

Drainage Planning Conditions

Subject: Site D (D1 and D2) Trinity Islands, Manchester

Ref: 078567/DPC Rev V01

Date: 05/07/2022

The Planning Permission Ref: 132429/FO/2021
Condition 107a/151 relates to drainage proposals for the development.

Condition 107a/151

Notwithstanding Appendix 16.2 of the Environmental Statement – Flood Risk Assessment and Drainage Strategy stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021. (a) prior to the commencement of phase D1, a scheme for the drainage of surface water from that phase has been submitted for approval in writing by the City Council as the Local Planning Authority. This shall include: • The findings from the Phase 2 Ground Investigation works should be referenced within the Flood Risk Assessment and Drainage Strategy, specifically to identify if the basement levels require certain levels of proofing from groundwater. • A flood evacuation plan, specifying safe access and egress routes from the developments. • Consideration of alternative green SuDS solution (that is either utilising infiltration or attenuation) if practicable. • 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 40% climate change in any part of a building. • 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. • Where surface water is connected to River Irwell (ship canal), any works within or adjacent to the river that would affect it would require consent from Peel Holdings. An email of acceptance of proposed flows and/or new connection will suffice. • Correspondence evidencing that Peel Holdings are satisfied with the outfall(s) design details. The invert level of the outfalls should be specified, and various water levels used to identify how the proposed drainage system would function with a surcharged outfall. Where the development would cause unusual pollution risk to surface water (large car park areas (>50 parking spaces) or industrial estates), evidence of pollution control measures (preferably through SuDS) is required. • Hydraulic calculation of the proposed drainage system. • Construction details of flow control and SuDS elements.	Pre-Commencement
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Proposed Drainage:

The proposed drainage system consists of a separate foul and surface water network. Reference should be made to the following drainage design documents:

- ZD-CUR-G580-PL-GRD-92500-P01_Proposed Drainage Strategy
- ZD-CUR-G580-PL-DE-92530-P01_Drainage Details
- ZD-CUR-G580-PL-DE-92531-P01_Drainage Details
- ZD-CUR-G580-PL-GRD-92530-P01_Overland Flow Routes
- Surface Water Calcs Plan
- Surface Water Calcs Without Surcharged Outfall
- Surface Water Calcs With Surcharged Outfall

With specific reference to the conditioned points:

Findings from the Phase 2 Ground Investigation works should be referenced within the Flood Risk Assessment and Drainage Strategy, specifically to identify if the basement levels require certain levels of proofing from groundwater.

The FRA and Drainage Strategy cannot be updated to reflect the above as the document is approved. We have however summarised as follows:

The final Ground Investigation Report (70082598-11833(V4) by WSP summarises the groundwater levels as follows:

Table 4-3 - Summary of Groundwater Strikes and Monitoring Levels

Site Area	Borehole	Ground Level (m AOD)	Groundwater Strike m AOD (m BGL)		Stratum Groundwater strike within	Monitoring Depth m AOD (m BGL)		Stratum Water Resting in during Monitoring
			Initial	After 20 minutes		Min.	Max.	
Plot D	BH101	25.20	-	-	-	22.51 (2.69)	22.40 (2.80)	Alluvium
	BH102	25.99	1.79 (24.20)	22.59 (3.40)	Competent Sandstone	22.53 (3.46)	22.43 (3.56)	Alluvium
			4.11 (30.1)	22.09 (3.90)	Competent Sandstone			
	BH103	25.78	22.28 (3.50)	22.28 (3.50)	Granular Alluvium	22.48 (3.30)	22.39 (3.90)	Alluvium
			21.78 (4.00)	22.48 (3.30)	Granular Alluvium			
	BH104	24.99	20.99 (4.00)	22.19 (2.80)	Weathered Sandstone	22.41 (2.58)	22.30 (2.69)	Alluvium
			7.6 (17.30)	21.99 (3.00)	Competent Sandstone			
	BH105	25.27	21.27 (4.00)	21.47 (3.80)	Granular Alluvium	22.38 (2.89)	22.30 (2.97)	Alluvium
	BH106	24.73	-1.77 (26.50)	21.73 (3.00)	Competent Sandstone	22.04 (2.69)	21.97 (2.76)	Made Ground

Basement B2 level has a structural slab level of 20.800m and Basement B1 level has a structural slab level of 23.500, therefore groundwater levels encountered sit between B1 and B2 finished levels. The basement will be adequately waterproofed up to ground level to prevent groundwater ingress.

The contractor has confirmed that Grade 2 waterproofing is proposed – No water penetration is acceptable.

A flood evacuation plan, specifying safe access and egress routes from the developments. Consideration of alternative green SuDS solution (that is either utilising infiltration or attenuation) if practicable.

Refer to standalone Flood Emergency Response Plan referenced- ZD-CUR-G580-RP-XX-92001

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 40% climate change in any part of a building.

The system has been designed to accommodate the 100-year event with an allowance of 40% climate change. Refer to calculations enclosed in Appendix B.

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.

Refer to the Overland Flow Routes drawing enclosed in Appendix A.

Where surface water is connected to River Irwell (ship canal), any works within or adjacent to the river that would affect it would require consent from Peel Holdings. An email of acceptance of proposed flows and/or new connection will suffice.

Based on the discussions currently held with Peel, flows will be able to discharge at an unrestricted rate and limited to a speed of 2m/s therefore attenuation is not required.

Refer to Peel Correspondence in Appendix C.

Correspondence evidencing that Peel Holdings are satisfied with the outfall(s) design details. The invert level of the outfalls should be specified, and various water levels used to identify how the proposed drainage system would function with a surcharged outfall. Where the development would cause unusual pollution risk to surface water (large car park areas (>50 parking spaces) or industrial estates), evidence of pollution control measures (preferably through SuDS) is required.

Refer to Peel Correspondence in Appendix C.

Refer to calculations enclosed in Appendix B with and without surcharged outfall.

Pollution measures are not proposed. The car parking areas are at basement levels B1 and B2 and therefore internal covered areas. Basement gullies are required for general cleaning of the car park for wash down purposes, rainwater, snow/ice, etc that cars bring in, once thawed for somewhere to drain to. The car park is flat therefore this type of water would most likely air dry before reaching the gullies however can be washed/brushed to the gullies if required. Spillages i.e., petrol, oil from vehicles should not be washed to the foul gullies and Petrol/oil leaks etc should be isolated at the source and locally cleaned/disposed of. This will be documented in the maintenance manual.

External Service areas are not for industrial use and for general residential servicing only.

Hydraulic calculation of the proposed drainage system.

Refer to calculations enclosed in Appendix B.

Construction details of flow control and SuDS elements

Refer to the Drainage Details drawing enclosed in Appendix A.

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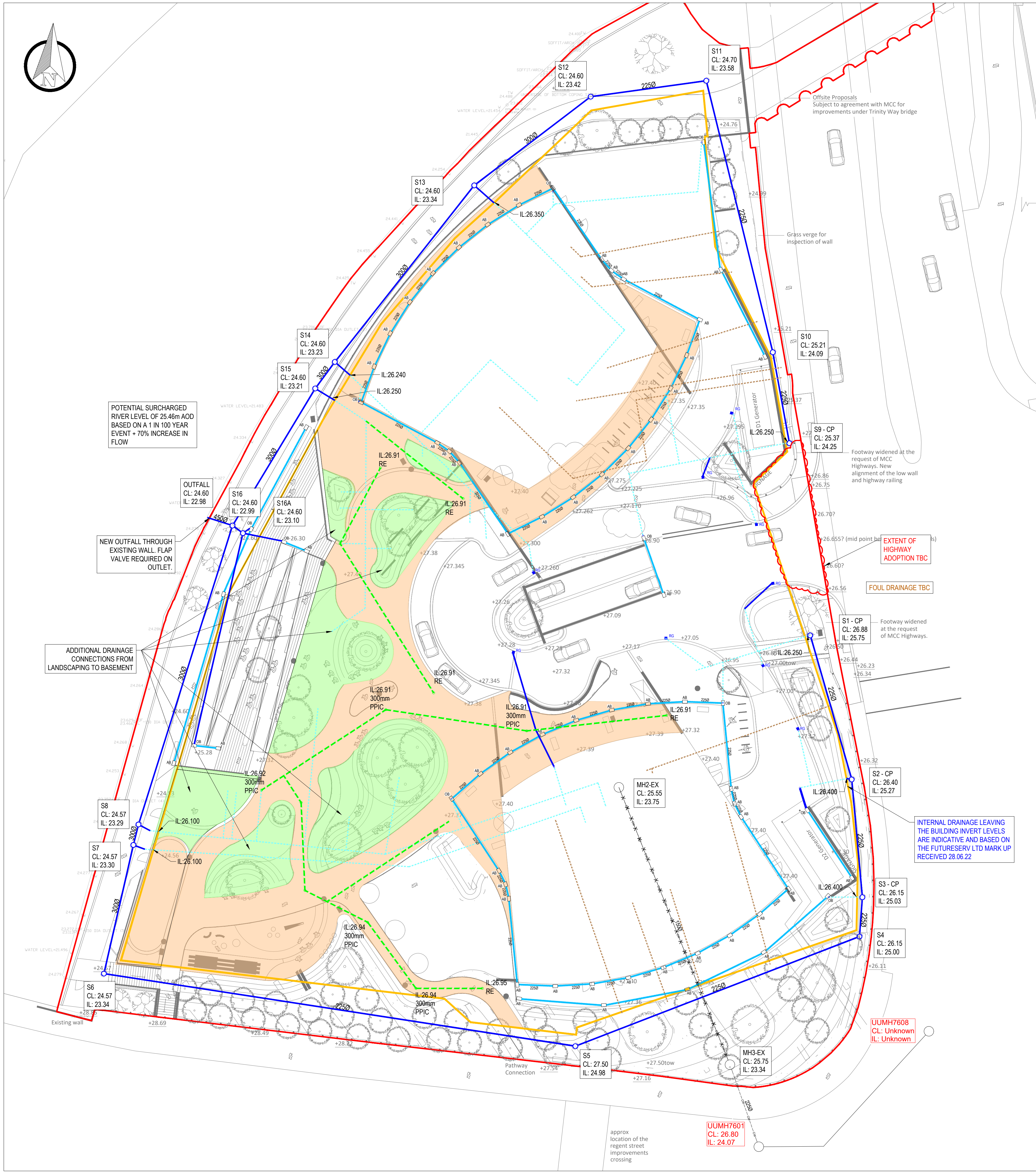
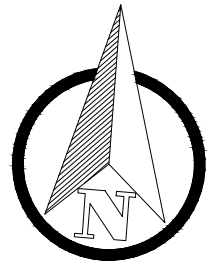
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Appendix A

- ZD-CUR-G580-PL-GRD-92500-P01_Proposed Drainage Strategy
- ZD-CUR-G580-PL-DE-92530-P01_Drainage Details
- ZD-CUR-G580-PL-DE-92531-P01_Drainage Details
- ZD-CUR-G580-PL-GRD-92530-P01_Overland Flow Routes



- KEY:**
- SITE BOUNDARY
 - BASEMENT B1 EXTENTS
(TAKEN FROM DRAWING
10364-ZD-SHP-G100-PL-B1-0001-P12)
 - EXISTING PRIVATE COMBINED DRAIN
 - EXISTING PUBLIC COMBINED DRAIN
 - DRAINAGE TO BE ABANDONED
 - INDICATES INITIAL PROPOSAL FOR PERMEABLE
SUB-BASE LAYER FOR SURFACE WATER
RUN-OFF COLLECTION. TBA
 - PROPOSED LANDSCAPING DRAINED THROUGH
BASEMENT
 - ACCESS BOX
 - OUTLET BOX
 - GULLY BOX SUMPLESS
 - SLAB PENETRATION POINT FOR DRAINAGE TO
BASEMENT
 - PROPOSED SURFACE WATER DRAINAGE
 - PROPOSED FOUL WATER DRAINAGE
 - PROPOSED SLOT DRAIN. TYPE TBA.
 - PROPOSED PERFORATED PIPE AND PPIC TO BE LAID
IN THE SUB-BASE OF THE PERMEABLE PAVING
 - INDICATIVE SW DRAINAGE WITHIN BASEMENT - M&E
TO CONFIRM DETAILS

DRAWING BASED ON:

ARCHITECT'S LAYOUTS

- ZD-SHP-G100-PL-GRD-0001 RECEIVED 20.06.22

LANDSCAPE ARCHITECT'S LAYOUT

- ZD-TPM-G710-PL-XX-4029 101 RECEIVED 20.06.22

PROPOSED SERVICES

- AWAITING DETAILS

PROPOSED STRUCTURAL INFORMATION.

- AWAITING DETAILS

TOPOGRAPHICAL SURVEY

- 20K269 BY SURVEY OPERATIONS RECEIVED 24.02.21

RIVER WALL SURVEY

- 220617SR BY SURVEY OPERATIONS RECEIVED 20.06.22

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO DRAWING ZD-CUR-G580-PL-XX-92510.
- FURTHER CO-ORDINATION REQUIRED BETWEEN EXTERNAL SERVICES AND THE PROPOSED DRAINAGE.

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Status:	SUITABLE FOR INFORMATION	S2
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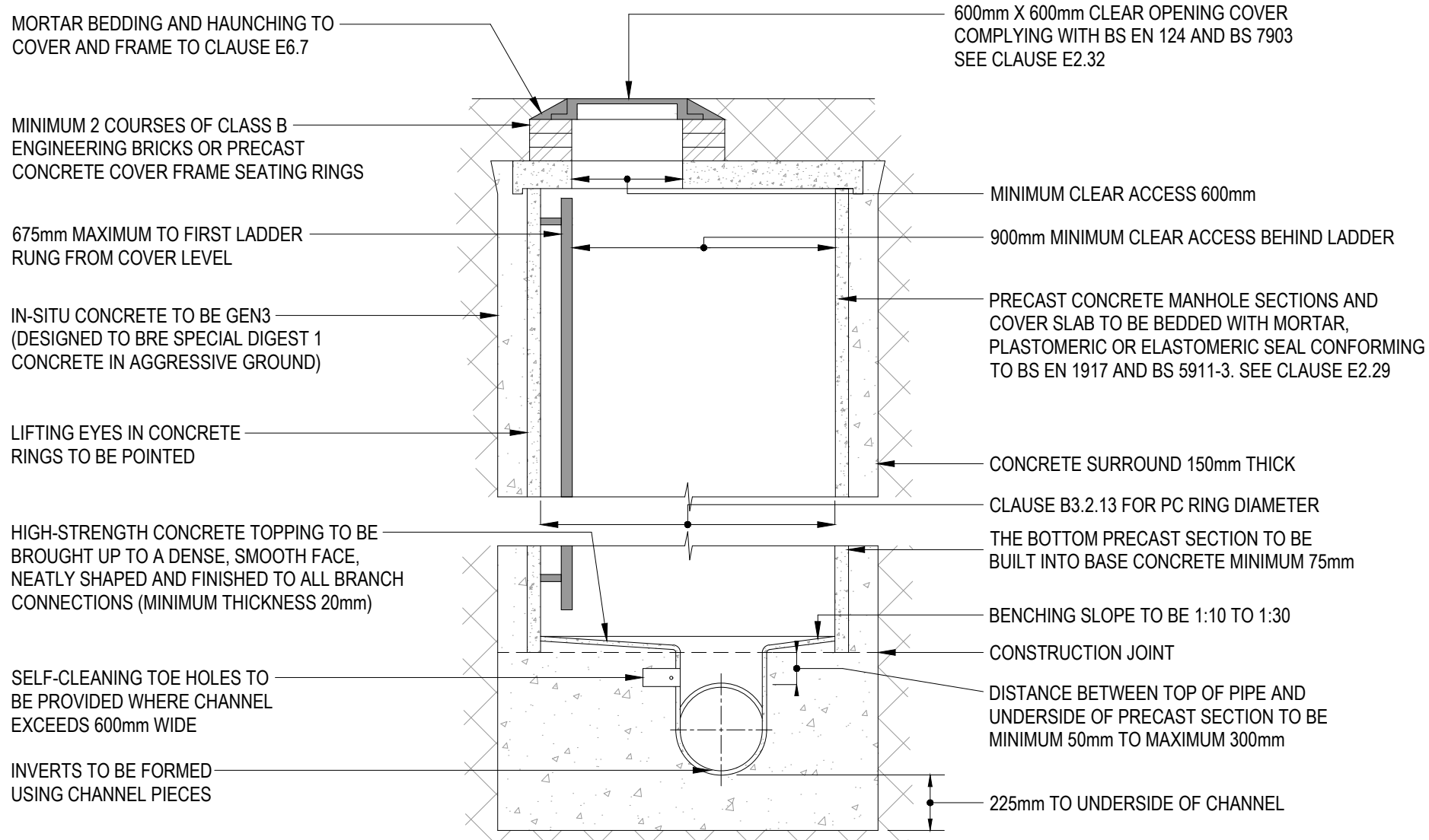
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TRINITY ISLANDS

