

Tiznow Property Company Limited (Comer Group Ireland)

City Park Development at the Former Tedcastles Site

Site Infrastructure Report

Reference: 267365-ARUP-XX-XX-RP-C-0002

P04 | 25 March 2022













This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 267365-00

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1. Introduction

Arup have been commissioned by Tiznow Property Company Limited (Comer Group Ireland) to prepare the site infrastructure design to support the planning application for the proposed development at the former Tedcastles Site in the Cork City docklands area.

This report details the proposed site infrastructure works associated with the development including the following:

- Surface Water Drainage
- Foul Water Drainage
- Potable Water Supply

This report should be read in conjunction with all relevant engineering and architectural drawings and documents as part of the planning application.

Arup have engaged with Cork City Council and Irish Water prior to lodgement of the planning design and the proposed strategies have been agreed in principle with both parties. Items raised by the Cork City Council drainage department upon review of the pre-planning design, and the An Bord Pleanála Opinion are fully addressed within this report.

2. Existing Site

2.1 Existing Site

The existing 4.8 Ha site is located at the former Tedcastles Site within the docklands area of Cork City. The site is located approximately 2km east of Cork city centre. See Figure 1 below which shows the approximate site outline in red.

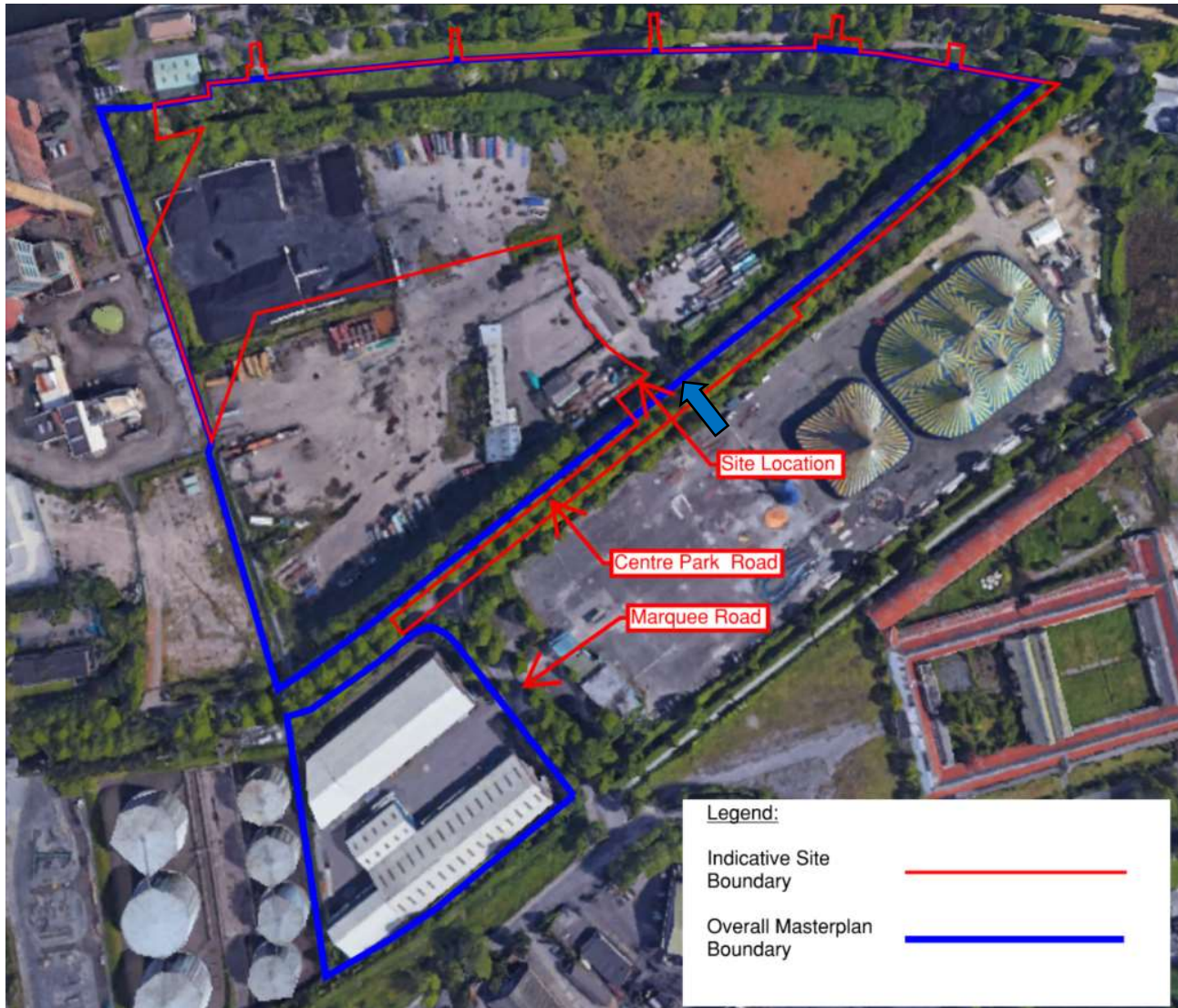


Figure 1: Existing Site and existing access points.

The existing site is bounded by Centre Park Road to the south, by the Marina to the north and by the former ESB power station to the west. The primary access to the site at present is via Centre Road as indicated by the blue arrow on Figure 1.

The site is a brownfield site containing several storage containers and external storage areas. Ground levels vary across the site, with a high point along the northern boundary, varying between 5.3m at the western end and 3.6m at the eastern end. There are two open channels, one adjacent to the southern boundary and one adjacent to the northern boundary, which join at the eastern end of the site. The bed levels of the open channels vary between -0.46m and -3.15m across the site. The centre of the site generally falls from a high point of 2.67 to the open channels along the northern and southern boundaries.

2.2 Existing Services

Due to the previous uses of the site, there are various existing underground services present throughout the area. Most of these will be deemed redundant in the context of serving the proposed development. Surface water runoff from the site drains to the existing open channels to the north and south of the site. The southern channel is culverted in two locations, one at the southern corner of the site, and one at the main site entrance shown in Figure 1. The northern & southern channel flow east before ultimately discharging to the Lee via an outfall at the point of confluence of the two open channels.

There are also several existing services located outside of the site. There is a 525mm diameter Irish Water foul water sewer which flows east along Centre Park Road, which then increases to a 600mm diameter along Marquee Road, prior to connecting to the existing 3.2m diameter Interceptor Sewer along Monahan Road. There is also a 300mm diameter Irish Water potable watermain located along Centre Park Road, west of the junction with Marquee Road, which then downsizes to 100mm diameter east of the junction with Marquee Road. Further details of how the site interfaces with this existing infrastructure is described later in this report.

3. Proposed Site

3.1 Proposed Development

Demolition of the existing structures on site and the construction of a strategic housing development of 823 no. apartments, resident amenity and ancillary commercial areas including childcare facilities. The development will comprise 6 no. buildings ranging in height from part 1 no. to part 35 no. storeys over lower ground floor level. The proposed development also comprises hard and soft landscaping, pedestrian bridges, car parking, bicycle stores and shelters, bin stores, ESB substations, plant rooms and all ancillary site development works. Vehicular access to the proposed development will be provided via Centre Park Road.

Refer to architect's layouts and elevations for further information.

3.2 Surface Water Drainage

3.2.1 Existing Surface Water Drainage

Surface water generated from the impervious surfaces and from existing buildings on site discharges to the two existing open channels located along the northern and southern boundaries of the site. Both open channels ultimately discharge to the River Lee via the outfall at the north-eastern corner of the site, as described in section 2.2 above.

The Cork South Docklands Levels Study describes proposed upgrades/amendments to the existing infrastructure in the vicinity of the site and the design of the proposed drainage is cognizant of those proposals.

3.2.2 Surface Water Drainage Design Criteria

The following design standards and guidelines have been followed in the design of the surface water drainage for the site:

- BS EN 752 – Drains and sewer system outside buildings.
- Greater Dublin Strategic Drainage Study (GSDSDS) Volume 2 – New Developments.
- The network has been designed to the following criteria:
 - No surcharging of pipes for up to and including the 1 in 5-year return period rainfall event
 - No above ground flooding for up to and including the 1 in 30-year return period rainfall event
 - Managed above ground flooding for up to and including the 1 in 100-year return period plus a 20% allowance for climate change. This means no flooding of vulnerable developments (e.g. residential units), critical infrastructure (e.g. electrical substations) and no increase of flood risk to neighbouring lands.
- Proposed minimum and maximum velocities shall be as follows:
 - Carrier pipe network – 1.0m/s to 3.0m/s
- Colebrook White roughness value of 0.6mm for all pipework
- Met Eireann rainfall data for site:
 - M5/60 = 18.20mm
 - Ratio $r = 0.25$

In addition to the above, the surface water strategy is designed to be in line with the guidance set out in the Cork City Council (CCC) Cork South Docklands Levels Strategy (CSDLS).

3.2.3 Proposed Surface Water Drainage Strategy

It is proposed to collect all surface water from the proposed development within a new dedicated surface water network. A network of primary carrier pipes will be provided, located predominantly within the development roads. Proposed roads and part of the proposed buildings will discharge to this pipe network with this pipe network ultimately discharging to the existing open channels located adjacent to the site. Parts of the proposed buildings will also discharge directly to the open channel to the north.

There will be a requirement to make amendments to the existing infrastructure in the vicinity of the site as described below:

- The northern channel will be reprofiled to suit the landscaping proposals. The re-profiling of the northern channel will ensure the existing levels and storage volumes are maintained as per the CSDLS.
- The southern channel will be culverted with the culvert size and levels being agreed with CCC to ensure they meet the requirements set out in the CSDLS. The proposals will ensure maintenance access and future connectivity upstream are considered. A wayleave will be provided by the developer, and it is expected CCC will take the culvert in charge.
- Through discussions with CCC it was agreed that a portion of the existing outfall upgrade works will be carried out as part of the development. A new pipe will extend approx. 4m into The Marina where a manhole will be constructed to transition back to the existing outfall pipe. This allows for CCC to carry out the necessary upgrades downstream of this point outside of the development boundary. Further discussions are expected with CCC at detailed design to agree the proposals.

The proposed surface water drainage strategy for the site has been developed to meet the requirements as set out in the CSDLS. There are two key criteria which influence the sizing of on-site drainage network as follows:

- The CSDLS states that development plots in the south docklands must limit their post development peak discharge rate to a maximum of 68 l/s/ha.
- The Former Tedcastles site design team was provided with outputs from the CSDLS modelling at the nearest node to the proposed site discharge points. These outputs were applied to the site surface water drainage network as a downstream surcharge condition.

In order to meet the above criteria, attenuation will be provided on site as outlined in the engineering drawings. Each catchment will discharge to the existing open channels along the northern and southern boundaries at a rate no greater than 68 l/s/ha. Attenuation will be provided by a combination of below ground geocellular tanks, an attenuation pond, blue roofs, permeable paving and under-drained planters.

A hydraulic model for the proposed surface water network was created using Microdrainage software to inform indicative network/tank sizing. Results from this modelling exercise are presented in Appendix A.

SUDS features will be incorporated into scheme to provide amenity/biodiversity/water quality benefits as well as contributing to the attenuation volume requirements. As indicated on the engineering drawings permeable paving, under drained planters/tree pits, blue roofs (where feasible) & an attenuation pond will be incorporated into the drainage design. In addition to those measures outlined in the drawing, roof terraces will incorporate planting as described in the landscaping strategy and runoff from adjacent roofs will be promoted to flow through these planted areas where feasible to realise a treatment benefit. Further information related to the proposed SuDS measures is provided within Appendix D. At detailed design the landscaping and drainage designs will be further integrated to maximise this benefit.

While the above-mentioned SUDS features will contribute to improved water quality it is also proposed that the surface water runoff collected from carparking areas will pass through a Class 1 By-Pass Hydrocarbon Interceptors. Sizes of units will be defined at detailed design stage. It is proposed to discharge all surface water runoff from the under-croft carparks to the foul network. Furthermore, all surface water channel drains and road gullies will include sump units where silt can be collected and removed.

The design team are aware of the possible district public storage in the vicinity of the site as outlined in the CSDLS, namely “Area B”. Area B sits outside the application boundary for this development and the

proposed drainage strategy for the site does not include discharging runoff to the catchment to which it is part of. As a result, it has not been integrated within the proposed drainage strategy for the site, but it remains an option to be considered when the remainder of the site is developed. This has been discussed and agreed with Cork City Council.

The onsite surface water network is expected to remain private with the channels/culverts to the north/south and the outfall to the Lee expected to be taken in charge by CCC. This is to be discussed and agreed with CCC beyond planning.

The proposed surface water drainage layout is shown on drawing 267365-ARUP-ZZ-ZZ-DR-C-2000.

3.3 Foul Water Drainage

3.3.1 Existing Foul Water Drainage

Based on record drawings and information received from Cork City Council, there is an existing Irish Water wastewater sewer adjacent to the site along Centre Park Road. The pipe is 525mm in diameter and flows in an easterly direction before draining south in a 600mm diameter sewer along Marquee Road, before connecting to the existing 3.2m diameter interceptor sewer along Monahan Road. This interceptor sewer flows to the Atlantic Pond pumping station to the east of the proposed site. See Figure 2 below which shows the approximate route of this interceptor sewer and the centre of the site marked in blue for identification.

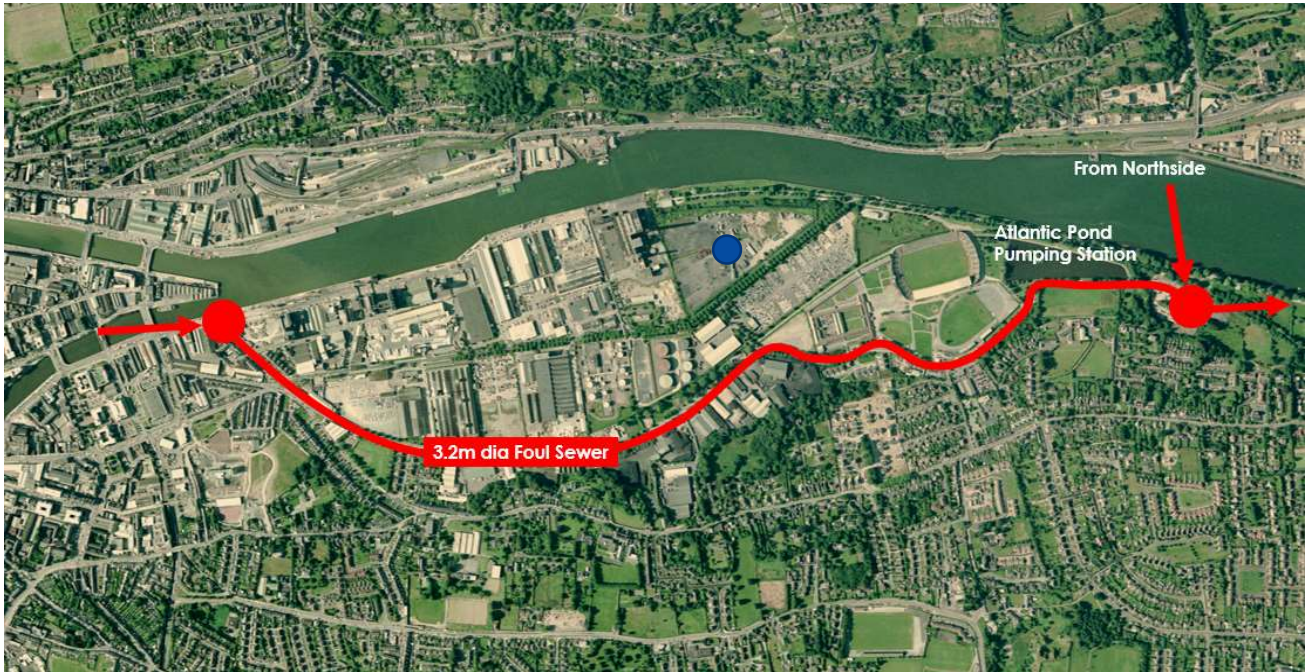


Figure 2: Existing Route of 3.2m diameter Interceptor Sewer.

3.3.2 Foul Water Drainage Design Criteria

The design criteria used to develop the foul network includes the following:

- BS EN 752 – Drain and sewer systems outside buildings
- Part H Building Regulations
- Irish Water Code of Practice for Wastewater Infrastructure
- Minimum self-cleansing velocity – 0.75m/s
- Colebrook-White roughness value of 1.5mm for all pipework
- Sanitary DWF loadings are outlined below:
 - Residential -165 l/person/day as per Irish Water Code of Practice
 - Retail/Commercial - 300 l/100m²/day
- Residential unit density taken as 2.7 persons per property as per Cork City 2016 Census data.
- EPA Wastewater Treatment Manuals

3.3.3 Proposed Foul Water Drainage Strategy

It is proposed to collect all foul water from the proposed development through a dedicated foul sewer network. As described above, there is an existing Irish Water sewer along Centre Park Road, east of the junction with Marquee Road. It is proposed that one connection point to this existing sewer will be made

from the new foul water drainage network. It is proposed to install a non-return valve on the proposed foul water drainage network prior to the connection to the existing infrastructure. This will ensure that in the event of the existing sewer surcharging, foul water from the Cork main drainage network will not back up into the site foul water drainage network. The foul drainage network will consist of a traditional gravity piped network.

Although the carparks are covered by the podium deck, drainage will be provided for the carpark hardstanding in the form of linear drainage channels. Any rainfall associated with vehicles entering the carpark will be conveyed to the foul water drainage network. This will be kept separate from the surface water drainage beneath the under-croft carpark i.e. there will be no positive connection to any external stormwater drainage. Runoff from the car parks will pass through a hydrocarbon interceptor prior to discharging into the foul water network. Non-return valves will be fitted on the downstream end of this drainage connection to prevent water backing up into the carpark areas during conditions where the receiving drainage network is surcharged.

If required grease traps will be incorporated into the development at any required locations to collect fats, oils and greases (FOGs) from entering the main foul drainage network. A maintenance routine will be established on all grease traps as required based on the levels of FOGs produced. Locations and sizes of proposed grease trap units are to be confirmed at detailed design stage.

Table 1 below provides the breakdown of the sources of wastewater as part of the development and shows proposed average and peak flow rates estimated.

Unit	People	Area (m ²)	DWF Loading		Average flow (DWF)	Peak Flow (6DWF)
			(l/h/d)	(l/100m ² /d)	(l/s)	(l/s)
Residential	2222 (823 units x 2.7 persons per unit)	-	165	-	6.37	38.19
Commercial	-	3307	-	300	0.28	1.68
Total	-	-	-	-	6.65	39.87

Table 1: Proposed Foul Water Flow Rates

A pre-connection enquiry form (see Appendix B) has been submitted to Irish Water outlining the details of the proposed development and anticipated wastewater flows. Irish Water have reviewed the this and provided a Confirmation of Feasibility letter (see Appendix B) confirming capacity within their network to serve the development without upgrade to their network. It should be noted that the estimated water demands within the pre-connection enquiry form are based on the overall masterplan boundary outlined in Figure 1 above. Irish Water has reviewed the proposal and a Statement of Design Acceptance has been issued (see Appendix C) confirming that Irish Water has no objection to the proposal.

At connection application stage it is anticipated the extent of foul water infrastructure to be taken in charge by Irish Water will be agreed. It is expected at a minimum this will include the foul water sewers located within Centre Park Road.

The proposed foul water drainage layout is shown on drawing 267365-ARUP-ZZ-ZZ-DR-C-3000.

3.4 Potable and Fire Water Supply

3.4.1 Existing Potable and Fire Water Supply

Based on record drawings and information received from Cork City Council, there are a number of existing watermains adjacent to the site. There is a 300mm diameter Irish Water potable watermain located along Centre Park Road, west of the junction with Marquee Road, which then downsizes to 100mm diameter east of the junction with Marquee Road. There is also a 125mm diameter Irish Water potable watermain located along the Marina to the north of the site. It is understood that there is a proposal for an additional supply to the Docklands from the Glashaboy Reservoir by Irish Water.

3.4.2 Potable and Fire Water Design Criteria

The watermains will be designed in accordance with the following guidelines and standards:

- Irish Water Code of Practice for Water Supply
- Civil Engineering Specification for the Water Industry (CESWI)
- BS EN 805:2000 Water Supply – Requirements for systems and components outside buildings
- Part B of the Building Regulations
- Potable Water Demand loadings are outlined below:
 - Residential -150 l/person/day as per Irish Water Code of Practice
 - Retail/Commercial - 300 l/100m²/day

3.4.3 Proposed Potable and Fire Water Supply

It is understood that the proposed watermain required along Centre Park Road as part of this development follows the same path as the proposed additional supply to the Docklands from the Glashaboy Reservoir by Irish Water. It is proposed to make a new connection to the existing watermain located in Centre Park Road and install the watermain along Centre Park Road, in line with the requirements of Irish Water and the also requirements to serve the proposed development. It is proposed to install a spur to allow for the future completion of the future Irish Water upgrade works. All details, including pipe size and potential Irish Water contributions, are to be confirmed and agreed with Irish Water.

Within the site, it is proposed that a new potable watermain will be provided to serve the proposed development with a single new connection from the proposed watermain located in Centre Park Road. Downstream of the connection point a bulk water meter will be installed as per Irish Water requirements. The water metering strategy for the individual buildings within the site is to be confirmed and agreed with Irish Water during detail design. At this stage it's assumed water meter rooms to serve individual blocks will be provided. External fire hydrants are expected to be served from the potable water network. The location/number of fire hydrants shall be confirmed during the fire certification stage.

Table 2 below provides the breakdown of the water demand as part of the development and shows proposed average and peak demand rates. The peak demand is taken as five times the average daily demand in accordance with the Irish Water Code of Practice for Water Supply.

Unit	People	Area (m ²)	Water Demand Loading		Average Water Demand (DWF) (l/s)	Peak Water Demand (5DWF) (l/s)
			(l/h/d)	(l/100m ² /d)		
Residential	2222 (823 units x 2.7 persons per unit)	-	150	-	5.79	28.93
Commercial	-	3307	-	300	0.28	1.38
Total	-	-	-	-	6.07	30.31


Table 2: Proposed Potable Water Demand

A pre-connection enquiry form (see Appendix B) has been submitted to Irish Water for review outlining the details of the proposed development and anticipated water demands. Irish Water have reviewed this and provided a Confirmation of Feasibility (CoF) letter (see Appendix B). This letter states that upgrade works to the Irish Water infrastructure as part of a strategic project for the South Docks is required in order to serve the proposed development. The current timeline for delivery of these works is end 2022. It should be noted that the estimated water demands within the pre-connection enquiry form are based on the overall masterplan boundary outlined in Figure 1 above.

Irish Water has reviewed the proposal and a Statement of Design Acceptance has been issued (see Appendix C) confirming that Irish Water has no objection to the proposal.

The proposed potable watermain layout for the development is shown on drawing 267365-ARUP-ZZ-ZZ-DR-C-4000.

Appendix A - Surface Water Design Calculations (From Microdrainage)

Ove Arup & Partners International Ltd		Page 1
The Arup Campus Blyth Gate Solihull B90 8AE		
Date 25/03/2022 File Tedcastles Main Site SW...	Designed by Ronan O'Donnell Checked by Richard Murphy	
XP Solutions		Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm











Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	5	PIMP (%)	100
M5-60 (mm)	18.200	Add Flow / Climate Change (%)	0
Ratio R	0.250	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	78.570	0.437	179.9	0.336	5.00	0.0	0.600	o	750	Pipe/Conduit	
1.001	72.788	0.404	180.0	0.285	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.002	28.113	0.141	200.0	0.047	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.003	42.114	0.140	300.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.004	17.536	0.058	300.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
2.000	18.264	0.183	99.8	0.065	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	17.467	0.180	97.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.002	8.724	0.087	100.3	0.050	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.003	8.724	0.100	87.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.005	14.047	0.047	300.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.63	0.825	0.336	0.0	0.0	0.0	2.08	920.4	45.5
1.001	50.00	6.21	0.388	0.620	0.0	0.0	0.0	2.08	920.1	84.0
1.002	50.00	6.45	-0.016	0.667	0.0	0.0	0.0	1.98	872.6	90.4
1.003	50.00	6.88	-0.157	0.667	0.0	0.0	0.0	1.61	711.5	90.4
1.004	50.00	7.07	-0.297	0.667	0.0	0.0	0.0	1.61	711.5	90.4
2.000	50.00	5.23	3.500	0.065	0.0	0.0	0.0	1.31	52.0	8.9
2.001	50.00	5.45	3.317	0.065	0.0	0.0	0.0	1.33	52.8	8.9
2.002	50.00	5.56	1.642	0.115	0.0	0.0	0.0	1.31	51.9	15.6
2.003	50.00	5.67	0.269	0.115	0.0	0.0	0.0	1.40	55.7	15.6
1.005	50.00	7.21	-0.356	0.782	0.0	0.0	0.0	1.61	711.5	105.9




Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	32.527	0.573	56.8	0.050	5.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	32.527	0.473	68.8	0.076	0.00	0.0	0.600	o	225	Pipe/Conduit	
3.002	7.408	0.200	37.0	0.032	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.000	66.742	0.946	70.6	0.104	5.00	0.0	0.600	o	225	Pipe/Conduit	
3.003	3.345	0.020	167.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
5.000	40.390	0.237	170.2	0.154	5.00	0.0	0.600	o	375	Pipe/Conduit	
5.001	25.492	0.170	150.2	0.151	0.00	0.0	0.600	o	375	Pipe/Conduit	
6.000	35.603	0.323	110.2	0.155	5.00	0.0	0.600	o	375	Pipe/Conduit	
5.002	9.081	0.054	168.2	0.080	0.00	0.0	0.600	o	375	Pipe/Conduit	
7.000	16.389	0.095	172.0	0.000	5.00	0.0	0.600	o	225	Pipe/Conduit	
7.001	9.083	0.054	168.2	0.131	0.00	0.0	0.600	o	225	Pipe/Conduit	
8.000	21.964	0.157	140.0	0.000	5.00	0.0	0.600	o	225	Pipe/Conduit	
8.001	8.846	0.053	166.9	0.196	0.00	0.0	0.600	o	225	Pipe/Conduit	
9.000	24.425	0.146	167.3	0.125	5.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.000	50.00	5.31	0.875	0.050	0.0	0.0	0.0	1.74	69.1	6.8
3.001	50.00	5.66	0.302	0.126	0.0	0.0	0.0	1.58	62.8	17.0
3.002	50.00	5.71	-0.171	0.158	0.0	0.0	0.0	2.16	85.7	21.4
4.000	50.00	5.71	0.575	0.104	0.0	0.0	0.0	1.56	62.0	14.0
3.003	50.00	5.77	-0.371	0.262	0.0	0.0	0.0	1.01	40.1	35.5
5.000	50.00	5.49	0.600	0.154	0.0	0.0	0.0	1.39	153.1	20.8
5.001	50.00	5.77	0.363	0.305	0.0	0.0	0.0	1.48	163.0	41.3
6.000	50.00	5.34	0.600	0.155	0.0	0.0	0.0	1.73	190.5	21.0
5.002	50.00	5.88	0.193	0.539	0.0	0.0	0.0	1.39	154.0	73.1
7.000	50.00	5.27	0.600	0.000	0.0	0.0	0.0	0.99	39.5	0.0
7.001	50.00	5.43	0.505	0.131	0.0	0.0	0.0	1.01	40.0	17.8
8.000	50.00	5.33	0.600	0.000	0.0	0.0	0.0	1.10	43.9	0.0
8.001	50.00	5.48	0.443	0.196	0.0	0.0	0.0	1.01	40.1	26.6
9.000	50.00	5.29	0.500	0.125	0.0	0.0	0.0	1.40	154.4	16.9

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
9.001	21.739	0.130	167.2	0.085	0.00	0.0	0.600	o	375	Pipe/Conduit	
9.002	45.870	0.459	100.0	0.033	0.00	0.0	0.600	o	375	Pipe/Conduit	
9.003	2.898	0.019	152.5	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
9.001	50.00	5.55	0.354	0.210	0.0	0.0	0.0	1.40	154.4	28.5
9.002	50.00	5.97	0.224	0.243	0.0	0.0	0.0	1.81	200.1	32.9
9.003	50.00	6.01	-0.235	0.243	0.0	0.0	0.0	1.46	161.8	32.9

