LOADS DO NOT EXCEED 1.5 TONNES.

2. FOR HEAVY LOADING INSTALLATIONS, CHAMBER TO SURROUNDED WITH 150mm THICK CONCRETE AND COVER REPLACED WITH APPROPRIATE LOADING CLASSIFICATION COVER.

3. WHERE SIDE BRANCHES ARE NOT TO BE USED STOPPER TO BE INSERTED TO BLANK OFF CONNECTION

4. CHAMBER SIZES ARE MINIMUM REQUIRED. SEE PLAN LAYOUT FOR VARIATIONS, IF ANY.

5. ALL INSPECTION CHAMBERS WITH A DEPTH GREATER THAN 1.2m TO HAVE A 350mm DIAMETER REDUCING PLATE LOCATED BENEATH COVER AND FRAME TO PREVENT ACCESS.

PRECAST CONCRETE TO BS 5911:PART 2 AND BS8301 KITEMARKED, UP TO 1.0 METRE DEEP POLYPROPYLENE INSPECTION CHAMBERS TO BS 7158, BS EN 124 KITEMARKED, MIN. 450mm DIAMETER UPTO 2.0m DEEP BY HEPWORTH OR SIMILAR APPROVED

POLY-PROPOLENE INSPECTION CHAMBER (PPIC)

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.

2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

REV	DESCRIPTION	DATE	BY	CHKD
S2	FOR INFORMATION	02.06.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P02	SILT TRAP PPIC ADDED	02.06.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

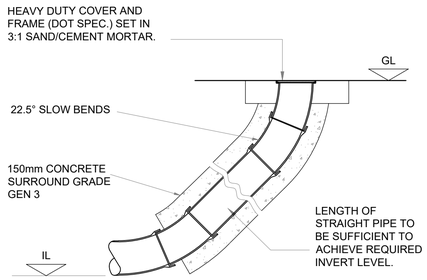
TITLE:
PROPOSED DRAINAGE DETAILS SH1

SCALE: NTS @A1	DRAWN BY: MF	CHECKED BY: KC	APPROVED BY: KC

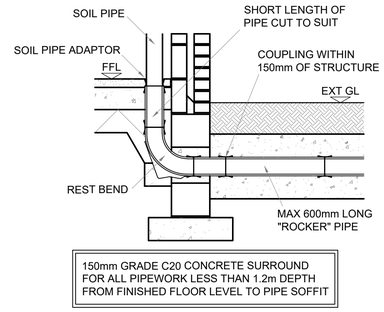
DRAWING No:

240010-KOD-ZZ-00-D-C-0000102

REV: P02

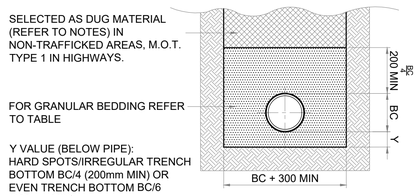


RODDING EYE DETAIL



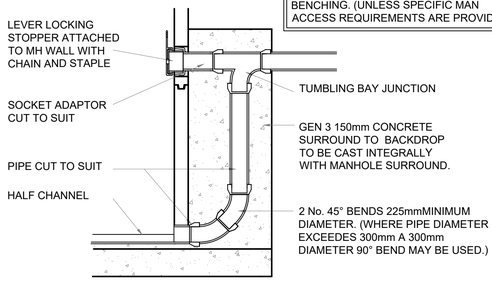
150mm GRADE C20 CONCRETE SURROUND FOR ALL PIPEWORK LESS THAN 1.2m DEPTH FROM FINISHED FLOOR LEVEL TO PIPE SOFFIT

SOIL AND VENT PIPE CONNECTION



PIPE BEDDING CLASS S

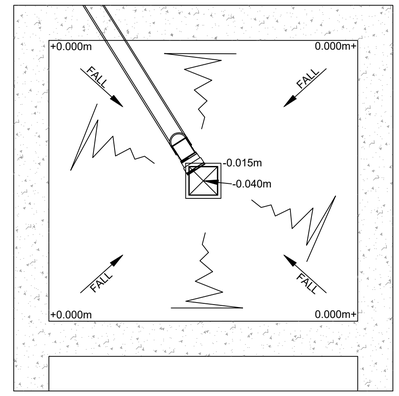
INVERT OF RODDING EYE TO BE NOT GREATER THAN 1.5m ABOVE TOP OF BENCHING. (UNLESS SPECIFIC MAN ACCESS REQUIREMENTS ARE PROVIDED.)

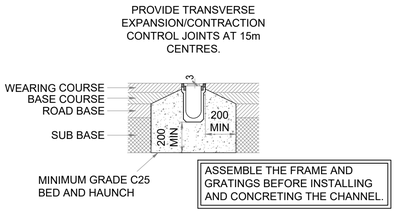


EXTERNAL VERTICAL BACKDROP

GENERAL NOTES:

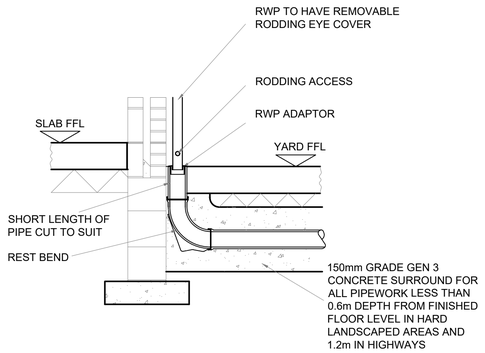
1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.





ASSEMBLE THE FRAME AND GRATINGS BEFORE INSTALLING AND CONCRETING THE CHANNEL.

TYPICAL DRAINAGE CHANNEL IN FLEXIBLE PAVEMENT

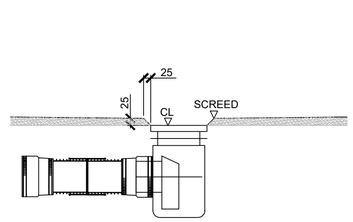


EXTERNAL RAINWATER PIPE CONNECTION

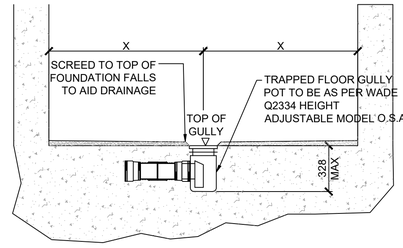
BS EN 1610:1997 Annex B Table B.15 Coarse Aggregate - Pipe Bedding							
Sieve Size (mm)	Percentage by mass passing BS sieves for nominal sizes						
	Graded Aggregate (mm)			Single-sized Aggregate (mm)			
	40 to 5	20 to 5	14 to 5	40	20	14	10
50.0	100	-----	-----	100	-----	-----	-----
37.5	90 - 100	100	-----	85 - 100	100	-----	-----
20.0	35 - 70	90 - 100	100	0 - 25	85 - 100	100	-----
14.0	-----	-----	90 - 100	-----	-----	85 - 100	100
10.0	10 - 40	30 - 60	50 - 85	0 - 5	0 - 25	0 - 50	85 - 100
5.0	0 - 5	0 - 10	0 - 10	-----	0 - 5	0 - 10	0 - 25
2.36	-----	-----	-----	-----	-----	-----	0 - 5

RIGID PIPES BEDDING GRADING

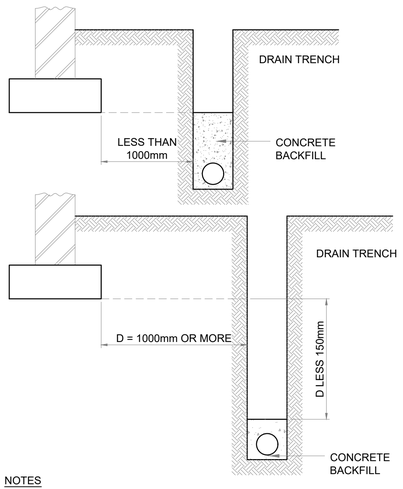
BASED ON BS EN 1610 : 1997 TABLE B.15
FOR RIGID PIPES THE BEDDING SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5MM UP TO A MAX SIZE OF 10MM FOR 100MM PIPES; 14MM FOR 150MM PIPES; 20MM FOR 225MM TO 600MM PIPES; 40MM FOR OVER 675MM PIPES



SCREED AT COVER DETAIL



TYPICAL LIFT PIT FLOOR GULLY ARRANGEMENT



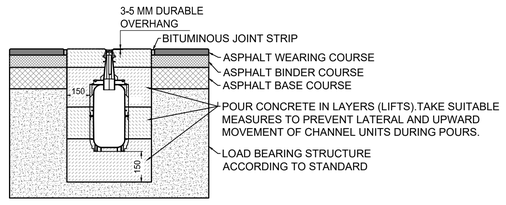
NOTES

1. CONCRETE TO BE GRADE GEN 3

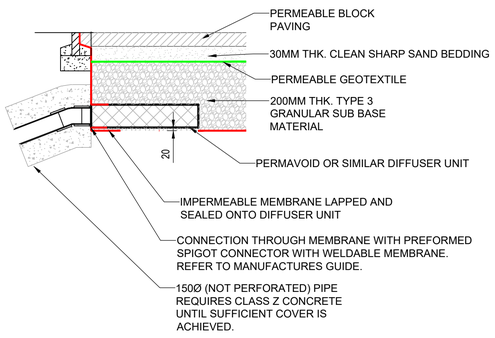
2. JOINTS TO BE PROVIDED IN CONCRETE SURROUND AT NOT GREATER THAN 5.0m CENTRES. BUILDING REGULATIONS PART H1 PARA A11

3. WHERE THE TRENCH IS WITHIN 1m OF THE BUILDING THE TRENCH SHALL BE FILLED WITH CONCRETE UP TO THE LOWEST LEVEL OF THE FOUNDATIONS. WHERE THE TRENCH IS FURTHER THAN 1000mm FROM THE BUILDING, THE TRENCH SHALL BE FILLED WITH CONCRETE UP TO A LEVEL, BELOW THE LOWEST LEVEL OF THE FOUNDATION, EQUAL TO THE DISTANCE FROM THE BUILDING LESS 150mm.