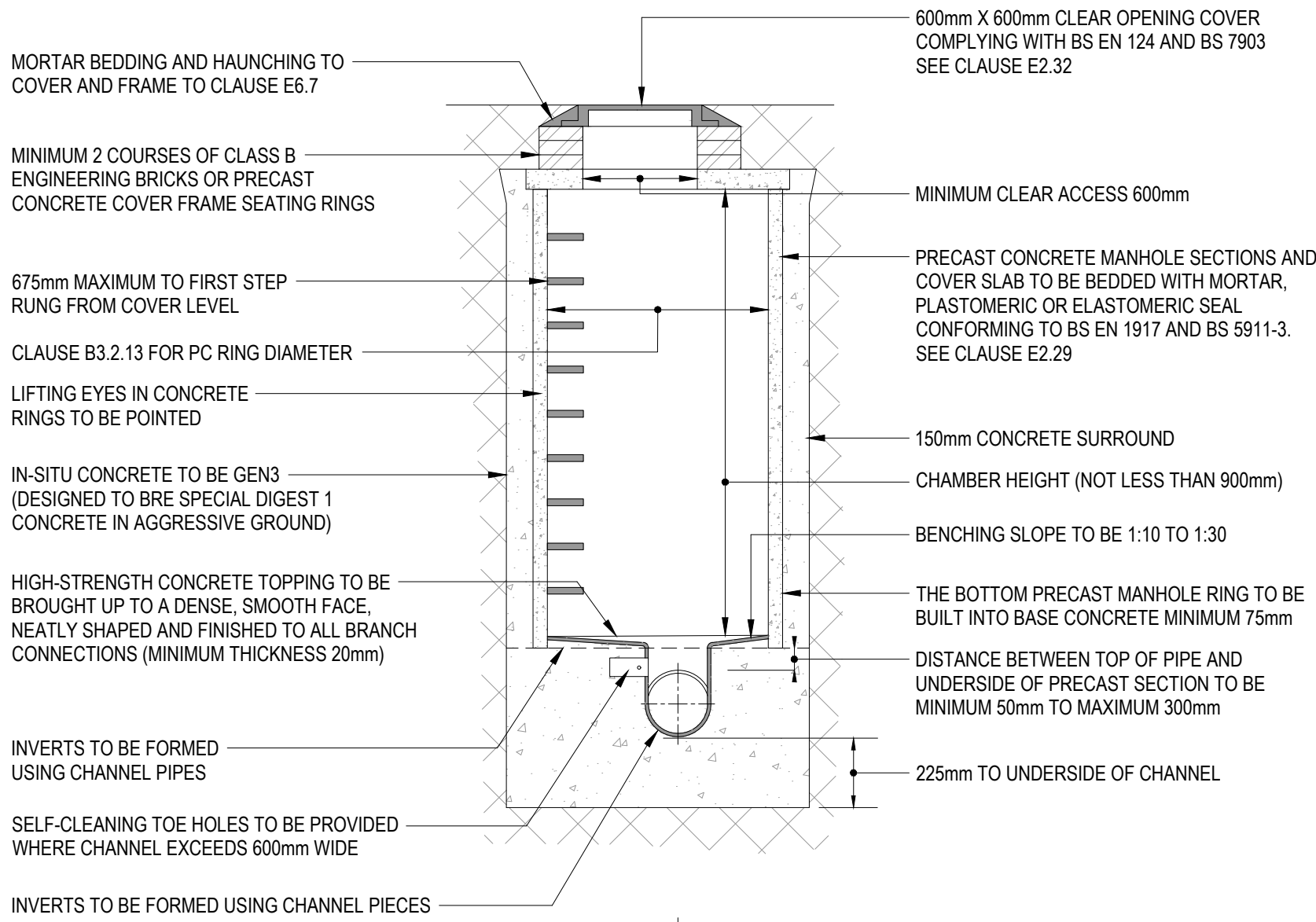
Orig Title:

PROPOSED DRAINAGE
LAYOUT SITE D
GROUND FLOOR PLAN

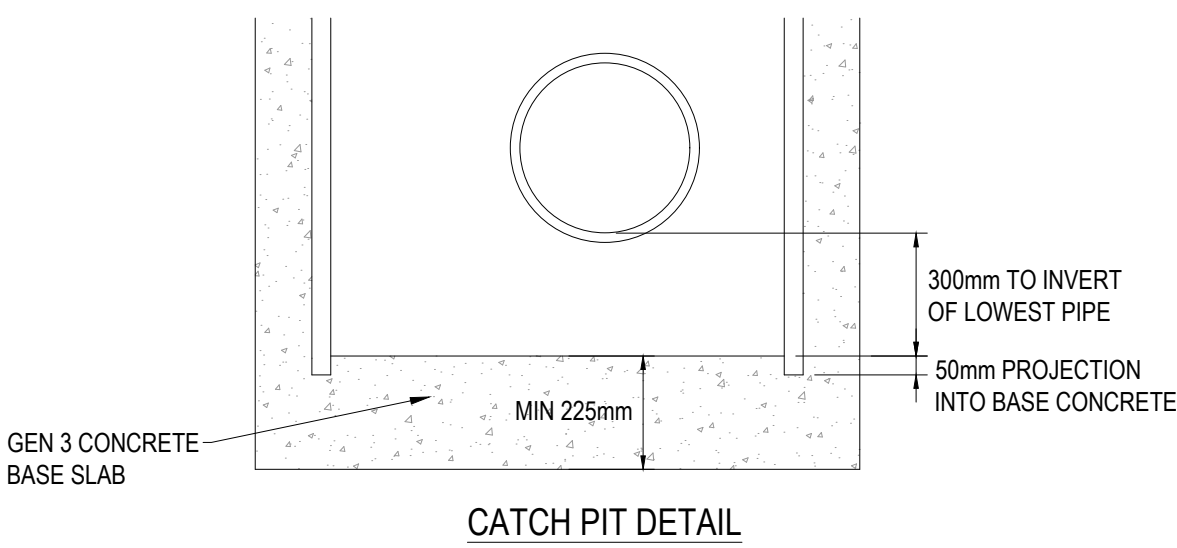
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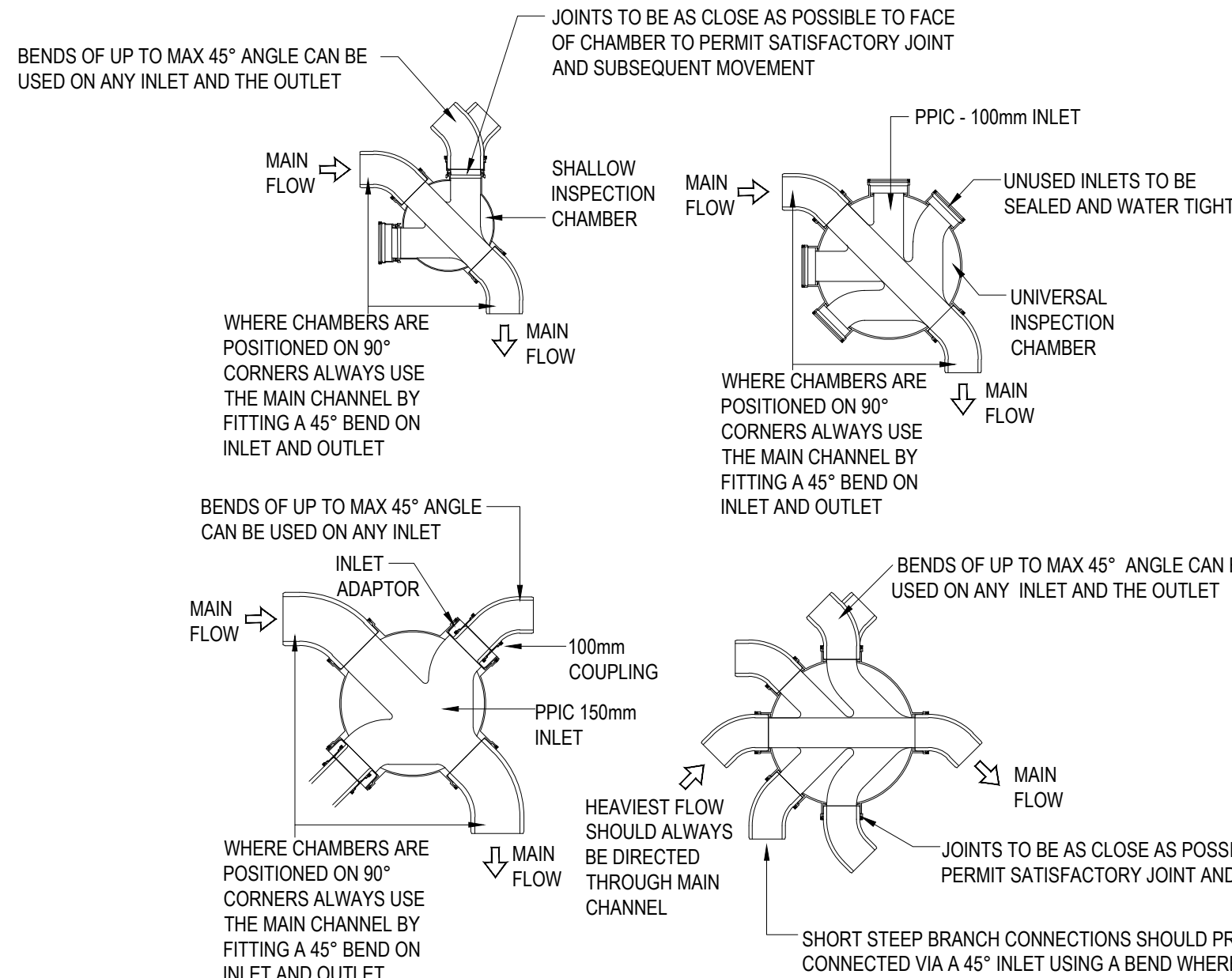
TYPICAL MANHOLE DETAIL - TYPE 1B
(DEPTH FROM COVER TO SOFFIT OF PIPE 3m to 6m)



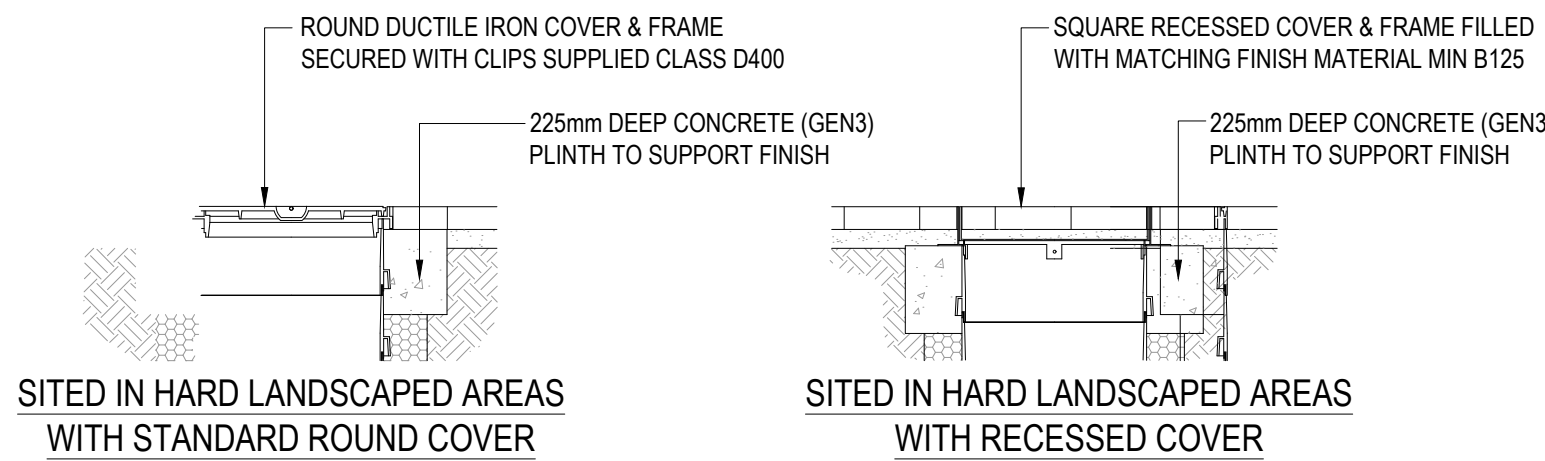
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(MAXIMUM DEPTH FROM COVER TO SOFFIT OF PIPE 3.0 m)