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.005		2.100	-0.403	0.000	0	0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.985	23	0.997	45	1.005	67	1.016	89	1.035	111	1.046
2	0.980	24	0.997	46	1.005	68	1.016	90	1.036	112	1.047
3	0.980	25	0.998	47	1.006	69	1.017	91	1.036	113	1.047
4	0.981	26	0.999	48	1.006	70	1.019	92	1.037	114	1.047
5	0.986	27	0.999	49	1.006	71	1.019	93	1.019	115	1.047
6	0.987	28	0.999	50	1.007	72	1.021	94	1.037	116	1.046
7	0.987	29	1.000	51	1.007	73	1.021	95	1.050	117	1.045
8	0.988	30	1.000	52	1.007	74	1.022	96	1.045	118	1.045
9	0.988	31	1.001	53	1.008	75	1.023	97	1.042	119	1.044
10	0.989	32	1.001	54	1.008	76	1.024	98	1.042	120	1.045
11	0.989	33	1.002	55	1.009	77	1.025	99	1.045	121	1.046
12	0.990	34	1.003	56	1.009	78	1.026	100	1.044	122	1.046
13	0.990	35	1.003	57	1.009	79	1.027	101	1.045	123	1.045
14	0.991	36	1.003	58	1.010	80	1.028	102	1.046	124	1.044
15	0.992	37	1.004	59	1.010	81	1.029	103	1.046	125	1.045
16	0.993	38	1.004	60	1.011	82	1.029	104	1.046	126	1.044
17	0.994	39	1.004	61	1.012	83	1.030	105	1.046	127	1.044
18	0.994	40	1.004	62	1.013	84	1.031	106	1.047	128	1.044
19	0.995	41	1.004	63	1.013	85	1.031	107	1.047	129	1.042
20	0.995	42	1.005	64	1.014	86	1.032	108	1.046	130	1.042
21	0.996	43	1.005	65	1.014	87	1.033	109	1.047	131	1.039
22	0.997	44	1.005	66	1.015	88	1.034	110	1.048	132	1.041

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
133	1.039	183	0.991	233	0.907	283	0.683	333	0.226	383	-0.155
134	1.039	184	0.990	234	0.905	284	0.677	334	0.217	384	-0.161
135	1.038	185	0.989	235	0.902	285	0.669	335	0.208	385	-0.168
136	1.038	186	0.988	236	0.900	286	0.662	336	0.200	386	-0.174
137	1.037	187	0.987	237	0.897	287	0.654	337	0.191	387	-0.180
138	1.037	188	0.986	238	0.894	288	0.647	338	0.183	388	-0.187
139	1.037	189	0.985	239	0.891	289	0.639	339	0.174	389	-0.193
140	1.035	190	0.984	240	0.888	290	0.632	340	0.166	390	-0.200
141	1.035	191	0.983	241	0.885	291	0.623	341	0.157	391	-0.206
142	1.034	192	0.982	242	0.882	292	0.613	342	0.149	392	-0.212
143	1.033	193	0.981	243	0.879	293	0.603	343	0.141	393	-0.218
144	1.032	194	0.980	244	0.876	294	0.593	344	0.132	394	-0.224
145	1.031	195	0.978	245	0.873	295	0.582	345	0.124	395	-0.230
146	1.023	196	0.977	246	0.870	296	0.572	346	0.116	396	-0.235
147	1.029	197	0.976	247	0.867	297	0.562	347	0.108	397	-0.241
148	1.028	198	0.975	248	0.864	298	0.552	348	0.100	398	-0.247
149	1.027	199	0.974	249	0.860	299	0.542	349	0.092	399	-0.253
150	1.025	200	0.972	250	0.857	300	0.532	350	0.084	400	-0.258
151	1.024	201	0.971	251	0.853	301	0.522	351	0.076	401	-0.264
152	1.023	202	0.970	252	0.849	302	0.512	352	0.068	402	-0.270
153	1.022	203	0.969	253	0.845	303	0.502	353	0.061	403	-0.276
154	1.021	204	0.968	254	0.840	304	0.492	354	0.053	404	-0.281
155	1.019	205	0.967	255	0.837	305	0.482	355	0.045	405	-0.287
156	1.020	206	0.966	256	0.832	306	0.472	356	0.038	406	-0.293
157	1.019	207	0.965	257	0.827	307	0.462	357	0.030	407	-0.298
158	1.017	208	0.964	258	0.822	308	0.452	358	0.022	408	-0.304
159	1.016	209	0.963	259	0.819	309	0.442	359	0.015	409	-0.309
160	1.015	210	0.962	260	0.814	310	0.432	360	0.007	410	-0.315
161	1.015	211	0.961	261	0.810	311	0.423	361	0.000	411	-0.320
162	1.013	212	0.959	262	0.803	312	0.413	362	-0.008	412	-0.325
163	1.012	213	0.958	263	0.799	313	0.403	363	-0.015	413	-0.331
164	1.011	214	0.957	264	0.793	314	0.394	364	-0.022	414	-0.336
165	1.010	215	0.954	265	0.789	315	0.384	365	-0.029	415	-0.341
166	1.008	216	0.952	266	0.785	316	0.375	366	-0.036	416	-0.347
167	1.008	217	0.949	267	0.779	317	0.366	367	-0.043	417	-0.352
168	1.006	218	0.946	268	0.774	318	0.357	368	-0.051	418	-0.357
169	1.006	219	0.944	269	0.769	319	0.348	369	-0.058	419	-0.362
170	1.005	220	0.941	270	0.764	320	0.339	370	-0.065	420	-0.368
171	1.004	221	0.939	271	0.758	321	0.330	371	-0.073	421	-0.373
172	1.002	222	0.936	272	0.752	322	0.321	372	-0.080	422	-0.378
173	1.001	223	0.933	273	0.746	323	0.312	373	-0.087	423	-0.383
174	1.001	224	0.931	274	0.740	324	0.304	374	-0.095	424	-0.389
175	1.000	225	0.928	275	0.734	325	0.295	375	-0.102	425	-0.394
176	0.999	226	0.926	276	0.728	326	0.286	376	-0.109	426	-0.399
177	0.998	227	0.923	277	0.722	327	0.278	377	-0.116	427	-0.404
178	0.997	228	0.920	278	0.716	328	0.269	378	-0.122	428	-0.409
179	0.996	229	0.917	279	0.710	329	0.260	379	-0.129	429	-0.414
180	0.994	230	0.915	280	0.704	330	0.252	380	-0.136	430	-0.419
181	0.994	231	0.912	281	0.697	331	0.243	381	-0.142	431	-0.424
182	0.992	232	0.910	282	0.690	332	0.234	382	-0.149	432	-0.429

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
433	-0.434	483	-0.642	533	-0.704	583	-0.545	633	-0.185	683	0.074
434	-0.439	484	-0.645	534	-0.704	584	-0.540	634	-0.177	684	0.075
435	-0.444	485	-0.648	535	-0.703	585	-0.534	635	-0.168	685	0.076
436	-0.448	486	-0.650	536	-0.702	586	-0.529	636	-0.160	686	0.076
437	-0.453	487	-0.653	537	-0.701	587	-0.523	637	-0.152	687	0.077
438	-0.458	488	-0.655	538	-0.700	588	-0.517	638	-0.143	688	0.078
439	-0.463	489	-0.658	539	-0.699	589	-0.510	639	-0.135	689	0.078
440	-0.467	490	-0.660	540	-0.697	590	-0.504	640	-0.127	690	0.079
441	-0.472	491	-0.663	541	-0.696	591	-0.497	641	-0.118	691	0.079
442	-0.477	492	-0.665	542	-0.695	592	-0.490	642	-0.110	692	0.080
443	-0.481	493	-0.668	543	-0.693	593	-0.483	643	-0.102	693	0.081
444	-0.486	494	-0.670	544	-0.691	594	-0.477	644	-0.094	694	0.081
445	-0.491	495	-0.672	545	-0.690	595	-0.470	645	-0.086	695	0.081
446	-0.496	496	-0.674	546	-0.688	596	-0.463	646	-0.078	696	0.082
447	-0.500	497	-0.676	547	-0.685	597	-0.456	647	-0.070	697	0.082
448	-0.505	498	-0.678	548	-0.683	598	-0.450	648	-0.063	698	0.083
449	-0.510	499	-0.680	549	-0.681	599	-0.443	649	-0.055	699	0.083
450	-0.515	500	-0.682	550	-0.678	600	-0.437	650	-0.047	700	0.084
451	-0.519	501	-0.684	551	-0.676	601	-0.424	651	-0.040	701	0.084
452	-0.524	502	-0.686	552	-0.673	602	-0.420	652	-0.032	702	0.084
453	-0.528	503	-0.687	553	-0.670	603	-0.411	653	-0.024	703	0.085
454	-0.533	504	-0.689	554	-0.668	604	-0.408	654	-0.017	704	0.085
455	-0.537	505	-0.690	555	-0.665	605	-0.401	655	-0.009	705	0.085
456	-0.541	506	-0.692	556	-0.662	606	-0.395	656	-0.002	706	0.086
457	-0.546	507	-0.694	557	-0.659	607	-0.386	657	0.005	707	0.086
458	-0.550	508	-0.695	558	-0.656	608	-0.379	658	0.013	708	0.086
459	-0.554	509	-0.697	559	-0.653	609	-0.372	659	0.020	709	0.086
460	-0.559	510	-0.698	560	-0.650	610	-0.364	660	0.027	710	0.087
461	-0.563	511	-0.700	561	-0.646	611	-0.357	661	0.029	711	0.087
462	-0.567	512	-0.701	562	-0.642	612	-0.350	662	0.035	712	0.087
463	-0.571	513	-0.702	563	-0.639	613	-0.343	663	0.039	713	0.087
464	-0.575	514	-0.702	564	-0.635	614	-0.335	664	0.042	714	0.088
465	-0.579	515	-0.703	565	-0.631	615	-0.328	665	0.046	715	0.088
466	-0.584	516	-0.704	566	-0.628	616	-0.321	666	0.049	716	0.088
467	-0.587	517	-0.705	567	-0.624	617	-0.314	667	0.051	717	0.088
468	-0.591	518	-0.705	568	-0.620	618	-0.306	668	0.054	718	0.089
469	-0.595	519	-0.706	569	-0.616	619	-0.298	669	0.056	719	0.089
470	-0.599	520	-0.706	570	-0.613	620	-0.290	670	0.058	720	0.089
471	-0.602	521	-0.706	571	-0.609	621	-0.282	671	0.060	721	0.089
472	-0.606	522	-0.707	572	-0.605	622	-0.274	672	0.062	722	0.090
473	-0.609	523	-0.707	573	-0.600	623	-0.266	673	0.063	723	0.090
474	-0.613	524	-0.707	574	-0.595	624	-0.258	674	0.065	724	0.090
475	-0.616	525	-0.708	575	-0.590	625	-0.250	675	0.066	725	0.090
476	-0.620	526	-0.708	576	-0.585	626	-0.242	676	0.067	726	0.090
477	-0.623	527	-0.708	577	-0.579	627	-0.234	677	0.068	727	0.090
478	-0.626	528	-0.707	578	-0.573	628	-0.226	678	0.070	728	0.091
479	-0.630	529	-0.707	579	-0.568	629	-0.218	679	0.071	729	0.091
480	-0.633	530	-0.707	580	-0.562	630	-0.210	680	0.072	730	0.091
481	-0.636	531	-0.706	581	-0.557	631	-0.202	681	0.073	731	0.091
482	-0.639	532	-0.705	582	-0.551	632	-0.194	682	0.073	732	0.091

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
733	0.091	783	0.096	833	0.099	883	0.101	933	0.102	983	0.103
734	0.091	784	0.096	834	0.099	884	0.101	934	0.102	984	0.103
735	0.092	785	0.096	835	0.099	885	0.101	935	0.102	985	0.103
736	0.092	786	0.096	836	0.099	886	0.101	936	0.102	986	0.103
737	0.092	787	0.096	837	0.099	887	0.101	937	0.102	987	0.103
738	0.092	788	0.096	838	0.099	888	0.101	938	0.102	988	0.103
739	0.092	789	0.096	839	0.099	889	0.101	939	0.102	989	0.103
740	0.092	790	0.097	840	0.099	890	0.101	940	0.102	990	0.103
741	0.092	791	0.097	841	0.099	891	0.101	941	0.102	991	0.103
742	0.092	792	0.097	842	0.099	892	0.101	942	0.102	992	0.103
743	0.093	793	0.097	843	0.099	893	0.101	943	0.102	993	0.103
744	0.093	794	0.097	844	0.099	894	0.101	944	0.102	994	0.103
745	0.093	795	0.097	845	0.099	895	0.101	945	0.102	995	0.103
746	0.093	796	0.097	846	0.099	896	0.101	946	0.102	996	0.103
747	0.093	797	0.097	847	0.099	897	0.101	947	0.102	997	0.103
748	0.093	798	0.097	848	0.099	898	0.101	948	0.102	998	0.103
749	0.093	799	0.097	849	0.100	899	0.101	949	0.102	999	0.103
750	0.093	800	0.097	850	0.100	900	0.101	950	0.102	1000	0.103
751	0.093	801	0.097	851	0.100	901	0.101	951	0.102	1001	0.103
752	0.094	802	0.097	852	0.100	902	0.101	952	0.103	1002	0.103
753	0.094	803	0.097	853	0.100	903	0.101	953	0.103	1003	0.103
754	0.094	804	0.097	854	0.100	904	0.101	954	0.103	1004	0.103
755	0.094	805	0.097	855	0.100	905	0.101	955	0.103	1005	0.104
756	0.094	806	0.097	856	0.100	906	0.101	956	0.103	1006	0.104
757	0.094	807	0.098	857	0.100	907	0.101	957	0.103	1007	0.104
758	0.094	808	0.098	858	0.100	908	0.101	958	0.103	1008	0.104
759	0.094	809	0.098	859	0.100	909	0.101	959	0.103	1009	0.104
760	0.094	810	0.098	860	0.100	910	0.102	960	0.103	1010	0.104
761	0.094	811	0.098	861	0.100	911	0.102	961	0.103	1011	0.104
762	0.094	812	0.098	862	0.100	912	0.102	962	0.103	1012	0.102
763	0.095	813	0.098	863	0.100	913	0.102	963	0.103	1013	0.097
764	0.095	814	0.098	864	0.100	914	0.102	964	0.103	1014	0.093
765	0.095	815	0.098	865	0.100	915	0.102	965	0.103	1015	0.089
766	0.095	816	0.098	866	0.100	916	0.102	966	0.103	1016	0.085
767	0.095	817	0.098	867	0.100	917	0.102	967	0.103	1017	0.080
768	0.095	818	0.098	868	0.100	918	0.102	968	0.103	1018	0.074
769	0.095	819	0.098	869	0.100	919	0.102	969	0.103	1019	0.068
770	0.095	820	0.098	870	0.100	920	0.102	970	0.103	1020	0.062
771	0.095	821	0.098	871	0.100	921	0.102	971	0.103	1021	0.055
772	0.095	822	0.098	872	0.100	922	0.102	972	0.103	1022	0.049
773	0.095	823	0.098	873	0.100	923	0.102	973	0.103	1023	0.042
774	0.095	824	0.098	874	0.100	924	0.102	974	0.103	1024	0.035
775	0.095	825	0.098	875	0.100	925	0.102	975	0.103	1025	0.028
776	0.096	826	0.099	876	0.101	926	0.102	976	0.103	1026	0.021
777	0.096	827	0.099	877	0.101	927	0.102	977	0.103	1027	0.014
778	0.096	828	0.099	878	0.101	928	0.102	978	0.103	1028	0.007
779	0.096	829	0.099	879	0.101	929	0.102	979	0.103	1029	0.000
780	0.096	830	0.099	880	0.101	930	0.102	980	0.103	1030	-0.007
781	0.096	831	0.099	881	0.101	931	0.102	981	0.103	1031	-0.014
782	0.096	832	0.099	882	0.101	932	0.102	982	0.103	1032	-0.021

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1033	-0.028	1083	-0.375	1133	-0.646	1183	-0.874	1233	-1.024	1283	-1.027
1034	-0.035	1084	-0.382	1134	-0.651	1184	-0.878	1234	-1.025	1284	-1.026
1035	-0.042	1085	-0.388	1135	-0.656	1185	-0.882	1235	-1.027	1285	-1.025
1036	-0.049	1086	-0.395	1136	-0.661	1186	-0.886	1236	-1.028	1286	-1.024
1037	-0.056	1087	-0.401	1137	-0.666	1187	-0.890	1237	-1.029	1287	-1.024
1038	-0.063	1088	-0.408	1138	-0.672	1188	-0.893	1238	-1.031	1288	-1.023
1039	-0.070	1089	-0.414	1139	-0.677	1189	-0.897	1239	-1.032	1289	-1.022
1040	-0.077	1090	-0.421	1140	-0.682	1190	-0.901	1240	-1.033	1290	-1.021
1041	-0.084	1091	-0.427	1141	-0.687	1191	-0.905	1241	-1.034	1291	-1.021
1042	-0.091	1092	-0.433	1142	-0.691	1192	-0.908	1242	-1.035	1292	-1.020
1043	-0.098	1093	-0.440	1143	-0.696	1193	-0.912	1243	-1.036	1293	-1.019
1044	-0.105	1094	-0.446	1144	-0.701	1194	-0.916	1244	-1.037	1294	-1.019
1045	-0.112	1095	-0.453	1145	-0.706	1195	-0.920	1245	-1.038	1295	-1.018
1046	-0.119	1096	-0.459	1146	-0.711	1196	-0.923	1246	-1.039	1296	-1.017
1047	-0.127	1097	-0.465	1147	-0.716	1197	-0.927	1247	-1.040	1297	-1.016
1048	-0.134	1098	-0.472	1148	-0.720	1198	-0.931	1248	-1.040	1298	-1.016
1049	-0.141	1099	-0.478	1149	-0.725	1199	-0.934	1249	-1.041	1299	-1.015
1050	-0.148	1100	-0.484	1150	-0.730	1200	-0.938	1250	-1.042	1300	-1.015
1051	-0.155	1101	-0.490	1151	-0.735	1201	-0.942	1251	-1.042	1301	-1.014
1052	-0.162	1102	-0.496	1152	-0.739	1202	-0.945	1252	-1.042	1302	-1.013
1053	-0.169	1103	-0.501	1153	-0.744	1203	-0.948	1253	-1.043	1303	-1.013
1054	-0.176	1104	-0.507	1154	-0.749	1204	-0.951	1254	-1.043	1304	-1.012
1055	-0.183	1105	-0.513	1155	-0.754	1205	-0.955	1255	-1.043	1305	-1.011
1056	-0.190	1106	-0.518	1156	-0.758	1206	-0.958	1256	-1.043	1306	-1.011
1057	-0.197	1107	-0.523	1157	-0.763	1207	-0.961	1257	-1.043	1307	-1.010
1058	-0.205	1108	-0.528	1158	-0.768	1208	-0.964	1258	-1.043	1308	-1.010
1059	-0.212	1109	-0.533	1159	-0.772	1209	-0.967	1259	-1.044	1309	-1.009
1060	-0.219	1110	-0.537	1160	-0.777	1210	-0.970	1260	-1.044	1310	-1.008
1061	-0.226	1111	-0.542	1161	-0.781	1211	-0.973	1261	-1.044	1311	-1.008
1062	-0.233	1112	-0.546	1162	-0.786	1212	-0.976	1262	-1.043	1312	-1.007
1063	-0.240	1113	-0.551	1163	-0.790	1213	-0.979	1263	-1.043	1313	-1.007
1064	-0.247	1114	-0.556	1164	-0.795	1214	-0.982	1264	-1.042	1314	-1.006
1065	-0.254	1115	-0.561	1165	-0.799	1215	-0.985	1265	-1.042	1315	-1.005
1066	-0.261	1116	-0.565	1166	-0.804	1216	-0.987	1266	-1.041	1316	-1.005
1067	-0.268	1117	-0.570	1167	-0.808	1217	-0.990	1267	-1.040	1317	-1.004
1068	-0.274	1118	-0.574	1168	-0.812	1218	-0.992	1268	-1.039	1318	-1.004
1069	-0.281	1119	-0.578	1169	-0.817	1219	-0.995	1269	-1.038	1319	-1.003
1070	-0.288	1120	-0.582	1170	-0.821	1220	-0.997	1270	-1.037	1320	-1.003
1071	-0.295	1121	-0.587	1171	-0.826	1221	-1.000	1271	-1.036	1321	-1.002
1072	-0.302	1122	-0.592	1172	-0.830	1222	-1.002	1272	-1.036	1322	-1.002
1073	-0.308	1123	-0.597	1173	-0.834	1223	-1.004	1273	-1.035	1323	-1.001
1074	-0.315	1124	-0.602	1174	-0.838	1224	-1.006	1274	-1.034	1324	-1.000
1075	-0.322	1125	-0.607	1175	-0.842	1225	-1.008	1275	-1.033	1325	-1.000
1076	-0.329	1126	-0.611	1176	-0.846	1226	-1.010	1276	-1.032	1326	-0.999
1077	-0.335	1127	-0.616	1177	-0.850	1227	-1.012	1277	-1.031	1327	-0.999
1078	-0.342	1128	-0.621	1178	-0.854	1228	-1.014	1278	-1.030	1328	-0.998
1079	-0.349	1129	-0.626	1179	-0.858	1229	-1.017	1279	-1.030	1329	-0.998
1080	-0.356	1130	-0.631	1180	-0.862	1230	-1.019	1280	-1.029	1330	-0.997
1081	-0.362	1131	-0.636	1181	-0.866	1231	-1.021	1281	-1.028	1331	-0.997
1082	-0.369	1132	-0.641	1182	-0.870	1232	-1.022	1282	-1.027	1332	-0.996

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1333	-0.996	1351	-0.988	1369	-0.982	1387	-0.976	1405	-0.972	1423	-0.968
1334	-0.996	1352	-0.988	1370	-0.981	1388	-0.976	1406	-0.971	1424	-0.968
1335	-0.995	1353	-0.987	1371	-0.981	1389	-0.976	1407	-0.971	1425	-0.967
1336	-0.995	1354	-0.987	1372	-0.981	1390	-0.975	1408	-0.971	1426	-0.967
1337	-0.994	1355	-0.987	1373	-0.980	1391	-0.975	1409	-0.971	1427	-0.967
1338	-0.994	1356	-0.986	1374	-0.980	1392	-0.975	1410	-0.970	1428	-0.967
1339	-0.993	1357	-0.986	1375	-0.980	1393	-0.975	1411	-0.970	1429	-0.967
1340	-0.993	1358	-0.986	1376	-0.979	1394	-0.974	1412	-0.970	1430	-0.966
1341	-0.992	1359	-0.985	1377	-0.979	1395	-0.974	1413	-0.970	1431	-0.966
1342	-0.992	1360	-0.985	1378	-0.979	1396	-0.974	1414	-0.970	1432	-0.966
1343	-0.991	1361	-0.984	1379	-0.979	1397	-0.974	1415	-0.969	1433	-0.966
1344	-0.991	1362	-0.984	1380	-0.978	1398	-0.973	1416	-0.969	1434	-0.966
1345	-0.991	1363	-0.984	1381	-0.978	1399	-0.973	1417	-0.969	1435	-0.965
1346	-0.990	1364	-0.983	1382	-0.978	1400	-0.973	1418	-0.969	1436	-0.965
1347	-0.990	1365	-0.983	1383	-0.977	1401	-0.973	1419	-0.969	1437	-0.965
1348	-0.989	1366	-0.983	1384	-0.977	1402	-0.972	1420	-0.968	1438	-0.965
1349	-0.989	1367	-0.982	1385	-0.977	1403	-0.972	1421	-0.968	1439	-0.965
1350	-0.989	1368	-0.982	1386	-0.977	1404	-0.972	1422	-0.968	1440	0.000

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
3.003		1.300	-0.391	0.000	0
Datum (m)		0.000	Offset (mins)		0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.031	18	0.087	35	0.038	52	-0.050	69	-0.143	86	-0.230
2	0.037	19	0.089	36	0.033	53	-0.055	70	-0.148	87	-0.235
3	0.043	20	0.091	37	0.028	54	-0.061	71	-0.153	88	-0.240
4	0.048	21	0.093	38	0.023	55	-0.066	72	-0.159	89	-0.245
5	0.052	22	0.090	39	0.018	56	-0.071	73	-0.164	90	-0.249
6	0.056	23	0.087	40	0.013	57	-0.077	74	-0.169	91	-0.254
7	0.059	24	0.085	41	0.008	58	-0.082	75	-0.175	92	-0.259
8	0.062	25	0.081	42	0.003	59	-0.088	76	-0.180	93	-0.264
9	0.065	26	0.078	43	-0.002	60	-0.094	77	-0.185	94	-0.269
10	0.068	27	0.074	44	-0.008	61	-0.099	78	-0.190	95	-0.274
11	0.071	28	0.070	45	-0.013	62	-0.105	79	-0.195	96	-0.278
12	0.074	29	0.065	46	-0.018	63	-0.110	80	-0.200	97	-0.283
13	0.076	30	0.061	47	-0.023	64	-0.116	81	-0.205	98	-0.286
14	0.079	31	0.056	48	-0.029	65	-0.121	82	-0.210	99	-0.289
15	0.081	32	0.052	49	-0.034	66	-0.126	83	-0.215	100	-0.292
16	0.083	33	0.047	50	-0.039	67	-0.132	84	-0.220	101	-0.295
17	0.085	34	0.043	51	-0.044	68	-0.137	85	-0.225	102	-0.298

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
103	-0.302	153	-0.459	203	-0.550	253	-0.521	303	-0.287	353	0.152
104	-0.305	154	-0.462	204	-0.551	254	-0.519	304	-0.280	354	0.161
105	-0.309	155	-0.464	205	-0.552	255	-0.517	305	-0.273	355	0.170
106	-0.313	156	-0.467	206	-0.553	256	-0.515	306	-0.265	356	0.178
107	-0.316	157	-0.469	207	-0.554	257	-0.512	307	-0.257	357	0.187
108	-0.320	158	-0.472	208	-0.555	258	-0.509	308	-0.250	358	0.196
109	-0.324	159	-0.475	209	-0.556	259	-0.506	309	-0.242	359	0.205
110	-0.328	160	-0.477	210	-0.556	260	-0.503	310	-0.234	360	0.214
111	-0.331	161	-0.480	211	-0.557	261	-0.499	311	-0.226	361	0.223
112	-0.335	162	-0.482	212	-0.558	262	-0.496	312	-0.218	362	0.232
113	-0.339	163	-0.485	213	-0.558	263	-0.493	313	-0.210	363	0.241
114	-0.343	164	-0.487	214	-0.558	264	-0.489	314	-0.201	364	0.250
115	-0.346	165	-0.489	215	-0.558	265	-0.486	315	-0.192	365	0.259
116	-0.350	166	-0.491	216	-0.558	266	-0.482	316	-0.183	366	0.268
117	-0.354	167	-0.492	217	-0.558	267	-0.479	317	-0.174	367	0.278
118	-0.358	168	-0.493	218	-0.558	268	-0.475	318	-0.164	368	0.287
119	-0.362	169	-0.495	219	-0.558	269	-0.471	319	-0.156	369	0.296
120	-0.364	170	-0.496	220	-0.558	270	-0.468	320	-0.147	370	0.306
121	-0.367	171	-0.498	221	-0.558	271	-0.464	321	-0.138	371	0.315
122	-0.369	172	-0.500	222	-0.558	272	-0.460	322	-0.129	372	0.324
123	-0.371	173	-0.501	223	-0.558	273	-0.456	323	-0.120	373	0.334
124	-0.373	174	-0.503	224	-0.557	274	-0.451	324	-0.111	374	0.343
125	-0.376	175	-0.505	225	-0.557	275	-0.447	325	-0.102	375	0.353
126	-0.379	176	-0.507	226	-0.557	276	-0.442	326	-0.093	376	0.363
127	-0.381	177	-0.509	227	-0.556	277	-0.437	327	-0.085	377	0.372
128	-0.384	178	-0.511	228	-0.556	278	-0.432	328	-0.076	378	0.381
129	-0.387	179	-0.513	229	-0.555	279	-0.428	329	-0.067	379	0.391
130	-0.390	180	-0.515	230	-0.554	280	-0.422	330	-0.059	380	0.400
131	-0.393	181	-0.517	231	-0.554	281	-0.417	331	-0.050	381	0.409
132	-0.396	182	-0.519	232	-0.553	282	-0.412	332	-0.042	382	0.418
133	-0.399	183	-0.521	233	-0.552	283	-0.407	333	-0.033	383	0.428
134	-0.402	184	-0.522	234	-0.551	284	-0.402	334	-0.024	384	0.436
135	-0.405	185	-0.524	235	-0.550	285	-0.396	335	-0.015	385	0.445
136	-0.409	186	-0.526	236	-0.549	286	-0.391	336	-0.006	386	0.455
137	-0.412	187	-0.528	237	-0.548	287	-0.385	337	0.002	387	0.464
138	-0.415	188	-0.529	238	-0.547	288	-0.380	338	0.011	388	0.473
139	-0.418	189	-0.531	239	-0.546	289	-0.374	339	0.020	389	0.482
140	-0.421	190	-0.533	240	-0.546	290	-0.368	340	0.029	390	0.491
141	-0.424	191	-0.534	241	-0.545	291	-0.362	341	0.039	391	0.501
142	-0.427	192	-0.536	242	-0.543	292	-0.356	342	0.048	392	0.510
143	-0.430	193	-0.538	243	-0.541	293	-0.349	343	0.058	393	0.519
144	-0.433	194	-0.539	244	-0.540	294	-0.343	344	0.068	394	0.528
145	-0.436	195	-0.541	245	-0.538	295	-0.337	345	0.078	395	0.538
146	-0.439	196	-0.543	246	-0.536	296	-0.331	346	0.088	396	0.547
147	-0.442	197	-0.544	247	-0.534	297	-0.325	347	0.097	397	0.556
148	-0.444	198	-0.545	248	-0.532	298	-0.319	348	0.107	398	0.566
149	-0.447	199	-0.546	249	-0.530	299	-0.313	349	0.116	399	0.575
150	-0.450	200	-0.547	250	-0.528	300	-0.307	350	0.125	400	0.584
151	-0.453	201	-0.548	251	-0.526	301	-0.301	351	0.134	401	0.594
152	-0.456	202	-0.549	252	-0.523	302	-0.294	352	0.143	402	0.603