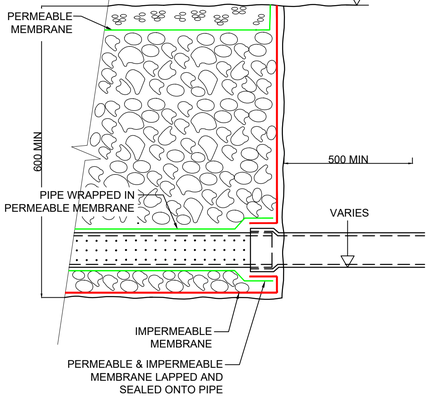
PIPE RUNS ADJACENT TO BUILDING



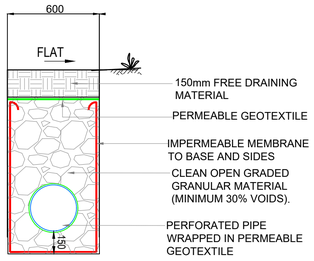
TYPICAL SLOT DRAIN DETAIL



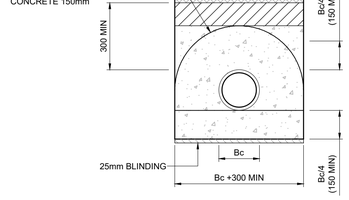
PERMAVOID DIFFUSER OUTLET DETAIL



FILTER DRAIN PIPE OUTLET



TYPICAL FILTER DRAIN SECTION



CLASS Z CONCRETE BEDDING DETAIL

NOTES

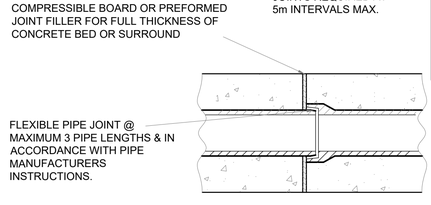
A) Bc = OUTSIDE DIAMETER OF PIPE BARREL.
B) Y = FOR UNIFORM SOILS:
SLEEVE JOINTED PIPES, MIN. 50mm OR 1/6Bc, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN. 100mm OR 1/6Bc, WHICHEVER IS THE GREATER UNDER BARRELS, NOT LESS THAN 50mm UNDER SOCKETS. FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS: SLEEVE JOINTED PIPES, MIN. 150mm OR 1/4Bc, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN. 200mm OR 1/4Bc, WHICHEVER IS THE GREATER UNDER BARRELS, NOT LESS THAN 150mm UNDER SOCKETS.

CONCRETE BED AND SURROUND TO BE DISCONTINUED AT EVERY PIPE JOINT (NOT TO EXCEED 5m) USING COMPRESSIBLE FILLER. COMPRESSIBLE FILLER TO BE 18mm THICK FOR PIPEWORK UPTO 450mm DIAMETER, FOR PIPES OVER 450mm FLEXCELL JOINTS TO BE 36mm THICK

4/20 COARSE GRADED AGGREGATE GRADING TABLE	
SIEVE SIZE (mm)	PERCENTAGE PASSING (%)
40	100
31.5	98 - 100
20	90 - 99
10	25 - 70
4	0 - 15
2	0 - 5

TABLE 2: 4/20 COARSE GRADED AGGREGATE GRADING TABLE

COMPRESSIBLE FILLER IS TO BE USED AT PIPE JOINTS IN CONCRETE PROTECTION TO PIPES. FILLER TO BE USED CAN BE HYDROCELL BY FOSROC, OR APPROVED BITUMEN IMPREGNATED INSYLATING BOARD TO B.S. 1142 PART 3. THE COMPRESSIBLE MATERIAL SHALL BE CUT TO MATCH THE PIPELINE SHAPE AND MUST EXTEND THROUGH THE FULL HEIGHT OF THE CONCRETE.



COMPRESSIBLE FILLER FOR PIPE JOINTS		
NOMINAL PIPE DIA	HYDROCELL	Bitumen Impregnated Board
100 - 300	15mm	18mm
350 - 450	20mm	24mm
465 - 750	35mm	36mm

REV	DESCRIPTION	DATE	BY	CHKD
S2	FOR INFORMATION	02.06.25	MF	KC
S2	FOR INFORMATION	16.05.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P03	LIFT PIT GULLY DETAIL ADDED	02.06.25	MF	KC
P02	RAIN GARDEN REPLACED WITH DIFFUSER OUTLET	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