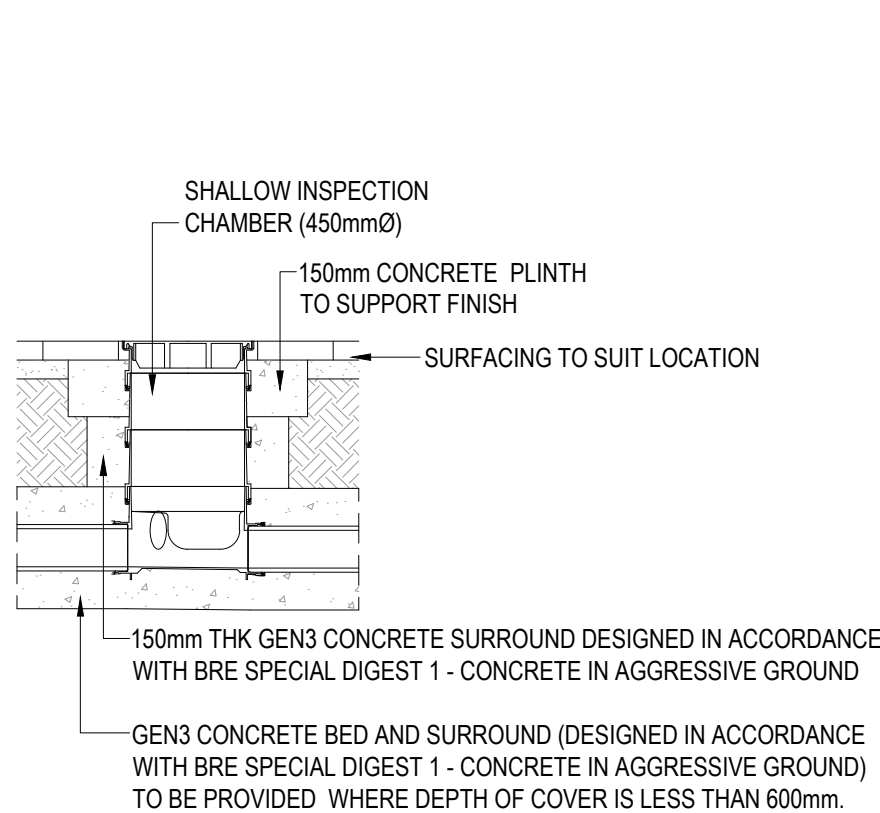
CATCH PIT DETAIL



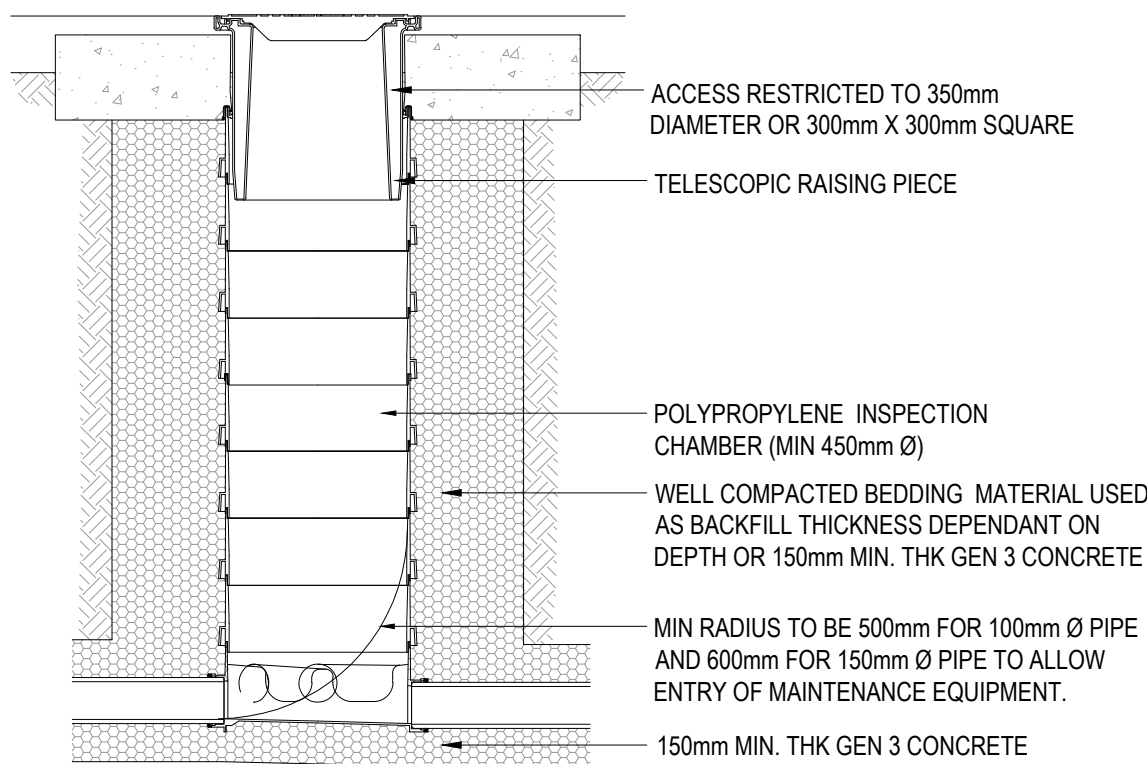
INSPECTION CHAMBER BASE DETAILS



TYPICAL INSPECTION CHAMBER COVER DETAILS

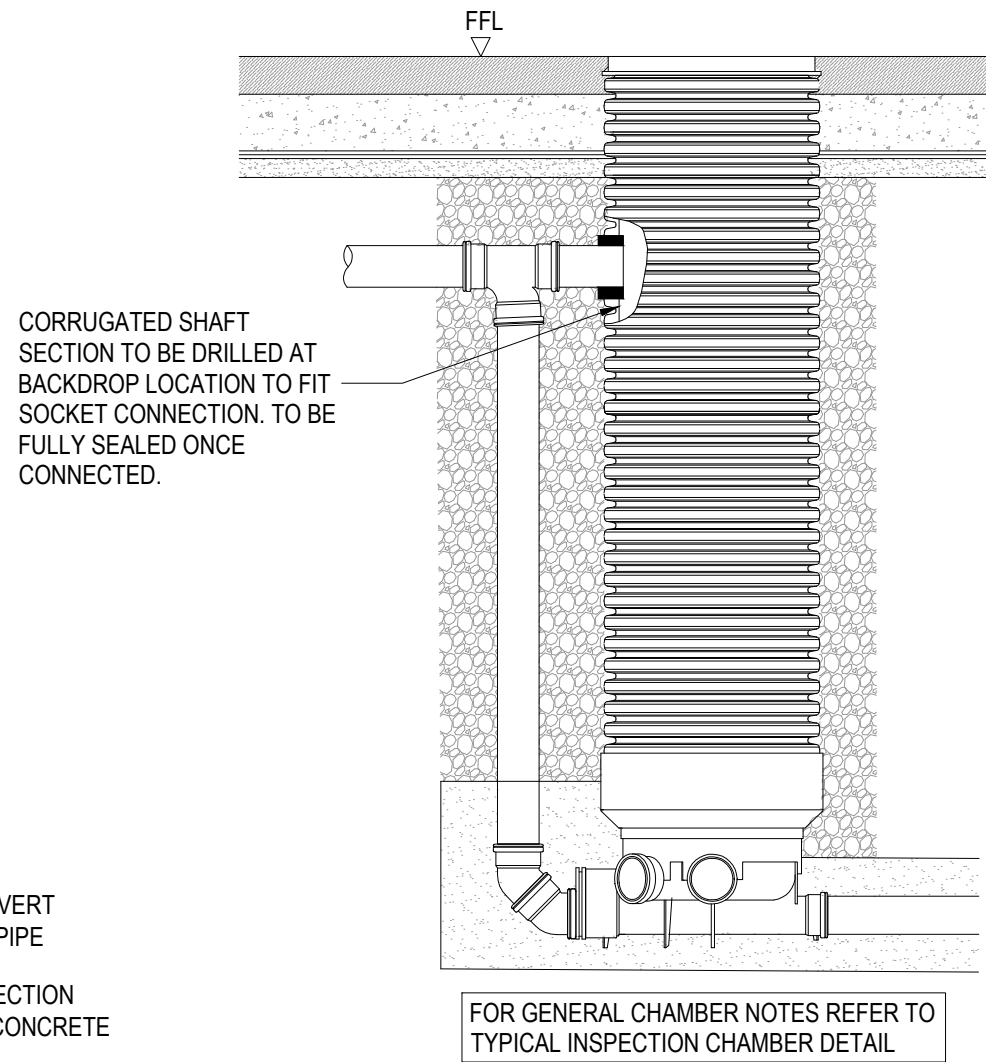


SHALLOW INSPECTION CHAMBER
MAX DEPTH 0.6m

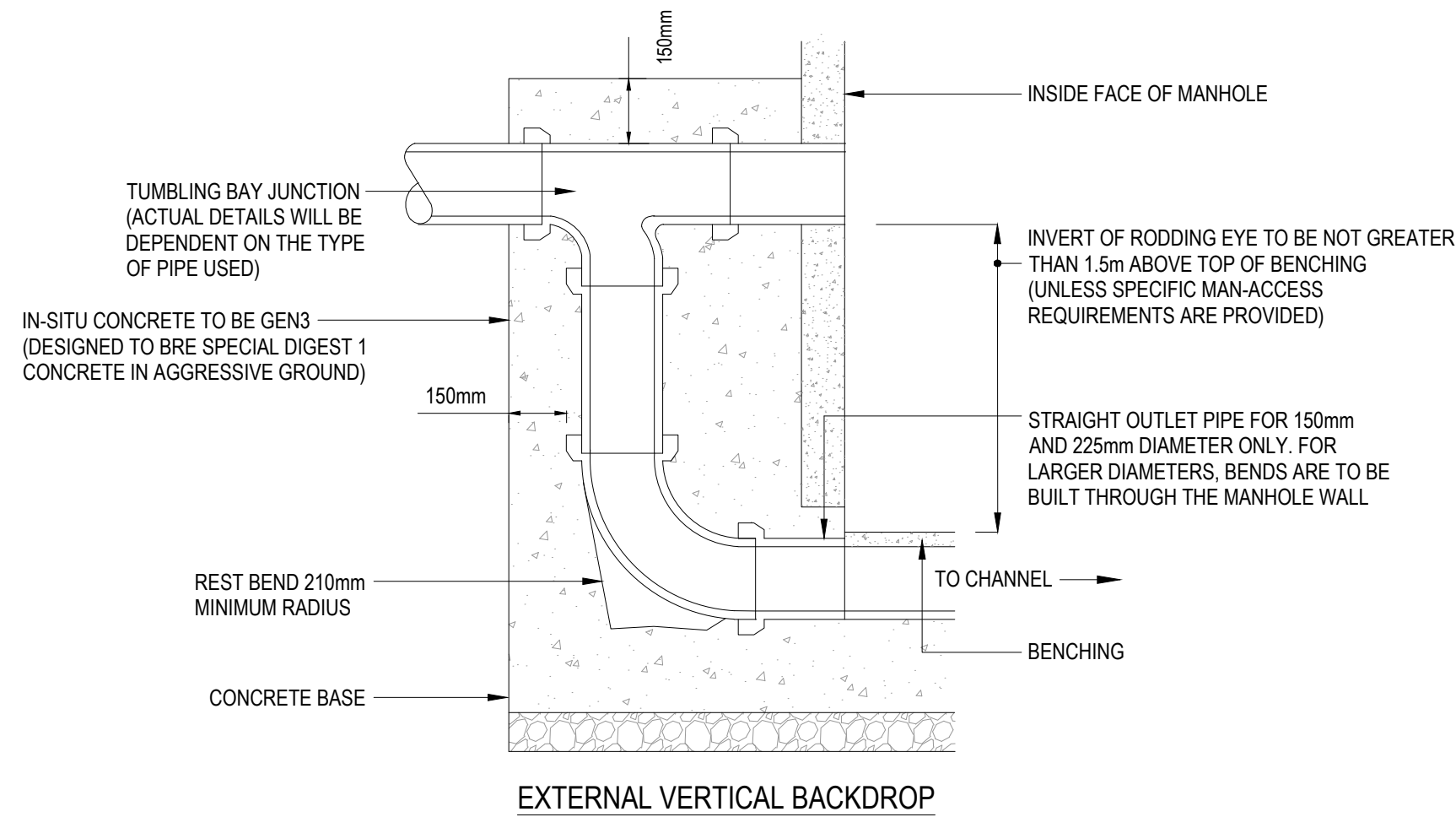


DEEP INSPECTION CHAMBER
DEPTHS BETWEEN 1.2m AND 3.0m

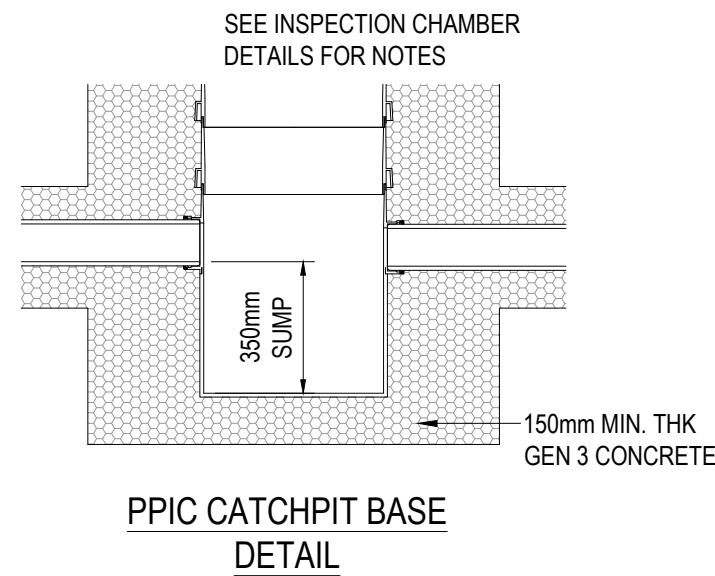
TYPICAL INSPECTION CHAMBER DETAILS - PPIC



TYPICAL INSPECTION
CHAMBER BACKDROP DETAIL



EXTERNAL VERTICAL BACKDROP



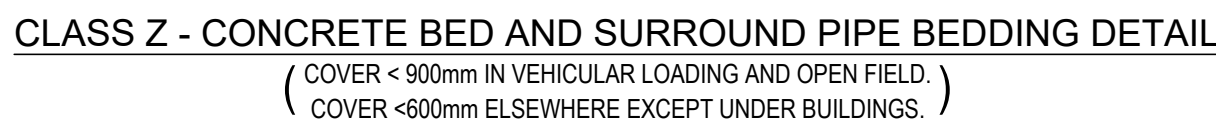
PPIC CATCHPIT BASE
DETAIL

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- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- SULPHATE RESISTANT CEMENT DC2 AND PRECAST CONCRETE PRODUCTS MUST BE USED WHERE SULPHATE FOUND, OR WHERE NO SULPHATES THEN C20- GEN 3

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Project:	TRINITY ISLANDS				
Orig Title:	DRAINAGE DETAILS SHEET 1				
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Dn	Bd
150	0.6
225	0.7
300	0.85
375	1.05
450	1.15
525	1.25
600	1.35
675	1.45
750	1.50

RAINWATER PIPE

SEALED ACCESS POINT

PIPE ADAPTOR

CONCRETE BED TO REST BEND

G.L.

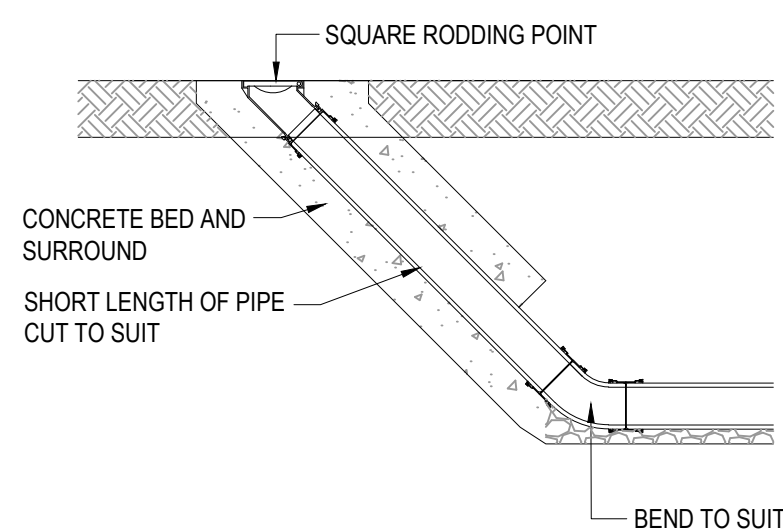
PIPE CUT TO SUIT

REST BEND

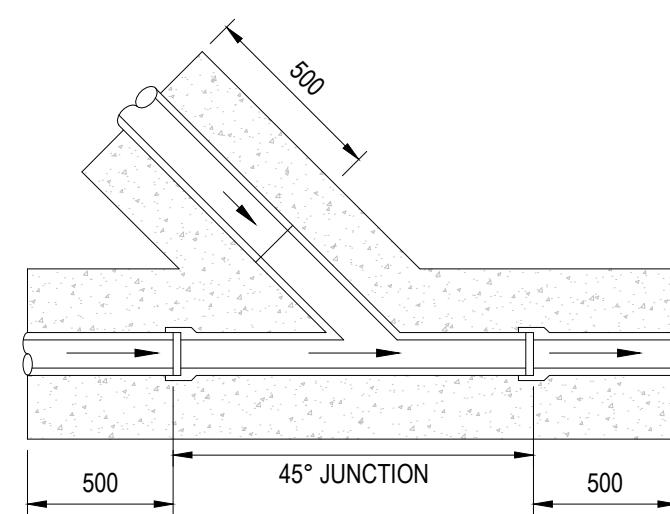
COMPRESSIBLE JOINTS

CONCRETE BED AND SURROUND TO BE PROVIDED WHERE DEPTH OF COVER IS LESS THAN 600mm.