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
403	0.613	453	0.894	503	0.997	553	1.021	603	1.045	653	1.001
404	0.623	454	0.897	504	0.997	554	1.022	604	1.044	654	1.001
405	0.633	455	0.899	505	0.998	555	1.023	605	1.045	655	1.000
406	0.643	456	0.902	506	0.999	556	1.024	606	1.044	656	0.999
407	0.653	457	0.906	507	0.999	557	1.025	607	1.044	657	0.998
408	0.664	458	0.909	508	0.999	558	1.026	608	1.044	658	0.997
409	0.676	459	0.912	509	1.000	559	1.027	609	1.042	659	0.996
410	0.687	460	0.915	510	1.000	560	1.028	610	1.042	660	0.994
411	0.699	461	0.919	511	1.001	561	1.029	611	1.039	661	0.994
412	0.708	462	0.922	512	1.001	562	1.029	612	1.041	662	0.992
413	0.716	463	0.926	513	1.002	563	1.030	613	1.039	663	0.991
414	0.724	464	0.929	514	1.003	564	1.031	614	1.039	664	0.990
415	0.731	465	0.933	515	1.003	565	1.031	615	1.038	665	0.989
416	0.739	466	0.936	516	1.003	566	1.032	616	1.038	666	0.988
417	0.747	467	0.940	517	1.004	567	1.033	617	1.037	667	0.987
418	0.754	468	0.943	518	1.004	568	1.034	618	1.037	668	0.986
419	0.759	469	0.946	519	1.004	569	1.035	619	1.037	669	0.985
420	0.766	470	0.950	520	1.004	570	1.036	620	1.035	670	0.984
421	0.772	471	0.953	521	1.004	571	1.036	621	1.035	671	0.983
422	0.779	472	0.957	522	1.005	572	1.037	622	1.034	672	0.982
423	0.785	473	0.960	523	1.005	573	1.019	623	1.033	673	0.981
424	0.791	474	0.963	524	1.005	574	1.037	624	1.032	674	0.980
425	0.795	475	0.967	525	1.005	575	1.050	625	1.031	675	0.978
426	0.799	476	0.970	526	1.005	576	1.045	626	1.023	676	0.977
427	0.803	477	0.973	527	1.006	577	1.042	627	1.029	677	0.976
428	0.806	478	0.976	528	1.006	578	1.042	628	1.028	678	0.975
429	0.809	479	0.979	529	1.006	579	1.045	629	1.027	679	0.974
430	0.812	480	0.982	530	1.007	580	1.044	630	1.025	680	0.972
431	0.814	481	0.985	531	1.007	581	1.045	631	1.024	681	0.971
432	0.817	482	0.980	532	1.007	582	1.046	632	1.023	682	0.970
433	0.821	483	0.980	533	1.008	583	1.046	633	1.022	683	0.969
434	0.824	484	0.981	534	1.008	584	1.046	634	1.021	684	0.968
435	0.828	485	0.986	535	1.009	585	1.046	635	1.019	685	0.967
436	0.832	486	0.987	536	1.009	586	1.047	636	1.020	686	0.966
437	0.835	487	0.987	537	1.009	587	1.047	637	1.019	687	0.965
438	0.838	488	0.988	538	1.010	588	1.046	638	1.017	688	0.964
439	0.842	489	0.988	539	1.010	589	1.047	639	1.016	689	0.963
440	0.842	490	0.989	540	1.011	590	1.048	640	1.015	690	0.962
441	0.845	491	0.989	541	1.012	591	1.046	641	1.015	691	0.961
442	0.850	492	0.990	542	1.013	592	1.047	642	1.013	692	0.959
443	0.856	493	0.990	543	1.013	593	1.047	643	1.012	693	0.958
444	0.863	494	0.991	544	1.014	594	1.047	644	1.011	694	0.957
445	0.869	495	0.992	545	1.014	595	1.047	645	1.010	695	0.954
446	0.874	496	0.993	546	1.015	596	1.046	646	1.008	696	0.952
447	0.879	497	0.994	547	1.016	597	1.045	647	1.008	697	0.949
448	0.883	498	0.994	548	1.016	598	1.045	648	1.006	698	0.946
449	0.886	499	0.995	549	1.017	599	1.044	649	1.006	699	0.944
450	0.888	500	0.995	550	1.019	600	1.045	650	1.005	700	0.941
451	0.889	501	0.996	551	1.019	601	1.046	651	1.004	701	0.939
452	0.892	502	0.997	552	1.021	602	1.046	652	1.002	702	0.936

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
703	0.933	753	0.740	803	0.304	853	-0.095	903	-0.389	953	-0.613
704	0.931	754	0.734	804	0.295	854	-0.102	904	-0.394	954	-0.616
705	0.928	755	0.728	805	0.286	855	-0.109	905	-0.399	955	-0.620
706	0.926	756	0.722	806	0.278	856	-0.116	906	-0.404	956	-0.623
707	0.923	757	0.716	807	0.269	857	-0.122	907	-0.409	957	-0.626
708	0.920	758	0.710	808	0.260	858	-0.129	908	-0.414	958	-0.630
709	0.917	759	0.704	809	0.252	859	-0.136	909	-0.419	959	-0.633
710	0.915	760	0.697	810	0.243	860	-0.142	910	-0.424	960	-0.636
711	0.912	761	0.690	811	0.234	861	-0.149	911	-0.429	961	-0.639
712	0.910	762	0.683	812	0.226	862	-0.155	912	-0.434	962	-0.642
713	0.907	763	0.677	813	0.217	863	-0.161	913	-0.439	963	-0.645
714	0.905	764	0.669	814	0.208	864	-0.168	914	-0.444	964	-0.648
715	0.902	765	0.662	815	0.200	865	-0.174	915	-0.448	965	-0.650
716	0.900	766	0.654	816	0.191	866	-0.180	916	-0.453	966	-0.653
717	0.897	767	0.647	817	0.183	867	-0.187	917	-0.458	967	-0.655
718	0.894	768	0.639	818	0.174	868	-0.193	918	-0.463	968	-0.658
719	0.891	769	0.632	819	0.166	869	-0.200	919	-0.467	969	-0.660
720	0.888	770	0.623	820	0.157	870	-0.206	920	-0.472	970	-0.663
721	0.882	771	0.613	821	0.149	871	-0.212	921	-0.477	971	-0.665
722	0.879	772	0.603	822	0.141	872	-0.218	922	-0.481	972	-0.668
723	0.876	773	0.593	823	0.132	873	-0.224	923	-0.486	973	-0.670
724	0.873	774	0.582	824	0.124	874	-0.230	924	-0.491	974	-0.672
725	0.870	775	0.572	825	0.116	875	-0.235	925	-0.496	975	-0.674
726	0.867	776	0.562	826	0.108	876	-0.241	926	-0.500	976	-0.676
727	0.864	777	0.552	827	0.100	877	-0.247	927	-0.505	977	-0.678
728	0.860	778	0.542	828	0.092	878	-0.253	928	-0.510	978	-0.680
729	0.857	779	0.532	829	0.084	879	-0.258	929	-0.515	979	-0.682
730	0.853	780	0.522	830	0.076	880	-0.264	930	-0.519	980	-0.684
731	0.849	781	0.512	831	0.068	881	-0.270	931	-0.524	981	-0.686
732	0.845	782	0.502	832	0.061	882	-0.276	932	-0.528	982	-0.687
733	0.840	783	0.492	833	0.053	883	-0.281	933	-0.533	983	-0.689
734	0.837	784	0.482	834	0.045	884	-0.287	934	-0.537	984	-0.690
735	0.832	785	0.472	835	0.038	885	-0.293	935	-0.541	985	-0.692
736	0.827	786	0.462	836	0.030	886	-0.298	936	-0.546	986	-0.694
737	0.822	787	0.452	837	0.022	887	-0.304	937	-0.550	987	-0.695
738	0.819	788	0.442	838	0.015	888	-0.309	938	-0.554	988	-0.697
739	0.814	789	0.432	839	0.007	889	-0.315	939	-0.559	989	-0.698
740	0.810	790	0.423	840	0.000	890	-0.320	940	-0.563	990	-0.700
741	0.803	791	0.413	841	-0.008	891	-0.325	941	-0.567	991	-0.701
742	0.799	792	0.403	842	-0.015	892	-0.331	942	-0.571	992	-0.702
743	0.793	793	0.394	843	-0.022	893	-0.336	943	-0.575	993	-0.702
744	0.789	794	0.384	844	-0.029	894	-0.341	944	-0.579	994	-0.703
745	0.785	795	0.375	845	-0.036	895	-0.347	945	-0.584	995	-0.704
746	0.779	796	0.366	846	-0.043	896	-0.352	946	-0.587	996	-0.705
747	0.774	797	0.357	847	-0.051	897	-0.357	947	-0.591	997	-0.705
748	0.769	798	0.348	848	-0.058	898	-0.362	948	-0.595	998	-0.706
749	0.764	799	0.339	849	-0.065	899	-0.368	949	-0.599	999	-0.706
750	0.758	800	0.330	850	-0.073	900	-0.373	950	-0.602	1000	-0.706
751	0.752	801	0.321	851	-0.080	901	-0.378	951	-0.606	1001	-0.707
752	0.746	802	0.312	852	-0.087	902	-0.383	952	-0.609	1002	-0.707

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1003	-0.707	1053	-0.595	1103	-0.258	1153	0.065	1203	0.090	1253	0.095
1004	-0.708	1054	-0.590	1104	-0.250	1154	0.066	1204	0.090	1254	0.095
1005	-0.708	1055	-0.585	1105	-0.242	1155	0.067	1205	0.090	1255	0.095
1006	-0.708	1056	-0.579	1106	-0.234	1156	0.068	1206	0.090	1256	0.096
1007	-0.707	1057	-0.573	1107	-0.226	1157	0.070	1207	0.090	1257	0.096
1008	-0.707	1058	-0.568	1108	-0.218	1158	0.071	1208	0.091	1258	0.096
1009	-0.707	1059	-0.562	1109	-0.210	1159	0.072	1209	0.091	1259	0.096
1010	-0.706	1060	-0.557	1110	-0.202	1160	0.073	1210	0.091	1260	0.096
1011	-0.705	1061	-0.551	1111	-0.194	1161	0.073	1211	0.091	1261	0.096
1012	-0.704	1062	-0.545	1112	-0.185	1162	0.074	1212	0.091	1262	0.096
1013	-0.704	1063	-0.540	1113	-0.177	1163	0.075	1213	0.091	1263	0.096
1014	-0.703	1064	-0.534	1114	-0.168	1164	0.076	1214	0.091	1264	0.096
1015	-0.702	1065	-0.529	1115	-0.160	1165	0.076	1215	0.092	1265	0.096
1016	-0.701	1066	-0.523	1116	-0.152	1166	0.077	1216	0.092	1266	0.096
1017	-0.700	1067	-0.517	1117	-0.143	1167	0.078	1217	0.092	1267	0.096
1018	-0.699	1068	-0.510	1118	-0.135	1168	0.078	1218	0.092	1268	0.096
1019	-0.697	1069	-0.504	1119	-0.127	1169	0.079	1219	0.092	1269	0.096
1020	-0.696	1070	-0.497	1120	-0.118	1170	0.079	1220	0.092	1270	0.097
1021	-0.695	1071	-0.490	1121	-0.110	1171	0.080	1221	0.092	1271	0.097
1022	-0.693	1072	-0.483	1122	-0.102	1172	0.081	1222	0.092	1272	0.097
1023	-0.691	1073	-0.477	1123	-0.094	1173	0.081	1223	0.093	1273	0.097
1024	-0.690	1074	-0.470	1124	-0.086	1174	0.081	1224	0.093	1274	0.097
1025	-0.688	1075	-0.463	1125	-0.078	1175	0.082	1225	0.093	1275	0.097
1026	-0.685	1076	-0.456	1126	-0.070	1176	0.082	1226	0.093	1276	0.097
1027	-0.683	1077	-0.450	1127	-0.063	1177	0.083	1227	0.093	1277	0.097
1028	-0.681	1078	-0.443	1128	-0.055	1178	0.083	1228	0.093	1278	0.097
1029	-0.678	1079	-0.437	1129	-0.047	1179	0.084	1229	0.093	1279	0.097
1030	-0.676	1080	-0.424	1130	-0.040	1180	0.084	1230	0.093	1280	0.097
1031	-0.673	1081	-0.420	1131	-0.032	1181	0.084	1231	0.093	1281	0.097
1032	-0.670	1082	-0.411	1132	-0.024	1182	0.085	1232	0.094	1282	0.097
1033	-0.668	1083	-0.408	1133	-0.017	1183	0.085	1233	0.094	1283	0.097
1034	-0.665	1084	-0.401	1134	-0.009	1184	0.085	1234	0.094	1284	0.097
1035	-0.662	1085	-0.395	1135	-0.002	1185	0.086	1235	0.094	1285	0.097
1036	-0.659	1086	-0.386	1136	0.005	1186	0.086	1236	0.094	1286	0.097
1037	-0.656	1087	-0.379	1137	0.013	1187	0.086	1237	0.094	1287	0.098
1038	-0.653	1088	-0.372	1138	0.020	1188	0.086	1238	0.094	1288	0.098
1039	-0.650	1089	-0.364	1139	0.027	1189	0.087	1239	0.094	1289	0.098
1040	-0.646	1090	-0.357	1140	0.029	1190	0.087	1240	0.094	1290	0.098
1041	-0.642	1091	-0.350	1141	0.035	1191	0.087	1241	0.094	1291	0.098
1042	-0.639	1092	-0.343	1142	0.039	1192	0.087	1242	0.094	1292	0.098
1043	-0.635	1093	-0.335	1143	0.042	1193	0.088	1243	0.095	1293	0.098
1044	-0.631	1094	-0.328	1144	0.046	1194	0.088	1244	0.095	1294	0.098
1045	-0.628	1095	-0.321	1145	0.049	1195	0.088	1245	0.095	1295	0.098
1046	-0.624	1096	-0.314	1146	0.051	1196	0.088	1246	0.095	1296	0.098
1047	-0.620	1097	-0.306	1147	0.054	1197	0.089	1247	0.095	1297	0.098
1048	-0.616	1098	-0.298	1148	0.056	1198	0.089	1248	0.095	1298	0.098
1049	-0.613	1099	-0.290	1149	0.058	1199	0.089	1249	0.095	1299	0.098
1050	-0.609	1100	-0.282	1150	0.060	1200	0.089	1250	0.095	1300	0.098
1051	-0.605	1101	-0.274	1151	0.062	1201	0.089	1251	0.095	1301	0.098
1052	-0.600	1102	-0.266	1152	0.063	1202	0.090	1252	0.095	1302	0.098

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1303	0.098	1326	0.099	1349	0.100	1372	0.101	1395	0.102	1418	0.102
1304	0.098	1327	0.099	1350	0.100	1373	0.101	1396	0.102	1419	0.102
1305	0.098	1328	0.099	1351	0.100	1374	0.101	1397	0.102	1420	0.102
1306	0.099	1329	0.100	1352	0.100	1375	0.101	1398	0.102	1421	0.102
1307	0.099	1330	0.100	1353	0.100	1376	0.101	1399	0.102	1422	0.102
1308	0.099	1331	0.100	1354	0.100	1377	0.101	1400	0.102	1423	0.102
1309	0.099	1332	0.100	1355	0.100	1378	0.101	1401	0.102	1424	0.102
1310	0.099	1333	0.100	1356	0.101	1379	0.101	1402	0.102	1425	0.102
1311	0.099	1334	0.100	1357	0.101	1380	0.101	1403	0.102	1426	0.102
1312	0.099	1335	0.100	1358	0.101	1381	0.101	1404	0.102	1427	0.102
1313	0.099	1336	0.100	1359	0.101	1382	0.101	1405	0.102	1428	0.102
1314	0.099	1337	0.100	1360	0.101	1383	0.101	1406	0.102	1429	0.102
1315	0.099	1338	0.100	1361	0.101	1384	0.101	1407	0.102	1430	0.102
1316	0.099	1339	0.100	1362	0.101	1385	0.101	1408	0.102	1431	0.102
1317	0.099	1340	0.100	1363	0.101	1386	0.101	1409	0.102	1432	0.103
1318	0.099	1341	0.100	1364	0.101	1387	0.101	1410	0.102	1433	0.103
1319	0.099	1342	0.100	1365	0.101	1388	0.101	1411	0.102	1434	0.103
1320	0.099	1343	0.100	1366	0.101	1389	0.101	1412	0.102	1435	0.103
1321	0.099	1344	0.100	1367	0.101	1390	0.102	1413	0.102	1436	0.103
1322	0.099	1345	0.100	1368	0.101	1391	0.102	1414	0.102	1437	0.103
1323	0.099	1346	0.100	1369	0.101	1392	0.102	1415	0.102	1438	0.103
1324	0.099	1347	0.100	1370	0.101	1393	0.102	1416	0.102	1439	0.103
1325	0.099	1348	0.100	1371	0.101	1394	0.102	1417	0.102	1440	0.000

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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5.002 5.300 0.139 0.000 0 0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.985	13	0.990	25	0.998	37	1.004	49	1.006	61	1.012
2	0.980	14	0.991	26	0.999	38	1.004	50	1.007	62	1.013
3	0.980	15	0.992	27	0.999	39	1.004	51	1.007	63	1.013
4	0.981	16	0.993	28	0.999	40	1.004	52	1.007	64	1.014
5	0.986	17	0.994	29	1.000	41	1.004	53	1.008	65	1.014
6	0.987	18	0.994	30	1.000	42	1.005	54	1.008	66	1.015
7	0.987	19	0.995	31	1.001	43	1.005	55	1.009	67	1.016
8	0.988	20	0.995	32	1.001	44	1.005	56	1.009	68	1.016
9	0.988	21	0.996	33	1.002	45	1.005	57	1.009	69	1.017
10	0.989	22	0.997	34	1.003	46	1.005	58	1.010	70	1.019
11	0.989	23	0.997	35	1.003	47	1.006	59	1.010	71	1.019
12	0.990	24	0.997	36	1.003	48	1.006	60	1.011	72	1.021

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
73	1.021	123	1.045	173	1.001	223	0.933	273	0.746	323	0.312
74	1.022	124	1.044	174	1.001	224	0.931	274	0.740	324	0.304
75	1.023	125	1.045	175	1.000	225	0.928	275	0.734	325	0.295
76	1.024	126	1.044	176	0.999	226	0.926	276	0.728	326	0.286
77	1.025	127	1.044	177	0.998	227	0.923	277	0.722	327	0.278
78	1.026	128	1.044	178	0.997	228	0.920	278	0.716	328	0.269
79	1.027	129	1.042	179	0.996	229	0.917	279	0.710	329	0.260
80	1.028	130	1.042	180	0.994	230	0.915	280	0.704	330	0.252
81	1.029	131	1.039	181	0.994	231	0.912	281	0.697	331	0.243
82	1.029	132	1.041	182	0.992	232	0.910	282	0.690	332	0.234
83	1.030	133	1.039	183	0.991	233	0.907	283	0.683	333	0.226
84	1.031	134	1.039	184	0.990	234	0.905	284	0.677	334	0.217
85	1.031	135	1.038	185	0.989	235	0.902	285	0.669	335	0.208
86	1.032	136	1.038	186	0.988	236	0.900	286	0.662	336	0.200
87	1.033	137	1.037	187	0.987	237	0.897	287	0.654	337	0.191
88	1.034	138	1.037	188	0.986	238	0.894	288	0.647	338	0.183
89	1.035	139	1.037	189	0.985	239	0.891	289	0.639	339	0.174
90	1.036	140	1.035	190	0.984	240	0.888	290	0.632	340	0.166
91	1.036	141	1.035	191	0.983	241	0.885	291	0.623	341	0.157
92	1.037	142	1.034	192	0.982	242	0.882	292	0.613	342	0.149
93	1.019	143	1.033	193	0.981	243	0.879	293	0.603	343	0.141
94	1.037	144	1.032	194	0.980	244	0.876	294	0.593	344	0.132
95	1.050	145	1.031	195	0.978	245	0.873	295	0.582	345	0.124
96	1.045	146	1.023	196	0.977	246	0.870	296	0.572	346	0.116
97	1.042	147	1.029	197	0.976	247	0.867	297	0.562	347	0.108
98	1.042	148	1.028	198	0.975	248	0.864	298	0.552	348	0.100
99	1.045	149	1.027	199	0.974	249	0.860	299	0.542	349	0.092
100	1.044	150	1.025	200	0.972	250	0.857	300	0.532	350	0.084
101	1.045	151	1.024	201	0.971	251	0.853	301	0.522	351	0.076
102	1.046	152	1.023	202	0.970	252	0.849	302	0.512	352	0.068
103	1.046	153	1.022	203	0.969	253	0.845	303	0.502	353	0.061
104	1.046	154	1.021	204	0.968	254	0.840	304	0.492	354	0.053
105	1.046	155	1.019	205	0.967	255	0.837	305	0.482	355	0.045
106	1.047	156	1.020	206	0.966	256	0.832	306	0.472	356	0.038
107	1.047	157	1.019	207	0.965	257	0.827	307	0.462	357	0.030
108	1.046	158	1.017	208	0.964	258	0.822	308	0.452	358	0.022
109	1.047	159	1.016	209	0.963	259	0.819	309	0.442	359	0.015
110	1.048	160	1.015	210	0.962	260	0.814	310	0.432	360	0.007
111	1.046	161	1.015	211	0.961	261	0.810	311	0.423	361	0.000
112	1.047	162	1.013	212	0.959	262	0.803	312	0.413	362	-0.008
113	1.047	163	1.012	213	0.958	263	0.799	313	0.403	363	-0.015
114	1.047	164	1.011	214	0.957	264	0.793	314	0.394	364	-0.022
115	1.047	165	1.010	215	0.954	265	0.789	315	0.384	365	-0.029
116	1.046	166	1.008	216	0.952	266	0.785	316	0.375	366	-0.036
117	1.045	167	1.008	217	0.949	267	0.779	317	0.366	367	-0.043
118	1.045	168	1.006	218	0.946	268	0.774	318	0.357	368	-0.051
119	1.044	169	1.006	219	0.944	269	0.769	319	0.348	369	-0.058
120	1.045	170	1.005	220	0.941	270	0.764	320	0.339	370	-0.065
121	1.046	171	1.004	221	0.939	271	0.758	321	0.330	371	-0.073
122	1.046	172	1.002	222	0.936	272	0.752	322	0.321	372	-0.080

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
373	-0.087	423	-0.383	473	-0.609	523	-0.707	573	-0.600	623	-0.266
374	-0.095	424	-0.389	474	-0.613	524	-0.707	574	-0.595	624	-0.258
375	-0.102	425	-0.394	475	-0.616	525	-0.708	575	-0.590	625	-0.250
376	-0.109	426	-0.399	476	-0.620	526	-0.708	576	-0.585	626	-0.242
377	-0.116	427	-0.404	477	-0.623	527	-0.708	577	-0.579	627	-0.234
378	-0.122	428	-0.409	478	-0.626	528	-0.707	578	-0.573	628	-0.226
379	-0.129	429	-0.414	479	-0.630	529	-0.707	579	-0.568	629	-0.218
380	-0.136	430	-0.419	480	-0.633	530	-0.707	580	-0.562	630	-0.210
381	-0.142	431	-0.424	481	-0.636	531	-0.706	581	-0.557	631	-0.202
382	-0.149	432	-0.429	482	-0.639	532	-0.705	582	-0.551	632	-0.194
383	-0.155	433	-0.434	483	-0.642	533	-0.704	583	-0.545	633	-0.185
384	-0.161	434	-0.439	484	-0.645	534	-0.704	584	-0.540	634	-0.177
385	-0.168	435	-0.444	485	-0.648	535	-0.703	585	-0.534	635	-0.168
386	-0.174	436	-0.448	486	-0.650	536	-0.702	586	-0.529	636	-0.160
387	-0.180	437	-0.453	487	-0.653	537	-0.701	587	-0.523	637	-0.152
388	-0.187	438	-0.458	488	-0.655	538	-0.700	588	-0.517	638	-0.143
389	-0.193	439	-0.463	489	-0.658	539	-0.699	589	-0.510	639	-0.135
390	-0.200	440	-0.467	490	-0.660	540	-0.697	590	-0.504	640	-0.127
391	-0.206	441	-0.472	491	-0.663	541	-0.696	591	-0.497	641	-0.118
392	-0.212	442	-0.477	492	-0.665	542	-0.695	592	-0.490	642	-0.110
393	-0.218	443	-0.481	493	-0.668	543	-0.693	593	-0.483	643	-0.102
394	-0.224	444	-0.486	494	-0.670	544	-0.691	594	-0.477	644	-0.094
395	-0.230	445	-0.491	495	-0.672	545	-0.690	595	-0.470	645	-0.086
396	-0.235	446	-0.496	496	-0.674	546	-0.688	596	-0.463	646	-0.078
397	-0.241	447	-0.500	497	-0.676	547	-0.685	597	-0.456	647	-0.070
398	-0.247	448	-0.505	498	-0.678	548	-0.683	598	-0.450	648	-0.063
399	-0.253	449	-0.510	499	-0.680	549	-0.681	599	-0.443	649	-0.055
400	-0.258	450	-0.515	500	-0.682	550	-0.678	600	-0.437	650	-0.047
401	-0.264	451	-0.519	501	-0.684	551	-0.676	601	-0.424	651	-0.040
402	-0.270	452	-0.524	502	-0.686	552	-0.673	602	-0.420	652	-0.032
403	-0.276	453	-0.528	503	-0.687	553	-0.670	603	-0.411	653	-0.024
404	-0.281	454	-0.533	504	-0.689	554	-0.668	604	-0.408	654	-0.017
405	-0.287	455	-0.537	505	-0.690	555	-0.665	605	-0.401	655	-0.009
406	-0.293	456	-0.541	506	-0.692	556	-0.662	606	-0.395	656	-0.002
407	-0.298	457	-0.546	507	-0.694	557	-0.659	607	-0.386	657	0.005
408	-0.304	458	-0.550	508	-0.695	558	-0.656	608	-0.379	658	0.013
409	-0.309	459	-0.554	509	-0.697	559	-0.653	609	-0.372	659	0.020
410	-0.315	460	-0.559	510	-0.698	560	-0.650	610	-0.364	660	0.027
411	-0.320	461	-0.563	511	-0.700	561	-0.646	611	-0.357	661	0.029
412	-0.325	462	-0.567	512	-0.701	562	-0.642	612	-0.350	662	0.035
413	-0.331	463	-0.571	513	-0.702	563	-0.639	613	-0.343	663	0.039
414	-0.336	464	-0.575	514	-0.702	564	-0.635	614	-0.335	664	0.042
415	-0.341	465	-0.579	515	-0.703	565	-0.631	615	-0.328	665	0.046
416	-0.347	466	-0.584	516	-0.704	566	-0.628	616	-0.321	666	0.049
417	-0.352	467	-0.587	517	-0.705	567	-0.624	617	-0.314	667	0.051
418	-0.357	468	-0.591	518	-0.705	568	-0.620	618	-0.306	668	0.054
419	-0.362	469	-0.595	519	-0.706	569	-0.616	619	-0.298	669	0.056
420	-0.368	470	-0.599	520	-0.706	570	-0.613	620	-0.290	670	0.058
421	-0.373	471	-0.602	521	-0.706	571	-0.609	621	-0.282	671	0.060
422	-0.378	472	-0.606	522	-0.707	572	-0.605	622	-0.274	672	0.062