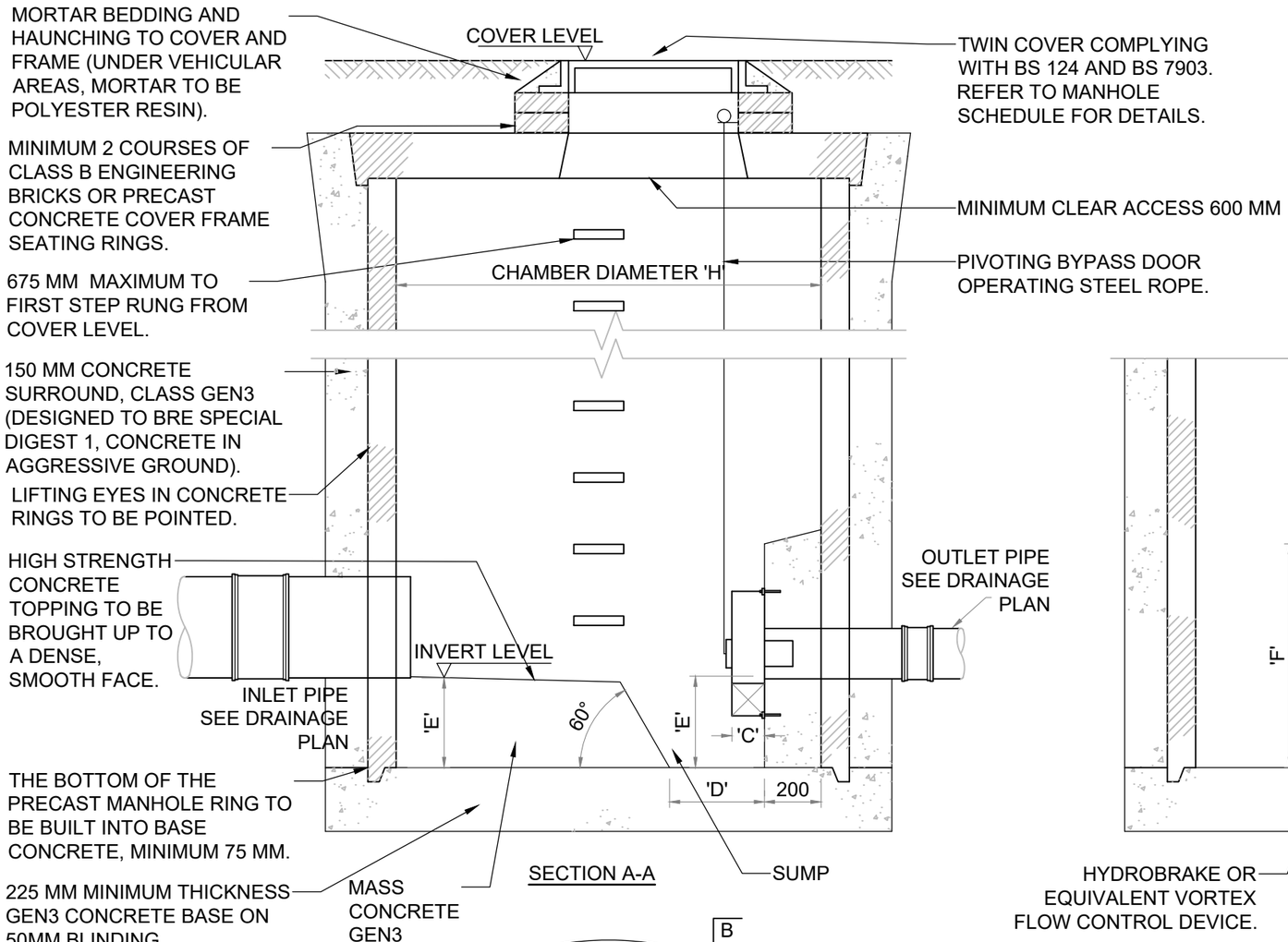
PROJECT:
PHOENIX IRONWORKS

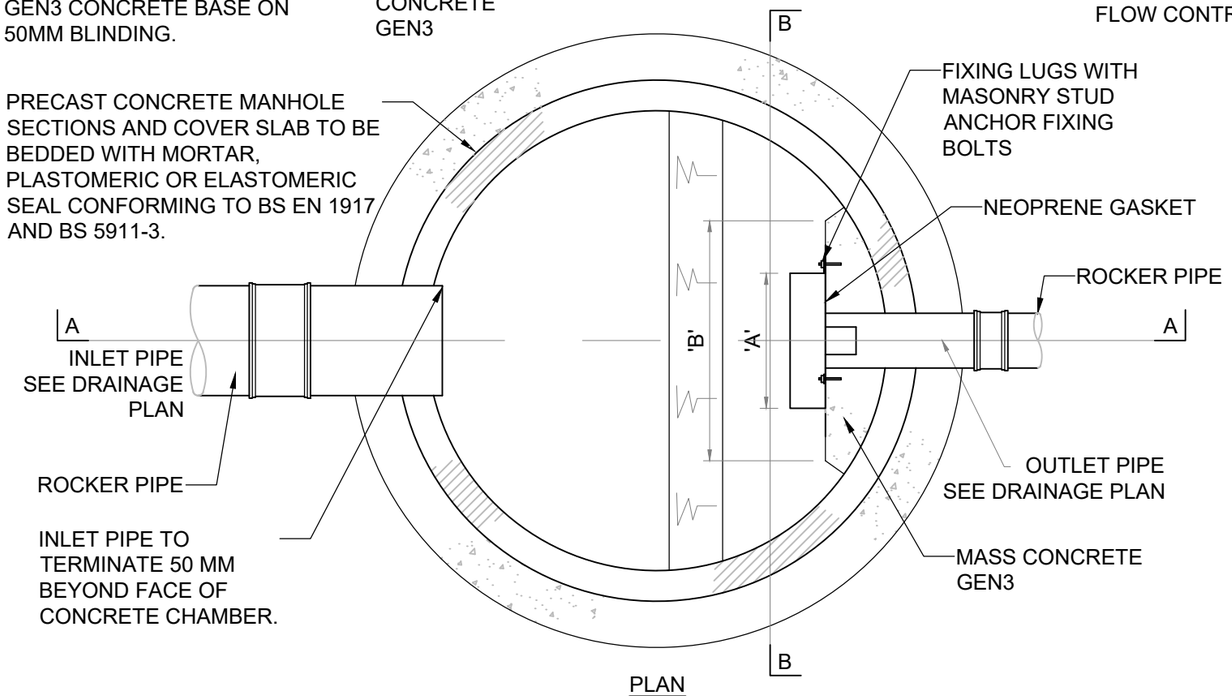
TITLE:
PROPOSED DRAINAGE DETAILS SH2

SCALE: NTS @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000103

REV: P03





PLAN

HYDROBRAKE MANHOLE

SCALE 1:20

HYDROBRAKE TECHNICAL SPECIFICATION

GRADE 304 STAINLESS STEEL VORTEX FLOW CONTROL UNIT WITH INTEGRAL STAINLESS STEEL PIVOTING BYPASS DOOR ALLOWING CLEAR LINE OF SIGHT THROUGH TO OUTLET, C/W STAINLESS STEEL OPERATING ROPE. STAINLESS STEEL FIXINGS AND NEOPRENE GASKET SEAL TO OUTLET.

Manhole Reference:	S.17		
Cover Level (m):	49.478	Invert Level (m):	47.800
Hydrobrake Reference:	SHE-0165-1400-1300-1400		
Design Head (m):	1.30m		
Design Flow (l/s):	14.0		
Inlet Pipe diameter (mm):	300		
Outlet Pipe diameter (mm):	150		
Dimension 'A' (mm):	750	Dimension 'E' (mm):	435
Dimension 'B' (mm):	1080	Dimension 'F' (mm):	1095
Dimension 'C' (mm):	170	Dimension 'G' (mm):	N/A
Dimension 'D' (mm):	340	Dimension 'H' (mm):	1800

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

Stat	Purpose of Issue	Date	Auth
S2	FOR INFORMATION	16.05.25	KC

Rev	Description	By	Date	Chk'd	Auth
P02	REVISED LANDSCAPE LAYOUT	MF	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	MF	02.05.25	MF	KC

KODA

Client: ERIC WRIGHT CONSTRUCTION LTD

Project: PHOENIX IRONWORKS

Title: PROPOSED HYDROBRAKE CONTROL MANHOLE DETAIL

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A3	NTS	MF Date 02.05.25	KC Date 02.05.25	KC Date 02.05.25

Status	Drawing Number	Rev
S2	240010-KOD-ZZ-00-D-C-0000104	P02

M:\Koda\240010 – Phoenix Ironworks\04_Project Delivery\02_Drawings\DR_2D Drawing\240010-KOD-ZZ-00-D-C-0000104 – Proposed Hydrobrake Details.dwg

SW MANHOLES

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE (m)	MANHOLE TYPE / COVER SIZE (mm)	PIPE IN NAME, INVERT LEVEL (m) & DIA	PIPE OUT NAME, INVERT LEVEL (m) & DIA
S.06	E:385158.846 N:398783.971	50.775	2.075	1.350	SILT TRAP / 600X600	S.2.000, IL=49.368, 150mm∅	S.2.001, IL=48.700, 150mmØ
S.07	E:385141.477 N:398775.788	50.634	1.984	1.350	TYPE B / 600X600	S.1.004, IL=48.650, 225mm∅	S.1.005, IL=48.650, 225mmØ
S.08	E:385144.808 N:398769.052	50.496	1.890	1.350	ORIFICE PLATE / 600X600	S.1.005, IL=48.606, 225mm∅	S.1.006, IL=48.606, 150mmØ
S.14	E:385140.558 N:398747.402	49.446	1.246	1.350	TYPE C / 1220X675	S.1.009, IL=48.275, 225mm∅ S.5.001, IL=48.275, 225mm∅	S.1.010, IL=48.200, 300mmØ
S.17	E:385133.293 N:398743.235	49.478	1.678	1.800	HYDROBRAKE / 1220X675	S.1.010, IL=47.800, 300mm∅ S.6.004, IL=47.800, 225mm∅ S.7.004, IL=47.800, 300mm∅ PP OUT, IL=48.800, 150mm∅	S.1.011, IL=47.800, 150mmØ
S.25	E:385120.926 N:398766.468	50.252	1.992	1.200	SILT TRAP / 600X600	S.7.002 , IL=48.410, 150mm∅	S.7.003, IL=48.260, 300mmØ

SW PPIC SCHEDULE

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE (m)	MANHOLE TYPE / COVER DIA (mm)	PIPE OUT NAME, INVERT LEVEL (m) & DIA
S.01	E:385156.271 N:398815.143	50.750	1.450	0.600	PPIC / 350	S.1.000, IL=49.300, 150mmØ
S.02	E:385149.456 N:398811.498	50.750	1.850	0.600	PPIC SUMP (&NRV) / 350	S.1.001, IL=48.900, 150mmØ
S.03	E:385139.743 N:398806.302	50.600	1.773	0.600	PPIC / 350	S.1.002, IL=48.827, 225mmØ
S.04	E:385147.087 N:398791.868	50.881	2.150	0.600	PPIC / 350	S.1.003, IL=48.732, 225mmØ
S.05	E:385160.212 N:398781.755	50.767	1.167	0.600	PPIC / 600	S.2.000, IL=49.600, 150mmØ
S.09	E:385149.043 N:398761.144	49.508	0.958	0.600	PPIC / 600	S.1.007, IL=48.550, 225mmØ
S.10	E:385161.613 N:398767.826	50.538	0.988	0.600	PPIC / 600	S.3.000, IL=49.550, 150mmØ
S.11	E:385151.012 N:398757.500	49.433	0.926	0.600	PPIC / 600	S.1.008, IL=48.508, 225mmØ
S.12	E:385162.149 N:398763.717	49.424	0.700	0.600	PPIC / 600	S.4.000, IL=48.724, 150mmØ
S.13	E:385141.807 N:398752.567	49.441	1.131	0.600	PPIC / 600	S.1.009, IL=48.310, 225mmØ
S.15	E:385119.706 N:398786.890	50.600	1.081	0.600	PPIC / 600	S.5.000, IL=49.519, 150mmØ
S.16	E:385128.539 N:398770.542	50.209	1.276	0.600	PPIC / 350	S.5.001, IL=48.933, 225mmØ
S.18	E:385186.289 N:398760.692	49.775	1.275	0.600	PPIC / 350	S.6.000, IL=48.500, 150mmØ
S.19	E:385183.253 N:398758.963	49.775	1.640	0.600	PPIC SUMP (&NRV) / 350	S.6.001, IL=48.135, 150mmØ
S.20	E:385183.177 N:398752.788	49.775	1.685	0.600	PPIC / 350	S.6.002 , IL=48.090, 225mmØ
S.20A	E:385166.381 N:398743.379	49.475	1.471	0.600	PPIC SUMP (&NRV) / 350	S.6.003 , IL=48.004, 225mmØ
S.21	E:385141.086 N:398729.209	49.550	1.675	0.600	PPIC / 350	S.6.004, IL=47.875, 225mmØ
S.22	E:385104.644 N:398783.477	50.600	1.650	0.600	PPIC / 350	S.7.000 , IL=48.950, 150mmØ
S.22A	E:385107.250 N:398778.374	50.600	1.707	0.600	PPIC SUMP (&NRV) / 350	S.7.001 , IL=48.893, 150mmØ
S.23	E:385115.022 N:398763.308	50.363	1.640	0.600	PPIC / 350	S.7.002 , IL=48.723, 150mmØ
S.24	E:385104.204 N:398757.815	50.536	0.836	0.600	PPIC / 600	S.8.000, IL=49.700, 150mmØ

COMBINED WATER MANHOLES

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE (m)	MANHOLE TYPE / COVER SIZE (mm)	PIPE IN NAME, INVERT LEVEL (m) & DIA	PIPE OUT NAME, INVERT LEVEL (m) & DIA
C.01	E:385128.117 N:398736.942	49.558	1.812	1.800	TYPE B / 600X600	F.1.010, IL=47.746, 150mm∅ F.7.008, IL=47.746, 150mm∅	C.1.011, IL=47.746, 225mmØ
C.02	E:385107.752 N:398724.773	50.307	2.732	1.800	TYPE B / 600X600	C.1.011, IL=47.575, 225mm∅ EXISTING PUBLIC SEWER IN	EXISTING PUBLIC SEWER OUT