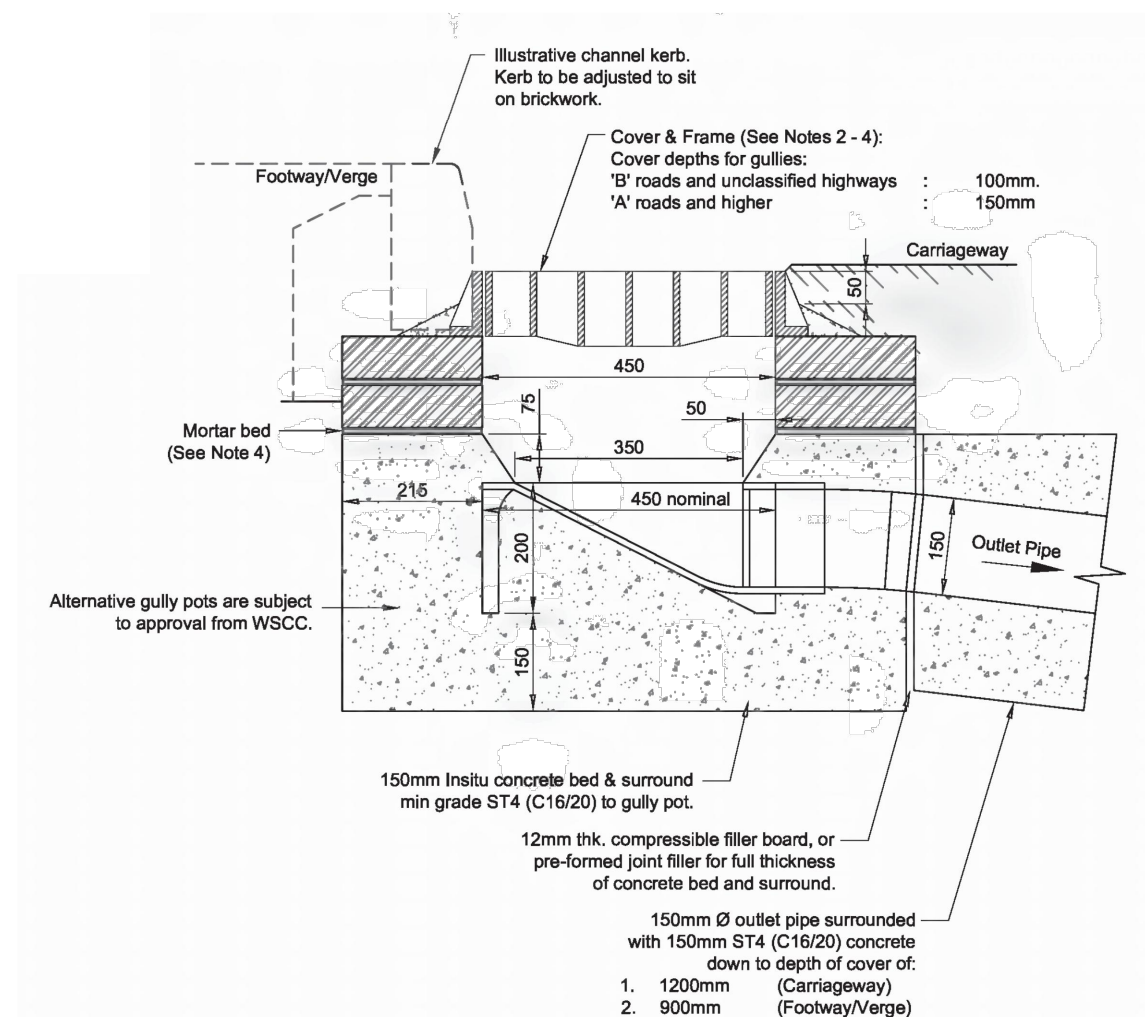
RWP CONNECTION DETAIL
(SCALE 1:20)



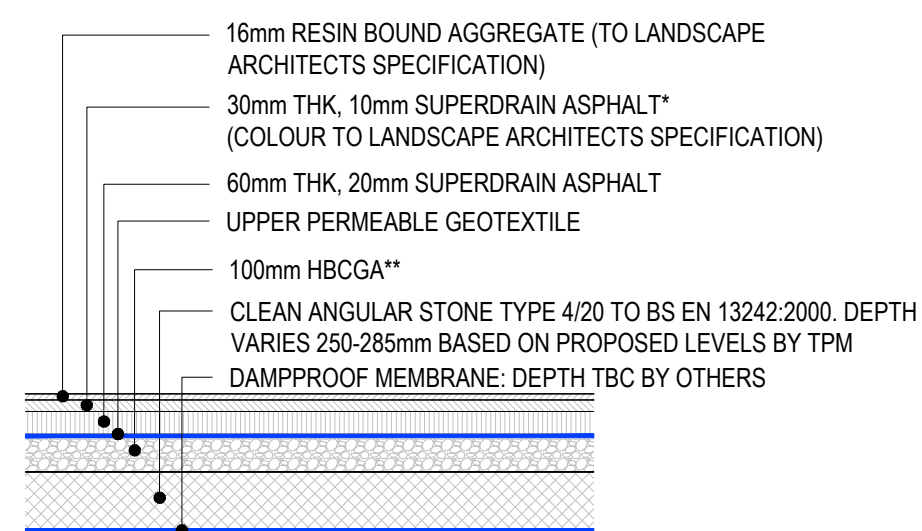
RODDING POINT DETAIL (RE)



TYPICAL SADDLE CONNECTION

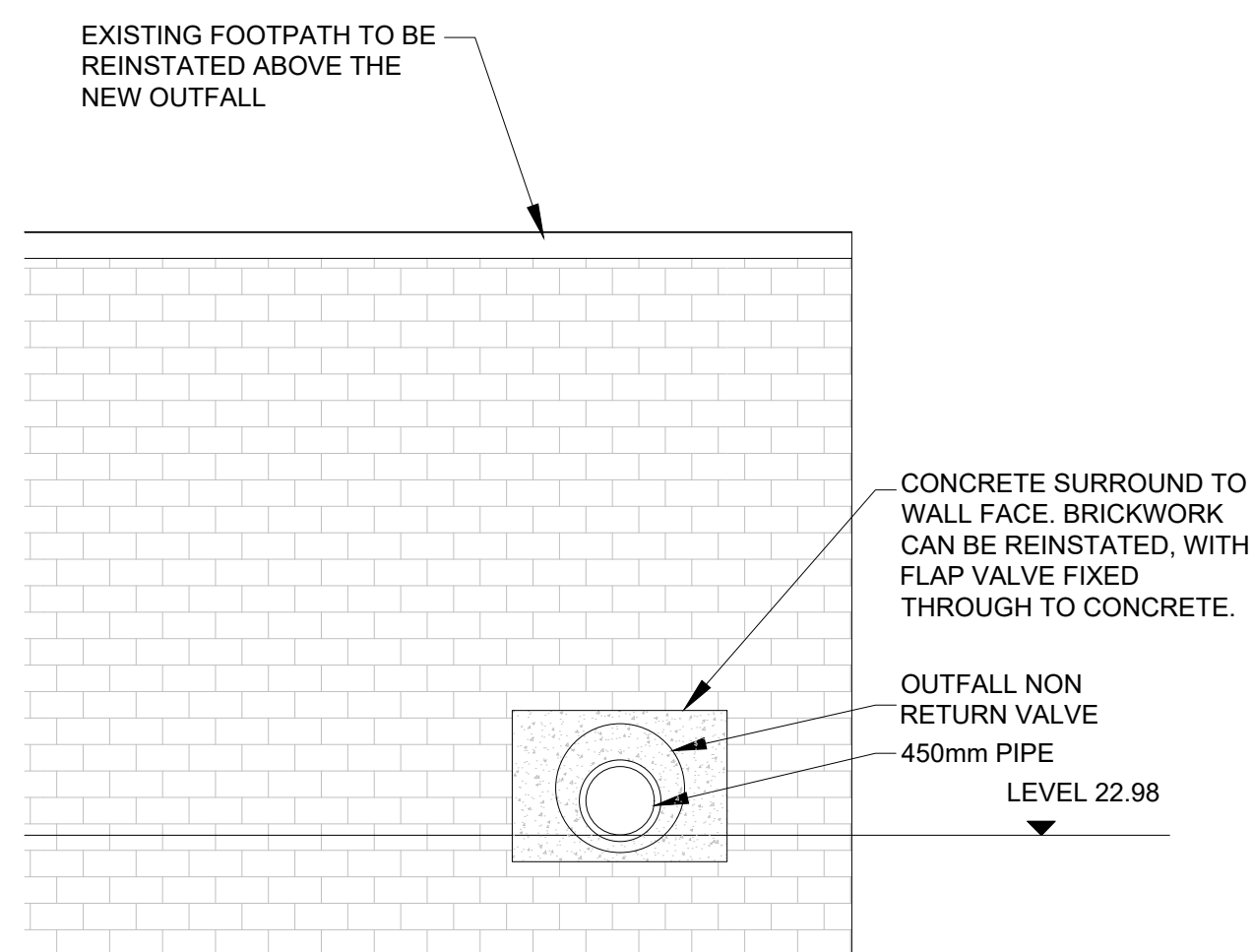


SUMPLESS GULLY



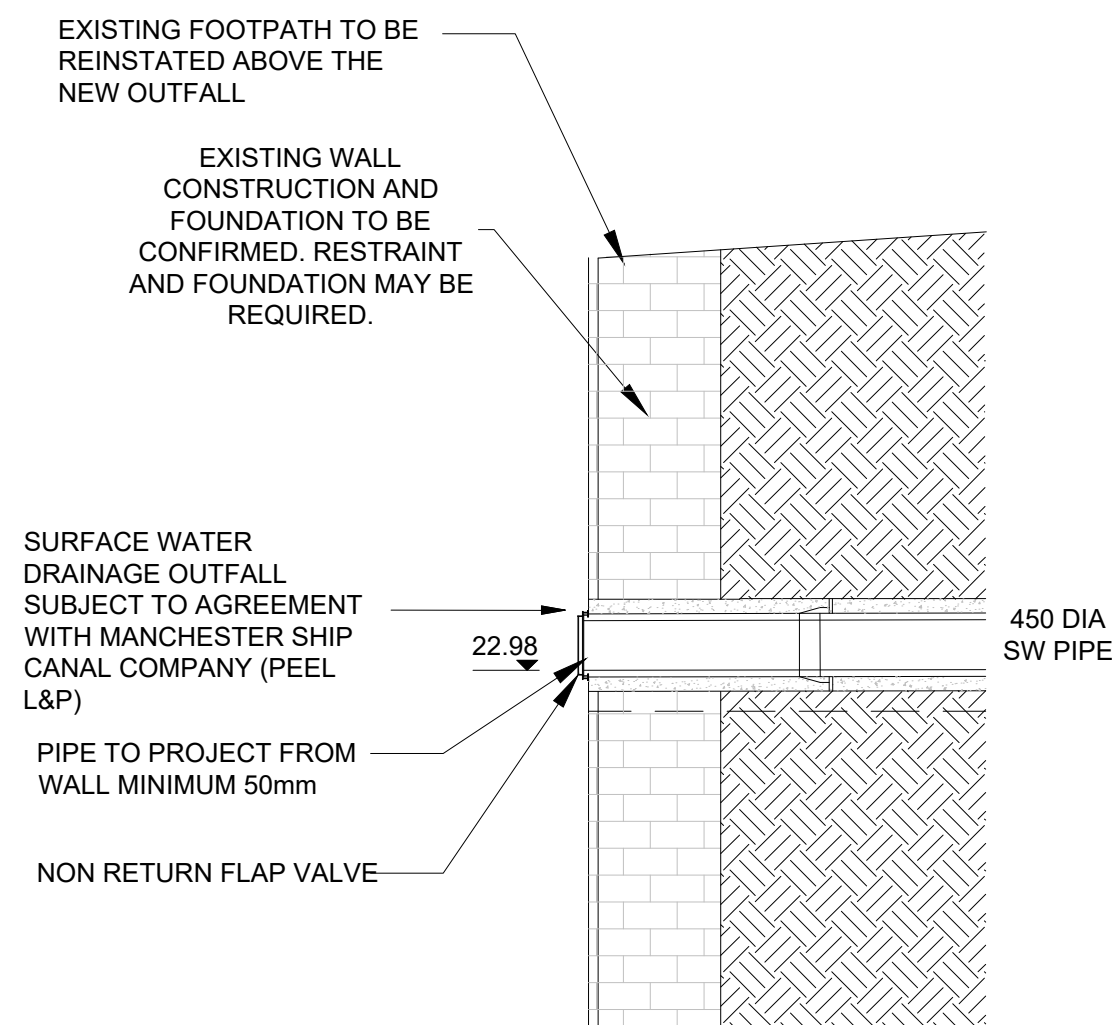
PERMEABLE RESIN BOUND AREA
(MEWP LOADING)

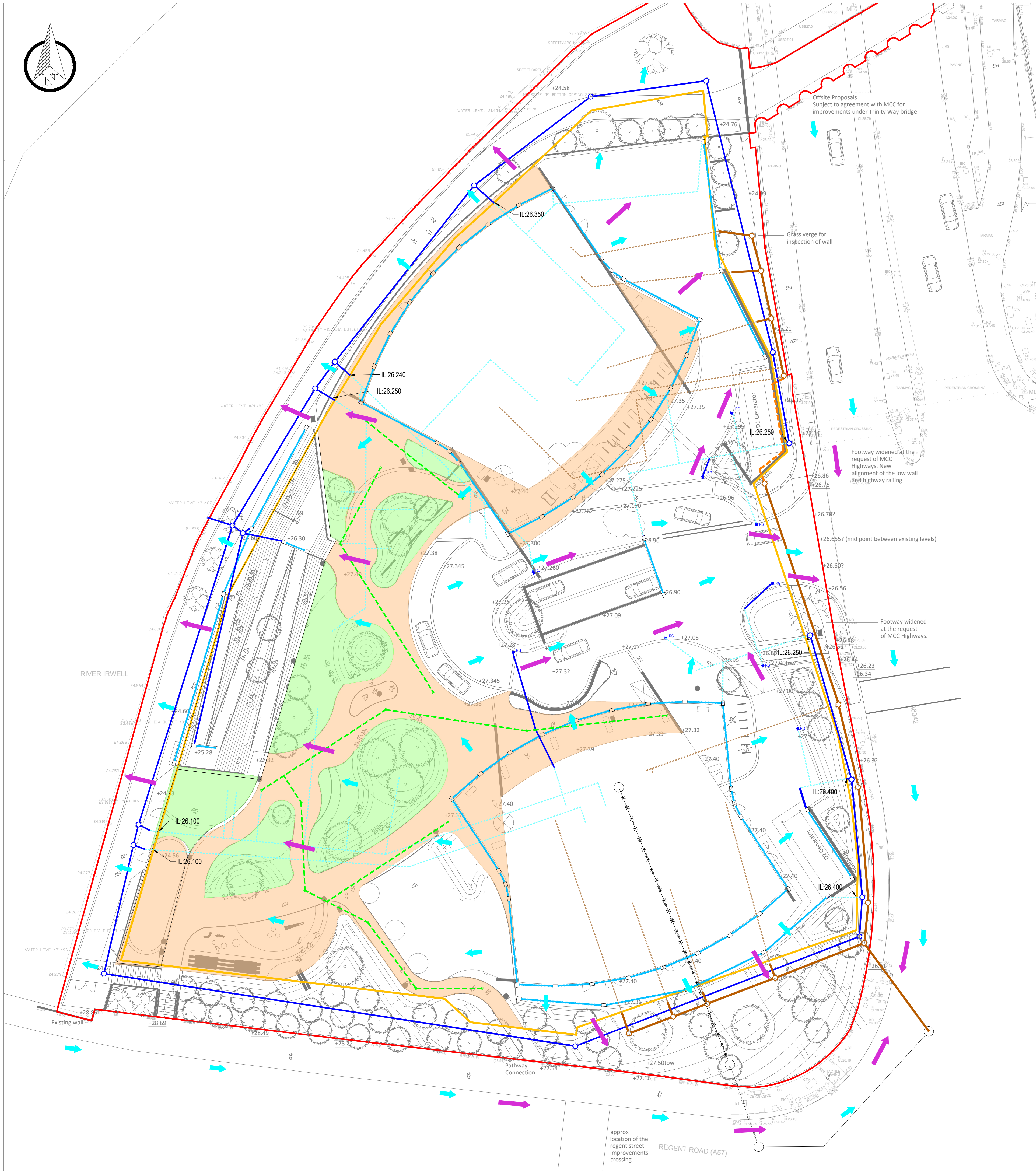
** HBCGA refers to hydraulically bound coarse-graded aggregate (conforming to BS EN 14227-1:2013), minimum cement content 3%, strength class C5/6 as defined in BS EN 14227-1 and minimum permeability 10,000 mm/hr when tested in accordance with ASTM C1701M-09 or other suitable test).