Surcharged Outfall Details for Storm

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673	0.063	723	0.090	773	0.095	823	0.098	873	0.100	923	0.102
674	0.065	724	0.090	774	0.095	824	0.098	874	0.100	924	0.102
675	0.066	725	0.090	775	0.095	825	0.098	875	0.100	925	0.102
676	0.067	726	0.090	776	0.096	826	0.099	876	0.101	926	0.102
677	0.068	727	0.090	777	0.096	827	0.099	877	0.101	927	0.102
678	0.070	728	0.091	778	0.096	828	0.099	878	0.101	928	0.102
679	0.071	729	0.091	779	0.096	829	0.099	879	0.101	929	0.102
680	0.072	730	0.091	780	0.096	830	0.099	880	0.101	930	0.102
681	0.073	731	0.091	781	0.096	831	0.099	881	0.101	931	0.102
682	0.073	732	0.091	782	0.096	832	0.099	882	0.101	932	0.102
683	0.074	733	0.091	783	0.096	833	0.099	883	0.101	933	0.102
684	0.075	734	0.091	784	0.096	834	0.099	884	0.101	934	0.102
685	0.076	735	0.092	785	0.096	835	0.099	885	0.101	935	0.102
686	0.076	736	0.092	786	0.096	836	0.099	886	0.101	936	0.102
687	0.077	737	0.092	787	0.096	837	0.099	887	0.101	937	0.102
688	0.078	738	0.092	788	0.096	838	0.099	888	0.101	938	0.102
689	0.078	739	0.092	789	0.096	839	0.099	889	0.101	939	0.102
690	0.079	740	0.092	790	0.097	840	0.099	890	0.101	940	0.102
691	0.079	741	0.092	791	0.097	841	0.099	891	0.101	941	0.102
692	0.080	742	0.092	792	0.097	842	0.099	892	0.101	942	0.102
693	0.081	743	0.093	793	0.097	843	0.099	893	0.101	943	0.102
694	0.081	744	0.093	794	0.097	844	0.099	894	0.101	944	0.102
695	0.081	745	0.093	795	0.097	845	0.099	895	0.101	945	0.102
696	0.082	746	0.093	796	0.097	846	0.099	896	0.101	946	0.102
697	0.082	747	0.093	797	0.097	847	0.099	897	0.101	947	0.102
698	0.083	748	0.093	798	0.097	848	0.099	898	0.101	948	0.102
699	0.083	749	0.093	799	0.097	849	0.100	899	0.101	949	0.102
700	0.084	750	0.093	800	0.097	850	0.100	900	0.101	950	0.102
701	0.084	751	0.093	801	0.097	851	0.100	901	0.101	951	0.102
702	0.084	752	0.094	802	0.097	852	0.100	902	0.101	952	0.103
703	0.085	753	0.094	803	0.097	853	0.100	903	0.101	953	0.103
704	0.085	754	0.094	804	0.097	854	0.100	904	0.101	954	0.103
705	0.085	755	0.094	805	0.097	855	0.100	905	0.101	955	0.103
706	0.086	756	0.094	806	0.097	856	0.100	906	0.101	956	0.103
707	0.086	757	0.094	807	0.098	857	0.100	907	0.101	957	0.103
708	0.086	758	0.094	808	0.098	858	0.100	908	0.101	958	0.103
709	0.086	759	0.094	809	0.098	859	0.100	909	0.101	959	0.103
710	0.087	760	0.094	810	0.098	860	0.100	910	0.102	960	0.103
711	0.087	761	0.094	811	0.098	861	0.100	911	0.102	961	0.103
712	0.087	762	0.094	812	0.098	862	0.100	912	0.102	962	0.103
713	0.087	763	0.095	813	0.098	863	0.100	913	0.102	963	0.103
714	0.088	764	0.095	814	0.098	864	0.100	914	0.102	964	0.103
715	0.088	765	0.095	815	0.098	865	0.100	915	0.102	965	0.103
716	0.088	766	0.095	816	0.098	866	0.100	916	0.102	966	0.103
717	0.088	767	0.095	817	0.098	867	0.100	917	0.102	967	0.103
718	0.089	768	0.095	818	0.098	868	0.100	918	0.102	968	0.103
719	0.089	769	0.095	819	0.098	869	0.100	919	0.102	969	0.103
720	0.089	770	0.095	820	0.098	870	0.100	920	0.102	970	0.103
721	0.089	771	0.095	821	0.098	871	0.100	921	0.102	971	0.103
722	0.090	772	0.095	822	0.098	872	0.100	922	0.102	972	0.103

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973	0.103	1023	0.042	1073	-0.308	1123	-0.597	1173	-0.834	1223	-1.004
974	0.103	1024	0.035	1074	-0.315	1124	-0.602	1174	-0.838	1224	-1.006
975	0.103	1025	0.028	1075	-0.322	1125	-0.607	1175	-0.842	1225	-1.008
976	0.103	1026	0.021	1076	-0.329	1126	-0.611	1176	-0.846	1226	-1.010
977	0.103	1027	0.014	1077	-0.335	1127	-0.616	1177	-0.850	1227	-1.012
978	0.103	1028	0.007	1078	-0.342	1128	-0.621	1178	-0.854	1228	-1.014
979	0.103	1029	0.000	1079	-0.349	1129	-0.626	1179	-0.858	1229	-1.017
980	0.103	1030	-0.007	1080	-0.356	1130	-0.631	1180	-0.862	1230	-1.019
981	0.103	1031	-0.014	1081	-0.362	1131	-0.636	1181	-0.866	1231	-1.021
982	0.103	1032	-0.021	1082	-0.369	1132	-0.641	1182	-0.870	1232	-1.022
983	0.103	1033	-0.028	1083	-0.375	1133	-0.646	1183	-0.874	1233	-1.024
984	0.103	1034	-0.035	1084	-0.382	1134	-0.651	1184	-0.878	1234	-1.025
985	0.103	1035	-0.042	1085	-0.388	1135	-0.656	1185	-0.882	1235	-1.027
986	0.103	1036	-0.049	1086	-0.395	1136	-0.661	1186	-0.886	1236	-1.028
987	0.103	1037	-0.056	1087	-0.401	1137	-0.666	1187	-0.890	1237	-1.029
988	0.103	1038	-0.063	1088	-0.408	1138	-0.672	1188	-0.893	1238	-1.031
989	0.103	1039	-0.070	1089	-0.414	1139	-0.677	1189	-0.897	1239	-1.032
990	0.103	1040	-0.077	1090	-0.421	1140	-0.682	1190	-0.901	1240	-1.033
991	0.103	1041	-0.084	1091	-0.427	1141	-0.687	1191	-0.905	1241	-1.034
992	0.103	1042	-0.091	1092	-0.433	1142	-0.691	1192	-0.908	1242	-1.035
993	0.103	1043	-0.098	1093	-0.440	1143	-0.696	1193	-0.912	1243	-1.036
994	0.103	1044	-0.105	1094	-0.446	1144	-0.701	1194	-0.916	1244	-1.037
995	0.103	1045	-0.112	1095	-0.453	1145	-0.706	1195	-0.920	1245	-1.038
996	0.103	1046	-0.119	1096	-0.459	1146	-0.711	1196	-0.923	1246	-1.039
997	0.103	1047	-0.127	1097	-0.465	1147	-0.716	1197	-0.927	1247	-1.040
998	0.103	1048	-0.134	1098	-0.472	1148	-0.720	1198	-0.931	1248	-1.040
999	0.103	1049	-0.141	1099	-0.478	1149	-0.725	1199	-0.934	1249	-1.041
1000	0.103	1050	-0.148	1100	-0.484	1150	-0.730	1200	-0.938	1250	-1.042
1001	0.103	1051	-0.155	1101	-0.490	1151	-0.735	1201	-0.942	1251	-1.042
1002	0.103	1052	-0.162	1102	-0.496	1152	-0.739	1202	-0.945	1252	-1.042
1003	0.103	1053	-0.169	1103	-0.501	1153	-0.744	1203	-0.948	1253	-1.043
1004	0.103	1054	-0.176	1104	-0.507	1154	-0.749	1204	-0.951	1254	-1.043
1005	0.104	1055	-0.183	1105	-0.513	1155	-0.754	1205	-0.955	1255	-1.043
1006	0.104	1056	-0.190	1106	-0.518	1156	-0.758	1206	-0.958	1256	-1.043
1007	0.104	1057	-0.197	1107	-0.523	1157	-0.763	1207	-0.961	1257	-1.043
1008	0.104	1058	-0.205	1108	-0.528	1158	-0.768	1208	-0.964	1258	-1.043
1009	0.104	1059	-0.212	1109	-0.533	1159	-0.772	1209	-0.967	1259	-1.044
1010	0.104	1060	-0.219	1110	-0.537	1160	-0.777	1210	-0.970	1260	-1.044
1011	0.104	1061	-0.226	1111	-0.542	1161	-0.781	1211	-0.973	1261	-1.044
1012	0.102	1062	-0.233	1112	-0.546	1162	-0.786	1212	-0.976	1262	-1.043
1013	0.097	1063	-0.240	1113	-0.551	1163	-0.790	1213	-0.979	1263	-1.043
1014	0.093	1064	-0.247	1114	-0.556	1164	-0.795	1214	-0.982	1264	-1.042
1015	0.089	1065	-0.254	1115	-0.561	1165	-0.799	1215	-0.985	1265	-1.042
1016	0.085	1066	-0.261	1116	-0.565	1166	-0.804	1216	-0.987	1266	-1.041
1017	0.080	1067	-0.268	1117	-0.570	1167	-0.808	1217	-0.990	1267	-1.040
1018	0.074	1068	-0.274	1118	-0.574	1168	-0.812	1218	-0.992	1268	-1.039
1019	0.068	1069	-0.281	1119	-0.578	1169	-0.817	1219	-0.995	1269	-1.038
1020	0.062	1070	-0.288	1120	-0.582	1170	-0.821	1220	-0.997	1270	-1.037
1021	0.055	1071	-0.295	1121	-0.587	1171	-0.826	1221	-1.000	1271	-1.036
1022	0.049	1072	-0.302	1122	-0.592	1172	-0.830	1222	-1.002	1272	-1.036

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1273	-1.035	1301	-1.014	1329	-0.998	1357	-0.986	1385	-0.977	1413	-0.970
1274	-1.034	1302	-1.013	1330	-0.997	1358	-0.986	1386	-0.977	1414	-0.970
1275	-1.033	1303	-1.013	1331	-0.997	1359	-0.985	1387	-0.976	1415	-0.969
1276	-1.032	1304	-1.012	1332	-0.996	1360	-0.985	1388	-0.976	1416	-0.969
1277	-1.031	1305	-1.011	1333	-0.996	1361	-0.984	1389	-0.976	1417	-0.969
1278	-1.030	1306	-1.011	1334	-0.996	1362	-0.984	1390	-0.975	1418	-0.969
1279	-1.030	1307	-1.010	1335	-0.995	1363	-0.984	1391	-0.975	1419	-0.969
1280	-1.029	1308	-1.010	1336	-0.995	1364	-0.983	1392	-0.975	1420	-0.968
1281	-1.028	1309	-1.009	1337	-0.994	1365	-0.983	1393	-0.975	1421	-0.968
1282	-1.027	1310	-1.008	1338	-0.994	1366	-0.983	1394	-0.974	1422	-0.968
1283	-1.027	1311	-1.008	1339	-0.993	1367	-0.982	1395	-0.974	1423	-0.968
1284	-1.026	1312	-1.007	1340	-0.993	1368	-0.982	1396	-0.974	1424	-0.968
1285	-1.025	1313	-1.007	1341	-0.992	1369	-0.982	1397	-0.974	1425	-0.967
1286	-1.024	1314	-1.006	1342	-0.992	1370	-0.981	1398	-0.973	1426	-0.967
1287	-1.024	1315	-1.005	1343	-0.991	1371	-0.981	1399	-0.973	1427	-0.967
1288	-1.023	1316	-1.005	1344	-0.991	1372	-0.981	1400	-0.973	1428	-0.967
1289	-1.022	1317	-1.004	1345	-0.991	1373	-0.980	1401	-0.973	1429	-0.967
1290	-1.021	1318	-1.004	1346	-0.990	1374	-0.980	1402	-0.972	1430	-0.966
1291	-1.021	1319	-1.003	1347	-0.990	1375	-0.980	1403	-0.972	1431	-0.966
1292	-1.020	1320	-1.003	1348	-0.989	1376	-0.979	1404	-0.972	1432	-0.966
1293	-1.019	1321	-1.002	1349	-0.989	1377	-0.979	1405	-0.972	1433	-0.966
1294	-1.019	1322	-1.002	1350	-0.989	1378	-0.979	1406	-0.971	1434	-0.966
1295	-1.018	1323	-1.001	1351	-0.988	1379	-0.979	1407	-0.971	1435	-0.965
1296	-1.017	1324	-1.000	1352	-0.988	1380	-0.978	1408	-0.971	1436	-0.965
1297	-1.016	1325	-1.000	1353	-0.987	1381	-0.978	1409	-0.971	1437	-0.965
1298	-1.016	1326	-0.999	1354	-0.987	1382	-0.978	1410	-0.970	1438	-0.965
1299	-1.015	1327	-0.999	1355	-0.987	1383	-0.977	1411	-0.970	1439	-0.965
1300	-1.015	1328	-0.998	1356	-0.986	1384	-0.977	1412	-0.970	1440	0.000

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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7.001 5.300 0.451 0.000 0 0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.985	8	0.988	15	0.992	22	0.997	29	1.000	36	1.003
2	0.980	9	0.988	16	0.993	23	0.997	30	1.000	37	1.004
3	0.980	10	0.989	17	0.994	24	0.997	31	1.001	38	1.004
4	0.981	11	0.989	18	0.994	25	0.998	32	1.001	39	1.004
5	0.986	12	0.990	19	0.995	26	0.999	33	1.002	40	1.004
6	0.987	13	0.990	20	0.995	27	0.999	34	1.003	41	1.004
7	0.987	14	0.991	21	0.996	28	0.999	35	1.003	42	1.005

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
43	1.005	93	1.019	143	1.033	193	0.981	243	0.879	293	0.603
44	1.005	94	1.037	144	1.032	194	0.980	244	0.876	294	0.593
45	1.005	95	1.050	145	1.031	195	0.978	245	0.873	295	0.582
46	1.005	96	1.045	146	1.023	196	0.977	246	0.870	296	0.572
47	1.006	97	1.042	147	1.029	197	0.976	247	0.867	297	0.562
48	1.006	98	1.042	148	1.028	198	0.975	248	0.864	298	0.552
49	1.006	99	1.045	149	1.027	199	0.974	249	0.860	299	0.542
50	1.007	100	1.044	150	1.025	200	0.972	250	0.857	300	0.532
51	1.007	101	1.045	151	1.024	201	0.971	251	0.853	301	0.522
52	1.007	102	1.046	152	1.023	202	0.970	252	0.849	302	0.512
53	1.008	103	1.046	153	1.022	203	0.969	253	0.845	303	0.502
54	1.008	104	1.046	154	1.021	204	0.968	254	0.840	304	0.492
55	1.009	105	1.046	155	1.019	205	0.967	255	0.837	305	0.482
56	1.009	106	1.047	156	1.020	206	0.966	256	0.832	306	0.472
57	1.009	107	1.047	157	1.019	207	0.965	257	0.827	307	0.462
58	1.010	108	1.046	158	1.017	208	0.964	258	0.822	308	0.452
59	1.010	109	1.047	159	1.016	209	0.963	259	0.819	309	0.442
60	1.011	110	1.048	160	1.015	210	0.962	260	0.814	310	0.432
61	1.012	111	1.046	161	1.015	211	0.961	261	0.810	311	0.423
62	1.013	112	1.047	162	1.013	212	0.959	262	0.803	312	0.413
63	1.013	113	1.047	163	1.012	213	0.958	263	0.799	313	0.403
64	1.014	114	1.047	164	1.011	214	0.957	264	0.793	314	0.394
65	1.014	115	1.047	165	1.010	215	0.954	265	0.789	315	0.384
66	1.015	116	1.046	166	1.008	216	0.952	266	0.785	316	0.375
67	1.016	117	1.045	167	1.008	217	0.949	267	0.779	317	0.366
68	1.016	118	1.045	168	1.006	218	0.946	268	0.774	318	0.357
69	1.017	119	1.044	169	1.006	219	0.944	269	0.769	319	0.348
70	1.019	120	1.045	170	1.005	220	0.941	270	0.764	320	0.339
71	1.019	121	1.046	171	1.004	221	0.939	271	0.758	321	0.330
72	1.021	122	1.046	172	1.002	222	0.936	272	0.752	322	0.321
73	1.021	123	1.045	173	1.001	223	0.933	273	0.746	323	0.312
74	1.022	124	1.044	174	1.001	224	0.931	274	0.740	324	0.304
75	1.023	125	1.045	175	1.000	225	0.928	275	0.734	325	0.295
76	1.024	126	1.044	176	0.999	226	0.926	276	0.728	326	0.286
77	1.025	127	1.044	177	0.998	227	0.923	277	0.722	327	0.278
78	1.026	128	1.044	178	0.997	228	0.920	278	0.716	328	0.269
79	1.027	129	1.042	179	0.996	229	0.917	279	0.710	329	0.260
80	1.028	130	1.042	180	0.994	230	0.915	280	0.704	330	0.252
81	1.029	131	1.039	181	0.994	231	0.912	281	0.697	331	0.243
82	1.029	132	1.041	182	0.992	232	0.910	282	0.690	332	0.234
83	1.030	133	1.039	183	0.991	233	0.907	283	0.683	333	0.226
84	1.031	134	1.039	184	0.990	234	0.905	284	0.677	334	0.217
85	1.031	135	1.038	185	0.989	235	0.902	285	0.669	335	0.208
86	1.032	136	1.038	186	0.988	236	0.900	286	0.662	336	0.200
87	1.033	137	1.037	187	0.987	237	0.897	287	0.654	337	0.191
88	1.034	138	1.037	188	0.986	238	0.894	288	0.647	338	0.183
89	1.035	139	1.037	189	0.985	239	0.891	289	0.639	339	0.174
90	1.036	140	1.035	190	0.984	240	0.888	290	0.632	340	0.166
91	1.036	141	1.035	191	0.983	241	0.885	291	0.623	341	0.157
92	1.037	142	1.034	192	0.982	242	0.882	292	0.613	342	0.149

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
343	0.141	393	-0.218	443	-0.481	493	-0.668	543	-0.693	593	-0.483
344	0.132	394	-0.224	444	-0.486	494	-0.670	544	-0.691	594	-0.477
345	0.124	395	-0.230	445	-0.491	495	-0.672	545	-0.690	595	-0.470
346	0.116	396	-0.235	446	-0.496	496	-0.674	546	-0.688	596	-0.463
347	0.108	397	-0.241	447	-0.500	497	-0.676	547	-0.685	597	-0.456
348	0.100	398	-0.247	448	-0.505	498	-0.678	548	-0.683	598	-0.450
349	0.092	399	-0.253	449	-0.510	499	-0.680	549	-0.681	599	-0.443
350	0.084	400	-0.258	450	-0.515	500	-0.682	550	-0.678	600	-0.437
351	0.076	401	-0.264	451	-0.519	501	-0.684	551	-0.676	601	-0.424
352	0.068	402	-0.270	452	-0.524	502	-0.686	552	-0.673	602	-0.420
353	0.061	403	-0.276	453	-0.528	503	-0.687	553	-0.670	603	-0.411
354	0.053	404	-0.281	454	-0.533	504	-0.689	554	-0.668	604	-0.408
355	0.045	405	-0.287	455	-0.537	505	-0.690	555	-0.665	605	-0.401
356	0.038	406	-0.293	456	-0.541	506	-0.692	556	-0.662	606	-0.395
357	0.030	407	-0.298	457	-0.546	507	-0.694	557	-0.659	607	-0.386
358	0.022	408	-0.304	458	-0.550	508	-0.695	558	-0.656	608	-0.379
359	0.015	409	-0.309	459	-0.554	509	-0.697	559	-0.653	609	-0.372
360	0.007	410	-0.315	460	-0.559	510	-0.698	560	-0.650	610	-0.364
361	0.000	411	-0.320	461	-0.563	511	-0.700	561	-0.646	611	-0.357
362	-0.008	412	-0.325	462	-0.567	512	-0.701	562	-0.642	612	-0.350
363	-0.015	413	-0.331	463	-0.571	513	-0.702	563	-0.639	613	-0.343
364	-0.022	414	-0.336	464	-0.575	514	-0.702	564	-0.635	614	-0.335
365	-0.029	415	-0.341	465	-0.579	515	-0.703	565	-0.631	615	-0.328
366	-0.036	416	-0.347	466	-0.584	516	-0.704	566	-0.628	616	-0.321
367	-0.043	417	-0.352	467	-0.587	517	-0.705	567	-0.624	617	-0.314
368	-0.051	418	-0.357	468	-0.591	518	-0.705	568	-0.620	618	-0.306
369	-0.058	419	-0.362	469	-0.595	519	-0.706	569	-0.616	619	-0.298
370	-0.065	420	-0.368	470	-0.599	520	-0.706	570	-0.613	620	-0.290
371	-0.073	421	-0.373	471	-0.602	521	-0.706	571	-0.609	621	-0.282
372	-0.080	422	-0.378	472	-0.606	522	-0.707	572	-0.605	622	-0.274
373	-0.087	423	-0.383	473	-0.609	523	-0.707	573	-0.600	623	-0.266
374	-0.095	424	-0.389	474	-0.613	524	-0.707	574	-0.595	624	-0.258
375	-0.102	425	-0.394	475	-0.616	525	-0.708	575	-0.590	625	-0.250
376	-0.109	426	-0.399	476	-0.620	526	-0.708	576	-0.585	626	-0.242
377	-0.116	427	-0.404	477	-0.623	527	-0.708	577	-0.579	627	-0.234
378	-0.122	428	-0.409	478	-0.626	528	-0.707	578	-0.573	628	-0.226
379	-0.129	429	-0.414	479	-0.630	529	-0.707	579	-0.568	629	-0.218
380	-0.136	430	-0.419	480	-0.633	530	-0.707	580	-0.562	630	-0.210
381	-0.142	431	-0.424	481	-0.636	531	-0.706	581	-0.557	631	-0.202
382	-0.149	432	-0.429	482	-0.639	532	-0.705	582	-0.551	632	-0.194
383	-0.155	433	-0.434	483	-0.642	533	-0.704	583	-0.545	633	-0.185
384	-0.161	434	-0.439	484	-0.645	534	-0.704	584	-0.540	634	-0.177
385	-0.168	435	-0.444	485	-0.648	535	-0.703	585	-0.534	635	-0.168
386	-0.174	436	-0.448	486	-0.650	536	-0.702	586	-0.529	636	-0.160
387	-0.180	437	-0.453	487	-0.653	537	-0.701	587	-0.523	637	-0.152
388	-0.187	438	-0.458	488	-0.655	538	-0.700	588	-0.517	638	-0.143
389	-0.193	439	-0.463	489	-0.658	539	-0.699	589	-0.510	639	-0.135
390	-0.200	440	-0.467	490	-0.660	540	-0.697	590	-0.504	640	-0.127
391	-0.206	441	-0.472	491	-0.663	541	-0.696	591	-0.497	641	-0.118
392	-0.212	442	-0.477	492	-0.665	542	-0.695	592	-0.490	642	-0.110

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
643	-0.102	693	0.081	743	0.093	793	0.097	843	0.099	893	0.101
644	-0.094	694	0.081	744	0.093	794	0.097	844	0.099	894	0.101
645	-0.086	695	0.081	745	0.093	795	0.097	845	0.099	895	0.101
646	-0.078	696	0.082	746	0.093	796	0.097	846	0.099	896	0.101
647	-0.070	697	0.082	747	0.093	797	0.097	847	0.099	897	0.101
648	-0.063	698	0.083	748	0.093	798	0.097	848	0.099	898	0.101
649	-0.055	699	0.083	749	0.093	799	0.097	849	0.100	899	0.101
650	-0.047	700	0.084	750	0.093	800	0.097	850	0.100	900	0.101
651	-0.040	701	0.084	751	0.093	801	0.097	851	0.100	901	0.101
652	-0.032	702	0.084	752	0.094	802	0.097	852	0.100	902	0.101
653	-0.024	703	0.085	753	0.094	803	0.097	853	0.100	903	0.101
654	-0.017	704	0.085	754	0.094	804	0.097	854	0.100	904	0.101
655	-0.009	705	0.085	755	0.094	805	0.097	855	0.100	905	0.101
656	-0.002	706	0.086	756	0.094	806	0.097	856	0.100	906	0.101
657	0.005	707	0.086	757	0.094	807	0.098	857	0.100	907	0.101
658	0.013	708	0.086	758	0.094	808	0.098	858	0.100	908	0.101
659	0.020	709	0.086	759	0.094	809	0.098	859	0.100	909	0.101
660	0.027	710	0.087	760	0.094	810	0.098	860	0.100	910	0.102
661	0.029	711	0.087	761	0.094	811	0.098	861	0.100	911	0.102
662	0.035	712	0.087	762	0.094	812	0.098	862	0.100	912	0.102
663	0.039	713	0.087	763	0.095	813	0.098	863	0.100	913	0.102
664	0.042	714	0.088	764	0.095	814	0.098	864	0.100	914	0.102
665	0.046	715	0.088	765	0.095	815	0.098	865	0.100	915	0.102
666	0.049	716	0.088	766	0.095	816	0.098	866	0.100	916	0.102
667	0.051	717	0.088	767	0.095	817	0.098	867	0.100	917	0.102
668	0.054	718	0.089	768	0.095	818	0.098	868	0.100	918	0.102
669	0.056	719	0.089	769	0.095	819	0.098	869	0.100	919	0.102
670	0.058	720	0.089	770	0.095	820	0.098	870	0.100	920	0.102
671	0.060	721	0.089	771	0.095	821	0.098	871	0.100	921	0.102
672	0.062	722	0.090	772	0.095	822	0.098	872	0.100	922	0.102
673	0.063	723	0.090	773	0.095	823	0.098	873	0.100	923	0.102
674	0.065	724	0.090	774	0.095	824	0.098	874	0.100	924	0.102
675	0.066	725	0.090	775	0.095	825	0.098	875	0.100	925	0.102
676	0.067	726	0.090	776	0.096	826	0.099	876	0.101	926	0.102
677	0.068	727	0.090	777	0.096	827	0.099	877	0.101	927	0.102
678	0.070	728	0.091	778	0.096	828	0.099	878	0.101	928	0.102
679	0.071	729	0.091	779	0.096	829	0.099	879	0.101	929	0.102
680	0.072	730	0.091	780	0.096	830	0.099	880	0.101	930	0.102
681	0.073	731	0.091	781	0.096	831	0.099	881	0.101	931	0.102
682	0.073	732	0.091	782	0.096	832	0.099	882	0.101	932	0.102
683	0.074	733	0.091	783	0.096	833	0.099	883	0.101	933	0.102
684	0.075	734	0.091	784	0.096	834	0.099	884	0.101	934	0.102
685	0.076	735	0.092	785	0.096	835	0.099	885	0.101	935	0.102
686	0.076	736	0.092	786	0.096	836	0.099	886	0.101	936	0.102
687	0.077	737	0.092	787	0.096	837	0.099	887	0.101	937	0.102
688	0.078	738	0.092	788	0.096	838	0.099	888	0.101	938	0.102
689	0.078	739	0.092	789	0.096	839	0.099	889	0.101	939	0.102
690	0.079	740	0.092	790	0.097	840	0.099	890	0.101	940	0.102
691	0.079	741	0.092	791	0.097	841	0.099	891	0.101	941	0.102
692	0.080	742	0.092	792	0.097	842	0.099	892	0.101	942	0.102