FW PPIC SCHEDULE

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE (m)	MANHOLE TYPE / COVER DIA (mm)	PIPE OUT NAME, INVERT LEVEL (m) & DIA
F.01	E:385164.336 N:398808.928	50.750	0.750	0.600	PPIC / 600	F.1.000, IL=50.000, 150mmØ
F.02	E:385161.431 N:398813.943	50.750	0.795	0.600	PPIC / 600	F.1.001, IL=49.955, 150mmØ
F.03	E:385148.048 N:398807.115	50.600	0.760	0.600	PPIC / 600	F.1.002, IL=49.840, 150mmØ
F.04	E:385146.327 N:398806.200	50.600	0.775	0.600	PPIC / 600	F.1.003, IL=49.825, 150mmØ
F.05	E:385141.666 N:398803.723	50.600	0.900	0.600	PPIC / 600	F.1.004, IL=49.700, 150mmØ
F.06	E:385139.295 N:398804.413	50.600	0.800	0.600	PPIC / 600	F.2.000, IL=49.800, 150mmØ
F.07	E:385147.334 N:398792.752	50.804	1.199	0.600	PPIC / 350	F.1.005, IL=49.605, 150mmØ
F.08	E:385135.545 N:398786.121	50.579	1.433	0.600	PPIC / 350	F.1.006, IL=49.146, 150mmØ
F.09	E:385129.066 N:398782.451	50.314	1.309	0.600	PPIC / 350	F.1.007, IL=49.006, 150mmØ
F.10	E:385124.561 N:398791.879	50.600	1.200	0.600	PPIC / 350	F.3.000, IL=49.400, 100mmØ
F.11	E:385127.744 N:398773.872	50.218	1.279	0.600	PPIC / 350	F.1.008, IL=48.939, 150mmØ
F.12	E:385130.304 N:398769.016	50.216	1.616	0.600	PPIC / 350	F.1.009, IL=48.600, 150mmØ
F.13	E:385137.295 N:398755.756	50.214	1.314	0.600	PPIC / 350	F.4.000, IL=48.900, 150mmØ
F.14	E:385134.916 N:398760.268	50.214	1.378	0.600	PPIC / 350	F.4.001, IL=48.836, 150mmØ
F.15	E:385131.968 N:398765.859	50.214	1.457	0.600	PPIC / 350	F.4.002, IL=48.757, 150mmØ
F.16	E:385114.866 N:398760.688	50.354	1.954	0.600	PPIC / 350	F.1.010, IL=48.400, 150mmØ
F.17	E:385098.891 N:398779.771	50.600	0.750	0.600	PPIC / 600	F.5.000, IL=49.850, 150mmØ
F.18	E:385096.807 N:398783.834	50.600	0.785	0.600	PPIC / 600	F.5.001, IL=49.815, 150mmØ
F.19	E:385109.742 N:398790.579	50.646	0.943	0.600	PPIC / 600	F.5.002, IL=49.703, 150mmØ
F.20	E:385116.890 N:398776.871	50.704	1.354	0.600	PPIC / 350	F.5.003, IL=49.350, 150mmØ
F.21	E:385108.707 N:398772.269	51.047	1.897	0.600	PPIC / 350	F.5.004, IL=49.150, 150mmØ
F.22	E:385111.228 N:398767.529	50.547	1.647	0.600	PPIC / 350	F.5.005, IL=48.900, 150mmØ
F.23	E:385098.787 N:398755.201	50.745	1.045	0.600	PPIC / 600	F.6.000, IL=49.700, 150mmØ
F.24	E:385104.130 N:398757.023	50.536	1.238	0.600	PPIC / 350	F.6.001, IL=49.298, 150mmØ
F.25	E:385180.767 N:398757.038	49.775	0.910	0.600	PPIC / 600	F.7.000, IL=48.865, 150mmØ
F.26	E:385168.834 N:398765.855	49.445	0.727	0.600	PPIC / 600	F.7.001, IL=48.718, 150mmØ
F.27	E:385155.402 N:398794.253	51.407	0.750	0.600	PPIC / 600	F.8.000, IL=50.657, 150mmØ
F.28	E:385156.199 N:398792.930	51.406	0.761	0.600	PPIC / 600	F.8.001, IL=50.645, 150mmØ
F.29	E:385158.869 N:398788.502	51.406	0.801	0.600	PPIC / 600	F.8.002, IL=50.605, 150mmØ
F.30	E:385161.224 N:398784.596	51.405	0.836	0.600	PPIC / 600	F.8.003, IL=50.570, 150mmØ
F.31	E:385161.846 N:398783.565	51.405	0.845	0.600	PPIC / 600	F.8.004, IL=50.561, 150mmØ
F.32	E:385163.704 N:398780.483	51.405	0.872	0.600	PPIC / 600	F.8.005, IL=50.533, 150mmØ
F.33	E:385164.776 N:398778.704	51.405	0.888	0.600	PPIC / 600	F.8.006, IL=50.517, 150mmØ
F.34	E:385165.557 N:398777.409	51.405	0.900	0.600	PPIC / 600	F.8.007, IL=50.505, 150mmØ
F.35	E:385167.882 N:398773.603	51.405	0.934	0.600	PPIC / 600	F.8.008, IL=50.471, 150mmØ
F.36	E:385169.161 N:398771.522	51.406	2.625	0.600	PPIC / 350	F.8.009, IL=48.781, 150mmØ
F.37	E:385170.740 N:398769.287	49.441	0.681	0.600	PPIC / 600	F.8.010, IL=48.760, 150mmØ
F.38	E:385165.817 N:398764.151	49.446	0.751	0.600	PPIC / 600	F.7.002, IL=48.695, 150mmØ
F.39	E:385162.794 N:398762.444	49.446	0.774	0.600	PPIC / 600	F.7.003, IL=48.672, 150mmØ
F.40	E:385161.011 N:398761.515	49.445	0.787	0.600	PPIC / 600	F.7.004, IL=48.658, 150mmØ
F.41	E:385153.572 N:398757.236	49.447	0.847	0.600	PPIC / 600	F.7.005, IL=48.601, 150mmØ
F.42	E:385148.871 N:398754.963	49.449	0.883	0.600	PPIC / 600	F.7.006, IL=48.566, 150mmØ
F.43	E:385140.531 N:398746.033	49.460	1.021	0.600	PPIC / 600	F.7.007, IL=48.440, 150mmØ
F.44	E:385137.275 N:398743.929	49.467	1.066	0.600	PPIC / 600	F.7.008, IL=48.401, 150mmØ

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

MANHOLE SCHEDULE NOTES:

1. INCOMING PIPES FROM CHANNEL DRAINS, SLOT DRAINS AND GULLIES NOT INCLUDED IN THE TABLES.
2. ALL CHAMBERS IN TRAFFICKED AREAS REQUIRE A D400 COVER. IN NONE TRAFFICKED AREAS A B125 SHOULD BE USED.
3. RODDING EYES NOT SHOWN.
4. PIPES DOWNSTREAM OF LIFT PIT GULLIES REQUIRE A NON-RETURN VALVE (NRV).

S2	FOR INFORMATION	02.06.25	MF	KC
S2	FOR INFORMATION	16.05.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P03	S.20A, S.22A & C02 ADDED. SW DRAINAGE LOWERED FOR LIFT PIT GULLIES	02.06.25	MF	KC
P02	REVISED LANDSCAPE LAYOUT	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

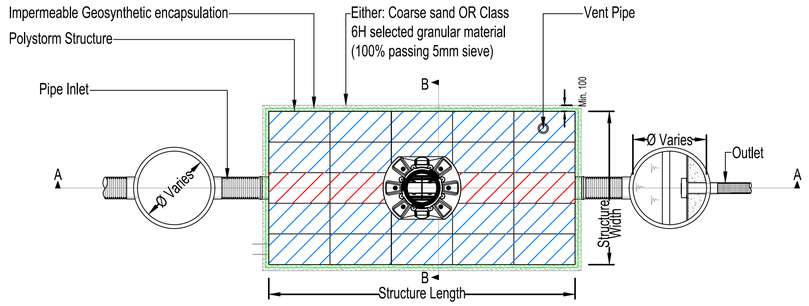
PROJECT:
PHOENIX IRONWORKS

TITLE:
PROPOSED MANHOLE SCHEDULE

SCALE: 1:200 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000105

REV: P03

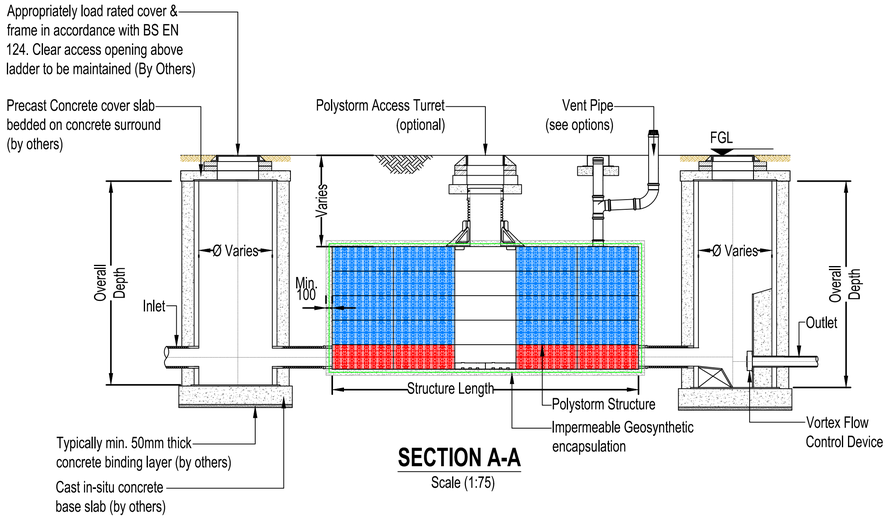


TYPICAL ATTENUATION TANK PLAN

(Scale 1:75)