OUTFALL DETAILS

(SCALE 1:20)



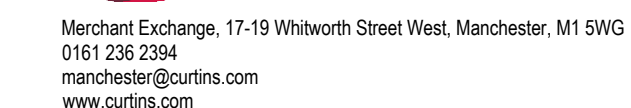


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INDICATES THE FLOW ROUTE BASED ON FULL INLET CAPACITY OF COMPONENTS .
i.e FALLS AT SURFACE

INDICATES THE GENERAL GROUND LEVEL FALLS TO THE DRAINAGE SYSTEM

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S2

TRINITY ISLANDS

OVERLAND FLOW
ROUTES SITE D

Size:	Date:	Drawn By:	Designed By:	Checked By:			
A1	21/06/22	CS	CG	CG			
Scale: 1:250							
Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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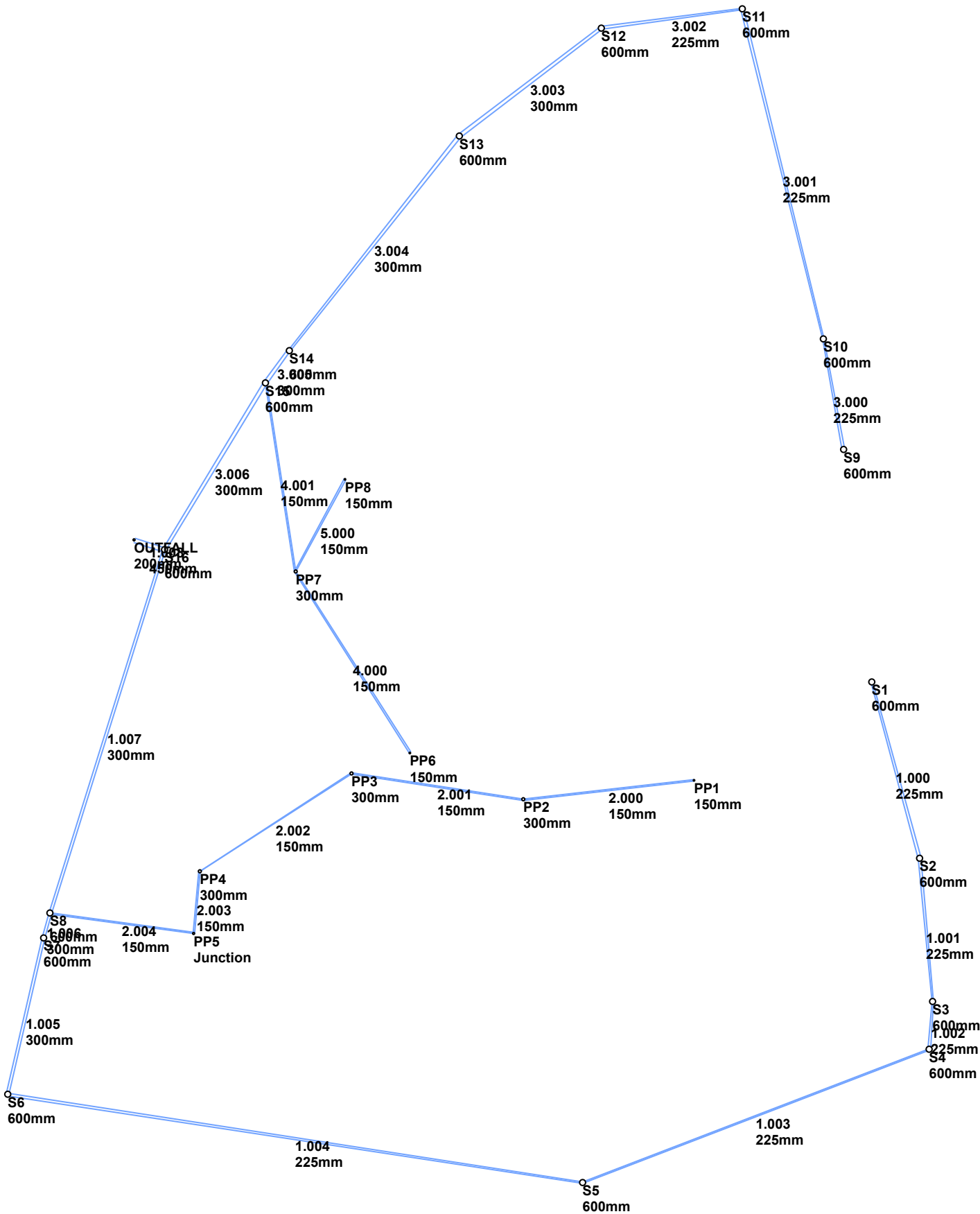
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Appendix B

- Surface Water Calcs Plan
- Surface Water Calcs Without Surcharged Outfall
- Surface Water Calcs With Surcharged Outfall



Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.500
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.033	5.00	26.880	600	382731.546	397747.710	1.135
S2	0.017	5.00	26.400	600	382736.361	397729.897	1.130
S3	0.015	5.00	26.150	600	382737.670	397715.427	1.125
S4			26.150	600	382737.321	397710.599	1.195
S5			27.500	600	382702.420	397697.132	2.520
S6			24.570	600	382644.520	397706.052	1.205
S7	0.047	5.00	24.600	600	382648.136	397721.846	1.305
S8	0.116	5.00	24.600	600	382648.766	397724.368	1.315
S9	0.036	5.00	25.370	600	382728.710	397771.202	1.125
S10			25.210	600	382726.669	397782.373	1.125
S11			24.700	600	382718.503	397815.722	1.125
S12			24.600	600	382704.304	397813.771	1.185
S13	0.084	5.00	24.600	600	382690.002	397802.872	1.260
S14	0.052	5.00	24.600	600	382672.882	397781.186	1.375
S15	0.007	5.00	24.600	600	382670.474	397777.926	1.390
S16	0.036	5.00	24.600	600	382660.315	397761.083	1.615
OUTFALL			24.600	200	382657.240	397762.067	1.623
PP1	0.020	10.00	27.400	150	382713.640	397737.769	0.490
PP2	0.020	10.00	27.400	300	382696.448	397735.861	0.500
PP3	0.020	10.00	27.400	300	382679.144	397738.467	0.510
PP4	0.020	10.00	27.400	300	382663.869	397728.581	1.100
PP5			27.400		382663.239	397722.297	1.142
PP6	0.040	10.00	27.400	150	382685.018	397740.534	0.490
PP7			27.400	300	382673.523	397758.872	0.500
PP8	0.040	10.00	27.400	150	382678.484	397768.179	0.490

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	18.452	38.8	225	Circular	26.880	25.745	0.910	26.400	25.270	0.905
1.001	14.529	59.3	225	Circular	26.400	25.270	0.905	26.150	25.025	0.900
1.002	4.841	69.2	225	Circular	26.150	25.025	0.900	26.150	24.955	0.970
1.003	37.409	2493.9	225	Circular	26.150	24.995	0.930	27.500	24.980	2.295
1.004	58.583	38.0	225	Circular	27.500	24.980	2.295	24.570	23.440	0.905
1.005	16.203	231.5	300	Circular	24.570	23.365	0.905	24.600	23.295	1.005
1.006	2.599	259.9	300	Circular	24.600	23.295	1.005	24.600	23.285	1.015
1.007	38.489	256.6	300	Circular	24.600	23.285	1.015	24.600	23.135	1.165
3.000	11.356	71.0	225	Circular	25.370	24.245	0.900	25.210	24.085	0.900
3.001	34.334	67.3	225	Circular	25.210	24.085	0.900	24.700	23.575	0.900
3.002	14.332	168.6	225	Circular	24.700	23.575	0.900	24.600	23.490	0.885
3.003	17.982	240.0	300	Circular	24.600	23.415	0.885	24.600	23.340	0.960
3.004	27.629	240.0	300	Circular	24.600	23.340	0.960	24.600	23.225	1.075
3.005	4.053	270.2	300	Circular	24.600	23.225	1.075	24.600	23.210	1.090
3.006	19.670	262.3	300	Circular	24.600	23.210	1.090	24.600	23.135	1.165
1.008	3.229	400.0	450	Circular	24.600	22.985	1.165	24.600	22.977	1.173
2.000	17.298	1729.8	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350
2.001	17.499	1749.9	150	Circular	27.400	26.900	0.350	27.400	26.890	0.360
2.002	18.195	909.8	150	Circular	27.400	26.890	0.360	27.400	26.870	0.380
2.003	6.316	150.0	150	Circular	27.400	26.300	0.950	27.400	26.258	0.992
2.004	14.620	5.2	150	Circular	27.400	26.258	0.992	24.600	23.435	1.015
4.000	21.643	2164.3	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350
5.000	10.547	1054.7	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	600	Manhole	Adoptable	S2	600	Manhole	Adoptable
1.001	S2	600	Manhole	Adoptable	S3	600	Manhole	Adoptable
1.002	S3	600	Manhole	Adoptable	S4	600	Manhole	Adoptable
1.003	S4	600	Manhole	Adoptable	S5	600	Manhole	Adoptable
1.004	S5	600	Manhole	Adoptable	S6	600	Manhole	Adoptable
1.005	S6	600	Manhole	Adoptable	S7	600	Manhole	Adoptable
1.006	S7	600	Manhole	Adoptable	S8	600	Manhole	Adoptable
1.007	S8	600	Manhole	Adoptable	S16	600	Manhole	Adoptable
3.000	S9	600	Manhole	Adoptable	S10	600	Manhole	Adoptable
3.001	S10	600	Manhole	Adoptable	S11	600	Manhole	Adoptable
3.002	S11	600	Manhole	Adoptable	S12	600	Manhole	Adoptable
3.003	S12	600	Manhole	Adoptable	S13	600	Manhole	Adoptable
3.004	S13	600	Manhole	Adoptable	S14	600	Manhole	Adoptable
3.005	S14	600	Manhole	Adoptable	S15	600	Manhole	Adoptable
3.006	S15	600	Manhole	Adoptable	S16	600	Manhole	Adoptable
1.008	S16	600	Manhole	Adoptable	OUTFALL	200	Manhole	Adoptable
2.000	PP1	150	Manhole	Adoptable	PP2	300	Manhole	Adoptable
2.001	PP2	300	Manhole	Adoptable	PP3	300	Manhole	Adoptable
2.002	PP3	300	Manhole	Adoptable	PP4	300	Manhole	Adoptable
2.003	PP4	300	Manhole	Adoptable	PP5		Junction	
2.004	PP5		Junction		S8	600	Manhole	Adoptable
4.000	PP6	150	Manhole	Adoptable	PP7	300	Manhole	Adoptable
5.000	PP8	150	Manhole	Adoptable	PP7	300	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.001	19.296	5.5	150	Circular	27.400	26.900	0.350	24.600	23.360	1.090

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.001	PP7	300	Manhole	Adoptable	S15	600	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	382731.546	397747.710	26.880	1.135	600		0	1.000	25.745	225
S2	382736.361	397729.897	26.400	1.130	600		1	1.000	25.270	225
S3	382737.670	397715.427	26.150	1.125	600		0	1.001	25.270	225
S4	382737.321	397710.599	26.150	1.195	600		1	1.001	25.025	225
S5	382702.420	397697.132	27.500	2.520	600		0	1.002	25.025	225
S6	382644.520	397706.052	24.570	1.205	600		1	1.002	24.955	225
S7	382648.136	397721.846	24.600	1.305	600		0	1.003	24.995	225
S8	382648.766	397724.368	24.600	1.315	600		1	1.003	24.980	225
S9	382728.710	397771.202	25.370	1.125	600		0	1.004	24.980	225
S10	382726.669	397782.373	25.210	1.125	600		1	1.004	23.440	225
S11	382726.669	397782.373	25.210	1.125	600		0	1.005	23.440	225
S12	382726.669	397782.373	25.210	1.125	600		1	1.005	23.365	300
S13	382726.669	397782.373	25.210	1.125	600		1	1.006	23.295	300
S14	382726.669	397782.373	25.210	1.125	600		0	1.006	23.295	300
S15	382726.669	397782.373	25.210	1.125	600		1	1.007	23.285	300
S16	382726.669	397782.373	25.210	1.125	600		0	1.007	23.285	300
S17	382726.669	397782.373	25.210	1.125	600		1	2.004	23.435	150
S18	382726.669	397782.373	25.210	1.125	600		2	1.006	23.285	300
S19	382726.669	397782.373	25.210	1.125	600		0	1.007	23.285	300
S20	382726.669	397782.373	25.210	1.125	600		0	3.000	24.245	225
S21	382726.669	397782.373	25.210	1.125	600		1	3.000	24.085	225
S22	382726.669	397782.373	25.210	1.125	600		0	3.001	24.085	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	382718.503	397815.722	24.700	1.125	600	 1	3.001	23.575	225
S12	382704.304	397813.771	24.600	1.185	600	 1	3.002	23.575	225
S13	382690.002	397802.872	24.600	1.260	600	 1	3.002	23.490	225
S14	382672.882	397781.186	24.600	1.375	600	 0	3.003	23.415	300
S15	382670.474	397777.926	24.600	1.390	600	 1	3.003	23.340	300
S16	382660.315	397761.083	24.600	1.615	600	 0	3.004	23.340	300
OUTFALL	382657.240	397762.067	24.600	1.623	200	 1	3.004	23.225	300
PP1	382713.640	397737.769	27.400	0.490	150	 0	4.001	23.225	300
PP2	382696.448	397735.861	27.400	0.500	300	 1	4.001	23.360	150
PP3	382679.144	397738.467	27.400	0.510	300	 0	3.005	23.210	300
PP4	382663.869	397728.581	27.400	1.100	300	 1	3.006	23.210	300
PP5	382663.239	397722.297	27.400	1.142		 1	3.006	23.135	300
PP6	382685.018	397740.534	27.400	0.490	150	 2	1.007	23.135	300
						 0	1.008	22.985	450
						 1	1.008	22.977	450
						0			
						0	2.000	26.910	150
						1	2.000	26.900	150
						0	2.001	26.900	150
						1	2.001	26.890	150
						0	2.002	26.890	150
						1	2.002	26.870	150
						0	2.003	26.300	150
						1	2.003	26.258	150
						0	2.004	26.258	150
						0	4.000	26.910	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
PP7	382673.523	397758.872	27.400	0.500	300		1	5.000	26.900	150
							2	4.000	26.900	150
							0	4.001	26.900	150
PP8	382678.484	397768.179	27.400	0.490	150		0	5.000	26.910	150