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
943	0.102	993	0.103	1043	-0.098	1093	-0.440	1143	-0.696	1193	-0.912
944	0.102	994	0.103	1044	-0.105	1094	-0.446	1144	-0.701	1194	-0.916
945	0.102	995	0.103	1045	-0.112	1095	-0.453	1145	-0.706	1195	-0.920
946	0.102	996	0.103	1046	-0.119	1096	-0.459	1146	-0.711	1196	-0.923
947	0.102	997	0.103	1047	-0.127	1097	-0.465	1147	-0.716	1197	-0.927
948	0.102	998	0.103	1048	-0.134	1098	-0.472	1148	-0.720	1198	-0.931
949	0.102	999	0.103	1049	-0.141	1099	-0.478	1149	-0.725	1199	-0.934
950	0.102	1000	0.103	1050	-0.148	1100	-0.484	1150	-0.730	1200	-0.938
951	0.102	1001	0.103	1051	-0.155	1101	-0.490	1151	-0.735	1201	-0.942
952	0.103	1002	0.103	1052	-0.162	1102	-0.496	1152	-0.739	1202	-0.945
953	0.103	1003	0.103	1053	-0.169	1103	-0.501	1153	-0.744	1203	-0.948
954	0.103	1004	0.103	1054	-0.176	1104	-0.507	1154	-0.749	1204	-0.951
955	0.103	1005	0.104	1055	-0.183	1105	-0.513	1155	-0.754	1205	-0.955
956	0.103	1006	0.104	1056	-0.190	1106	-0.518	1156	-0.758	1206	-0.958
957	0.103	1007	0.104	1057	-0.197	1107	-0.523	1157	-0.763	1207	-0.961
958	0.103	1008	0.104	1058	-0.205	1108	-0.528	1158	-0.768	1208	-0.964
959	0.103	1009	0.104	1059	-0.212	1109	-0.533	1159	-0.772	1209	-0.967
960	0.103	1010	0.104	1060	-0.219	1110	-0.537	1160	-0.777	1210	-0.970
961	0.103	1011	0.104	1061	-0.226	1111	-0.542	1161	-0.781	1211	-0.973
962	0.103	1012	0.102	1062	-0.233	1112	-0.546	1162	-0.786	1212	-0.976
963	0.103	1013	0.097	1063	-0.240	1113	-0.551	1163	-0.790	1213	-0.979
964	0.103	1014	0.093	1064	-0.247	1114	-0.556	1164	-0.795	1214	-0.982
965	0.103	1015	0.089	1065	-0.254	1115	-0.561	1165	-0.799	1215	-0.985
966	0.103	1016	0.085	1066	-0.261	1116	-0.565	1166	-0.804	1216	-0.987
967	0.103	1017	0.080	1067	-0.268	1117	-0.570	1167	-0.808	1217	-0.990
968	0.103	1018	0.074	1068	-0.274	1118	-0.574	1168	-0.812	1218	-0.992
969	0.103	1019	0.068	1069	-0.281	1119	-0.578	1169	-0.817	1219	-0.995
970	0.103	1020	0.062	1070	-0.288	1120	-0.582	1170	-0.821	1220	-0.997
971	0.103	1021	0.055	1071	-0.295	1121	-0.587	1171	-0.826	1221	-1.000
972	0.103	1022	0.049	1072	-0.302	1122	-0.592	1172	-0.830	1222	-1.002
973	0.103	1023	0.042	1073	-0.308	1123	-0.597	1173	-0.834	1223	-1.004
974	0.103	1024	0.035	1074	-0.315	1124	-0.602	1174	-0.838	1224	-1.006
975	0.103	1025	0.028	1075	-0.322	1125	-0.607	1175	-0.842	1225	-1.008
976	0.103	1026	0.021	1076	-0.329	1126	-0.611	1176	-0.846	1226	-1.010
977	0.103	1027	0.014	1077	-0.335	1127	-0.616	1177	-0.850	1227	-1.012
978	0.103	1028	0.007	1078	-0.342	1128	-0.621	1178	-0.854	1228	-1.014
979	0.103	1029	0.000	1079	-0.349	1129	-0.626	1179	-0.858	1229	-1.017
980	0.103	1030	-0.007	1080	-0.356	1130	-0.631	1180	-0.862	1230	-1.019
981	0.103	1031	-0.014	1081	-0.362	1131	-0.636	1181	-0.866	1231	-1.021
982	0.103	1032	-0.021	1082	-0.369	1132	-0.641	1182	-0.870	1232	-1.022
983	0.103	1033	-0.028	1083	-0.375	1133	-0.646	1183	-0.874	1233	-1.024
984	0.103	1034	-0.035	1084	-0.382	1134	-0.651	1184	-0.878	1234	-1.025
985	0.103	1035	-0.042	1085	-0.388	1135	-0.656	1185	-0.882	1235	-1.027
986	0.103	1036	-0.049	1086	-0.395	1136	-0.661	1186	-0.886	1236	-1.028
987	0.103	1037	-0.056	1087	-0.401	1137	-0.666	1187	-0.890	1237	-1.029
988	0.103	1038	-0.063	1088	-0.408	1138	-0.672	1188	-0.893	1238	-1.031
989	0.103	1039	-0.070	1089	-0.414	1139	-0.677	1189	-0.897	1239	-1.032
990	0.103	1040	-0.077	1090	-0.421	1140	-0.682	1190	-0.901	1240	-1.033
991	0.103	1041	-0.084	1091	-0.427	1141	-0.687	1191	-0.905	1241	-1.034
992	0.103	1042	-0.091	1092	-0.433	1142	-0.691	1192	-0.908	1242	-1.035

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1243	-1.036	1276	-1.032	1309	-1.009	1342	-0.992	1375	-0.980	1408	-0.971
1244	-1.037	1277	-1.031	1310	-1.008	1343	-0.991	1376	-0.979	1409	-0.971
1245	-1.038	1278	-1.030	1311	-1.008	1344	-0.991	1377	-0.979	1410	-0.970
1246	-1.039	1279	-1.030	1312	-1.007	1345	-0.991	1378	-0.979	1411	-0.970
1247	-1.040	1280	-1.029	1313	-1.007	1346	-0.990	1379	-0.979	1412	-0.970
1248	-1.040	1281	-1.028	1314	-1.006	1347	-0.990	1380	-0.978	1413	-0.970
1249	-1.041	1282	-1.027	1315	-1.005	1348	-0.989	1381	-0.978	1414	-0.970
1250	-1.042	1283	-1.027	1316	-1.005	1349	-0.989	1382	-0.978	1415	-0.969
1251	-1.042	1284	-1.026	1317	-1.004	1350	-0.989	1383	-0.977	1416	-0.969
1252	-1.042	1285	-1.025	1318	-1.004	1351	-0.988	1384	-0.977	1417	-0.969
1253	-1.043	1286	-1.024	1319	-1.003	1352	-0.988	1385	-0.977	1418	-0.969
1254	-1.043	1287	-1.024	1320	-1.003	1353	-0.987	1386	-0.977	1419	-0.969
1255	-1.043	1288	-1.023	1321	-1.002	1354	-0.987	1387	-0.976	1420	-0.968
1256	-1.043	1289	-1.022	1322	-1.002	1355	-0.987	1388	-0.976	1421	-0.968
1257	-1.043	1290	-1.021	1323	-1.001	1356	-0.986	1389	-0.976	1422	-0.968
1258	-1.043	1291	-1.021	1324	-1.000	1357	-0.986	1390	-0.975	1423	-0.968
1259	-1.044	1292	-1.020	1325	-1.000	1358	-0.986	1391	-0.975	1424	-0.968
1260	-1.044	1293	-1.019	1326	-0.999	1359	-0.985	1392	-0.975	1425	-0.967
1261	-1.044	1294	-1.019	1327	-0.999	1360	-0.985	1393	-0.975	1426	-0.967
1262	-1.043	1295	-1.018	1328	-0.998	1361	-0.984	1394	-0.974	1427	-0.967
1263	-1.043	1296	-1.017	1329	-0.998	1362	-0.984	1395	-0.974	1428	-0.967
1264	-1.042	1297	-1.016	1330	-0.997	1363	-0.984	1396	-0.974	1429	-0.967
1265	-1.042	1298	-1.016	1331	-0.997	1364	-0.983	1397	-0.974	1430	-0.966
1266	-1.041	1299	-1.015	1332	-0.996	1365	-0.983	1398	-0.973	1431	-0.966
1267	-1.040	1300	-1.015	1333	-0.996	1366	-0.983	1399	-0.973	1432	-0.966
1268	-1.039	1301	-1.014	1334	-0.996	1367	-0.982	1400	-0.973	1433	-0.966
1269	-1.038	1302	-1.013	1335	-0.995	1368	-0.982	1401	-0.973	1434	-0.966
1270	-1.037	1303	-1.013	1336	-0.995	1369	-0.982	1402	-0.972	1435	-0.965
1271	-1.036	1304	-1.012	1337	-0.994	1370	-0.981	1403	-0.972	1436	-0.965
1272	-1.036	1305	-1.011	1338	-0.994	1371	-0.981	1404	-0.972	1437	-0.965
1273	-1.035	1306	-1.011	1339	-0.993	1372	-0.981	1405	-0.972	1438	-0.965
1274	-1.034	1307	-1.010	1340	-0.993	1373	-0.980	1406	-0.971	1439	-0.965
1275	-1.033	1308	-1.010	1341	-0.992	1374	-0.980	1407	-0.971	1440	0.000

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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8.001 5.300 0.390 0.000 0 0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.985	3	0.980	5	0.986	7	0.987	9	0.988
2	0.980	4	0.981	6	0.987	8	0.988	10	0.989
								11	0.989
								12	0.990

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
13	0.990	63	1.013	113	1.047	163	1.012	213	0.958	263	0.799
14	0.991	64	1.014	114	1.047	164	1.011	214	0.957	264	0.793
15	0.992	65	1.014	115	1.047	165	1.010	215	0.954	265	0.789
16	0.993	66	1.015	116	1.046	166	1.008	216	0.952	266	0.785
17	0.994	67	1.016	117	1.045	167	1.008	217	0.949	267	0.779
18	0.994	68	1.016	118	1.045	168	1.006	218	0.946	268	0.774
19	0.995	69	1.017	119	1.044	169	1.006	219	0.944	269	0.769
20	0.995	70	1.019	120	1.045	170	1.005	220	0.941	270	0.764
21	0.996	71	1.019	121	1.046	171	1.004	221	0.939	271	0.758
22	0.997	72	1.021	122	1.046	172	1.002	222	0.936	272	0.752
23	0.997	73	1.021	123	1.045	173	1.001	223	0.933	273	0.746
24	0.997	74	1.022	124	1.044	174	1.001	224	0.931	274	0.740
25	0.998	75	1.023	125	1.045	175	1.000	225	0.928	275	0.734
26	0.999	76	1.024	126	1.044	176	0.999	226	0.926	276	0.728
27	0.999	77	1.025	127	1.044	177	0.998	227	0.923	277	0.722
28	0.999	78	1.026	128	1.044	178	0.997	228	0.920	278	0.716
29	1.000	79	1.027	129	1.042	179	0.996	229	0.917	279	0.710
30	1.000	80	1.028	130	1.042	180	0.994	230	0.915	280	0.704
31	1.001	81	1.029	131	1.039	181	0.994	231	0.912	281	0.697
32	1.001	82	1.029	132	1.041	182	0.992	232	0.910	282	0.690
33	1.002	83	1.030	133	1.039	183	0.991	233	0.907	283	0.683
34	1.003	84	1.031	134	1.039	184	0.990	234	0.905	284	0.677
35	1.003	85	1.031	135	1.038	185	0.989	235	0.902	285	0.669
36	1.003	86	1.032	136	1.038	186	0.988	236	0.900	286	0.662
37	1.004	87	1.033	137	1.037	187	0.987	237	0.897	287	0.654
38	1.004	88	1.034	138	1.037	188	0.986	238	0.894	288	0.647
39	1.004	89	1.035	139	1.037	189	0.985	239	0.891	289	0.639
40	1.004	90	1.036	140	1.035	190	0.984	240	0.888	290	0.632
41	1.004	91	1.036	141	1.035	191	0.983	241	0.885	291	0.623
42	1.005	92	1.037	142	1.034	192	0.982	242	0.882	292	0.613
43	1.005	93	1.019	143	1.033	193	0.981	243	0.879	293	0.603
44	1.005	94	1.037	144	1.032	194	0.980	244	0.876	294	0.593
45	1.005	95	1.050	145	1.031	195	0.978	245	0.873	295	0.582
46	1.005	96	1.045	146	1.023	196	0.977	246	0.870	296	0.572
47	1.006	97	1.042	147	1.029	197	0.976	247	0.867	297	0.562
48	1.006	98	1.042	148	1.028	198	0.975	248	0.864	298	0.552
49	1.006	99	1.045	149	1.027	199	0.974	249	0.860	299	0.542
50	1.007	100	1.044	150	1.025	200	0.972	250	0.857	300	0.532
51	1.007	101	1.045	151	1.024	201	0.971	251	0.853	301	0.522
52	1.007	102	1.046	152	1.023	202	0.970	252	0.849	302	0.512
53	1.008	103	1.046	153	1.022	203	0.969	253	0.845	303	0.502
54	1.008	104	1.046	154	1.021	204	0.968	254	0.840	304	0.492
55	1.009	105	1.046	155	1.019	205	0.967	255	0.837	305	0.482
56	1.009	106	1.047	156	1.020	206	0.966	256	0.832	306	0.472
57	1.009	107	1.047	157	1.019	207	0.965	257	0.827	307	0.462
58	1.010	108	1.046	158	1.017	208	0.964	258	0.822	308	0.452
59	1.010	109	1.047	159	1.016	209	0.963	259	0.819	309	0.442
60	1.011	110	1.048	160	1.015	210	0.962	260	0.814	310	0.432
61	1.012	111	1.046	161	1.015	211	0.961	261	0.810	311	0.423
62	1.013	112	1.047	162	1.013	212	0.959	262	0.803	312	0.413

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
313	0.403	363	-0.015	413	-0.331	463	-0.571	513	-0.702	563	-0.639
314	0.394	364	-0.022	414	-0.336	464	-0.575	514	-0.702	564	-0.635
315	0.384	365	-0.029	415	-0.341	465	-0.579	515	-0.703	565	-0.631
316	0.375	366	-0.036	416	-0.347	466	-0.584	516	-0.704	566	-0.628
317	0.366	367	-0.043	417	-0.352	467	-0.587	517	-0.705	567	-0.624
318	0.357	368	-0.051	418	-0.357	468	-0.591	518	-0.705	568	-0.620
319	0.348	369	-0.058	419	-0.362	469	-0.595	519	-0.706	569	-0.616
320	0.339	370	-0.065	420	-0.368	470	-0.599	520	-0.706	570	-0.613
321	0.330	371	-0.073	421	-0.373	471	-0.602	521	-0.706	571	-0.609
322	0.321	372	-0.080	422	-0.378	472	-0.606	522	-0.707	572	-0.605
323	0.312	373	-0.087	423	-0.383	473	-0.609	523	-0.707	573	-0.600
324	0.304	374	-0.095	424	-0.389	474	-0.613	524	-0.707	574	-0.595
325	0.295	375	-0.102	425	-0.394	475	-0.616	525	-0.708	575	-0.590
326	0.286	376	-0.109	426	-0.399	476	-0.620	526	-0.708	576	-0.585
327	0.278	377	-0.116	427	-0.404	477	-0.623	527	-0.708	577	-0.579
328	0.269	378	-0.122	428	-0.409	478	-0.626	528	-0.707	578	-0.573
329	0.260	379	-0.129	429	-0.414	479	-0.630	529	-0.707	579	-0.568
330	0.252	380	-0.136	430	-0.419	480	-0.633	530	-0.707	580	-0.562
331	0.243	381	-0.142	431	-0.424	481	-0.636	531	-0.706	581	-0.557
332	0.234	382	-0.149	432	-0.429	482	-0.639	532	-0.705	582	-0.551
333	0.226	383	-0.155	433	-0.434	483	-0.642	533	-0.704	583	-0.545
334	0.217	384	-0.161	434	-0.439	484	-0.645	534	-0.704	584	-0.540
335	0.208	385	-0.168	435	-0.444	485	-0.648	535	-0.703	585	-0.534
336	0.200	386	-0.174	436	-0.448	486	-0.650	536	-0.702	586	-0.529
337	0.191	387	-0.180	437	-0.453	487	-0.653	537	-0.701	587	-0.523
338	0.183	388	-0.187	438	-0.458	488	-0.655	538	-0.700	588	-0.517
339	0.174	389	-0.193	439	-0.463	489	-0.658	539	-0.699	589	-0.510
340	0.166	390	-0.200	440	-0.467	490	-0.660	540	-0.697	590	-0.504
341	0.157	391	-0.206	441	-0.472	491	-0.663	541	-0.696	591	-0.497
342	0.149	392	-0.212	442	-0.477	492	-0.665	542	-0.695	592	-0.490
343	0.141	393	-0.218	443	-0.481	493	-0.668	543	-0.693	593	-0.483
344	0.132	394	-0.224	444	-0.486	494	-0.670	544	-0.691	594	-0.477
345	0.124	395	-0.230	445	-0.491	495	-0.672	545	-0.690	595	-0.470
346	0.116	396	-0.235	446	-0.496	496	-0.674	546	-0.688	596	-0.463
347	0.108	397	-0.241	447	-0.500	497	-0.676	547	-0.685	597	-0.456
348	0.100	398	-0.247	448	-0.505	498	-0.678	548	-0.683	598	-0.450
349	0.092	399	-0.253	449	-0.510	499	-0.680	549	-0.681	599	-0.443
350	0.084	400	-0.258	450	-0.515	500	-0.682	550	-0.678	600	-0.437
351	0.076	401	-0.264	451	-0.519	501	-0.684	551	-0.676	601	-0.424
352	0.068	402	-0.270	452	-0.524	502	-0.686	552	-0.673	602	-0.420
353	0.061	403	-0.276	453	-0.528	503	-0.687	553	-0.670	603	-0.411
354	0.053	404	-0.281	454	-0.533	504	-0.689	554	-0.668	604	-0.408
355	0.045	405	-0.287	455	-0.537	505	-0.690	555	-0.665	605	-0.401
356	0.038	406	-0.293	456	-0.541	506	-0.692	556	-0.662	606	-0.395
357	0.030	407	-0.298	457	-0.546	507	-0.694	557	-0.659	607	-0.386
358	0.022	408	-0.304	458	-0.550	508	-0.695	558	-0.656	608	-0.379
359	0.015	409	-0.309	459	-0.554	509	-0.697	559	-0.653	609	-0.372
360	0.007	410	-0.315	460	-0.559	510	-0.698	560	-0.650	610	-0.364
361	0.000	411	-0.320	461	-0.563	511	-0.700	561	-0.646	611	-0.357
362	-0.008	412	-0.325	462	-0.567	512	-0.701	562	-0.642	612	-0.350

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
613	-0.343	663	0.039	713	0.087	763	0.095	813	0.098	863	0.100
614	-0.335	664	0.042	714	0.088	764	0.095	814	0.098	864	0.100
615	-0.328	665	0.046	715	0.088	765	0.095	815	0.098	865	0.100
616	-0.321	666	0.049	716	0.088	766	0.095	816	0.098	866	0.100
617	-0.314	667	0.051	717	0.088	767	0.095	817	0.098	867	0.100
618	-0.306	668	0.054	718	0.089	768	0.095	818	0.098	868	0.100
619	-0.298	669	0.056	719	0.089	769	0.095	819	0.098	869	0.100
620	-0.290	670	0.058	720	0.089	770	0.095	820	0.098	870	0.100
621	-0.282	671	0.060	721	0.089	771	0.095	821	0.098	871	0.100
622	-0.274	672	0.062	722	0.090	772	0.095	822	0.098	872	0.100
623	-0.266	673	0.063	723	0.090	773	0.095	823	0.098	873	0.100
624	-0.258	674	0.065	724	0.090	774	0.095	824	0.098	874	0.100
625	-0.250	675	0.066	725	0.090	775	0.095	825	0.098	875	0.100
626	-0.242	676	0.067	726	0.090	776	0.096	826	0.099	876	0.101
627	-0.234	677	0.068	727	0.090	777	0.096	827	0.099	877	0.101
628	-0.226	678	0.070	728	0.091	778	0.096	828	0.099	878	0.101
629	-0.218	679	0.071	729	0.091	779	0.096	829	0.099	879	0.101
630	-0.210	680	0.072	730	0.091	780	0.096	830	0.099	880	0.101
631	-0.202	681	0.073	731	0.091	781	0.096	831	0.099	881	0.101
632	-0.194	682	0.073	732	0.091	782	0.096	832	0.099	882	0.101
633	-0.185	683	0.074	733	0.091	783	0.096	833	0.099	883	0.101
634	-0.177	684	0.075	734	0.091	784	0.096	834	0.099	884	0.101
635	-0.168	685	0.076	735	0.092	785	0.096	835	0.099	885	0.101
636	-0.160	686	0.076	736	0.092	786	0.096	836	0.099	886	0.101
637	-0.152	687	0.077	737	0.092	787	0.096	837	0.099	887	0.101
638	-0.143	688	0.078	738	0.092	788	0.096	838	0.099	888	0.101
639	-0.135	689	0.078	739	0.092	789	0.096	839	0.099	889	0.101
640	-0.127	690	0.079	740	0.092	790	0.097	840	0.099	890	0.101
641	-0.118	691	0.079	741	0.092	791	0.097	841	0.099	891	0.101
642	-0.110	692	0.080	742	0.092	792	0.097	842	0.099	892	0.101
643	-0.102	693	0.081	743	0.093	793	0.097	843	0.099	893	0.101
644	-0.094	694	0.081	744	0.093	794	0.097	844	0.099	894	0.101
645	-0.086	695	0.081	745	0.093	795	0.097	845	0.099	895	0.101
646	-0.078	696	0.082	746	0.093	796	0.097	846	0.099	896	0.101
647	-0.070	697	0.082	747	0.093	797	0.097	847	0.099	897	0.101
648	-0.063	698	0.083	748	0.093	798	0.097	848	0.099	898	0.101
649	-0.055	699	0.083	749	0.093	799	0.097	849	0.100	899	0.101
650	-0.047	700	0.084	750	0.093	800	0.097	850	0.100	900	0.101
651	-0.040	701	0.084	751	0.093	801	0.097	851	0.100	901	0.101
652	-0.032	702	0.084	752	0.094	802	0.097	852	0.100	902	0.101
653	-0.024	703	0.085	753	0.094	803	0.097	853	0.100	903	0.101
654	-0.017	704	0.085	754	0.094	804	0.097	854	0.100	904	0.101
655	-0.009	705	0.085	755	0.094	805	0.097	855	0.100	905	0.101
656	-0.002	706	0.086	756	0.094	806	0.097	856	0.100	906	0.101
657	0.005	707	0.086	757	0.094	807	0.098	857	0.100	907	0.101
658	0.013	708	0.086	758	0.094	808	0.098	858	0.100	908	0.101
659	0.020	709	0.086	759	0.094	809	0.098	859	0.100	909	0.101
660	0.027	710	0.087	760	0.094	810	0.098	860	0.100	910	0.102
661	0.029	711	0.087	761	0.094	811	0.098	861	0.100	911	0.102
662	0.035	712	0.087	762	0.094	812	0.098	862	0.100	912	0.102

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
913	0.102	963	0.103	1013	0.097	1063	-0.240	1113	-0.551	1163	-0.790
914	0.102	964	0.103	1014	0.093	1064	-0.247	1114	-0.556	1164	-0.795
915	0.102	965	0.103	1015	0.089	1065	-0.254	1115	-0.561	1165	-0.799
916	0.102	966	0.103	1016	0.085	1066	-0.261	1116	-0.565	1166	-0.804
917	0.102	967	0.103	1017	0.080	1067	-0.268	1117	-0.570	1167	-0.808
918	0.102	968	0.103	1018	0.074	1068	-0.274	1118	-0.574	1168	-0.812
919	0.102	969	0.103	1019	0.068	1069	-0.281	1119	-0.578	1169	-0.817
920	0.102	970	0.103	1020	0.062	1070	-0.288	1120	-0.582	1170	-0.821
921	0.102	971	0.103	1021	0.055	1071	-0.295	1121	-0.587	1171	-0.826
922	0.102	972	0.103	1022	0.049	1072	-0.302	1122	-0.592	1172	-0.830
923	0.102	973	0.103	1023	0.042	1073	-0.308	1123	-0.597	1173	-0.834
924	0.102	974	0.103	1024	0.035	1074	-0.315	1124	-0.602	1174	-0.838
925	0.102	975	0.103	1025	0.028	1075	-0.322	1125	-0.607	1175	-0.842
926	0.102	976	0.103	1026	0.021	1076	-0.329	1126	-0.611	1176	-0.846
927	0.102	977	0.103	1027	0.014	1077	-0.335	1127	-0.616	1177	-0.850
928	0.102	978	0.103	1028	0.007	1078	-0.342	1128	-0.621	1178	-0.854
929	0.102	979	0.103	1029	0.000	1079	-0.349	1129	-0.626	1179	-0.858
930	0.102	980	0.103	1030	-0.007	1080	-0.356	1130	-0.631	1180	-0.862
931	0.102	981	0.103	1031	-0.014	1081	-0.362	1131	-0.636	1181	-0.866
932	0.102	982	0.103	1032	-0.021	1082	-0.369	1132	-0.641	1182	-0.870
933	0.102	983	0.103	1033	-0.028	1083	-0.375	1133	-0.646	1183	-0.874
934	0.102	984	0.103	1034	-0.035	1084	-0.382	1134	-0.651	1184	-0.878
935	0.102	985	0.103	1035	-0.042	1085	-0.388	1135	-0.656	1185	-0.882
936	0.102	986	0.103	1036	-0.049	1086	-0.395	1136	-0.661	1186	-0.886
937	0.102	987	0.103	1037	-0.056	1087	-0.401	1137	-0.666	1187	-0.890
938	0.102	988	0.103	1038	-0.063	1088	-0.408	1138	-0.672	1188	-0.893
939	0.102	989	0.103	1039	-0.070	1089	-0.414	1139	-0.677	1189	-0.897
940	0.102	990	0.103	1040	-0.077	1090	-0.421	1140	-0.682	1190	-0.901
941	0.102	991	0.103	1041	-0.084	1091	-0.427	1141	-0.687	1191	-0.905
942	0.102	992	0.103	1042	-0.091	1092	-0.433	1142	-0.691	1192	-0.908
943	0.102	993	0.103	1043	-0.098	1093	-0.440	1143	-0.696	1193	-0.912
944	0.102	994	0.103	1044	-0.105	1094	-0.446	1144	-0.701	1194	-0.916
945	0.102	995	0.103	1045	-0.112	1095	-0.453	1145	-0.706	1195	-0.920
946	0.102	996	0.103	1046	-0.119	1096	-0.459	1146	-0.711	1196	-0.923
947	0.102	997	0.103	1047	-0.127	1097	-0.465	1147	-0.716	1197	-0.927
948	0.102	998	0.103	1048	-0.134	1098	-0.472	1148	-0.720	1198	-0.931
949	0.102	999	0.103	1049	-0.141	1099	-0.478	1149	-0.725	1199	-0.934
950	0.102	1000	0.103	1050	-0.148	1100	-0.484	1150	-0.730	1200	-0.938
951	0.102	1001	0.103	1051	-0.155	1101	-0.490	1151	-0.735	1201	-0.942
952	0.103	1002	0.103	1052	-0.162	1102	-0.496	1152	-0.739	1202	-0.945
953	0.103	1003	0.103	1053	-0.169	1103	-0.501	1153	-0.744	1203	-0.948
954	0.103	1004	0.103	1054	-0.176	1104	-0.507	1154	-0.749	1204	-0.951
955	0.103	1005	0.104	1055	-0.183	1105	-0.513	1155	-0.754	1205	-0.955
956	0.103	1006	0.104	1056	-0.190	1106	-0.518	1156	-0.758	1206	-0.958
957	0.103	1007	0.104	1057	-0.197	1107	-0.523	1157	-0.763	1207	-0.961
958	0.103	1008	0.104	1058	-0.205	1108	-0.528	1158	-0.768	1208	-0.964
959	0.103	1009	0.104	1059	-0.212	1109	-0.533	1159	-0.772	1209	-0.967
960	0.103	1010	0.104	1060	-0.219	1110	-0.537	1160	-0.777	1210	-0.970
961	0.103	1011	0.104	1061	-0.226	1111	-0.542	1161	-0.781	1211	-0.973
962	0.103	1012	0.102	1062	-0.233	1112	-0.546	1162	-0.786	1212	-0.976