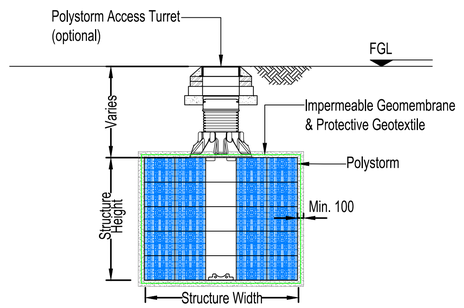
KEY:

- POLYSTORM (PSM1, 1A & 2 CELL)
- POLYSTORM (PSM4 CELL)



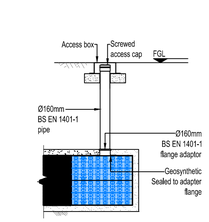
SECTION A-A

Scale (1:75)

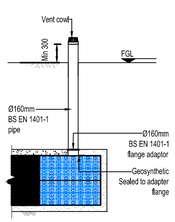


SECTION B-B

Scale (1:75)



VENTILATION SYSTEM (OPTION 1)



VENTILATION SYSTEM (OPTION 2)

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

ATTENUATION NOTES:

1. DEPENDING ON CBR RATES, ATTENUATION TANK MAY REQUIRE 75mm CONCRETE BLINDING TO BASE.
2. ALL ACCESS COVERS AND SURROUNDS TO BE MINIMUM LOADING CLASS C250.

STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
S2	FOR INFORMATION	16.05.25	MF	KC
P01	PRELIMINARY ISSUE	16.05.25	MF	KC

REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

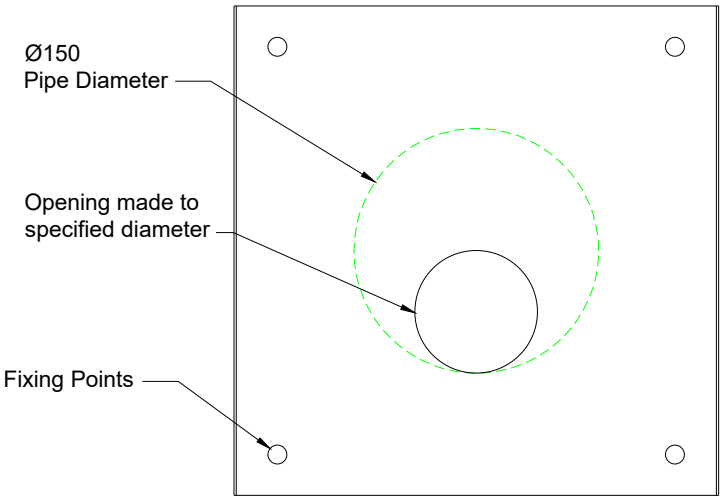
TITLE:
TYPICAL ATTENUATION TANK DETAILS

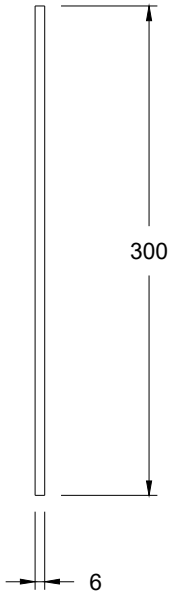
SCALE: NTS @A1	DRAWN BY: MF	CHECKED BY: KC	APPROVED BY: KC

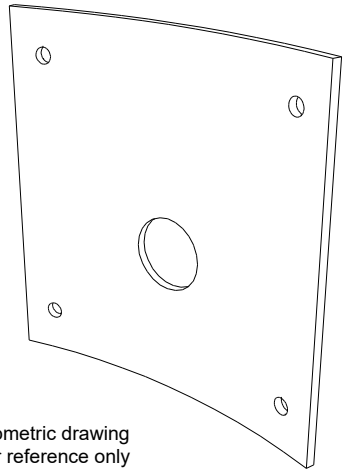
DRAWING No:

240010-KOD-ZZ-00-D-C-0000107

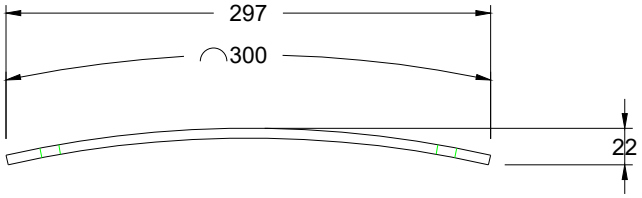
REV: P01

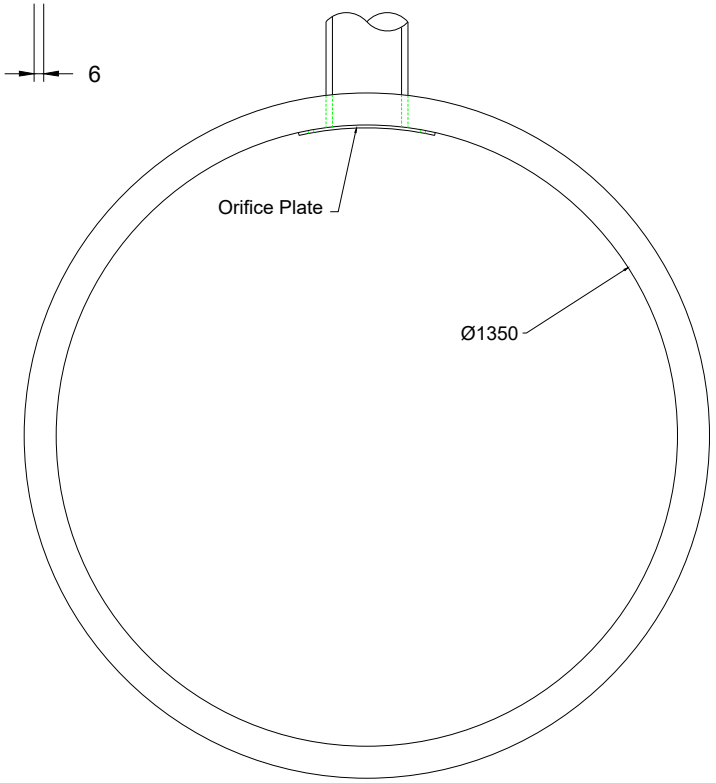






Isometric drawing
for reference only





DO NOT SCALE DRAWING

Notes

Manufacturing Tolerances

1. Manufacturing tolerances IAW EN 1090-1 ANNEX D PARA 2.7-2.8
2. All dimensions in mm U.O.S
3. All measurements ± 1mm

Fabrication Specification

1. Manufacture IAW EN 1090-1 EXC Class 1
2. Material grade is to be: BS EN 10025 S275
3. Welding carried out IAW EN 1090-1 PARA 7.5.4 - 7.5.18
4. All fillet and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible
5. Ensure vertical flats are fully welded where possible
6. All sharp edges and burrs are to be removed
7. Remove all welding splatter
8. Holes by punching are permitted without reaming
9. Galvanising is carried out after fabrication to BS EN:ISO 1461

Assembly Specification

Standard Torque Values (A2 Stainless Steel Bolts - Class 70)

- M8 (13mm Wrench) - 25 - 35Nn
- M10 (16mm Wrench) - 25 - 40Nn
- M12 (18mm Wrench) - 28 - 40Nn
- M16 (24mm Wrench) - 28 - 40Nn
- M20 (30mm Wrench) - 28 - 40Nn
- Copper Slip must be used when bolting grating to threaded inserts cast into headwall.

REV NO:	DATE:	DESCRIPTION:

Althon

ADDRESS: ALTHON LIMITED
VULCAN ROAD SOUTH
NORWICH
NR6 6AF

TEL: 01603 488700
FAX: 01603 488598
EMAIL: sales@althon.co.uk
WEBSITE: www.althon.co.uk

PROPRIETARY & CONFIDENTIAL

The information contained in this drawing is the sole property of Althon Limited. Any reproduction in part or as a whole without the written permission of Althon Limted is strictly prohibited.

DRAWING TITLE:

Galv. 150mm Curved Orifice Plate
for 1350mm dia Chamber
300 x 300 x 6mm

FINISH: Galvanised

SCALE:	PAPER:	DATE:
NTS	A4	27 - 09 - 19

SHEET NO:	WEIGHT:
01 OF 01	kg

PRODUCT NAME:
Galv. 150mm Curved Orifice Plate
for 1350mm dia Chamber

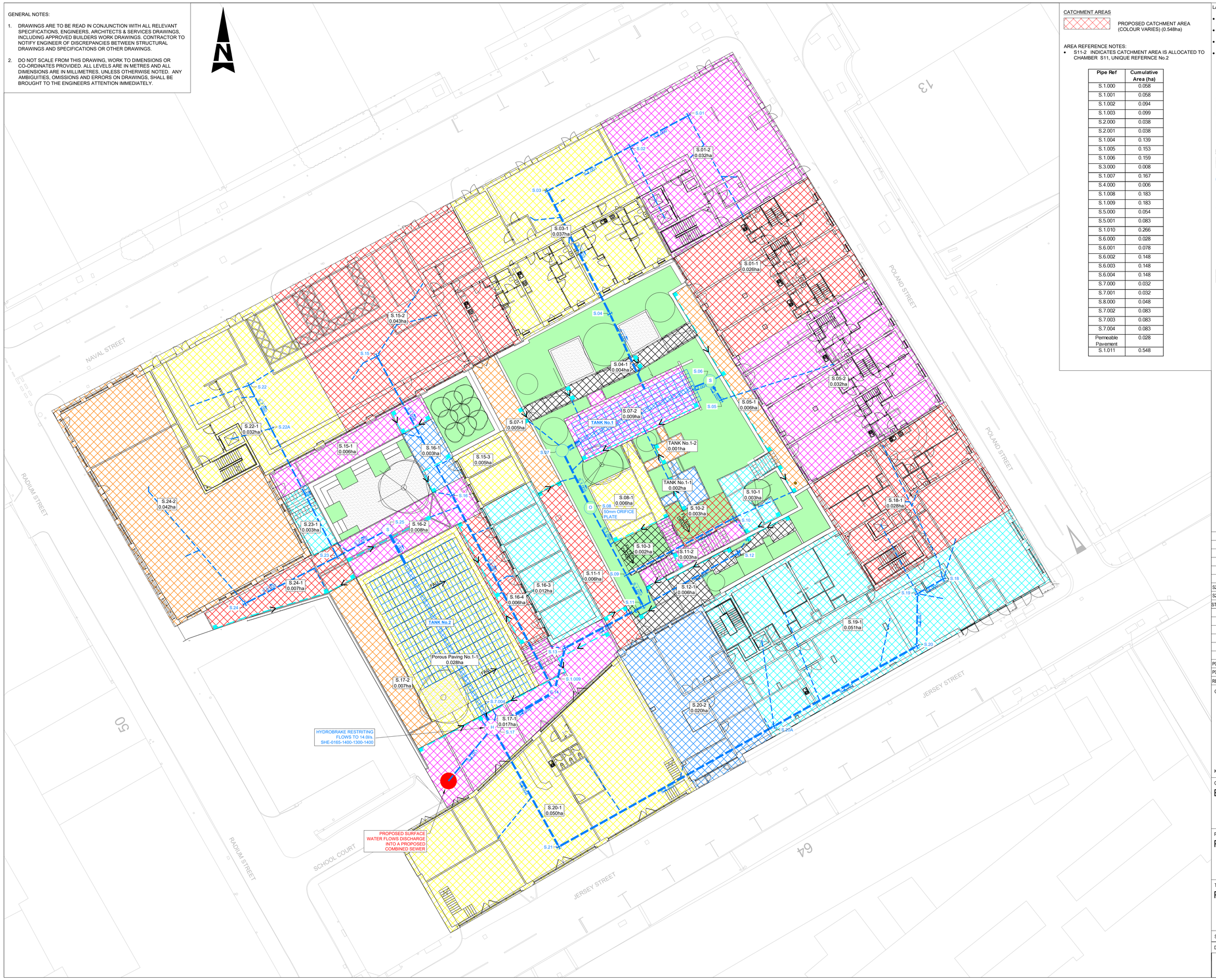
CODE: GCOP1501350

Appendix D – Hydraulic Calculations

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.

2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.



CATCHMENT AREAS

PROPOSED CATCHMENT AREA (COLOUR VARIES) (0.548ha)

AREA REFERENCE NOTES:

- S11-2 INDICATES CATCHMENT AREA IS ALLOCATED TO CHAMBER S11, UNIQUE REFERNCE No.2

Pipe Ref	Cumulative Area (ha)
S.1.000	0.058
S.1.001	0.058
S.1.002	0.094
S.1.003	0.099
S.2.000	0.038
S.2.001	0.038
S.1.004	0.139
S.1.005	0.153
S.1.006	0.159
S.3.000	0.008
S.1.007	0.167
S.4.000	0.006
S.1.008	0.183
S.1.009	0.183
S.5.000	0.054
S.5.001	0.083
S.1.010	0.266
S.6.000	0.028
S.6.001	0.078
S.6.002	0.148
S.6.003	0.148
S.6.004	0.148
S.7.000	0.032
S.7.001	0.032
S.8.000	0.048
S.7.002	0.083
S.7.003	0.083
S.7.004	0.083
Permeable Pavement	0.028
S.1.011	0.548

LABELING NOTES:

- F2.05 - INDICATES FOUL WATER CHAMBER, NETWORK / OUTFALL No.2, CHAMBER UNIQUE REFERENCE No.5.
- S18 - INDICATES SURFACE WATER CHAMBER, UNIQUE REFERENCE No.18. NOTE - THERE IS ONLY 1 SURFACE WATER OUTFALL.
- F2.6.001 - INDICATES FOUL WATER PIPE, NETWORK / OUTFALL No.2, UNIQUE REFERENCE No.6.001.
- S6.001 - INDICATES SURFACE WATER PIPE, UNIQUE REFERENCE No.6.001. NOTE - THERE IS ONLY 1 SURFACE WATER OUTFALL.

GENERAL KEY

SOFTSCAPE / PLANTING AREA (SEE LANDSCAPE GA)

FREE DRAINING GRAVEL AREA

PROPOSED DRAINAGE KEY:

FILTER DRAIN

PROPOSED SW SEWER & MH (H INDICATES HYDROBRAKE) (S INDICATES SILT TRAP) (O ORIFICE PLATE)

PROPOSED SW SEWER & PPIC

PROPOSED SW SEWER & RODDING EYE

PROPOSED SW SEWER & GULLY (YG INDICATES YARD GULLY)

PROPOSED SLOT DRAIN

POLYSTORM ATTENUATION CRATES (WITH POLYSTORM INSPECT CELLS)

REV	DESCRIPTION	DATE	BY	CHKD
S2	FOR INFORMATION	06.06.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P02	REVISED LANDSCAPE LAYOUT	06.06.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

TITLE:
PROPOSED DRAINAGE CATCHMENT AREAS

SCALE: 1:200 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000106

REV: P02

PHOENIX IRONWORKS: M100+45% SIM RESULTS	Date: 06/06/2025		
	Designed by: MF	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: SW1			

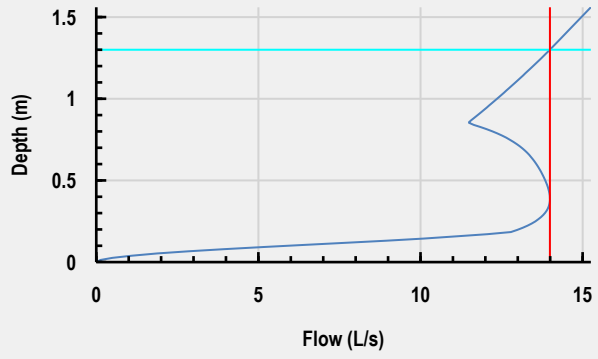
INFODRAINAGE NETWORK CAN BE DOWNLOADED HERE http://tiny.cc/1o8m001

Outlets

Junction	Outlet Name		Outgoing Connection	Outlet Type
S.22	Outlet		S.7.000	Free Discharge
S.23	Outlet		S.7.002	Free Discharge
S.24	Outlet		S.8.000	Free Discharge
S.16	Outlet		S.5.001	Free Discharge
S.15	Outlet		S.5.000	Free Discharge
S.14	Outlet		S.1.010	Free Discharge
S.03	Outlet		S.1.002	Free Discharge
S.04	Outlet		S.1.003	Free Discharge
S.07	Outlet		S.1.005	Free Discharge
S.08	Outlet		S.1.006	Orifice
	Diameter (m)	0.050		
	Coefficient of Discharge	0.600		
	Invert Level (m)	48.606		
S.05	Outlet		S.2.000	Free Discharge
S.09	Outlet		S.1.007	Free Discharge
S.10	Outlet		S.3.000	Free Discharge
S.11	Outlet		S.1.008	Free Discharge
S.12	Outlet		S.4.000	Free Discharge
S.13	Outlet		S.1.009	Free Discharge
S.17	Outlet		S.1.011	Hydro-Brake®
	Invert Level (m)	47.800		
	Design Depth (m)	1.300		
	Design Flow (L/s)	14.0		
	Objective	Minimise Upstream Storage Requirements		
	Application	Surface Water Only		
	Sump Available	☑		
	Unit Reference	SHE-0165-1400-1300-1400		
S.18	Outlet		S.6.000	Free Discharge
S.19	Outlet		S.6.001	Free Discharge
S.20	Outlet		S.6.002	Free Discharge
S.21	Outlet		S.6.004	Free Discharge
S.25	Outlet		S.7.003	Free Discharge
S.06	Outlet		S.2.001	Free Discharge
S.01	Outlet		S.1.000	Free Discharge
S.02	Outlet		S.1.001	Free Discharge
S.22A	Outlet		S.7.001	Free Discharge
S.20A	Outlet		S.6.003	Free Discharge

50mm ORIFICE PLATE RESTRICTION

14l/s HYDROBRAKE RESTRICTION



PHOENIX IRONWORKS:	Date:		
M100+45% SIM RESULTS	06/06/2025		
	Designed by:	Checked by:	Approved By:
	MF		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: SW1			



TANK No.2

Type : Tank

Dimensions

Exceedance Level (m)	49.428
Depth (m)	1.578
Base Level (m)	47.850
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	149.738

Depth (m)	Area (m²)	Volume (m³)
0.000	196.00	0.000
0.800	196.00	148.960

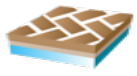
IRREGULAR SHAPE MODELLED AS A TANK, AS OPPOSED TO CELLULAR STORAGE

TANK No.2 ATTENUATION VOLUME

Advanced

Perimeter	Circular
Length (m)	22.825

PHOENIX IRONWORKS:	Date:		
M100+45% SIM RESULTS	06/06/2025		
	Designed by:	Checked by:	Approved By:
	MF		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: SW1			



Porous Paving No.1

Type : Porous Paving

Dimensions

Exceedance Level (m)	49.425
Depth (m)	0.300
Base Level (m)	49.125
Paving Layer Depth (mm)	110
Membrane Percolation (m/hr)	15.0
Porosity (%)	30
Length (m)	25.553
Long. Slope (1:X)	100.00
Width (m)	9.006
Total Volume (m³)	13.260