Simulation Settings

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

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	40	0	0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.778	0.033	3.9	0.0093	0.0000	OK
15 minute winter	S2	10	25.314	0.044	5.9	0.0125	0.0000	OK
15 minute winter	S3	11	25.117	0.092	7.6	0.0260	0.0000	OK
15 minute summer	S4	12	25.108	0.153	10.0	0.0434	0.0000	OK
15 minute winter	S5	12	25.024	0.044	6.9	0.0123	0.0000	OK
15 minute winter	S6	12	23.432	0.067	6.9	0.0189	0.0000	OK
15 minute winter	S7	12	23.427	0.132	11.4	0.0373	0.0000	OK
15 minute winter	S8	12	23.422	0.137	28.6	0.0388	0.0000	OK
15 minute winter	S9	10	24.286	0.041	4.3	0.0117	0.0000	OK
15 minute winter	S10	11	24.124	0.039	4.3	0.0110	0.0000	OK
15 minute winter	S11	11	23.625	0.050	4.1	0.0141	0.0000	OK
15 minute winter	S12	12	23.463	0.048	4.1	0.0136	0.0000	OK
15 minute winter	S13	11	23.427	0.087	13.5	0.0246	0.0000	OK
15 minute winter	S14	11	23.361	0.136	19.2	0.0385	0.0000	OK
15 minute winter	S15	11	23.344	0.134	26.0	0.0379	0.0000	OK
15 minute winter	S16	12	23.177	0.192	57.3	0.0545	0.0000	OK
15 minute winter	OUTFALL	12	23.142	0.165	57.4	0.0000	0.0000	OK
15 minute winter	PP1	15	26.998	0.088	1.6	0.0016	0.0000	OK
15 minute winter	PP2	15	26.996	0.096	3.1	0.0068	0.0000	OK
15 minute winter	PP3	15	26.984	0.094	4.6	0.0067	0.0000	OK
15 minute winter	PP4	15	26.368	0.068	6.1	0.0048	0.0000	OK
15 minute winter	PP5	15	26.287	0.029	6.1	0.0000	0.0000	OK
15 minute winter	PP6	12	26.988	0.078	3.2	0.0014	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	3.9	0.857	0.046	0.0838	
15 minute winter	S2	1.001	S3	5.8	0.827	0.086	0.1500	
15 minute winter	S3	1.002	S4	11.6	0.571	0.185	0.1023	
15 minute summer	S4	1.003	S5	6.9	0.658	0.682	0.4690	
15 minute winter	S5	1.004	S6	6.9	1.285	0.081	0.3134	
15 minute winter	S6	1.005	S7	7.0	0.369	0.096	0.3359	
15 minute winter	S7	1.006	S8	11.6	0.378	0.169	0.0795	
15 minute winter	S8	1.007	S16	28.3	0.939	0.410	1.1599	
15 minute winter	S9	3.000	S10	4.3	0.891	0.069	0.0542	
15 minute winter	S10	3.001	S11	4.1	0.774	0.065	0.1905	
15 minute winter	S11	3.002	S12	4.1	0.641	0.103	0.0916	
15 minute winter	S12	3.003	S13	4.0	0.354	0.057	0.2172	
15 minute winter	S13	3.004	S14	13.4	0.565	0.188	0.6626	
15 minute winter	S14	3.005	S15	19.1	0.623	0.283	0.1246	
15 minute winter	S15	3.006	S16	25.7	0.899	0.376	0.5653	
15 minute winter	S16	1.008	OUTFALL	57.4	0.980	0.357	0.1891	33.0
15 minute winter	PP1	2.000	PP2	1.5	0.139	0.372	0.1961	
15 minute winter	PP2	2.001	PP3	3.1	0.260	0.745	0.2057	
15 minute winter	PP3	2.002	PP4	4.6	0.495	0.794	0.1677	
15 minute winter	PP4	2.003	PP5	6.1	1.249	0.420	0.0317	
15 minute winter	PP5	2.004	S8	6.1	2.633	0.077	0.0338	
15 minute winter	PP6	4.000	PP7	3.2	0.562	0.878	0.1278	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	12	26.930	0.030	6.4	0.0021	0.0000	OK
15 minute winter	PP8	13	26.975	0.065	3.2	0.0012	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	6.4	2.616	0.083	0.0473	
15 minute winter	PP8	5.000	PP7	3.2	0.675	0.601	0.0513	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.796	0.051	9.6	0.0145	0.0000	OK
15 minute winter	S2	10	25.340	0.070	14.5	0.0198	0.0000	OK
15 minute winter	S3	11	25.177	0.152	18.8	0.0431	0.0000	OK
15 minute winter	S4	11	25.173	0.218	18.3	0.0617	0.0000	OK
15 minute winter	S5	11	25.050	0.070	18.1	0.0197	0.0000	OK
15 minute winter	S6	12	23.562	0.197	17.7	0.0557	0.0000	OK
15 minute winter	S7	12	23.557	0.262	29.4	0.0740	0.0000	OK
15 minute winter	S8	12	23.550	0.265	71.7	0.0750	0.0000	OK
15 minute winter	S9	10	24.311	0.066	10.5	0.0187	0.0000	OK
15 minute winter	S10	10	24.146	0.061	10.4	0.0172	0.0000	OK
15 minute winter	S11	11	23.656	0.081	10.2	0.0229	0.0000	OK
15 minute winter	S12	11	23.503	0.088	10.2	0.0249	0.0000	OK
15 minute winter	S13	11	23.498	0.158	33.2	0.0447	0.0000	OK
15 minute winter	S14	11	23.471	0.246	46.8	0.0698	0.0000	OK
15 minute winter	S15	11	23.448	0.238	63.5	0.0673	0.0000	OK
15 minute winter	S16	11	23.305	0.320	143.0	0.0906	0.0000	OK
15 minute winter	OUTFALL	11	23.242	0.265	142.8	0.0000	0.0000	OK
15 minute winter	PP1	14	27.119	0.209	3.9	0.0038	0.0000	FLOOD RISK
15 minute winter	PP2	14	27.108	0.208	7.8	0.0148	0.0000	FLOOD RISK
15 minute winter	PP3	14	27.068	0.178	11.6	0.0126	0.0000	SURCHARGED
15 minute winter	PP4	14	26.420	0.120	15.5	0.0085	0.0000	OK
15 minute winter	PP5	15	26.304	0.046	16.1	0.0000	0.0000	OK
15 minute winter	PP6	13	27.038	0.128	7.9	0.0023	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	9.5	1.110	0.114	0.1593	
15 minute winter	S2	1.001	S3	14.4	0.878	0.212	0.2827	
15 minute winter	S3	1.002	S4	18.3	0.564	0.292	0.1646	
15 minute winter	S4	1.003	S5	18.1	0.808	1.797	0.8254	
15 minute winter	S5	1.004	S6	17.7	1.456	0.209	0.9470	
15 minute winter	S6	1.005	S7	19.9	0.371	0.274	0.9248	
15 minute winter	S7	1.006	S8	29.6	0.468	0.431	0.1703	
15 minute winter	S8	1.007	S16	71.4	1.198	1.034	2.2734	
15 minute winter	S9	3.000	S10	10.4	1.136	0.169	0.1043	
15 minute winter	S10	3.001	S11	10.2	0.975	0.161	0.3681	
15 minute winter	S11	3.002	S12	10.2	0.823	0.256	0.1783	
15 minute winter	S12	3.003	S13	10.4	0.425	0.145	0.4931	
15 minute winter	S13	3.004	S14	32.5	0.664	0.455	1.3754	
15 minute winter	S14	3.005	S15	46.5	0.767	0.691	0.2468	
15 minute winter	S15	3.006	S16	62.9	1.158	0.922	1.0671	
15 minute winter	S16	1.008	OUTFALL	142.8	1.310	0.889	0.3515	80.8
15 minute winter	PP1	2.000	PP2	3.9	0.219	0.936	0.3045	
15 minute winter	PP2	2.001	PP3	7.7	0.438	1.883	0.3081	
15 minute winter	PP3	2.002	PP4	11.6	0.702	2.009	0.2733	
15 minute winter	PP4	2.003	PP5	16.1	1.637	1.115	0.0616	
15 minute winter	PP5	2.004	S8	15.5	3.415	0.197	0.1374	
15 minute winter	PP6	4.000	PP7	7.9	0.748	2.155	0.2226	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	14	26.947	0.047	15.8	0.0033	0.0000	OK
15 minute winter	PP8	13	27.012	0.102	7.9	0.0018	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	15.8	3.344	0.206	0.1461	
15 minute winter	PP8	5.000	PP7	7.9	0.914	1.483	0.0915	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.814	0.069	17.4	0.0196	0.0000	OK
15 minute winter	S2	11	25.372	0.102	26.2	0.0289	0.0000	OK
15 minute winter	S3	11	25.346	0.321	33.6	0.0910	0.0000	SURCHARGED
15 minute winter	S4	11	25.310	0.355	32.5	0.1004	0.0000	SURCHARGED
15 minute winter	S5	11	25.076	0.096	32.4	0.0270	0.0000	OK
15 minute winter	S6	12	24.098	0.733	32.1	0.2075	0.0000	SURCHARGED
15 minute winter	S7	12	24.074	0.779	53.2	0.2205	0.0000	SURCHARGED
15 minute winter	S8	12	24.053	0.768	128.0	0.2172	0.0000	SURCHARGED
15 minute winter	S9	10	24.337	0.092	18.9	0.0260	0.0000	OK
15 minute winter	S10	10	24.168	0.083	18.8	0.0234	0.0000	OK
15 minute winter	S11	12	23.863	0.288	18.5	0.0815	0.0000	SURCHARGED
15 minute winter	S12	12	23.838	0.423	20.7	0.1197	0.0000	SURCHARGED
15 minute winter	S13	12	23.829	0.489	54.9	0.1385	0.0000	SURCHARGED
15 minute winter	S14	12	23.747	0.522	79.3	0.1476	0.0000	SURCHARGED
15 minute winter	S15	12	23.697	0.487	107.8	0.1378	0.0000	SURCHARGED
15 minute winter	S16	12	23.447	0.462	251.5	0.1308	0.0000	SURCHARGED
15 minute winter	OUTFALL	12	23.330	0.353	251.8	0.0000	0.0000	OK

15 minute winter	PP1	13	27.400	0.490	7.1	0.0088	0.1207	FLOOD
15 minute winter	PP2	13	27.376	0.476	13.5	0.0338	0.0000	FLOOD RISK
15 minute winter	PP3	14	27.258	0.368	20.4	0.0261	0.0000	FLOOD RISK
15 minute winter	PP4	14	26.546	0.246	27.2	0.0175	0.0000	SURCHARGED
15 minute winter	PP5	14	26.319	0.061	27.2	0.0000	0.0000	OK
15 minute winter	PP6	13	27.177	0.267	14.2	0.0048	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	17.3	1.310	0.207	0.2530	
15 minute winter	S2	1.001	S3	25.7	0.893	0.380	0.4159	
15 minute winter	S3	1.002	S4	32.5	0.818	0.520	0.1925	
15 minute winter	S4	1.003	S5	32.4	0.995	3.219	1.0438	
15 minute winter	S5	1.004	S6	32.1	1.421	0.379	1.6347	
15 minute winter	S6	1.005	S7	38.9	0.553	0.535	1.1410	
15 minute winter	S7	1.006	S8	55.8	0.793	0.814	0.1830	
15 minute winter	S8	1.007	S16	128.3	1.821	1.858	2.7104	
15 minute winter	S9	3.000	S10	18.8	1.321	0.304	0.1616	
15 minute winter	S10	3.001	S11	18.5	1.125	0.292	0.9065	
15 minute winter	S11	3.002	S12	20.7	0.888	0.518	0.5700	
15 minute winter	S12	3.003	S13	24.6	0.406	0.344	1.2663	
15 minute winter	S13	3.004	S14	54.4	0.773	0.762	1.9456	
15 minute winter	S14	3.005	S15	77.7	1.103	1.155	0.2854	
15 minute winter	S15	3.006	S16	108.5	1.541	1.589	1.3851	
15 minute winter	S16	1.008	OUTFALL	251.8	1.668	1.567	0.4712	146.1
15 minute winter	PP1	2.000	PP2	6.5	0.372	1.588	0.3045	
15 minute winter	PP2	2.001	PP3	13.3	0.755	3.243	0.3081	
15 minute winter	PP3	2.002	PP4	20.2	1.151	3.507	0.3073	
15 minute winter	PP4	2.003	PP5	27.2	1.914	1.882	0.0767	
15 minute winter	PP5	2.004	S8	27.2	3.739	0.345	0.1774	
15 minute winter	PP6	4.000	PP7	14.2	0.986	3.864	0.2664	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	13	26.963	0.063	28.4	0.0045	0.0000	OK
15 minute winter	PP8	13	27.087	0.177	14.2	0.0032	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	28.4	3.649	0.369	0.2375	
15 minute winter	PP8	5.000	PP7	14.2	1.045	2.665	0.1298	

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.500
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.033	5.00	26.880	600	382731.546	397747.710	1.135
S2	0.017	5.00	26.400	600	382736.361	397729.897	1.130
S3	0.015	5.00	26.150	600	382737.670	397715.427	1.125
S4			26.150	600	382737.321	397710.599	1.195
S5			27.500	600	382702.420	397697.132	2.520
S6			24.570	600	382644.520	397706.052	1.205
S7	0.047	5.00	24.600	600	382648.136	397721.846	1.305
S8	0.116	5.00	24.600	600	382648.766	397724.368	1.315
S9	0.036	5.00	25.370	600	382728.710	397771.202	1.125
S10			25.210	600	382726.669	397782.373	1.125
S11			24.700	600	382718.503	397815.722	1.125
S12			24.600	600	382704.304	397813.771	1.185
S13	0.084	5.00	24.600	600	382690.002	397802.872	1.260
S14	0.052	5.00	24.600	600	382672.882	397781.186	1.375
S15	0.007	5.00	24.600	600	382670.474	397777.926	1.390
S16	0.036	5.00	24.600	600	382660.315	397761.083	1.615
OUTFALL			24.600	200	382657.240	397762.067	1.623
PP1	0.020	10.00	27.400	150	382713.640	397737.769	0.490
PP2	0.020	10.00	27.400	300	382696.448	397735.861	0.500
PP3	0.020	10.00	27.400	300	382679.144	397738.467	0.510
PP4	0.020	10.00	27.400	300	382663.869	397728.581	1.100
PP5			27.400		382663.239	397722.297	1.142
PP6	0.040	10.00	27.400	150	382685.018	397740.534	0.490
PP7			27.400	300	382673.523	397758.872	0.500
PP8	0.040	10.00	27.400	150	382678.484	397768.179	0.490