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1213	-0.979	1251	-1.042	1289	-1.022	1327	-0.999	1365	-0.983	1403	-0.972
1214	-0.982	1252	-1.042	1290	-1.021	1328	-0.998	1366	-0.983	1404	-0.972
1215	-0.985	1253	-1.043	1291	-1.021	1329	-0.998	1367	-0.982	1405	-0.972
1216	-0.987	1254	-1.043	1292	-1.020	1330	-0.997	1368	-0.982	1406	-0.971
1217	-0.990	1255	-1.043	1293	-1.019	1331	-0.997	1369	-0.982	1407	-0.971
1218	-0.992	1256	-1.043	1294	-1.019	1332	-0.996	1370	-0.981	1408	-0.971
1219	-0.995	1257	-1.043	1295	-1.018	1333	-0.996	1371	-0.981	1409	-0.971
1220	-0.997	1258	-1.043	1296	-1.017	1334	-0.996	1372	-0.981	1410	-0.970
1221	-1.000	1259	-1.044	1297	-1.016	1335	-0.995	1373	-0.980	1411	-0.970
1222	-1.002	1260	-1.044	1298	-1.016	1336	-0.995	1374	-0.980	1412	-0.970
1223	-1.004	1261	-1.044	1299	-1.015	1337	-0.994	1375	-0.980	1413	-0.970
1224	-1.006	1262	-1.043	1300	-1.015	1338	-0.994	1376	-0.979	1414	-0.970
1225	-1.008	1263	-1.043	1301	-1.014	1339	-0.993	1377	-0.979	1415	-0.969
1226	-1.010	1264	-1.042	1302	-1.013	1340	-0.993	1378	-0.979	1416	-0.969
1227	-1.012	1265	-1.042	1303	-1.013	1341	-0.992	1379	-0.979	1417	-0.969
1228	-1.014	1266	-1.041	1304	-1.012	1342	-0.992	1380	-0.978	1418	-0.969
1229	-1.017	1267	-1.040	1305	-1.011	1343	-0.991	1381	-0.978	1419	-0.969
1230	-1.019	1268	-1.039	1306	-1.011	1344	-0.991	1382	-0.978	1420	-0.968
1231	-1.021	1269	-1.038	1307	-1.010	1345	-0.991	1383	-0.977	1421	-0.968
1232	-1.022	1270	-1.037	1308	-1.010	1346	-0.990	1384	-0.977	1422	-0.968
1233	-1.024	1271	-1.036	1309	-1.009	1347	-0.990	1385	-0.977	1423	-0.968
1234	-1.025	1272	-1.036	1310	-1.008	1348	-0.989	1386	-0.977	1424	-0.968
1235	-1.027	1273	-1.035	1311	-1.008	1349	-0.989	1387	-0.976	1425	-0.967
1236	-1.028	1274	-1.034	1312	-1.007	1350	-0.989	1388	-0.976	1426	-0.967
1237	-1.029	1275	-1.033	1313	-1.007	1351	-0.988	1389	-0.976	1427	-0.967
1238	-1.031	1276	-1.032	1314	-1.006	1352	-0.988	1390	-0.975	1428	-0.967
1239	-1.032	1277	-1.031	1315	-1.005	1353	-0.987	1391	-0.975	1429	-0.967
1240	-1.033	1278	-1.030	1316	-1.005	1354	-0.987	1392	-0.975	1430	-0.966
1241	-1.034	1279	-1.030	1317	-1.004	1355	-0.987	1393	-0.975	1431	-0.966
1242	-1.035	1280	-1.029	1318	-1.004	1356	-0.986	1394	-0.974	1432	-0.966
1243	-1.036	1281	-1.028	1319	-1.003	1357	-0.986	1395	-0.974	1433	-0.966
1244	-1.037	1282	-1.027	1320	-1.003	1358	-0.986	1396	-0.974	1434	-0.966
1245	-1.038	1283	-1.027	1321	-1.002	1359	-0.985	1397	-0.974	1435	-0.965
1246	-1.039	1284	-1.026	1322	-1.002	1360	-0.985	1398	-0.973	1436	-0.965
1247	-1.040	1285	-1.025	1323	-1.001	1361	-0.984	1399	-0.973	1437	-0.965
1248	-1.040	1286	-1.024	1324	-1.000	1362	-0.984	1400	-0.973	1438	-0.965
1249	-1.041	1287	-1.024	1325	-1.000	1363	-0.984	1401	-0.973	1439	-0.965
1250	-1.042	1288	-1.023	1326	-0.999	1364	-0.983	1402	-0.972	1440	0.000

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
9.003		1.000	-0.254	0.000	0
Datum (m)		0.000	Offset (mins)	0	

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.985	51	1.007	101	1.045	151	1.024	201	0.971	251	0.853
2	0.980	52	1.007	102	1.046	152	1.023	202	0.970	252	0.849
3	0.980	53	1.008	103	1.046	153	1.022	203	0.969	253	0.845
4	0.981	54	1.008	104	1.046	154	1.021	204	0.968	254	0.840
5	0.986	55	1.009	105	1.046	155	1.019	205	0.967	255	0.837
6	0.987	56	1.009	106	1.047	156	1.020	206	0.966	256	0.832
7	0.987	57	1.009	107	1.047	157	1.019	207	0.965	257	0.827
8	0.988	58	1.010	108	1.046	158	1.017	208	0.964	258	0.822
9	0.988	59	1.010	109	1.047	159	1.016	209	0.963	259	0.819
10	0.989	60	1.011	110	1.048	160	1.015	210	0.962	260	0.814
11	0.989	61	1.012	111	1.046	161	1.015	211	0.961	261	0.810
12	0.990	62	1.013	112	1.047	162	1.013	212	0.959	262	0.803
13	0.990	63	1.013	113	1.047	163	1.012	213	0.958	263	0.799
14	0.991	64	1.014	114	1.047	164	1.011	214	0.957	264	0.793
15	0.992	65	1.014	115	1.047	165	1.010	215	0.954	265	0.789
16	0.993	66	1.015	116	1.046	166	1.008	216	0.952	266	0.785
17	0.994	67	1.016	117	1.045	167	1.008	217	0.949	267	0.779
18	0.994	68	1.016	118	1.045	168	1.006	218	0.946	268	0.774
19	0.995	69	1.017	119	1.044	169	1.006	219	0.944	269	0.769
20	0.995	70	1.019	120	1.045	170	1.005	220	0.941	270	0.764
21	0.996	71	1.019	121	1.046	171	1.004	221	0.939	271	0.758
22	0.997	72	1.021	122	1.046	172	1.002	222	0.936	272	0.752
23	0.997	73	1.021	123	1.045	173	1.001	223	0.933	273	0.746
24	0.997	74	1.022	124	1.044	174	1.001	224	0.931	274	0.740
25	0.998	75	1.023	125	1.045	175	1.000	225	0.928	275	0.734
26	0.999	76	1.024	126	1.044	176	0.999	226	0.926	276	0.728
27	0.999	77	1.025	127	1.044	177	0.998	227	0.923	277	0.722
28	0.999	78	1.026	128	1.044	178	0.997	228	0.920	278	0.716
29	1.000	79	1.027	129	1.042	179	0.996	229	0.917	279	0.710
30	1.000	80	1.028	130	1.042	180	0.994	230	0.915	280	0.704
31	1.001	81	1.029	131	1.039	181	0.994	231	0.912	281	0.697
32	1.001	82	1.029	132	1.041	182	0.992	232	0.910	282	0.690
33	1.002	83	1.030	133	1.039	183	0.991	233	0.907	283	0.683
34	1.003	84	1.031	134	1.039	184	0.990	234	0.905	284	0.677
35	1.003	85	1.031	135	1.038	185	0.989	235	0.902	285	0.669
36	1.003	86	1.032	136	1.038	186	0.988	236	0.900	286	0.662
37	1.004	87	1.033	137	1.037	187	0.987	237	0.897	287	0.654
38	1.004	88	1.034	138	1.037	188	0.986	238	0.894	288	0.647
39	1.004	89	1.035	139	1.037	189	0.985	239	0.891	289	0.639
40	1.004	90	1.036	140	1.035	190	0.984	240	0.888	290	0.632
41	1.004	91	1.036	141	1.035	191	0.983	241	0.885	291	0.623
42	1.005	92	1.037	142	1.034	192	0.982	242	0.882	292	0.613
43	1.005	93	1.019	143	1.033	193	0.981	243	0.879	293	0.603
44	1.005	94	1.037	144	1.032	194	0.980	244	0.876	294	0.593
45	1.005	95	1.050	145	1.031	195	0.978	245	0.873	295	0.582
46	1.005	96	1.045	146	1.023	196	0.977	246	0.870	296	0.572
47	1.006	97	1.042	147	1.029	197	0.976	247	0.867	297	0.562
48	1.006	98	1.042	148	1.028	198	0.975	248	0.864	298	0.552
49	1.006	99	1.045	149	1.027	199	0.974	249	0.860	299	0.542
50	1.007	100	1.044	150	1.025	200	0.972	250	0.857	300	0.532

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
301	0.522	351	0.076	401	-0.264	451	-0.519	501	-0.684	551	-0.676
302	0.512	352	0.068	402	-0.270	452	-0.524	502	-0.686	552	-0.673
303	0.502	353	0.061	403	-0.276	453	-0.528	503	-0.687	553	-0.670
304	0.492	354	0.053	404	-0.281	454	-0.533	504	-0.689	554	-0.668
305	0.482	355	0.045	405	-0.287	455	-0.537	505	-0.690	555	-0.665
306	0.472	356	0.038	406	-0.293	456	-0.541	506	-0.692	556	-0.662
307	0.462	357	0.030	407	-0.298	457	-0.546	507	-0.694	557	-0.659
308	0.452	358	0.022	408	-0.304	458	-0.550	508	-0.695	558	-0.656
309	0.442	359	0.015	409	-0.309	459	-0.554	509	-0.697	559	-0.653
310	0.432	360	0.007	410	-0.315	460	-0.559	510	-0.698	560	-0.650
311	0.423	361	0.000	411	-0.320	461	-0.563	511	-0.700	561	-0.646
312	0.413	362	-0.008	412	-0.325	462	-0.567	512	-0.701	562	-0.642
313	0.403	363	-0.015	413	-0.331	463	-0.571	513	-0.702	563	-0.639
314	0.394	364	-0.022	414	-0.336	464	-0.575	514	-0.702	564	-0.635
315	0.384	365	-0.029	415	-0.341	465	-0.579	515	-0.703	565	-0.631
316	0.375	366	-0.036	416	-0.347	466	-0.584	516	-0.704	566	-0.628
317	0.366	367	-0.043	417	-0.352	467	-0.587	517	-0.705	567	-0.624
318	0.357	368	-0.051	418	-0.357	468	-0.591	518	-0.705	568	-0.620
319	0.348	369	-0.058	419	-0.362	469	-0.595	519	-0.706	569	-0.616
320	0.339	370	-0.065	420	-0.368	470	-0.599	520	-0.706	570	-0.613
321	0.330	371	-0.073	421	-0.373	471	-0.602	521	-0.706	571	-0.609
322	0.321	372	-0.080	422	-0.378	472	-0.606	522	-0.707	572	-0.605
323	0.312	373	-0.087	423	-0.383	473	-0.609	523	-0.707	573	-0.600
324	0.304	374	-0.095	424	-0.389	474	-0.613	524	-0.707	574	-0.595
325	0.295	375	-0.102	425	-0.394	475	-0.616	525	-0.708	575	-0.590
326	0.286	376	-0.109	426	-0.399	476	-0.620	526	-0.708	576	-0.585
327	0.278	377	-0.116	427	-0.404	477	-0.623	527	-0.708	577	-0.579
328	0.269	378	-0.122	428	-0.409	478	-0.626	528	-0.707	578	-0.573
329	0.260	379	-0.129	429	-0.414	479	-0.630	529	-0.707	579	-0.568
330	0.252	380	-0.136	430	-0.419	480	-0.633	530	-0.707	580	-0.562
331	0.243	381	-0.142	431	-0.424	481	-0.636	531	-0.706	581	-0.557
332	0.234	382	-0.149	432	-0.429	482	-0.639	532	-0.705	582	-0.551
333	0.226	383	-0.155	433	-0.434	483	-0.642	533	-0.704	583	-0.545
334	0.217	384	-0.161	434	-0.439	484	-0.645	534	-0.704	584	-0.540
335	0.208	385	-0.168	435	-0.444	485	-0.648	535	-0.703	585	-0.534
336	0.200	386	-0.174	436	-0.448	486	-0.650	536	-0.702	586	-0.529
337	0.191	387	-0.180	437	-0.453	487	-0.653	537	-0.701	587	-0.523
338	0.183	388	-0.187	438	-0.458	488	-0.655	538	-0.700	588	-0.517
339	0.174	389	-0.193	439	-0.463	489	-0.658	539	-0.699	589	-0.510
340	0.166	390	-0.200	440	-0.467	490	-0.660	540	-0.697	590	-0.504
341	0.157	391	-0.206	441	-0.472	491	-0.663	541	-0.696	591	-0.497
342	0.149	392	-0.212	442	-0.477	492	-0.665	542	-0.695	592	-0.490
343	0.141	393	-0.218	443	-0.481	493	-0.668	543	-0.693	593	-0.483
344	0.132	394	-0.224	444	-0.486	494	-0.670	544	-0.691	594	-0.477
345	0.124	395	-0.230	445	-0.491	495	-0.672	545	-0.690	595	-0.470
346	0.116	396	-0.235	446	-0.496	496	-0.674	546	-0.688	596	-0.463
347	0.108	397	-0.241	447	-0.500	497	-0.676	547	-0.685	597	-0.456
348	0.100	398	-0.247	448	-0.505	498	-0.678	548	-0.683	598	-0.450
349	0.092	399	-0.253	449	-0.510	499	-0.680	549	-0.681	599	-0.443
350	0.084	400	-0.258	450	-0.515	500	-0.682	550	-0.678	600	-0.437

Surcharged Outfall Details for Storm


Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
601	-0.424	651	-0.040	701	0.084	751	0.093	801	0.097	851	0.100
602	-0.420	652	-0.032	702	0.084	752	0.094	802	0.097	852	0.100
603	-0.411	653	-0.024	703	0.085	753	0.094	803	0.097	853	0.100
604	-0.408	654	-0.017	704	0.085	754	0.094	804	0.097	854	0.100
605	-0.401	655	-0.009	705	0.085	755	0.094	805	0.097	855	0.100
606	-0.395	656	-0.002	706	0.086	756	0.094	806	0.097	856	0.100
607	-0.386	657	0.005	707	0.086	757	0.094	807	0.098	857	0.100
608	-0.379	658	0.013	708	0.086	758	0.094	808	0.098	858	0.100
609	-0.372	659	0.020	709	0.086	759	0.094	809	0.098	859	0.100
610	-0.364	660	0.027	710	0.087	760	0.094	810	0.098	860	0.100
611	-0.357	661	0.029	711	0.087	761	0.094	811	0.098	861	0.100
612	-0.350	662	0.035	712	0.087	762	0.094	812	0.098	862	0.100
613	-0.343	663	0.039	713	0.087	763	0.095	813	0.098	863	0.100
614	-0.335	664	0.042	714	0.088	764	0.095	814	0.098	864	0.100
615	-0.328	665	0.046	715	0.088	765	0.095	815	0.098	865	0.100
616	-0.321	666	0.049	716	0.088	766	0.095	816	0.098	866	0.100
617	-0.314	667	0.051	717	0.088	767	0.095	817	0.098	867	0.100
618	-0.306	668	0.054	718	0.089	768	0.095	818	0.098	868	0.100
619	-0.298	669	0.056	719	0.089	769	0.095	819	0.098	869	0.100
620	-0.290	670	0.058	720	0.089	770	0.095	820	0.098	870	0.100
621	-0.282	671	0.060	721	0.089	771	0.095	821	0.098	871	0.100
622	-0.274	672	0.062	722	0.090	772	0.095	822	0.098	872	0.100
623	-0.266	673	0.063	723	0.090	773	0.095	823	0.098	873	0.100
624	-0.258	674	0.065	724	0.090	774	0.095	824	0.098	874	0.100
625	-0.250	675	0.066	725	0.090	775	0.095	825	0.098	875	0.100
626	-0.242	676	0.067	726	0.090	776	0.096	826	0.099	876	0.101
627	-0.234	677	0.068	727	0.090	777	0.096	827	0.099	877	0.101
628	-0.226	678	0.070	728	0.091	778	0.096	828	0.099	878	0.101
629	-0.218	679	0.071	729	0.091	779	0.096	829	0.099	879	0.101
630	-0.210	680	0.072	730	0.091	780	0.096	830	0.099	880	0.101
631	-0.202	681	0.073	731	0.091	781	0.096	831	0.099	881	0.101
632	-0.194	682	0.073	732	0.091	782	0.096	832	0.099	882	0.101
633	-0.185	683	0.074	733	0.091	783	0.096	833	0.099	883	0.101
634	-0.177	684	0.075	734	0.091	784	0.096	834	0.099	884	0.101
635	-0.168	685	0.076	735	0.092	785	0.096	835	0.099	885	0.101
636	-0.160	686	0.076	736	0.092	786	0.096	836	0.099	886	0.101
637	-0.152	687	0.077	737	0.092	787	0.096	837	0.099	887	0.101
638	-0.143	688	0.078	738	0.092	788	0.096	838	0.099	888	0.101
639	-0.135	689	0.078	739	0.092	789	0.096	839	0.099	889	0.101
640	-0.127	690	0.079	740	0.092	790	0.097	840	0.099	890	0.101
641	-0.118	691	0.079	741	0.092	791	0.097	841	0.099	891	0.101
642	-0.110	692	0.080	742	0.092	792	0.097	842	0.099	892	0.101
643	-0.102	693	0.081	743	0.093	793	0.097	843	0.099	893	0.101
644	-0.094	694	0.081	744	0.093	794	0.097	844	0.099	894	0.101
645	-0.086	695	0.081	745	0.093	795	0.097	845	0.099	895	0.101
646	-0.078	696	0.082	746	0.093	796	0.097	846	0.099	896	0.101
647	-0.070	697	0.082	747	0.093	797	0.097	847	0.099	897	0.101
648	-0.063	698	0.083	748	0.093	798	0.097	848	0.099	898	0.101
649	-0.055	699	0.083	749	0.093	799	0.097	849	0.100	899	0.101
650	-0.047	700	0.084	750	0.093	800	0.097	850	0.100	900	0.101

Surcharged Outfall Details for Storm

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901	0.101	951	0.102	1001	0.103	1051	-0.155	1101	-0.490	1151	-0.735
902	0.101	952	0.103	1002	0.103	1052	-0.162	1102	-0.496	1152	-0.739
903	0.101	953	0.103	1003	0.103	1053	-0.169	1103	-0.501	1153	-0.744
904	0.101	954	0.103	1004	0.103	1054	-0.176	1104	-0.507	1154	-0.749
905	0.101	955	0.103	1005	0.104	1055	-0.183	1105	-0.513	1155	-0.754
906	0.101	956	0.103	1006	0.104	1056	-0.190	1106	-0.518	1156	-0.758
907	0.101	957	0.103	1007	0.104	1057	-0.197	1107	-0.523	1157	-0.763
908	0.101	958	0.103	1008	0.104	1058	-0.205	1108	-0.528	1158	-0.768
909	0.101	959	0.103	1009	0.104	1059	-0.212	1109	-0.533	1159	-0.772
910	0.102	960	0.103	1010	0.104	1060	-0.219	1110	-0.537	1160	-0.777
911	0.102	961	0.103	1011	0.104	1061	-0.226	1111	-0.542	1161	-0.781
912	0.102	962	0.103	1012	0.102	1062	-0.233	1112	-0.546	1162	-0.786
913	0.102	963	0.103	1013	0.097	1063	-0.240	1113	-0.551	1163	-0.790
914	0.102	964	0.103	1014	0.093	1064	-0.247	1114	-0.556	1164	-0.795
915	0.102	965	0.103	1015	0.089	1065	-0.254	1115	-0.561	1165	-0.799
916	0.102	966	0.103	1016	0.085	1066	-0.261	1116	-0.565	1166	-0.804
917	0.102	967	0.103	1017	0.080	1067	-0.268	1117	-0.570	1167	-0.808
918	0.102	968	0.103	1018	0.074	1068	-0.274	1118	-0.574	1168	-0.812
919	0.102	969	0.103	1019	0.068	1069	-0.281	1119	-0.578	1169	-0.817
920	0.102	970	0.103	1020	0.062	1070	-0.288	1120	-0.582	1170	-0.821
921	0.102	971	0.103	1021	0.055	1071	-0.295	1121	-0.587	1171	-0.826
922	0.102	972	0.103	1022	0.049	1072	-0.302	1122	-0.592	1172	-0.830
923	0.102	973	0.103	1023	0.042	1073	-0.308	1123	-0.597	1173	-0.834
924	0.102	974	0.103	1024	0.035	1074	-0.315	1124	-0.602	1174	-0.838
925	0.102	975	0.103	1025	0.028	1075	-0.322	1125	-0.607	1175	-0.842
926	0.102	976	0.103	1026	0.021	1076	-0.329	1126	-0.611	1176	-0.846
927	0.102	977	0.103	1027	0.014	1077	-0.335	1127	-0.616	1177	-0.850
928	0.102	978	0.103	1028	0.007	1078	-0.342	1128	-0.621	1178	-0.854
929	0.102	979	0.103	1029	0.000	1079	-0.349	1129	-0.626	1179	-0.858
930	0.102	980	0.103	1030	-0.007	1080	-0.356	1130	-0.631	1180	-0.862
931	0.102	981	0.103	1031	-0.014	1081	-0.362	1131	-0.636	1181	-0.866
932	0.102	982	0.103	1032	-0.021	1082	-0.369	1132	-0.641	1182	-0.870
933	0.102	983	0.103	1033	-0.028	1083	-0.375	1133	-0.646	1183	-0.874
934	0.102	984	0.103	1034	-0.035	1084	-0.382	1134	-0.651	1184	-0.878
935	0.102	985	0.103	1035	-0.042	1085	-0.388	1135	-0.656	1185	-0.882
936	0.102	986	0.103	1036	-0.049	1086	-0.395	1136	-0.661	1186	-0.886
937	0.102	987	0.103	1037	-0.056	1087	-0.401	1137	-0.666	1187	-0.890
938	0.102	988	0.103	1038	-0.063	1088	-0.408	1138	-0.672	1188	-0.893
939	0.102	989	0.103	1039	-0.070	1089	-0.414	1139	-0.677	1189	-0.897
940	0.102	990	0.103	1040	-0.077	1090	-0.421	1140	-0.682	1190	-0.901
941	0.102	991	0.103	1041	-0.084	1091	-0.427	1141	-0.687	1191	-0.905
942	0.102	992	0.103	1042	-0.091	1092	-0.433	1142	-0.691	1192	-0.908
943	0.102	993	0.103	1043	-0.098	1093	-0.440	1143	-0.696	1193	-0.912
944	0.102	994	0.103	1044	-0.105	1094	-0.446	1144	-0.701	1194	-0.916
945	0.102	995	0.103	1045	-0.112	1095	-0.453	1145	-0.706	1195	-0.920
946	0.102	996	0.103	1046	-0.119	1096	-0.459	1146	-0.711	1196	-0.923
947	0.102	997	0.103	1047	-0.127	1097	-0.465	1147	-0.716	1197	-0.927
948	0.102	998	0.103	1048	-0.134	1098	-0.472	1148	-0.720	1198	-0.931
949	0.102	999	0.103	1049	-0.141	1099	-0.478	1149	-0.725	1199	-0.934
950	0.102	1000	0.103	1050	-0.148	1100	-0.484	1150	-0.730	1200	-0.938

Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1201	-0.942	1241	-1.034	1281	-1.028	1321	-1.002	1361	-0.984	1401	-0.973
1202	-0.945	1242	-1.035	1282	-1.027	1322	-1.002	1362	-0.984	1402	-0.972
1203	-0.948	1243	-1.036	1283	-1.027	1323	-1.001	1363	-0.984	1403	-0.972
1204	-0.951	1244	-1.037	1284	-1.026	1324	-1.000	1364	-0.983	1404	-0.972
1205	-0.955	1245	-1.038	1285	-1.025	1325	-1.000	1365	-0.983	1405	-0.972
1206	-0.958	1246	-1.039	1286	-1.024	1326	-0.999	1366	-0.983	1406	-0.971
1207	-0.961	1247	-1.040	1287	-1.024	1327	-0.999	1367	-0.982	1407	-0.971
1208	-0.964	1248	-1.040	1288	-1.023	1328	-0.998	1368	-0.982	1408	-0.971
1209	-0.967	1249	-1.041	1289	-1.022	1329	-0.998	1369	-0.982	1409	-0.971
1210	-0.970	1250	-1.042	1290	-1.021	1330	-0.997	1370	-0.981	1410	-0.970
1211	-0.973	1251	-1.042	1291	-1.021	1331	-0.997	1371	-0.981	1411	-0.970
1212	-0.976	1252	-1.042	1292	-1.020	1332	-0.996	1372	-0.981	1412	-0.970
1213	-0.979	1253	-1.043	1293	-1.019	1333	-0.996	1373	-0.980	1413	-0.970
1214	-0.982	1254	-1.043	1294	-1.019	1334	-0.996	1374	-0.980	1414	-0.970
1215	-0.985	1255	-1.043	1295	-1.018	1335	-0.995	1375	-0.980	1415	-0.969
1216	-0.987	1256	-1.043	1296	-1.017	1336	-0.995	1376	-0.979	1416	-0.969
1217	-0.990	1257	-1.043	1297	-1.016	1337	-0.994	1377	-0.979	1417	-0.969
1218	-0.992	1258	-1.043	1298	-1.016	1338	-0.994	1378	-0.979	1418	-0.969
1219	-0.995	1259	-1.044	1299	-1.015	1339	-0.993	1379	-0.979	1419	-0.969
1220	-0.997	1260	-1.044	1300	-1.015	1340	-0.993	1380	-0.978	1420	-0.968
1221	-1.000	1261	-1.044	1301	-1.014	1341	-0.992	1381	-0.978	1421	-0.968
1222	-1.002	1262	-1.043	1302	-1.013	1342	-0.992	1382	-0.978	1422	-0.968
1223	-1.004	1263	-1.043	1303	-1.013	1343	-0.991	1383	-0.977	1423	-0.968
1224	-1.006	1264	-1.042	1304	-1.012	1344	-0.991	1384	-0.977	1424	-0.968
1225	-1.008	1265	-1.042	1305	-1.011	1345	-0.991	1385	-0.977	1425	-0.967
1226	-1.010	1266	-1.041	1306	-1.011	1346	-0.990	1386	-0.977	1426	-0.967
1227	-1.012	1267	-1.040	1307	-1.010	1347	-0.990	1387	-0.976	1427	-0.967
1228	-1.014	1268	-1.039	1308	-1.010	1348	-0.989	1388	-0.976	1428	-0.967
1229	-1.017	1269	-1.038	1309	-1.009	1349	-0.989	1389	-0.976	1429	-0.967
1230	-1.019	1270	-1.037	1310	-1.008	1350	-0.989	1390	-0.975	1430	-0.966
1231	-1.021	1271	-1.036	1311	-1.008	1351	-0.988	1391	-0.975	1431	-0.966
1232	-1.022	1272	-1.036	1312	-1.007	1352	-0.988	1392	-0.975	1432	-0.966
1233	-1.024	1273	-1.035	1313	-1.007	1353	-0.987	1393	-0.975	1433	-0.966
1234	-1.025	1274	-1.034	1314	-1.006	1354	-0.987	1394	-0.974	1434	-0.966
1235	-1.027	1275	-1.033	1315	-1.005	1355	-0.987	1395	-0.974	1435	-0.965
1236	-1.028	1276	-1.032	1316	-1.005	1356	-0.986	1396	-0.974	1436	-0.965
1237	-1.029	1277	-1.031	1317	-1.004	1357	-0.986	1397	-0.974	1437	-0.965
1238	-1.031	1278	-1.030	1318	-1.004	1358	-0.986	1398	-0.973	1438	-0.965
1239	-1.032	1279	-1.030	1319	-1.003	1359	-0.985	1399	-0.973	1439	-0.965
1240	-1.033	1280	-1.029	1320	-1.003	1360	-0.985	1400	-0.973	1440	0.000