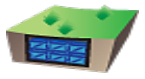
Under Drain

Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.014

Advanced

Conductivity (m/hr)	3.5

PHOENIX IRONWORKS:	Date:		
M100+45% SIM RESULTS	06/06/2025		
	Designed by:	Checked by:	Approved By:
	MF		
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: SW1			



TANK No.1

Type : Cellular Storage

Dimensions

Exceedance Level (m)	50.625
Depth (m)	0.800
Base Level (m)	48.675
Number of Crates Long	15
Number of Crates Wide	8
Number of Crates High	2
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	46.750

TANK No.1 ATTENUATION VOLUME

PHOENIX IRONWORKS:	Date:		
M100+45% SIM RESULTS	06/06/2025		
	Designed by:	Checked by:	Approved By:
	MF		
Report Details:	Company Address:		
Type: Connections Storm Phase: SW1			

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Lock	Flow Restriction (L/s)
S.1.000	7.729	Pipe	19.321		0.6	150	50.750	49.300	50.750	48.900	All	
S.1.001	11.015	Pipe	150.000		0.6	150	50.750	48.900	50.600	48.827	All	
S.1.002	16.195	Pipe	170.000		0.6	225	50.600	48.827	50.881	48.732	All	
S.1.003	9.766	Pipe	170.000		0.6	225	50.881	48.732	50.740	48.675	All	
S.2.000	2.604	Pipe	11.205		0.6	150	50.767	49.600	50.775	49.368	All	
S.2.001	1.888	Pipe	75.515		0.6	150	50.775	48.700	50.748	48.675	All	
S.1.004	2.335	Pipe	93.386		0.6	225	50.648	48.675	50.634	48.650	All	
S.1.005	7.515	Pipe	170.000		0.6	225	50.634	48.650	50.496	48.606	All	
S.1.006	8.970	Pipe	160.187		0.6	150	50.496	48.606	49.508	48.550	All	5.5
S.3.000	14.236	Pipe	15.390		0.6	150	50.538	49.550	49.508	48.625	All	
S.1.007	4.142	Pipe	97.772		0.6	225	49.508	48.550	49.433	48.508	All	
S.4.000	12.755	Pipe	90.579		0.6	150	49.424	48.724	49.433	48.583	All	
S.1.008	10.443	Pipe	52.842		0.6	225	49.433	48.508	49.441	48.310	All	
S.1.009	5.315	Pipe	151.844		0.6	225	49.441	48.310	49.446	48.275	All	
S.5.000	18.582	Pipe	36.363		0.6	150	50.600	49.519	50.209	49.008	All	
S.5.001	26.075	Pipe	39.628		0.6	225	50.209	48.933	49.446	48.275	All	
S.1.010	8.375	Pipe	20.937		0.6	300	49.446	48.200	49.478	47.800	All	
S.6.000	3.494	Pipe	9.572		0.6	150	49.775	48.500	49.775	48.135	All	
S.6.001	6.175	Pipe	137.233		0.6	150	49.775	48.135	49.775	48.090	All	
S.6.002	19.252	Pipe	225.000		0.6	225	49.775	48.090	49.475	48.004	All	
S.6.003	28.994	Pipe	224.756		0.6	225	49.475	48.004	49.550	47.875	All	
S.6.004	16.045	Pipe	213.936		0.6	225	49.550	47.875	49.478	47.800	All	
S.7.000	5.730	Pipe	100.000		0.6	150	50.600	48.950	50.600	48.893	All	
S.7.001	16.952	Pipe	99.822		0.6	150	50.600	48.893	50.363	48.723	All	
S.8.000	12.132	Pipe	12.418		0.6	150	50.536	49.700	50.363	48.723	All	
S.7.002	6.697	Pipe	21.395		0.6	150	50.363	48.723	50.252	48.410	All	
S.7.003	4.468	Pipe	10.899		0.6	300	50.252	48.260	50.000	47.850	All	
S.7.004	1.856	Pipe	37.118		0.6	300	49.453	47.850	49.478	47.800	All	
PP OUT	2.237	Pipe	6.887		0.6	150	49.448	49.125	49.478	48.800	All	
S.1.011	8.148	Pipe	150.000		0.6	150	49.478	47.800	49.558	47.746	All	14.0

ORIFICE PLATE RESTRICTION

14l/s HYDROBRAKE RESTRICTION

PHOENIX IRONWORKS: M100+45% SIM RESULTS	Date: 06/06/2025		
	Designed by: MF	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: SW1	Company Address:		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Porous Paving No.1-1	Porous Paving No.1		Time of Concentration	0.028	100	0	100	0.028
S.01-1	S.01		Time of Concentration	0.026	100	0	100	0.026
S.01-2	S.01		Time of Concentration	0.032	100	0	100	0.032
S.03-1	S.03		Time of Concentration	0.037	100	0	100	0.037
S.04-1	S.04		Time of Concentration	0.004	100	0	100	0.004
S.05-1	S.05		Time of Concentration	0.006	100	0	100	0.006
S.05-2	S.05		Time of Concentration	0.032	100	0	100	0.032
S.07-1	S.07		Time of Concentration	0.005	100	0	100	0.005
S.07-2	S.07		Time of Concentration	0.009	100	0	100	0.009
S.08-1	S.08		Time of Concentration	0.006	100	0	100	0.006
S.10-1	S.10		Time of Concentration	0.003	100	0	100	0.003
S.10-2	S.10		Time of Concentration	0.003	100	0	100	0.003
S.10-3	S.10		Time of Concentration	0.002	100	0	100	0.002
S.11-1	S.11		Time of Concentration	0.006	100	0	100	0.006
S.11-2	S.11		Time of Concentration	0.003	100	0	100	0.003
S.12-1	S.12		Time of Concentration	0.006	100	0	100	0.006
S.15-1	S.15		Time of Concentration	0.006	100	0	100	0.006
S.15-2	S.15		Time of Concentration	0.043	100	0	100	0.043
S.15-3	S.15		Time of Concentration	0.005	100	0	100	0.005
S.16-1	S.16		Time of Concentration	0.003	100	0	100	0.003
S.16-2	S.16		Time of Concentration	0.008	100	0	100	0.008
S.16-3	S.16		Time of Concentration	0.012	100	0	100	0.012
S.16-4	S.16		Time of Concentration	0.006	100	0	100	0.006
S.17-1	S.17		Time of Concentration	0.017	100	0	100	0.017
S.17-2	S.17		Time of Concentration	0.007	100	0	100	0.007
S.18-1	S.18		Time of Concentration	0.028	100	0	100	0.028
S.19-1	S.19		Time of Concentration	0.051	100	0	100	0.051
S.20-1	S.20		Time of Concentration	0.050	100	0	100	0.050
S.20-2	S.20		Time of Concentration	0.020	100	0	100	0.020
S.22-1	S.22		Time of Concentration	0.032	100	0	100	0.032
S.23-1	S.23		Time of Concentration	0.003	100	0	100	0.003
S.24-1	S.24		Time of Concentration	0.007	100	0	100	0.007
S.24-2	S.24		Time of Concentration	0.042	100	0	100	0.042
TANK No.1-1	TANK No.1		Time of Concentration	0.002	100	0	100	0.002
TANK No.1-2	TANK No.1		Time of Concentration	0.001	100	0	100	0.001
TOTAL		**0.0**		**0.548**				**0.548**

TOTAL
CONTRIBUTING AREA

PHOENIX IRONWORKS: M100+45% SIM RESULTS	Date: 06/06/2025		
	Designed by: MF	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address:		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

Wizard

Type: FSR

Region	England And Wales
M5-60 (mm)	18.1
Ratio R	0.356
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880

PHOENIX IRONWORKS: M100+45% SIM RESULTS	Date: 06/06/2025		
	Designed by: MF	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: SW1	Company Address:		

Wizard: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
TANK No.1	Wizard: 100 years: +45 %: 180 mins: Summer	49.786	49.786	1.111	1.111	23.8	45.916	0.000	0.000	5.2	64.620	1.784	OK
TANK No.2	Wizard: 100 years: +45 %: 180 mins: Summer	48.592	48.592	0.742	0.742	57.7	138.235	0.000	0.000	10.1	103.373	7.682	OK
Porous Paving No.1	Wizard: 100 years: +45 %: 30 mins: Summer	49.472	49.166	0.092	0.041	9.9	5.098	0.000	0.000	8.5	7.908	61.557	OK

PHOENIX IRONWORKS: M100+45% SIM RESULTS	Date: 06/06/2025		
	Designed by: MF	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: SW1	Company Address:		