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	18.452	38.8	225	Circular	26.880	25.745	0.910	26.400	25.270	0.905
1.001	14.529	59.3	225	Circular	26.400	25.270	0.905	26.150	25.025	0.900
1.002	4.841	69.2	225	Circular	26.150	25.025	0.900	26.150	24.955	0.970
1.003	37.409	2493.9	225	Circular	26.150	24.995	0.930	27.500	24.980	2.295
1.004	58.583	38.0	225	Circular	27.500	24.980	2.295	24.570	23.440	0.905
1.005	16.203	231.5	300	Circular	24.570	23.365	0.905	24.600	23.295	1.005
1.006	2.599	259.9	300	Circular	24.600	23.295	1.005	24.600	23.285	1.015
1.007	38.489	256.6	300	Circular	24.600	23.285	1.015	24.600	23.135	1.165
3.000	11.356	71.0	225	Circular	25.370	24.245	0.900	25.210	24.085	0.900
3.001	34.334	67.3	225	Circular	25.210	24.085	0.900	24.700	23.575	0.900
3.002	14.332	168.6	225	Circular	24.700	23.575	0.900	24.600	23.490	0.885
3.003	17.982	240.0	300	Circular	24.600	23.415	0.885	24.600	23.340	0.960
3.004	27.629	240.0	300	Circular	24.600	23.340	0.960	24.600	23.225	1.075
3.005	4.053	270.2	300	Circular	24.600	23.225	1.075	24.600	23.210	1.090
3.006	19.670	262.3	300	Circular	24.600	23.210	1.090	24.600	23.135	1.165
1.008	3.229	400.0	450	Circular	24.600	22.985	1.165	24.600	22.977	1.173
2.000	17.298	1729.8	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350
2.001	17.499	1749.9	150	Circular	27.400	26.900	0.350	27.400	26.890	0.360
2.002	18.195	909.8	150	Circular	27.400	26.890	0.360	27.400	26.870	0.380
2.003	6.316	150.0	150	Circular	27.400	26.300	0.950	27.400	26.258	0.992
2.004	14.620	5.2	150	Circular	27.400	26.258	0.992	24.600	23.435	1.015
4.000	21.643	2164.3	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350
5.000	10.547	1054.7	150	Circular	27.400	26.910	0.340	27.400	26.900	0.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	600	Manhole	Adoptable	S2	600	Manhole	Adoptable
1.001	S2	600	Manhole	Adoptable	S3	600	Manhole	Adoptable
1.002	S3	600	Manhole	Adoptable	S4	600	Manhole	Adoptable
1.003	S4	600	Manhole	Adoptable	S5	600	Manhole	Adoptable
1.004	S5	600	Manhole	Adoptable	S6	600	Manhole	Adoptable
1.005	S6	600	Manhole	Adoptable	S7	600	Manhole	Adoptable
1.006	S7	600	Manhole	Adoptable	S8	600	Manhole	Adoptable
1.007	S8	600	Manhole	Adoptable	S16	600	Manhole	Adoptable
3.000	S9	600	Manhole	Adoptable	S10	600	Manhole	Adoptable
3.001	S10	600	Manhole	Adoptable	S11	600	Manhole	Adoptable
3.002	S11	600	Manhole	Adoptable	S12	600	Manhole	Adoptable
3.003	S12	600	Manhole	Adoptable	S13	600	Manhole	Adoptable
3.004	S13	600	Manhole	Adoptable	S14	600	Manhole	Adoptable
3.005	S14	600	Manhole	Adoptable	S15	600	Manhole	Adoptable
3.006	S15	600	Manhole	Adoptable	S16	600	Manhole	Adoptable
1.008	S16	600	Manhole	Adoptable	OUTFALL	200	Manhole	Adoptable
2.000	PP1	150	Manhole	Adoptable	PP2	300	Manhole	Adoptable
2.001	PP2	300	Manhole	Adoptable	PP3	300	Manhole	Adoptable
2.002	PP3	300	Manhole	Adoptable	PP4	300	Manhole	Adoptable
2.003	PP4	300	Manhole	Adoptable	PP5		Junction	
2.004	PP5		Junction		S8	600	Manhole	Adoptable
4.000	PP6	150	Manhole	Adoptable	PP7	300	Manhole	Adoptable
5.000	PP8	150	Manhole	Adoptable	PP7	300	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.001	19.296	5.5	150	Circular	27.400	26.900	0.350	24.600	23.360	1.090

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.001	PP7	300	Manhole	Adoptable	S15	600	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	382731.546	397747.710	26.880	1.135	600		0	1.000	25.745	225
S2	382736.361	397729.897	26.400	1.130	600		1	1.000	25.270	225
S3	382737.670	397715.427	26.150	1.125	600		0	1.001	25.270	225
S4	382737.321	397710.599	26.150	1.195	600		1	1.001	25.025	225
S5	382702.420	397697.132	27.500	2.520	600		0	1.002	25.025	225
S6	382644.520	397706.052	24.570	1.205	600		1	1.002	24.955	225
S7	382648.136	397721.846	24.600	1.305	600		0	1.003	24.995	225
S8	382648.766	397724.368	24.600	1.315	600		1	1.003	24.980	225
S9	382728.710	397771.202	25.370	1.125	600		0	1.004	24.980	225
S10	382726.669	397782.373	25.210	1.125	600		1	1.004	23.440	225
							0	1.005	23.365	300
							1	1.005	23.295	300
							0	1.006	23.295	300
							1	2.004	23.435	150
							2	1.006	23.285	300
							0	1.007	23.285	300
							0	3.000	24.245	225
							1	3.000	24.085	225
							0	3.001	24.085	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	382718.503	397815.722	24.700	1.125	600		1 3.001	23.575	225
S12	382704.304	397813.771	24.600	1.185	600		0 1 3.002	23.575 23.490	225 225
S13	382690.002	397802.872	24.600	1.260	600		0 1 3.003	23.415 23.340	300 300
S14	382672.882	397781.186	24.600	1.375	600		0 1 3.004	23.225 23.225	300 300
S15	382670.474	397777.926	24.600	1.390	600		0 1 2 4.001 3.005	23.360 23.210	150 300
S16	382660.315	397761.083	24.600	1.615	600		0 1 2 3.006 1.007	23.210 23.135 23.135	300 300 300
OUTFALL	382657.240	397762.067	24.600	1.623	200		0 1 1.008 1.008	22.985 22.977	450 450
PP1	382713.640	397737.769	27.400	0.490	150		0 2.000	26.910	150
PP2	382696.448	397735.861	27.400	0.500	300		0 1 2.001	26.900 26.890	150 150
PP3	382679.144	397738.467	27.400	0.510	300		0 1 2.002	26.890 26.870	150 150
PP4	382663.869	397728.581	27.400	1.100	300		0 1 2.003	26.300 26.258	150 150
PP5	382663.239	397722.297	27.400	1.142			0 1 2.004	26.258	150
PP6	382685.018	397740.534	27.400	0.490	150		0 4.000	26.910	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
PP7	382673.523	397758.872	27.400	0.500	300		1	5.000	26.900	150
							2	4.000	26.900	150
							0	4.001	26.900	150
PP8	382678.484	397768.179	27.400	0.490	150		0	5.000	26.910	150

Simulation Settings

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

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	40	0	0

Node OUTFALL Surcharged Outfall

Overrides Design Area	x	Depression Storage Area (m²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		

Applies to 30yr, 100yr+40% CC 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440 minute storms

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	2.000	300	2.000	600	2.000	900	2.000	1200	2.000
60	2.000	360	2.000	660	2.000	960	2.000	1260	2.000
120	2.000	420	2.000	720	2.000	1020	2.000	1320	2.000
180	2.000	480	2.000	780	2.000	1080	2.000	1380	2.000
240	2.000	540	2.000	840	2.000	1140	2.000	1440	2.000

Results for 1 year Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.778	0.033	3.9	0.0093	0.0000	OK
15 minute winter	S2	10	25.314	0.044	5.9	0.0125	0.0000	OK
15 minute winter	S3	11	25.117	0.092	7.6	0.0260	0.0000	OK
15 minute summer	S4	12	25.108	0.153	10.0	0.0434	0.0000	OK
15 minute winter	S5	12	25.024	0.044	6.9	0.0123	0.0000	OK
15 minute winter	S6	12	23.432	0.067	6.9	0.0189	0.0000	OK
15 minute winter	S7	12	23.427	0.132	11.4	0.0373	0.0000	OK
15 minute winter	S8	12	23.422	0.137	28.6	0.0388	0.0000	OK
15 minute winter	S9	10	24.286	0.041	4.3	0.0117	0.0000	OK
15 minute winter	S10	11	24.124	0.039	4.3	0.0110	0.0000	OK
15 minute winter	S11	11	23.625	0.050	4.1	0.0141	0.0000	OK
15 minute winter	S12	12	23.463	0.048	4.1	0.0136	0.0000	OK
15 minute winter	S13	11	23.427	0.087	13.5	0.0246	0.0000	OK
15 minute winter	S14	11	23.361	0.136	19.2	0.0385	0.0000	OK
15 minute winter	S15	11	23.344	0.134	26.0	0.0379	0.0000	OK
15 minute winter	S16	12	23.177	0.192	57.3	0.0545	0.0000	OK
15 minute winter	OUTFALL	12	23.142	0.165	57.4	0.0000	0.0000	OK
15 minute winter	PP1	15	26.998	0.088	1.6	0.0016	0.0000	OK
15 minute winter	PP2	15	26.996	0.096	3.1	0.0068	0.0000	OK
15 minute winter	PP3	15	26.984	0.094	4.6	0.0067	0.0000	OK
15 minute winter	PP4	15	26.368	0.068	6.1	0.0048	0.0000	OK
15 minute winter	PP5	15	26.287	0.029	6.1	0.0000	0.0000	OK
15 minute winter	PP6	12	26.988	0.078	3.2	0.0014	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	3.9	0.857	0.046	0.0838	
15 minute winter	S2	1.001	S3	5.8	0.827	0.086	0.1500	
15 minute winter	S3	1.002	S4	11.6	0.571	0.185	0.1023	
15 minute summer	S4	1.003	S5	6.9	0.658	0.682	0.4690	
15 minute winter	S5	1.004	S6	6.9	1.285	0.081	0.3134	
15 minute winter	S6	1.005	S7	7.0	0.369	0.096	0.3359	
15 minute winter	S7	1.006	S8	11.6	0.378	0.169	0.0795	
15 minute winter	S8	1.007	S16	28.3	0.939	0.410	1.1599	
15 minute winter	S9	3.000	S10	4.3	0.891	0.069	0.0542	
15 minute winter	S10	3.001	S11	4.1	0.774	0.065	0.1905	
15 minute winter	S11	3.002	S12	4.1	0.641	0.103	0.0916	
15 minute winter	S12	3.003	S13	4.0	0.354	0.057	0.2172	
15 minute winter	S13	3.004	S14	13.4	0.565	0.188	0.6626	
15 minute winter	S14	3.005	S15	19.1	0.623	0.283	0.1246	
15 minute winter	S15	3.006	S16	25.7	0.899	0.376	0.5653	
15 minute winter	S16	1.008	OUTFALL	57.4	0.980	0.357	0.1891	33.0
15 minute winter	PP1	2.000	PP2	1.5	0.139	0.372	0.1961	
15 minute winter	PP2	2.001	PP3	3.1	0.260	0.745	0.2057	
15 minute winter	PP3	2.002	PP4	4.6	0.495	0.794	0.1677	
15 minute winter	PP4	2.003	PP5	6.1	1.249	0.420	0.0317	
15 minute winter	PP5	2.004	S8	6.1	2.633	0.077	0.0338	
15 minute winter	PP6	4.000	PP7	3.2	0.562	0.878	0.1278	

Results for 1 year Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	12	26.930	0.030	6.4	0.0021	0.0000	OK
15 minute winter	PP8	13	26.975	0.065	3.2	0.0012	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	6.4	2.616	0.083	0.0473	
15 minute winter	PP8	5.000	PP7	3.2	0.675	0.601	0.0513	

Results for 30 year Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.796	0.051	9.6	0.0145	0.0000	OK
15 minute winter	S2	10	25.340	0.070	14.5	0.0198	0.0000	OK
15 minute winter	S3	11	25.178	0.153	18.8	0.0433	0.0000	OK
15 minute winter	S4	11	25.173	0.218	18.4	0.0618	0.0000	OK
15 minute winter	S5	11	25.050	0.070	18.1	0.0198	0.0000	OK
1440 minute winter	S6	420	24.570	1.205	8.6	0.3410	252.9048	FLOOD
15 minute winter	S7	10	24.597	1.302	36.8	0.3685	0.0000	FLOOD RISK
15 minute winter	S8	10	24.600	1.315	45.1	0.3721	3.6384	FLOOD
15 minute summer	S9	11	24.836	0.591	10.0	0.1671	0.0000	SURCHARGED
30 minute summer	S10	17	24.762	0.677	25.8	0.1917	0.0000	SURCHARGED
15 minute summer	S11	11	24.684	1.109	37.5	0.3138	0.0000	FLOOD RISK
120 minute summer	S12	52	24.600	1.185	10.4	0.3354	7.8539	FLOOD
60 minute winter	S13	27	24.600	1.260	23.7	0.3566	9.9557	FLOOD
60 minute winter	S14	27	24.600	1.375	19.0	0.3891	5.6514	FLOOD
30 minute winter	S15	16	24.600	1.390	27.4	0.3934	9.2203	FLOOD
30 minute winter	S16	16	24.600	1.615	21.4	0.4570	2.7958	FLOOD
15 minute summer	OUTFALL	1	24.977	2.000	0.0	0.0000	0.0000	OK
15 minute winter	PP1	14	27.119	0.209	3.9	0.0038	0.0000	FLOOD RISK
15 minute winter	PP2	14	27.109	0.208	7.8	0.0148	0.0000	FLOOD RISK
15 minute winter	PP3	14	27.068	0.178	11.6	0.0126	0.0000	SURCHARGED
15 minute winter	PP4	14	26.419	0.119	15.5	0.0085	0.0000	OK
15 minute winter	PP5	14	26.303	0.045	16.2	0.0000	0.0000	OK
15 minute winter	PP6	13	27.038	0.128	7.9	0.0023	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	9.5	1.109	0.114	0.1594	
15 minute winter	S2	1.001	S3	14.4	0.870	0.212	0.2834	
15 minute winter	S3	1.002	S4	18.4	0.576	0.293	0.1650	
15 minute winter	S4	1.003	S5	18.1	0.807	1.801	0.8272	
15 minute winter	S5	1.004	S6	17.8	0.963	0.211	1.4716	
1440 minute winter	S6	1.005	S7	-7.7	-0.109	-0.106	1.1410	
15 minute winter	S7	1.006	S8	-28.3	-0.402	-0.413	0.1830	
15 minute winter	S8	1.007	S16	18.0	0.474	0.261	2.7104	
15 minute summer	S9	3.000	S10	15.0	1.110	0.242	0.4516	
30 minute summer	S10	3.001	S11	-17.8	0.736	-0.281	1.3655	
15 minute summer	S11	3.002	S12	-28.7	-0.722	-0.719	0.5700	
120 minute summer	S12	3.003	S13	-8.3	0.167	-0.117	1.2663	
60 minute winter	S13	3.004	S14	-15.6	0.373	-0.219	1.9456	
60 minute winter	S14	3.005	S15	-14.0	0.449	-0.208	0.2854	
30 minute winter	S15	3.006	S16	-14.9	0.368	-0.218	1.3851	
30 minute winter	S16	1.008	OUTFALL	0.0	0.000	0.000	0.5116	0.0
15 minute winter	PP1	2.000	PP2	3.9	0.219	0.936	0.3045	
15 minute winter	PP2	2.001	PP3	7.7	0.438	1.883	0.3081	
15 minute winter	PP3	2.002	PP4	11.6	0.702	2.010	0.2733	
15 minute winter	PP4	2.003	PP5	16.2	1.658	1.121	0.0616	
15 minute winter	PP5	2.004	S8	15.4	1.800	0.196	0.1613	
15 minute winter	PP6	4.000	PP7	7.9	0.779	2.156	0.2223	