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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	6
Number of Online Controls	6	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	18.200	Storm Duration (mins)	30
Ratio R	0.250		

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: 10, DS/PN: 1.005, Volume (m³): 17.1

Unit Reference	MD-SHE-0282-5320-2500-5320
Design Head (m)	2.500
Design Flow (l/s)	53.2
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	282
Invert Level (m)	-0.356
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.500	53.2
Flush-Flo™	0.733	53.1
Kick-Flo®	1.583	42.7
Mean Flow over Head Range	-	46.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.8	1.200	50.8	3.000	58.1	7.000	87.6
0.200	29.0	1.400	47.9	3.500	62.6	7.500	90.6
0.300	46.8	1.600	42.9	4.000	66.7	8.000	93.5
0.400	50.0	1.800	45.4	4.500	70.7	8.500	96.3
0.500	51.8	2.000	47.7	5.000	74.4	9.000	99.0
0.600	52.8	2.200	50.0	5.500	77.9	9.500	101.6
0.800	53.1	2.400	52.1	6.000	81.2		
1.000	52.3	2.600	54.2	6.500	84.5		

Hydro-Brake® Optimum Manhole: 15, DS/PN: 3.003, Volume (m³): 4.4

Unit Reference	MD-SHE-0189-1780-1000-1780
Design Head (m)	1.000
Design Flow (l/s)	17.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	189
Invert Level (m)	-0.371
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Hydro-Brake® Optimum Manhole: 15, DS/PN: 3.003, Volume (m³): 4.4

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	17.8
Flush-Flo™	0.331	17.8
Kick-Flo®	0.713	15.2
Mean Flow over Head Range	-	15.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.6	1.200	19.4	3.000	30.1	7.000	45.3
0.200	17.1	1.400	20.9	3.500	32.4	7.500	46.8
0.300	17.8	1.600	22.3	4.000	34.6	8.000	48.3
0.400	17.7	1.800	23.6	4.500	36.6	8.500	49.8
0.500	17.4	2.000	24.8	5.000	38.5	9.000	51.2
0.600	16.8	2.200	25.9	5.500	40.3	9.500	52.5
0.800	16.0	2.400	27.0	6.000	42.0		
1.000	17.8	2.600	28.1	6.500	43.7		

Hydro-Brake® Optimum Manhole: 19, DS/PN: 5.002, Volume (m³): 8.0

Unit Reference	MD-SHE-0258-3670-1000-3670
Design Head (m)	1.000
Design Flow (l/s)	36.7
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	258
Invert Level (m)	0.193
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	36.7
Flush-Flo™	0.406	36.7
Kick-Flo®	0.762	32.2
Mean Flow over Head Range	-	30.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.3	0.300	36.1	0.500	36.4	0.800	33.0
0.200	26.5	0.400	36.7	0.600	35.6	1.000	36.7

Hydro-Brake® Optimum Manhole: 19, DS/PN: 5.002, Volume (m³): 8.0

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.200	40.1	2.400	56.0	5.000	79.9	8.000	100.5
1.400	43.1	2.600	58.2	5.500	83.7	8.500	103.5
1.600	46.0	3.000	62.3	6.000	87.3	9.000	106.4
1.800	48.7	3.500	67.2	6.500	90.8	9.500	109.3
2.000	51.2	4.000	71.7	7.000	94.1		
2.200	53.7	4.500	75.9	7.500	97.4		

Hydro-Brake® Optimum Manhole: 21, DS/PN: 7.001, Volume (m³): 1.5

Unit Reference	MD-SHE-0141-8900-0800-8900
Design Head (m)	0.800
Design Flow (l/s)	8.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	141
Invert Level (m)	0.505
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	8.9
Flush-Flo™	0.255	8.9
Kick-Flo®	0.562	7.5
Mean Flow over Head Range	-	7.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.1	1.200	10.8	3.000	16.6	7.000	25.0
0.200	8.8	1.400	11.6	3.500	17.9	7.500	25.8
0.300	8.8	1.600	12.3	4.000	19.1	8.000	26.6
0.400	8.6	1.800	13.0	4.500	20.2	8.500	27.3
0.500	8.2	2.000	13.7	5.000	21.2	9.000	28.1
0.600	7.8	2.200	14.3	5.500	22.2	9.500	28.9
0.800	8.9	2.400	15.0	6.000	23.2		
1.000	9.9	2.600	15.5	6.500	24.1		

Hydro-Brake® Optimum Manhole: 23, DS/PN: 8.001, Volume (m³): 1.8

Unit Reference	MD-SHE-0168-1330-0800-1330
Design Head (m)	0.800
Design Flow (l/s)	13.3
Flush-Flo™	Calculated

Hydro-Brake® Optimum Manhole: 23, DS/PN: 8.001, Volume (m³): 1.8

Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	168
Invert Level (m)	0.443
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	13.3
Flush-Flo™	0.278	13.3
Kick-Flo®	0.584	11.5
Mean Flow over Head Range	-	11.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.0	1.200	16.1	3.000	25.0	7.000	37.6
0.200	13.0	1.400	17.3	3.500	26.9	7.500	38.8
0.300	13.3	1.600	18.5	4.000	28.7	8.000	40.1
0.400	13.0	1.800	19.5	4.500	30.3	8.500	41.1
0.500	12.5	2.000	20.6	5.000	31.9	9.000	42.3
0.600	11.6	2.200	21.5	5.500	33.4	9.500	43.5
0.800	13.3	2.400	22.4	6.000	34.9		
1.000	14.8	2.600	23.3	6.500	36.2		

Hydro-Brake® Optimum Manhole: 26, DS/PN: 9.002, Volume (m³): 4.7

Unit Reference	MD-SHE-0183-1650-1000-1650
Design Head (m)	1.000
Design Flow (l/s)	16.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	183
Invert Level (m)	0.224
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	16.5
Flush-Flo™	0.325	16.5
Kick-Flo®	0.706	14.0
Mean Flow over Head Range	-	14.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a

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Hydro-Brake® Optimum Manhole: 26, DS/PN: 9.002, Volume (m³): 4.7

Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.4	1.200	18.0	3.000	27.9	7.000	42.0
0.200	15.9	1.400	19.4	3.500	30.0	7.500	43.4
0.300	16.5	1.600	20.6	4.000	32.0	8.000	44.8
0.400	16.4	1.800	21.8	4.500	33.9	8.500	46.1
0.500	16.0	2.000	23.0	5.000	35.7	9.000	47.4
0.600	15.5	2.200	24.0	5.500	37.3	9.500	48.7
0.800	14.8	2.400	25.0	6.000	38.9		
1.000	16.5	2.600	26.0	6.500	40.5		

Storage Structures for Storm

Tank or Pond Manhole: 10, DS/PN: 1.005

Invert Level (m) 1.900

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	295.0	0.400	295.0

Tank or Pond Manhole: 15, DS/PN: 3.003

Invert Level (m) 0.300

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	180.0	0.600	180.0	0.601	0.0

Tank or Pond Manhole: 19, DS/PN: 5.002

Invert Level (m) 0.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	490.0	0.400	490.0	0.401	0.0

Tank or Pond Manhole: 21, DS/PN: 7.001

Invert Level (m) 0.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	150.0	0.300	150.0	0.301	0.0

Tank or Pond Manhole: 23, DS/PN: 8.001

Invert Level (m) 0.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	230.0	0.300	230.0	0.301	0.0

Tank or Pond Manhole: 26, DS/PN: 9.002

Invert Level (m) 0.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	250.0	0.300	250.0	0.301	0.0

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	6
Number of Online Controls	6	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0


Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.250
Region	Scotland and Ireland	Cv (Summer)	0.750
M5-60 (mm)	18.200	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF


Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 360, 480, 720, 1440, 2160
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water
									Level (m)
1.000	1	180 Winter	2	+0%	100/30	Summer			1.190
1.001	2	180 Winter	2	+0%	2/120	Winter			1.190
1.002	3	180 Winter	2	+0%	2/60	Summer			1.188
1.003	4	180 Winter	2	+0%	2/30	Summer			1.186
1.004	5	180 Winter	2	+0%	2/15	Winter			1.185
2.000	6	15 Winter	2	+0%					3.569
2.001	7	15 Winter	2	+0%					3.386
2.002	8	15 Winter	2	+0%	100/15	Summer			1.738
2.003	9	180 Winter	2	+0%	2/30	Summer			1.186
1.005	10	180 Winter	2	+0%	2/15	Summer			1.183
3.000	11	15 Winter	2	+0%					0.925
3.001	12	1440 Winter	2	+0%	2/720	Winter			0.592
3.002	13	1440 Winter	2	+0%	2/15	Summer			0.588
4.000	14	15 Winter	2	+0%	100/15	Winter			0.652
3.003	15	1440 Winter	2	+0%	2/15	Summer			0.587
5.000	16	360 Winter	2	+0%	100/120	Summer			0.819
5.001	17	360 Winter	2	+0%	2/120	Winter			0.818
6.000	18	360 Winter	2	+0%	100/120	Summer			0.818

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm


PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.385	0.000	0.02		15.4	OK	
1.001	2	0.052	0.000	0.03		22.2	SURCHARGED	
1.002	3	0.454	0.000	0.03		15.4	SURCHARGED	
1.003	4	0.593	0.000	0.02		14.6	SURCHARGED	
1.004	5	0.732	0.000	0.03		15.6	SURCHARGED	
2.000	6	-0.156	0.000	0.20		9.5	OK	
2.001	7	-0.156	0.000	0.20		9.4	OK	
2.002	8	-0.129	0.000	0.37		15.5	OK	
2.003	9	0.692	0.000	0.11		4.9	SURCHARGED	
1.005	10	0.789	0.000	0.04		16.3	SURCHARGED	
3.000	11	-0.175	0.000	0.11		7.2	OK	
3.001	12	0.065	0.000	0.03		1.8	SURCHARGED	
3.002	13	0.534	0.000	0.17		10.4	SURCHARGED	
4.000	14	-0.148	0.000	0.24		14.7	OK	
3.003	15	0.733	0.000	0.68		17.8	SURCHARGED	
5.000	16	-0.156	0.000	0.03		4.5	OK	
5.001	17	0.081	0.000	0.11		14.9	SURCHARGED	
6.000	18	-0.157	0.000	0.03		4.5	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
5.002	19	360	Winter	2	+0%	2/15	Summer		0.817
7.000	20	360	Winter	2	+0%	30/120	Winter		0.786
7.001	21	360	Winter	2	+0%	2/120	Winter		0.787
8.000	22	360	Winter	2	+0%	30/120	Winter		0.782
8.001	23	360	Winter	2	+0%	2/30	Winter		0.783
9.000	24	360	Winter	2	+0%	30/360	Winter		0.768
9.001	25	360	Winter	2	+0%	2/180	Winter		0.767
9.002	26	360	Winter	2	+0%	2/15	Summer		0.766
9.003	27	360	Winter	2	+0%	2/15	Summer		0.765

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
5.002	19	0.249	0.000	0.34			36.6	SURCHARGED	
7.000	20	-0.039	0.000	0.00			0.1	OK	
7.001	21	0.057	0.000	0.27			8.8	SURCHARGED	
8.000	22	-0.043	0.000	0.00			0.1	OK	
8.001	23	0.114	0.000	0.41			13.2	SURCHARGED	
9.000	24	-0.107	0.000	0.03			3.7	OK	
9.001	25	0.038	0.000	0.08			10.5	SURCHARGED	
9.002	26	0.167	0.000	0.09			16.5	SURCHARGED	
9.003	27	0.625	0.000	0.22			18.3	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 6
Number of Online Controls 6 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.250
Region Scotland and Ireland Cv (Summer) 0.750
M5-60 (mm) 18.200 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status OFF
Inertia Status OFF


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 360, 480, 720, 1440,
2160
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 20

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level
									(m)
1.000	1	120 Winter	30	+0%	100/30 Summer				1.553
1.001	2	120 Winter	30	+0%	2/120 Winter				1.541
1.002	3	120 Winter	30	+0%	2/60 Summer				1.534
1.003	4	120 Winter	30	+0%	2/30 Summer				1.528
1.004	5	120 Winter	30	+0%	2/15 Winter				1.522
2.000	6	15 Winter	30	+0%					3.596
2.001	7	15 Winter	30	+0%					3.413
2.002	8	15 Winter	30	+0%	100/15 Summer				1.791
2.003	9	120 Winter	30	+0%	2/30 Summer				1.526
1.005	10	120 Winter	30	+0%	2/15 Summer				1.517
3.000	11	15 Winter	30	+0%					0.944
3.001	12	1440 Winter	30	+0%	2/720 Winter				0.745
3.002	13	1440 Winter	30	+0%	2/15 Summer				0.739
4.000	14	1440 Winter	30	+0%	100/15 Winter				0.743
3.003	15	1440 Winter	30	+0%	2/15 Summer				0.736
5.000	16	360 Winter	30	+0%	100/120 Summer				0.958
5.001	17	360 Winter	30	+0%	2/120 Winter				0.956
6.000	18	360 Winter	30	+0%	100/120 Summer				0.954

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XP Solutions		Network 2020.1.3

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm


PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.022	0.000	0.04		30.3	OK	
1.001	2	0.403	0.000	0.05		43.4	SURCHARGED	
1.002	3	0.800	0.000	0.08		45.6	SURCHARGED	
1.003	4	0.935	0.000	0.08		44.0	SURCHARGED	
1.004	5	1.069	0.000	0.09		43.9	SURCHARGED	
2.000	6	-0.129	0.000	0.37		17.5	OK	
2.001	7	-0.129	0.000	0.37		17.3	OK	
2.002	8	-0.076	0.000	0.75		31.2	OK	
2.003	9	1.032	0.000	0.25		11.3	SURCHARGED	
1.005	10	1.123	0.000	0.11		51.5	SURCHARGED	
3.000	11	-0.156	0.000	0.20		13.2	OK	
3.001	12	0.218	0.000	0.04		2.6	SURCHARGED	
3.002	13	0.685	0.000	0.17		10.4	SURCHARGED	
4.000	14	-0.057	0.000	0.04		2.1	OK	
3.003	15	0.882	0.000	0.68		17.8	FLOOD RISK	
5.000	16	-0.017	0.000	0.05		7.5	OK	
5.001	17	0.218	0.000	0.10		14.5	SURCHARGED	
6.000	18	-0.021	0.000	0.04		7.5	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
5.002	19	360 Winter	30	+0%	2/15 Summer				0.952
7.000	20	360 Winter	30	+0%	30/120 Winter				0.899
7.001	21	360 Winter	30	+0%	2/120 Winter				0.899
8.000	22	360 Winter	30	+0%	30/120 Winter				0.895
8.001	23	360 Winter	30	+0%	2/30 Winter				0.895
9.000	24	360 Winter	30	+0%	30/360 Winter				0.896
9.001	25	360 Winter	30	+0%	2/180 Winter				0.894
9.002	26	360 Winter	30	+0%	2/15 Summer				0.892
9.003	27	360 Winter	30	+0%	2/15 Summer				0.881

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
5.002	19	0.384	0.000	0.34		36.7	SURCHARGED	
7.000	20	0.074	0.000	0.00		0.1	SURCHARGED	
7.001	21	0.169	0.000	0.27		8.8	SURCHARGED	
8.000	22	0.070	0.000	0.00		0.1	SURCHARGED	
8.001	23	0.227	0.000	0.41		13.3	SURCHARGED	
9.000	24	0.021	0.000	0.05		6.1	SURCHARGED	
9.001	25	0.165	0.000	0.08		10.2	SURCHARGED	
9.002	26	0.293	0.000	0.09		16.5	SURCHARGED	
9.003	27	0.741	0.000	0.22		18.3	FLOOD RISK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 6
Number of Online Controls 6 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.250
Region Scotland and Ireland Cv (Summer) 0.750
M5-60 (mm) 18.200 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status OFF
Inertia Status OFF


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 360, 480, 720, 1440, 2160
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	120 Winter	100	+20%	100/30	Summer			2.108
1.001	2	120 Winter	100	+20%	2/120	Winter			2.103
1.002	3	120 Winter	100	+20%	2/60	Summer			2.095
1.003	4	120 Winter	100	+20%	2/30	Summer			2.090
1.004	5	120 Winter	100	+20%	2/15	Winter			2.083
2.000	6	15 Winter	100	+20%					3.625
2.001	7	15 Winter	100	+20%					3.441
2.002	8	120 Winter	100	+20%	100/15	Summer			2.096
2.003	9	120 Winter	100	+20%	2/30	Summer			2.087
1.005	10	120 Winter	100	+20%	2/15	Summer			2.078
3.000	11	15 Winter	100	+20%					0.963
3.001	12	1440 Winter	100	+20%	2/720	Winter			0.899
3.002	13	1440 Winter	100	+20%	2/15	Summer			0.890
4.000	14	1440 Winter	100	+20%	100/15	Winter			0.896
3.003	15	1440 Winter	100	+20%	2/15	Summer			0.885
5.000	16	180 Winter	100	+20%	100/120	Summer			1.290
5.001	17	180 Winter	100	+20%	2/120	Winter			1.283
6.000	18	180 Winter	100	+20%	100/120	Summer			1.279

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged		Flooded		Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow (l/s)	Overflow (l/s)					
1.000	1	0.533	0.000	0.06			50.9	FLOOD RISK		
1.001	2	0.965	0.000	0.11			93.6	FLOOD RISK		
1.002	3	1.362	0.000	0.16			100.0	FLOOD RISK		
1.003	4	1.496	0.000	0.17			99.3	FLOOD RISK		
1.004	5	1.630	0.000	0.20			98.7	SURCHARGED		
2.000	6	-0.100	0.000	0.58			27.3	OK		
2.001	7	-0.101	0.000	0.57			27.0	OK		
2.002	8	0.229	0.000	0.44			18.1	SURCHARGED		
2.003	9	1.593	0.000	0.40			18.0	SURCHARGED		
1.005	10	1.684	0.000	0.12			53.1	SURCHARGED		
3.000	11	-0.137	0.000	0.32			20.7	OK		
3.001	12	0.372	0.000	0.06			3.8	SURCHARGED		
3.002	13	0.836	0.000	0.17			10.4	FLOOD RISK		
4.000	14	0.096	0.000	0.05			3.1	SURCHARGED		
3.003	15	1.031	0.000	0.68			17.8	FLOOD RISK		
5.000	16	0.315	0.000	0.13			17.9	FLOOD RISK		
5.001	17	0.545	0.000	0.25			35.3	FLOOD RISK		
6.000	18	0.304	0.000	0.11			18.0	FLOOD RISK		

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XP Solutions		Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
5.002	19	180 Winter	100	+20%	2/15 Summer				1.272
7.000	20	180 Winter	100	+20%	30/120 Winter				1.274
7.001	21	180 Winter	100	+20%	2/120 Winter				1.274
8.000	22	180 Winter	100	+20%	30/120 Winter				1.282
8.001	23	180 Winter	100	+20%	2/30 Winter				1.282
9.000	24	180 Winter	100	+20%	30/360 Winter				1.268
9.001	25	180 Winter	100	+20%	2/180 Winter				1.262
9.002	26	180 Winter	100	+20%	2/15 Summer				1.254
9.003	27	120 Winter	100	+20%	2/15 Summer				1.051

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
5.002	19	0.704	0.000	0.34		36.7	FLOOD RISK	
7.000	20	0.449	0.000	0.01		0.2	FLOOD RISK	
7.001	21	0.544	0.000	0.27		8.8	FLOOD RISK	
8.000	22	0.457	0.000	0.01		0.3	FLOOD RISK	
8.001	23	0.614	0.000	0.41		13.3	FLOOD RISK	
9.000	24	0.393	0.000	0.11		14.7	FLOOD RISK	
9.001	25	0.533	0.000	0.19		24.4	FLOOD RISK	
9.002	26	0.655	0.000	0.09		16.5	SURCHARGED	
9.003	27	0.911	0.000	0.14		11.4	FLOOD RISK	

Appendix B - Irish Water Pre-Connection Enquiry Form & Confirmation of Feasibility Letter

Pre-connection enquiry form

Business developments, mixed use developments, housing developments



This form is to be filled out by applicants enquiring about the feasibility of a water and/or wastewater connection to Irish Water infrastructure. If completing this form by hand, please use BLOCK CAPITALS and black ink.

Please refer to the **Guide to completing the pre-connection enquiry form** on page 13 of this document when completing the form.

*** Denotes mandatory/ required field. Please note, if mandatory fields are not completed the application will be returned.**

Section A | Applicant details

1 *Applicant details:

Registered company name (if applicable):

Trading name (if applicable):

Company registration number (if applicable):

If you are not a registered company/business, please provide the applicant's name:

*Contact name:

*Postal address:

*Eircode:

*Telephone:

Mobile:

*Email:

2 Agent details (if applicable):

Contact name:

Company name (if applicable):

Postal address:

Eircode:

Telephone:

Email:

3 ***Please indicate whether it is the applicant or agent who should receive future correspondence in relation to the enquiry:**

Applicant

Agent

Section B | Site details

4 ***Site address:**

5 ***Irish Grid co-ordinates of site:** Eastings (X) Northings (Y)
Eg. co-ordinates of GPO, O'Connell St., Dublin: E(X) 315,878 N(Y) 234,619

6 ***Local Authority:**
Local Authority that granted planning permission (if applicable):

7 ***Has full planning permission been granted?** Yes No
If 'Yes', please provide the current or previous planning reference number:

Section C | Development details

8 Please outline the domestic and/or industry/business use proposed:

Property type	Number of units	Property type	Number of units	Property type	Number of units
House		Apartments		Agricultural	
Office		School		Retail unit	
Residential care home		Institution		Industrial unit	
Hotel		Factory		Other	
Other (please specify type)					

9 *Approximate start date of proposed development:
 / /

10 *Is the development multi-phased?
 Yes No

If 'Yes', application must include a master-plan identifying the development phases and the current phase number.

If 'Yes', please provide details of variations in water demand volumes and wastewater discharge loads due to phasing requirements.

11 *Please indicate the type of connection required by ticking the appropriate box below:

- Water** Please go to Section D
- Wastewater** Please go to Section E
- Both** Please complete both Sections D and E

Section D | Water connection and demand details

- 12 ***Is there an existing connection to public water mains at the site?** Yes No
- 12.1 If yes, is this enquiry for an additional connection to one already installed? Yes No
- 12.2 If yes, is this enquiry to increase the size of an existing connection? Yes No

13 **Approximate date water connection is required:** / /

14 ***What diameter of water connection is required to service the development?** mm

- 15 ***Is more than one connection required to the public infrastructure to service this development?** Yes No
- If 'Yes', how many?

16 **Please indicate the business water demand (shops, offices, schools, hotels, restaurants, etc.):**

Post-development peak hour water demand		I/s
Post-development average hour water demand		I/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

17 **Please indicate the industrial water demand (industry-specific water requirements):**

Post-development peak hour water demand		I/s
Post-development average hour water demand		I/s

Please include calculations on the attached sheet provided. Where there will be a daily/weekly/seasonal variation in the water demand profile, please provide all such details.

18 **What is the existing ground level at the property boundary at connection point (if known) above Malin Head Ordnance Datum?**

m

19 **What is the highest finished floor level of the proposed development above Malin Head Ordnance Datum?**

m

20 **Is on-site water storage being provided?** Yes No

Please include calculations on the attached sheet provided.

Please note that if you are sending us your application form and any associated documentation by email, the maximum file size that we can receive in any one email is 35MB.

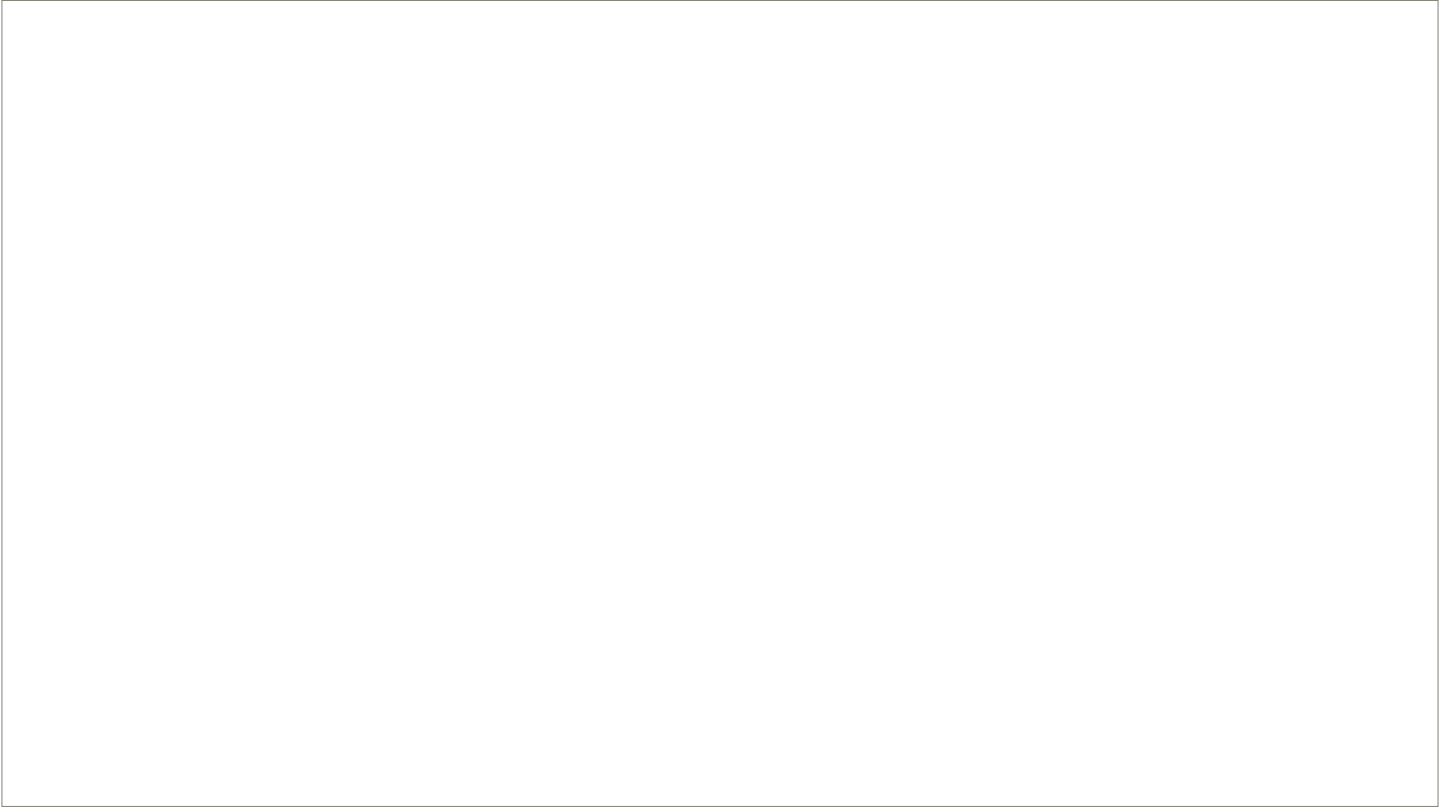
Please note, if mandatory fields are not completed the application will be returned.