Wizard: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Flow

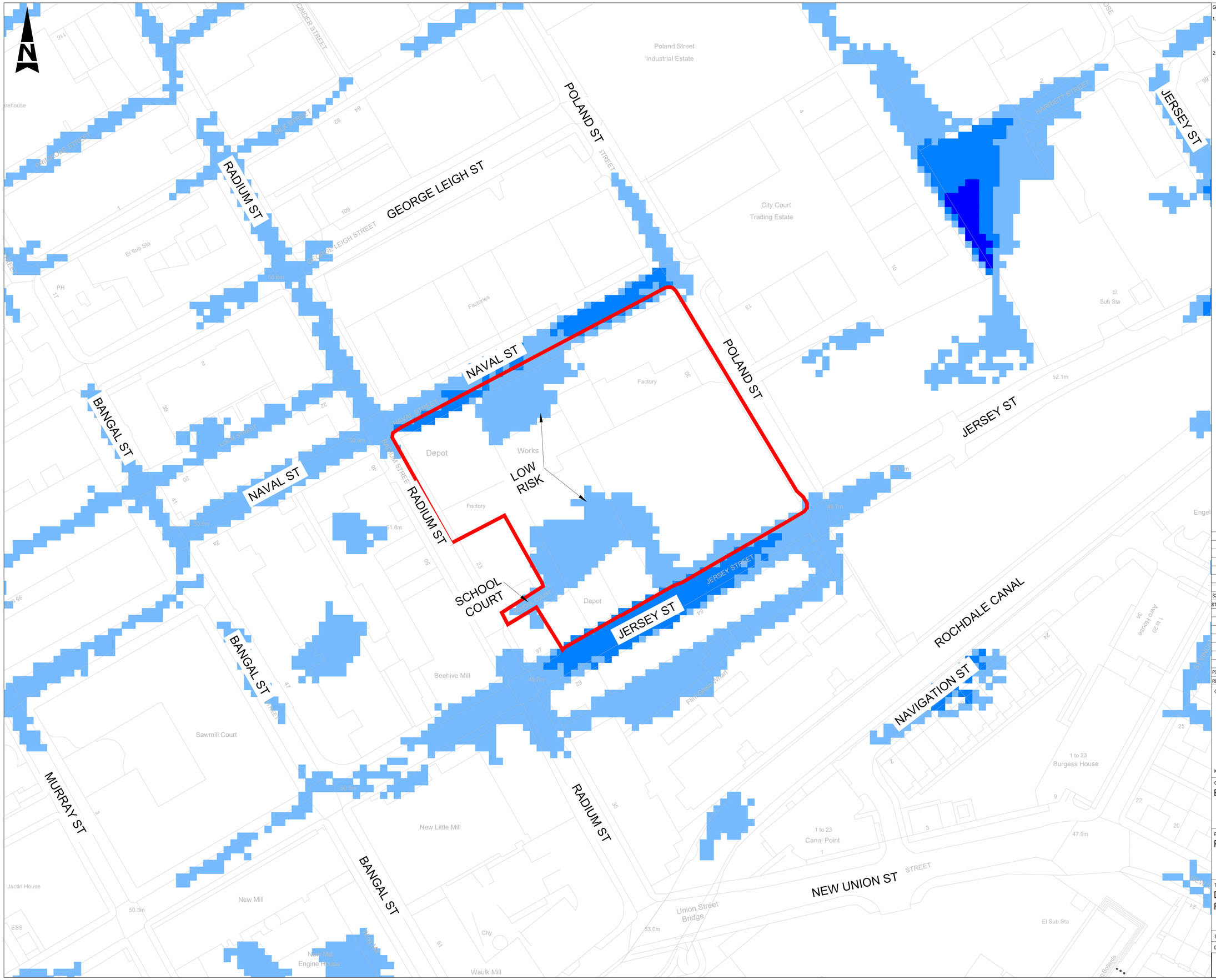
Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S.1.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.01	S.02	50.750	49.583	0.150	13.321	1.5	0.65	26.5	Surcharged
S.1.001	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.02	S.03	50.750	49.358	0.150	12.981	1.3	1.62	23.4	Surcharged
S.1.002	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.03	S.04	50.600	49.186	0.225	20.810	1.0	1.02	40.7	Surcharged
S.1.003	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.04	TANK No.1	50.881	49.187	0.225	21.029	1.4	1.04	41.4	Surcharged
S.2.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.05	S.06	50.767	49.678	0.071	8.678	2.4	0.37	19.9	OK
S.2.001	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.06	TANK No.1	50.775	49.188	0.150	8.011	1.1	0.87	17.8	Surcharged
S.1.004	Wizard: 100 years: +45 %: 120 mins: Summer	Pipe	TANK No.1	S.07	50.648	49.733	0.225	44.872	0.4	0.1	5.4	Surcharged
S.1.005	Wizard: 100 years: +45 %: 180 mins: Summer	Pipe	S.07	S.08	50.634	49.785	0.225	71.722	0.2	0.14	5.5	Surcharged
S.1.006	Wizard: 100 years: +45 %: 180 mins: Summer	Pipe	S.08	S.09	50.496	49.784	0.063	74.209	0.8	0.39	5.5	Surcharged
S.3.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.10	S.09	50.538	49.582	0.032	1.940	1.6	0.1	4.4	OK
S.1.007	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.09	S.11	49.508	48.615	0.069	6.888	0.8	0.13	6.9	OK
S.4.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.12	S.11	49.424	48.766	0.041	1.343	0.8	0.16	3.0	OK
S.1.008	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.11	S.13	49.433	48.581	0.087	10.386	1.0	0.21	14.7	OK
S.1.009	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.13	S.14	49.441	48.410	0.095	10.306	0.9	0.34	14.3	OK
S.5.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.15	S.16	50.600	49.648	0.122	12.458	1.8	0.94	27.8	OK
S.5.001	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.16	S.14	50.209	49.054	0.117	19.207	2.0	0.51	42.1	OK
S.1.010	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.14	S.17	49.446	48.295	0.235	29.464	1.0	0.23	56.1	OK
S.6.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.18	S.19	49.775	49.314	0.150	6.399	0.6	0.17	9.8	Surcharged
S.6.001	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.19	S.20	49.775	49.301	0.150	17.978	1.6	1.92	29.0	Surcharged
S.6.002	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.20	S.20A	49.775	49.099	0.225	33.787	1.5	1.76	60.9	Surcharged
S.6.003	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.20A	S.21	49.475	48.791	0.225	32.867	1.4	1.66	57.2	Surcharged
S.6.004	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.21	S.17	49.550	48.395	0.225	31.721	1.4	1.57	55.7	Surcharged
S.7.000	Wizard: 100 years: +45 %: 15 mins: Winter	Pipe	S.22	S.22A	50.600	49.079	0.132	7.321	0.9	0.84	14.9	OK
S.7.001	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.22A	S.23	50.600	49.068	0.150	7.325	0.7	0.67	11.8	Surcharged
S.8.000	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.24	S.23	50.536	49.776	0.150	11.144	1.4	0.5	25.6	OK
S.7.002	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.23	S.25	50.363	48.983	0.150	19.070	2.1	0.96	37.2	Surcharged
S.7.003	Wizard: 100 years: +45 %: 15 mins: Summer	Pipe	S.25	TANK No.2	50.252	48.335	0.198	19.076	3.2	0.11	37.0	OK
S.7.004	Wizard: 100 years: +45 %: 240 mins: Summer	Pipe	TANK No.2	S.17	49.453	48.588	0.300	31.138	0.1	0.06	10.1	Surcharged
PP OUT	Wizard: 100 years: +45 %: 30 mins: Summer	Pipe	Porous Paving No.1	S.17	49.448	49.199	0.038	7.908	2.4	0.12	8.5	OK
S.1.011	Wizard: 100 years: +45 %: 30 mins: Summer	Pipe	S.17	C.01 (2)	49.478	48.360	0.126	43.202	0.9	0.97	14.0	Surcharged

ORIFICE PLATE RESTRICTION

DOWNSTREAM COMBINED MANHOLE

SURFACE WATER FLOW RESTRICTED TO <14.0l/s

Appendix E – Exceedance Flood Route Analysis



GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

KEY

SITE BOUNDARY

SURFACE WATER KEY

DEFRA RISK OF FLOODING FROM SURFACE WATER WAS DOWNLOADED FROM ENVIRONMENT.DATA.GOV.UK/ROFSW.

BLUE HATCHING SHOWS WHERE FLOODING OCCURS AS A RESULT OF RAINFALL WITH THE FOLLOWING RETURN PERIODS.

- <1:30 YEAR EXTENTS (HIGH RISK)
- 1:30 - 1:100 YEAR EXTENTS (MEDIUM RISK)
- 1:100 - 1:1000 YEAR EXTENTS (LOW RISK)
- >1:1000 YEAR EXTENTS (VERY LOW RISK)

S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

TITLE:
DEFRA - **EXISTING** RISK OF FLOODING FROM SURFACE WATER

SCALE: 1:500 @A1	DRAWN BY: MF	CHECKED BY: KC	APPROVED BY: KC

DRAWING No:

240010-KOD-ZZ-00-D-C-0000120	REV: P01

GENERAL NOTES:

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.
2. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

KEY

- PROPOSED SITE BOUNDARY
- 51.0 — PROPOSED MAJOR CONTOUR (0.5m)
- 50.9 — PROPOSED MINOR CONTOUR (0.1m)
- FFL:69.800 — PROPOSED FINISHED FLOOR LEVEL
- × 90.000 — PROPOSED SPOT LEVEL
- -1:11 — PROPOSED FOOTWAY GRADIENT
- × (C.90.000) — EXISTING CARRIAGEWAY LEVEL
- OVERLAND FLOOD ROUTE
- PROPOSED SURFACE LEVEL <49.450 (LOWEST LEVELS WITHIN THE PROPOSED BOUNDARY)

S2	FOR INFORMATION	06.06.25	MF	KC
S2	FOR INFORMATION	02.05.25	MF	KC
STAT	PURPOSE OF ISSUE	DATE	BY	CHKD
P02	REVISED LANDSCAPE LAYOUT	06.06.25	MF	KC
P01	PRELIMINARY ISSUE	02.05.25	MF	KC
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

KODA

KODA PROJECT No: 240010

CLIENT:
ERIC WRIGHT CONSTRUCTION LTD

PROJECT:
PHOENIX IRONWORKS

TITLE:
PROPOSED EXCEEDANCE FLOW ROUTES

SCALE: 1:250 @A1 | DRAWN BY: MF | CHECKED BY: KC | APPROVED BY: KC

DRAWING No:
240010-KOD-ZZ-00-D-C-0000121

REV: P02