Results for 30 year Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	13	26.946	0.046	15.8	0.0033	0.0000	OK
15 minute winter	PP8	13	27.012	0.102	7.9	0.0018	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	15.8	1.845	0.206	0.2141	
15 minute winter	PP8	5.000	PP7	7.9	0.914	1.483	0.0913	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	25.814	0.069	17.4	0.0196	0.0000	OK
15 minute winter	S2	11	25.372	0.102	26.2	0.0289	0.0000	OK
15 minute winter	S3	11	25.347	0.322	33.6	0.0910	0.0000	SURCHARGED
15 minute winter	S4	11	25.310	0.355	32.5	0.1005	0.0000	SURCHARGED
15 minute winter	S5	11	25.076	0.096	32.4	0.0271	0.0000	OK
1440 minute winter	S6	270	24.570	1.205	15.2	0.3410	491.5504	FLOOD
15 minute winter	S7	10	24.599	1.304	44.2	0.3689	0.0000	FLOOD RISK
30 minute winter	S8	13	24.600	1.315	69.7	0.3721	21.7790	FLOOD
15 minute winter	S9	9	24.906	0.661	18.9	0.1871	0.0000	SURCHARGED
15 minute winter	S10	9	24.830	0.745	31.5	0.2108	0.0000	SURCHARGED
15 minute winter	S11	9	24.696	1.121	39.6	0.3171	0.0000	FLOOD RISK
60 minute winter	S12	21	24.600	1.185	17.4	0.3354	15.2168	FLOOD
180 minute winter	S13	60	24.600	1.260	11.0	0.3566	28.4692	FLOOD
120 minute winter	S14	40	24.600	1.375	9.6	0.3891	17.9984	FLOOD
60 minute winter	S15	21	24.600	1.390	22.4	0.3934	23.6764	FLOOD
30 minute winter	S16	13	24.600	1.615	23.4	0.4570	8.4791	FLOOD
15 minute summer	OUTFALL	1	24.977	2.000	0.0	0.0000	0.0000	OK

15 minute winter	PP1	13	27.400	0.490	7.1	0.0088	0.1205	FLOOD
15 minute winter	PP2	13	27.376	0.476	13.5	0.0338	0.0000	FLOOD RISK
15 minute winter	PP3	14	27.258	0.368	20.4	0.0261	0.0000	FLOOD RISK
15 minute winter	PP4	14	26.546	0.246	27.2	0.0175	0.0000	SURCHARGED
15 minute winter	PP5	14	26.319	0.061	27.2	0.0000	0.0000	OK
15 minute winter	PP6	13	27.177	0.267	14.2	0.0048	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	17.3	1.309	0.207	0.2534	
15 minute winter	S2	1.001	S3	25.7	0.878	0.380	0.4162	
15 minute winter	S3	1.002	S4	32.5	0.818	0.520	0.1925	
15 minute winter	S4	1.003	S5	32.4	0.995	3.221	1.0441	
15 minute winter	S5	1.004	S6	32.1	0.987	0.380	1.6351	
1440 minute winter	S6	1.005	S7	-13.5	-0.192	-0.186	1.1410	
15 minute winter	S7	1.006	S8	-30.8	-0.437	-0.449	0.1830	
30 minute winter	S8	1.007	S16	14.7	0.503	0.213	2.7104	
15 minute winter	S9	3.000	S10	27.2	1.154	0.440	0.4516	
15 minute winter	S10	3.001	S11	19.9	0.928	0.314	1.3655	
15 minute winter	S11	3.002	S12	-30.1	-0.838	-0.754	0.5700	
60 minute winter	S12	3.003	S13	-17.4	-0.247	-0.244	1.2663	
180 minute winter	S13	3.004	S14	5.8	0.322	0.081	1.9456	
120 minute winter	S14	3.005	S15	7.6	0.411	0.113	0.2854	
60 minute winter	S15	3.006	S16	12.4	0.367	0.182	1.3851	
30 minute winter	S16	1.008	OUTFALL	0.0	0.000	0.000	0.5116	0.0

15 minute winter	PP1	2.000	PP2	6.5	0.372	1.588	0.3045	
15 minute winter	PP2	2.001	PP3	13.3	0.755	3.243	0.3081	
15 minute winter	PP3	2.002	PP4	20.2	1.151	3.507	0.3073	
15 minute winter	PP4	2.003	PP5	27.2	1.914	1.882	0.0767	
15 minute winter	PP5	2.004	S8	27.2	1.914	0.345	0.1775	
15 minute winter	PP6	4.000	PP7	14.2	0.986	3.864	0.2664	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 80.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	PP7	13	26.963	0.063	28.4	0.0045	0.0000	OK
15 minute winter	PP8	13	27.087	0.177	14.2	0.0032	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	PP7	4.001	S15	28.4	1.975	0.369	0.2375	
15 minute winter	PP8	5.000	PP7	14.2	1.046	2.665	0.1298	

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Manchester
M1 5WG

T. 0161 236 2394

www.curtins.com



Appendix C

- Head of Terms – Manchester Ship Canal Company / Peel L&P

Chloé Grimsley

From: Pete Mills
Sent: 02 February 2022 10:48
To: James Sidlow
Subject: FW: Trinity Island HoTs
Attachments: Trinity Islands Phase 1 C1 (v2).docx; Trinity Islands Phase 1 C2 (v2).docx; Trinity Islands Phase 1 D1 (v2).docx; Trinity Islands Phase 1 D2 (v2).docx

FYI

Pete Mills | Development Director | Renaker

1st Floor, NQ Building, 47 Bengal Street, Ancoats, Manchester M4 6BB

T: 0161 245 1150 M: 07879 673 593



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From: Andrew Lofthouse <AndrewLofthouse@renaker.com>
Sent: 01 February 2022 16:54
To: Pete Mills <PeteMills@renaker.com>
Subject: FW: Trinity Island HoTs

Andrew Lofthouse | Commercial Director | Renaker

1st Floor, NQ Building, 47 Bengal Street, Ancoats, Manchester M4 6BB

T: 0161 245 1150 M: 07949 507 699



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From: Brendan Dolan <BDolan@peellandp.co.uk>
Sent: 15 September 2021 15:38
To: Andrew Lofthouse <AndrewLofthouse@renaker.com>
Cc: Neil Adair <nadair@peellandp.co.uk>
Subject: Trinity Island HoTs

Hi Andy,

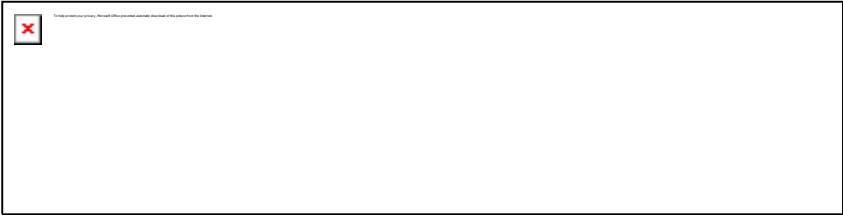
Please find attached the revised HoTs of the Trinity Island developments. I have set the term as 250 years from the date of the license and added in a charge commencement date. Can you please check that you are ok with this. I have also included the amendments we discussed.

Once I have approval on the HoTs we will get Land Law to commence work drafting up the documents.

Brendan Dolan
Head Of Water - Peel NRE
Peel L&P



0161 629 8382
07436 819 285
BDolan@peellandp.co.uk
peellandp.co.uk



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The Manchester Ship Canal Company Limited

Surface Water Discharge Licence

Heads of Terms

Subject to contract and without prejudice



Licensor :	The Manchester Ship Canal Company Limited
Licensee:	Trinity Developments (Manchester) Limited (CRN 11381019)
Licensee's Land :	Trinity Island Development (Phase 1 Building D1) shown edged red on the attached plan
Term :	250 years from date of the license
Charge Commencement Date	Date of first discharge
Initial Rent :	A rent equivalent to £37,240 per annum payable in advance by equal biannual payments on 1 st April and 1 st October of each year. (This being based on 532 apartments at £70/apt)
Connection Fee :	£40,000 payable on the 1 st July 2022
Rent Review :	The annual rent will be reviewed annually on 1 April. The first such review will be 1 April 2022. The passing rent shall be the higher of the current rent, the annual rent increased by the equivalent percentage uplift in the United Utilities Water Plc charge for surface water drainage for residential customers or the annual rent uplifted in line with the increase in the RPI index. The annual charge will not surpass the sum of the annual charge that United Utilities Water Plc would levy to the premises on the site. In the event that United Utilities Water Plc stop levying a separate charge for surface water drainage or incorporate some of the charge into another service, this element of the rent review will be excluded.
Rights Granted :	The right to pass clean uncontaminated surface water from the Licensee's Land and to discharge such clean surface water through the outfall into River Irwell
Licensee's Obligations :	(1) To pay the annual rent by direct debit or automated payment on or before the due date. (2) Not to discharge anything other than clean surface water into the River Irwell

	(3) To comply with all relevant statutory or regulatory requirements including, in particular, the requirements of the Environment Agency or any body from time to time carrying out the functions currently carried out by the Environment Agency (4) To make good to the Licensor's satisfaction all damage caused to the bed or banks of the River Irwell due to the exercise of the Rights Granted (5) To maintain and keep the Licensee's equipment pipes outfalls and banks supporting the outfall etc in good and substantial and safe repair and condition at all times to the satisfaction of the Licensor's engineers (6) Not to assign, underlet, transfer, share, hold on trust or part with the benefit of the Rights Granted without the written permission of the Licensee such permission not be unreasonably withheld. (7) To indemnify the Licensor against all liability arising directly or indirectly from damage to the outfall by any vessel navigating the river, the exercise of the Rights, lack of maintenance or repair to the outfall and/or supporting river bank or otherwise, failure of the outfall as a result of subsidence, landslip or collapse of the bank, acts, omissions or defaults and any breach of covenant. The Licensor will use reasonable endeavours to mitigate its loss where it is reasonably practicable for the Licensor to do so and such loss is within the Licensor's control. (8) To provide warranties for the outfall works and ancillary works from the Contractor, any consultant with design responsibility and the person signing off the works as complete. (9) Not to discharge surface water at a rate exceeding [TBC] litres per second or with a velocity of discharge greater than 2 metres per second.
Termination :	If there is a breach of any of the Licensee's Obligations or if the Licensee becomes insolvent the Licensor will be entitled to terminate the Rights Granted by giving three month's written notice to the Licensee only after prior notice is given to the Licensee of the breach and the Licensee is given opportunity to remedy the breach
Licensor's Legal Fees :	The Licensor is to be responsible for Licensor's legal fees upto a maximum of £1,500 plus VAT and disbursements. The Licensee is responsible for the Licensor's fees above £1,500 plus VAT and disbursements.
Engineers Fees :	The Licensee is to be responsible for Licensor's engineer fees, capped at £500 plus VAT and disbursements.
Confidentiality :	Not to disclose the contents and terms of this Agreement to any third party and to treat the terms of this Agreement as confidential to it and its advisers save as required to comply with any legal obligation or the rules of any regulatory body

Validity Period :	The Heads of Terms are valid for a period 6 months from the date of first issue.

Signed by on behalf of Trinity Developments (Manchester) Limited

Print Name

Date

Signed by on behalf of The Manchester Ship Canal Company Ltd

Print Name

Date

Manchester Ship Canal Company Limited

Surface Water Discharge Licence Heads of Terms



Subject to contract and without prejudice

Licensor :	The Manchester Ship Canal Company Limited
Licensee:	Trinity Developments (Manchester) Limited (CRN 11381019)
Licensee's Land :	Trinity Island Development (Phase 1 Building D2) shown edged red on the attached plan
Term :	250 years from date of the license.
Charge Commencement Date:	Date of first discharge
Initial Rent :	A rent equivalent to £33,810 per annum payable in advance by equal biannual payments on 1 st April and 1 st October of each year. (This being based on 483 apartments at £70/apt)
Connection Fee :	£40,000 payable on the 1 st July 2022.
Rent Review :	The annual rent will be reviewed annually on 1 April. The first such review will be 1 April 2022. The passing rent shall be the higher of the current rent, the annual rent increased by the equivalent percentage uplift in the United Utilities Water Plc charge for surface water drainage for residential customers or the annual rent uplifted in line with the increase in the RPI index. The annual charge will not surpass the sum of the annual charge that United Utilities Water Plc would levy to the premises on the site. In the event that United Utilities Water Plc stop levying a separate charge for surface water drainage or incorporate some of the charge into another service, this element of the rent review will be excluded.
Rights Granted :	The right to pass clean uncontaminated surface water from the Licensee's Land and to discharge such clean surface water through the outfall into River Irwell
Licensee's Obligations :	(1) To pay the annual rent by direct debit or automated payment on or before the due date. (2) Not to discharge anything other than clean surface water into the River Irwell

	(3) To comply with all relevant statutory or regulatory requirements including, in particular, the requirements of the Environment Agency or any body from time to time carrying out the functions currently carried out by the Environment Agency (4) To make good to the Licensor's satisfaction all damage caused to the bed or banks of the River Irwell due to the exercise of the Rights Granted (5) To maintain and keep the Licensee's equipment pipes outfalls and banks supporting the outfall etc in good and substantial and safe repair and condition at all times to the satisfaction of the Licensor's engineers (6) Not to assign, underlet, transfer, share, hold on trust or part with the benefit of the Rights Granted without the written permission of the Licensee such permission not be unreasonably withheld. (7) To indemnify the Licensor against all liability arising directly or indirectly from damage to the outfall by any vessel navigating the river, the exercise of the Rights, lack of maintenance or repair to the outfall and/or supporting river bank or otherwise, failure of the outfall as a result of subsidence, landslip or collapse of the bank, acts, omissions or defaults and any breach of covenant. The Licensor will use reasonable endeavours to mitigate its loss where it is reasonably practicable for the Licensor to do so and such loss is within the Licensor's control. (8) To provide warranties for the outfall works and ancillary works from the Contractor, any consultant with design responsibility and the person signing off the works as complete. (9) Not to discharge surface water at a rate exceeding [TBC] litres per second or with a velocity of discharge greater than 2 metres per second.
Termination :	If there is a breach of any of the Licensee's Obligations or if the Licensee becomes insolvent the Licensor will be entitled to terminate the Rights Granted by giving three month's written notice to the Licensee only after prior notice is given to the Licensee of the breach and the Licensee is given opportunity to remedy the breach
Licensor's Legal Fees :	The Licensor is to be responsible for Licensor's legal fees upto a maximum of £1,500 plus VAT and disbursements. The Licensee is responsible for the Licensor's fees above £1,500 plus VAT and disbursements.
Engineers Fees :	The Licensee is to be responsible for Licensor's engineer fees, capped at £500 plus VAT and disbursements.
Confidentiality :	Not to disclose the contents and terms of this Agreement to any third party and to treat the terms of this Agreement as confidential to it and its advisers save as required to comply with any legal obligation or the rules of any regulatory body

Validity Period :	The Heads of Terms are valid for a period 6 months from the date of first issue.
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Signed by on behalf of Trinity Developments (Manchester) Limited

Print Name

Date

Signed by on behalf of The Manchester Ship Canal Company Ltd

Print Name

Date