Irish Water is subject to the provisions of the Freedom of Information Act 2014 (“FOIA”) and the codes of practice issued under FOIA as may be amended, updated or replaced from time to time. The FOIA enables members of the public to obtain access to records held by public bodies subject to certain exemptions such as where the requested records may not be released, for example to protect another individual’s privacy rights or to protect commercially sensitive information. Please clearly label any document or part thereof which contains commercially sensitive information. Irish Water accepts no responsibility for any loss or damage arising as a result of its processing of freedom of information requests.

Calculations

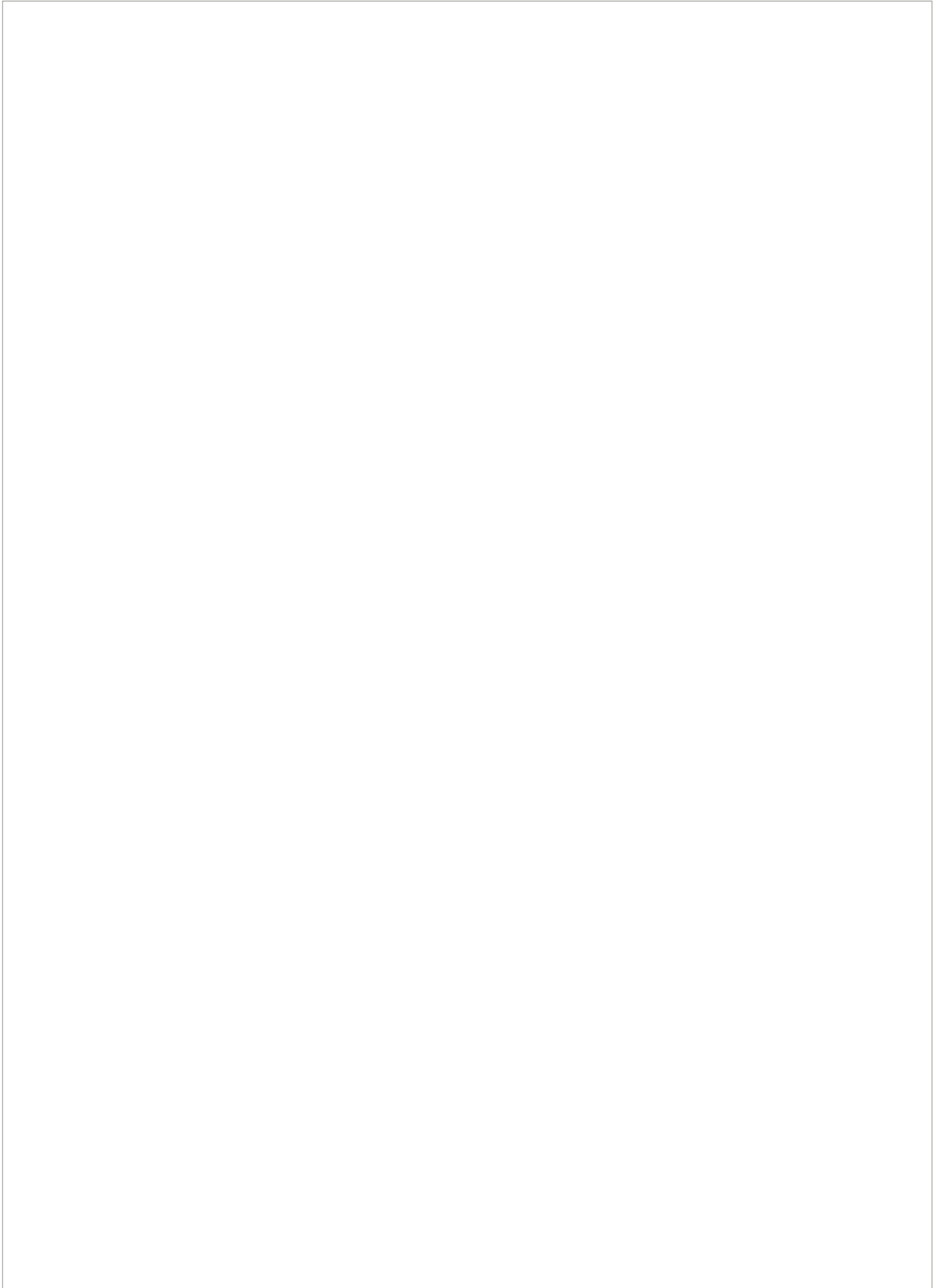
Water demand

On-site storage



Fire flow requirements







Ronan O'Donnell
 One Albert Quay
 Cork City
 Co. Cork
 T12X8N6

Uisce Éireann
 Bosca OP 448
 Oifig Sheachadta na
 Cathrach Theas
 Cathair Chorcaí

Irish Water
 PO Box 448,
 South City
 Delivery Office,
 Cork City.

25 August 2021

Re: CDS21004313 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 1,676 unit(s) at Centre Park Road, Cork City, Cork www.water.ie

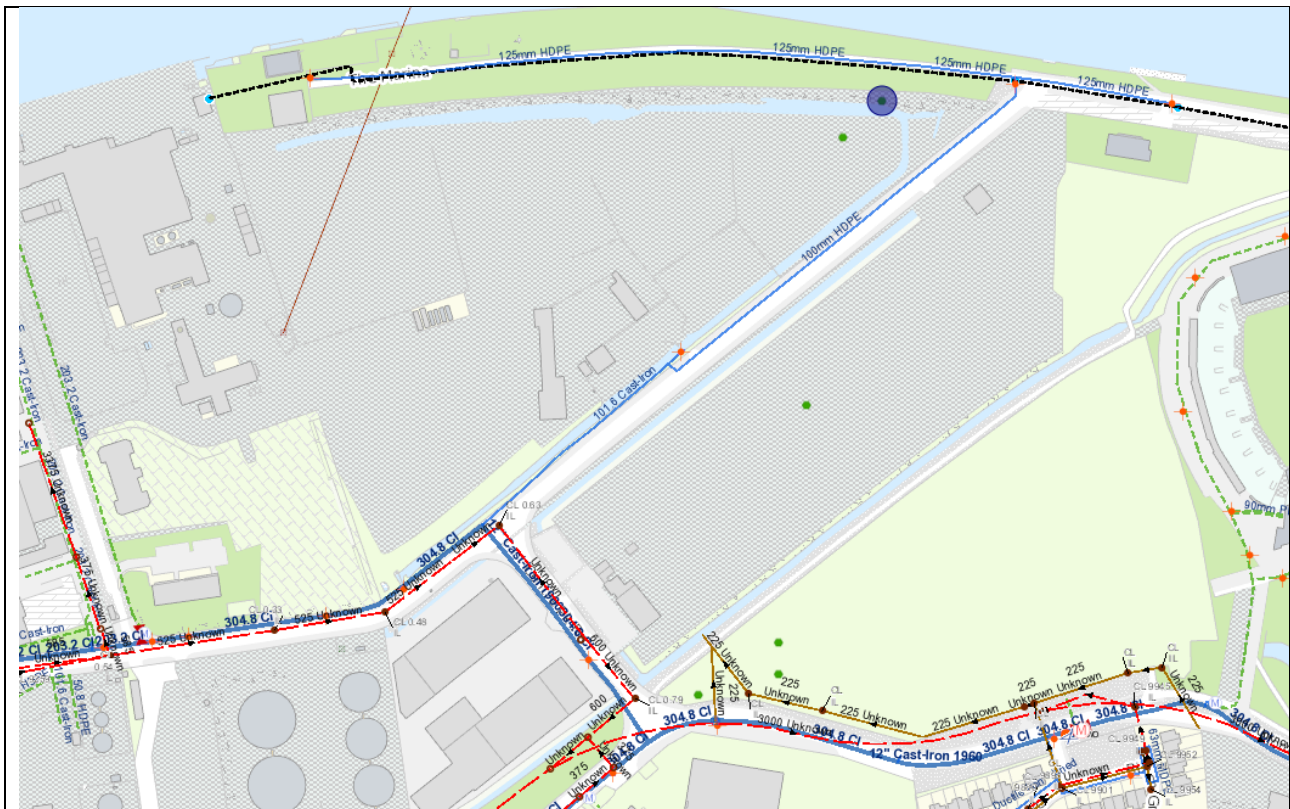
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Centre Park Road, Cork City, Cork (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY <u>THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.</u>
Water Connection	Feasible subject to upgrades
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
SITE SPECIFIC COMMENTS	
Water Connection	In order to accommodate the proposed connection at the Premises, delivery of a strategic project for the South Docks area is required. The project involves upgrading of water infrastructure to supply the wider South Docks. The project is currently in design and engineering stage. There is no definite timeline on delivery but it is estimated at the end of 2022.
Wastewater Connection	Connection feasible without infrastructure upgrade
Strategic Housing Development	Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. Therefore, in advance of submitting your full application to An Bord Pleanála for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services. Please submit your design to cdsdesignqa@water.ie

The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.

The map included below outlines the current Irish Water infrastructure adjacent to your site:



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34


Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

General Notes:

- 1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
- 2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
- 3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
- 4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at <https://www.water.ie/connections/get-connected/>
- 5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
- 6) Irish Water Connection Policy/ Charges can be found at <https://www.water.ie/connections/information/connection-charges/>
- 7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
- 8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
- 9) To access Irish Water Maps email datarequests@water.ie
- 10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Dario Alvarez from the design team on + 353 2254621 or email dalvarez@water.ie For further information, visit **www.water.ie/connections**.

Yours sincerely,



Yvonne Harris

Head of Customer Operations

Appendix C – Irish Water Statement of Design Acceptance



Ronan O'Donnell
One Albert Quay
Cork City, Co. Cork T12X8N6

11 March 2022

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

**Re: Design Submission for Centre Park Road, Cork City, Cork (the “Development”)
(the “Design Submission”) / Connection Reference No: CDS21004313**

Dear Ronan O'Donnell,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU)(https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water's network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water representative:

Name: Dario Gozalo Alvarez

Phone: + 353 2254621

Email: dalvarez@water.ie

Yours sincerely,

Yvonne Harris
Head of Customer Operations

Appendix A

Document Title & Revision

- 267365-ARUP-ZZ-ZZ-DR-C-1000 Rev: P01
- 267365-ARUP-ZZ-ZZ-DR-C-2000 Rev: P04
- 267365-ARUP-ZZ-ZZ-DR-C-3000 Rev: P05
- 267365-ARUP-ZZ-ZZ-DR-C-4000 Rev: P04
- 267365-ARUP-ZZ-ZZ-DR-C-6000 Rev: P01
- 267365-ARUP-ZZ-ZZ-DR-C-6001 Rev: P02
- 267365-ARUP-ZZ-ZZ-DR-C-9000 Rev: P02
- 267365-ARUP-ZZ-ZZ-SK-C-0001 Rev: P02

For further information, visit www.water.ie/connections

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.



- Notes:**
- 1) All levels relate to OD Malin Head and are in meters.
 - 2) Do not scale from this drawing. If in doubt, ask.
 - 3) This drawing should be read in conjunction with all relevant and available documentation.
 - 4) Ordnance Survey Ireland License No. EN 0002822 © Ordnance Survey Ireland/Government of Ireland.
 - 5) All pipework shall be Polypropylene Rigid Drain pipe and fittings, or similar approved.
 - 6) Proposed linear drainage channels to be Ace Multi-Drain channels with D400 Bricklot covers to suit the architect's proposed finished surface.
 - 7) Proposed road gullies shall be Polypropylene Rigidgully with D400 Buffalo 100 ductile iron grating.
 - 8) All runoff from car park areas to be treated by a Class 1 Hydrocarbon separator.
 - 9) All pipes to have a minimum cover of 900mm in non-trafficable areas and 1.2m in trafficable areas.
 - 10) All gully and linear drainage sump outlets to be 150mm dia.
 - 11) All chamber covers to be rated D400 where located in trafficable areas and C250 elsewhere.

- Legend:**
- Proposed Culvert
 - Existing Open Channel
 - Existing Surface Water Drain
 - Proposed Surface Water Drain & Manhole
 - Proposed Backdrop Manhole
 - Proposed Geocellular Attenuation/Detention Basin
 - Proposed Under-Drained Planter
 - Proposed Bio-Swale
 - Proposed Permeable Paving
 - Proposed Road Gully
 - Proposed Linear Drainage Channel & Sump
 - Proposed Hydrocarbon Interceptor
 - Proposed Planning Boundary
 - Proposed Building Outline
 - Extent of Podium

P04	08/03/22	ROD	RM	JMacC
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P03	22/12/21	ROD	RM	JMacC
Issued for Information (Status S2)				
P02	13/10/21	ROD	RM	JMacC
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P01	04/10/21	ROD	RM	JMacC
Issued for Information (Status S2)				
Rev	Date	By	Check	Appd

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Client
Tiznow Property Company Limited
(Comer Group Limited)

Project Title
The Former Tedcastles Site

Drawing Title
Proposed Surface Water Layout

Scale of A0: 1:500
Risk: Site Infrastructure
Suitability: S2 - Suitable for Information
Arup Job No: **267365-00** Rev: **P04**
Name: **267365-ARUP-ZZ-ZZ-DR-C-2000**



Development Proposals Include	No. units	Area (m ²)
Residential Units	823	
Commercial Space (Cafe, Restaurant, Creche)		3307
Resident Amenity		2756

- Notes:
- All levels relate to OD Main Head and are in meters.
 - Do not scale from this drawing. If in doubt, ask.
 - This drawing should be read in conjunction with all relevant and available documentation.
 - Ordnance Survey Ireland License No. EN0002822 © Ordnance Survey Ireland/Government of Ireland.
 - Existing foul water infrastructure based on record drawings received from Cork City Council (as agents for Irish Water) May 2019.
 - All foul water drainage to be designed and constructed in accordance with Irish Water Code of Practice and Standard Details.
 - All pipework shall be Polypropylene Polysewer and fittings, or similar approved.
 - All pipes to have a minimum cover of 900mm in non-trafficable areas and 1.2m in trafficable areas.
 - All chamber covers to be rated D400 where located in trafficable areas and C250 elsewhere.
 - Non-return valves expected to be fitted on all foul drainage building connections immediately prior to discharge from the building.
 - Manhole covers located in soft landscaped/grass areas are to be surrounded by a concrete plinth, 200mm all round and 100mm deep formed with C20/25 concrete, 20mm aggregate size, bedded in Clause 804 material.
 - All runoff from the undercroft car park shall be discharged to the foul water sewer.
 - All foul water infrastructure will achieve horizontal and vertical distances as set out in Irish Water Code of Practice and Standard Details, unless agreed with Irish Water in advance.

- Legend:
- Existing Foul Water Sewer & Manhole
 - Proposed Foul Water Drain & Manhole
 - Proposed Backdrop Manhole
 - Proposed Foul Water Building Connection & Inspection Chamber
 - Proposed Planning Boundary
 - Proposed Building Outline
 - Extent of Podium
 - Existing Spot Level
 - Proposed Spot Level

P05	08/03/22	ROD	RM	JMacC	Issued for Information (Status S2)
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P03	22/12/21	ROD	RM	JMacC	Issued for Information (Status S2)
P02	13/10/21	ROD	RM	JMacC	Issued for Information (Status S2)
P01	04/10/21	ROD	RM	JMacC	Issued for Information (Status S2)

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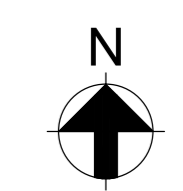
Project Title
The Former Tedcastles Site

Drawing Title
Proposed Foul Water Layout

Scale of A0	1:500
Disc	Site Infrastructure
Suitability	S2 - Suitable for Information
Arup Job No	267365-00
Rev	P05
Name	267365-ARUP-ZZ-ZZ-DR-C-3000



Development Proposals Include	No. units	Area (m ²)
Residential Units	823	
Commercial Space (Café, Restaurant, Creche)		3307
Resident Amenity		2756



- Notes:**
- All levels relate to OD Main Head and are in meters.
 - Do not scale from this drawing. If in doubt, ask.
 - This drawing should be read in conjunction with all relevant and available documentation.
 - Ordnance Survey Ireland License No. EN0002822 © Ordnance Survey Ireland/Government of Ireland.
 - Existing watermain infrastructure based on record drawings received from Cork City Council (as agents for Irish Water) 29 May 2019.
 - All potable watermains to be designed and constructed in accordance with Irish Water Code of Practice and Standard Details.
 - All potable water pipework material shall be polyethylene PE100 SDR 11, subject to confirmation by Irish Water.
 - All potable water pipework to have a minimum cover of 900mm, unless notified otherwise.
 - A new bulk water meter shall be installed at the connection point to the site as shown.
 - The metering strategy for the site is to be agreed with Irish Water during detail design stage. The current assumption is that there will be a meter room within each residential block.
 - Proposed watermain sizes are indicative only and to be confirmed at detailed design stage.
 - Number of hydrants and their locations are shown indicatively and will be located/spaced in accordance with the relevant standards at detailed design stage. Hydrants are proposed to be fed from the potable water network. Check valves in line with Irish Water requirements will be provided to prevent backflow into the potable water network.
 - Thrust blocks shall be constructed on all vertical and horizontal changes in direction $\geq 11.25^\circ$, tees and dead ends.
 - Size of proposed watermains shown are indicative only and are to be confirmed at detailed design stage.
 - Air valve and hydrant covers, where located in grass areas, shall be surrounded by a concrete plinth, 200mm all round and 100mm deep, formed with C20/25 concrete, 20mm aggregate size, and bedded in Clause 804 material. The plinth shall incorporate mild steel reinforcement links and shall have a bull-nose finish around its external perimeter as per Irish Water Code of Practice.
 - All water infrastructure will achieve horizontal and vertical distances as set out in Irish Water Code of Practice and Standard Details, unless agreed with Irish Water in advance.
 - An acceptable isolation device shall be provided using a connection via an unrestricted airgap device (A Type device, IS EN 1717) to prevent backflow from the internal water distribution system to Irish Water's Network to prevent the risk of backflow contamination.

Legend:

- Existing Watermain ---
- Assumed proposed Irish Water watermain ---
- Proposed Watermain ---
- Proposed Water Meter ⊙
- Proposed Sluice Valve ⊗
- Proposed Air Valve ⊕
- Proposed Scour Valve ⊖
- Proposed Thrust Block ⊘
- Proposed Washout Hydrant ⊙
- Proposed Fire Hydrant ⊙
- Proposed Watermain Building Connection ---
- Proposed Planning Boundary ---
- Proposed Building Outline ---
- Extent of Podium ---
- Existing Spot Level +0.50m
- Proposed Spot Level +2.30m

Metering Strategy:
 Only Bulk Water meters are shown on the layout drawing. Individual meters outside building connections are not shown for clarity. The strategy for metering is as follows:

- A bulk water meter will be provided immediately downstream of the connection to the existing Irish Water watermain.
- For supply to highrise blocks with multiple apartments a below ground meter will be provided outside the building to allow for metering of the entire block and a water meter room is allowed for within the block to allow for metering of individual residential/amenity units.
- For supply to individual retail/café/restaurant units a below ground meter will be provided outside the building.

It is understood that the proposed watermain required along Centre Park Road as part of this development follows the same path as the proposed additional supply to the Docklands from the Glashaboy Reservoir by Irish Water.

It is proposed to install the watermain along Centre Park Road as shown, in line with the requirements of Irish Water and the also requirements to serve the proposed development. Details including pipe size to be confirmed and agreed with Irish Water.

P04	08/03/22	ROD	RM	JMacC
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P03	22/12/21	ROD	RM	JMacC
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Issued for Information (Status S2)				
P01	04/10/21	ROD	RM	JMacC
Issued for Information (Status S2)				
Rev	Date	By	Chk	Appd

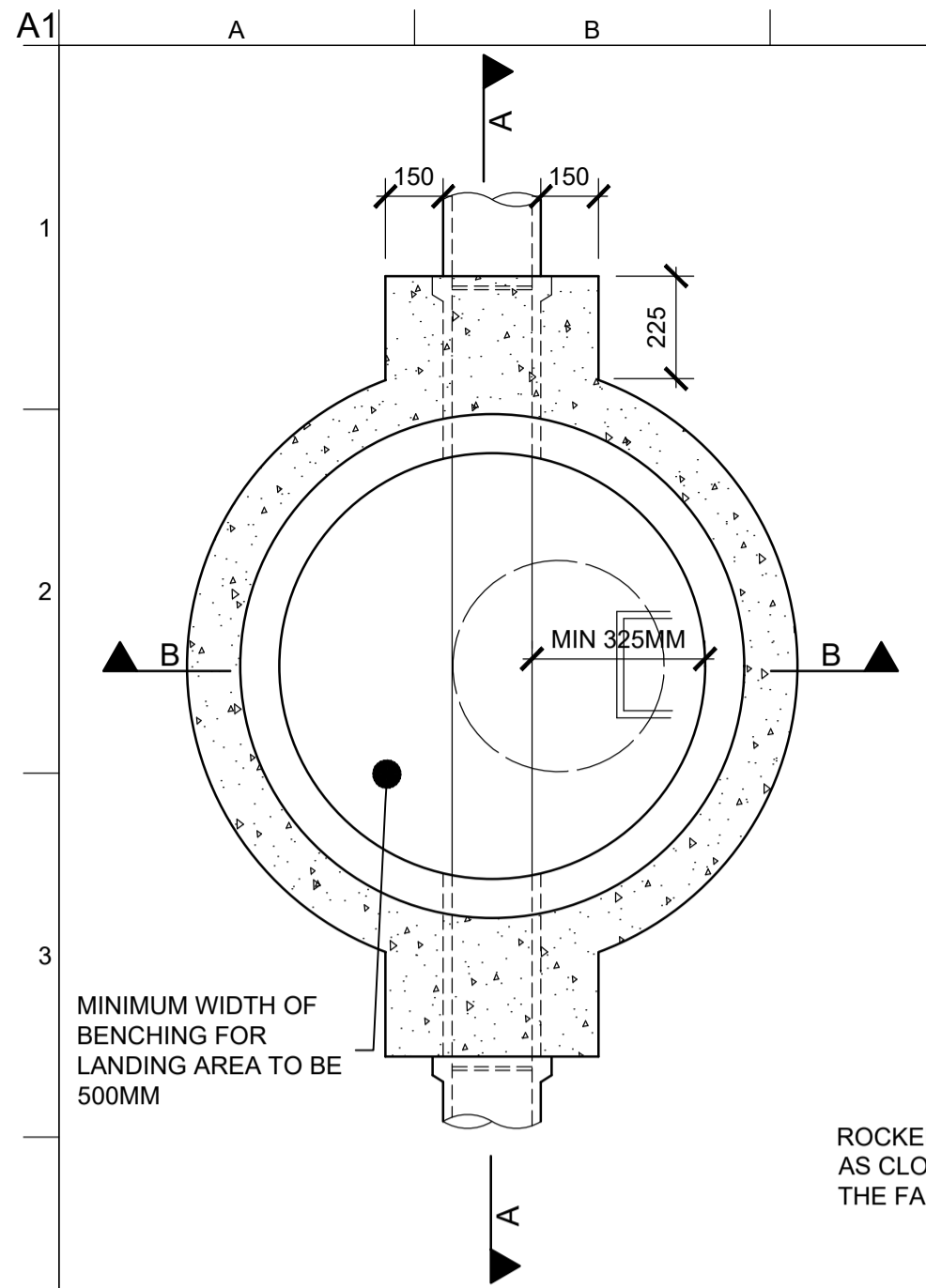
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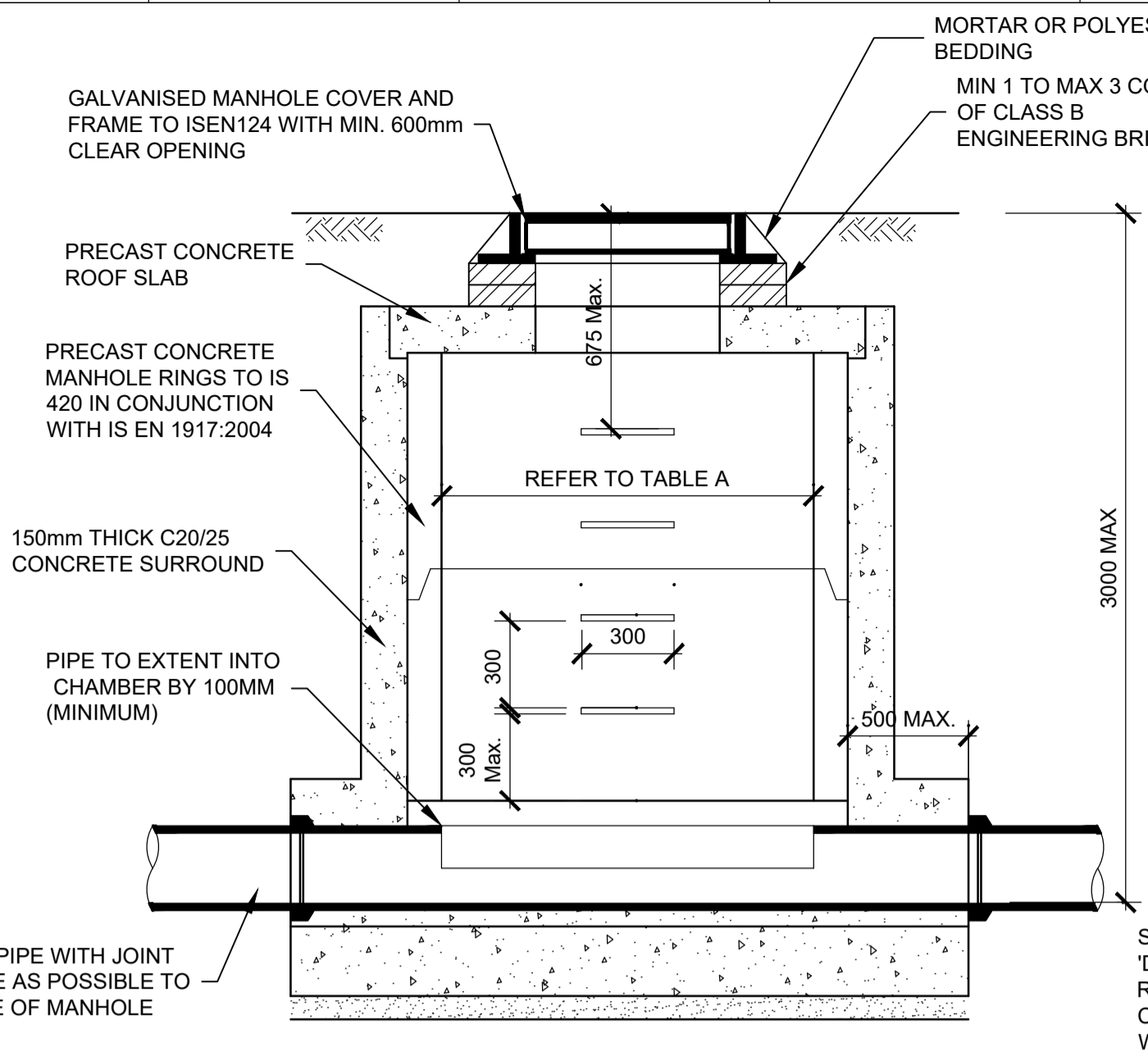
Project Title
The Former Tedcastles Site

Drawing Title
Proposed Watermain Layout

Scale of A0	1:500
Scale	Site Infrastructure
Suitability	S2 - Suitable for Information
Arup Job No	267365-00
Rev	P04
Name	267365-ARUP-ZZ-ZZ-DR-C-4000



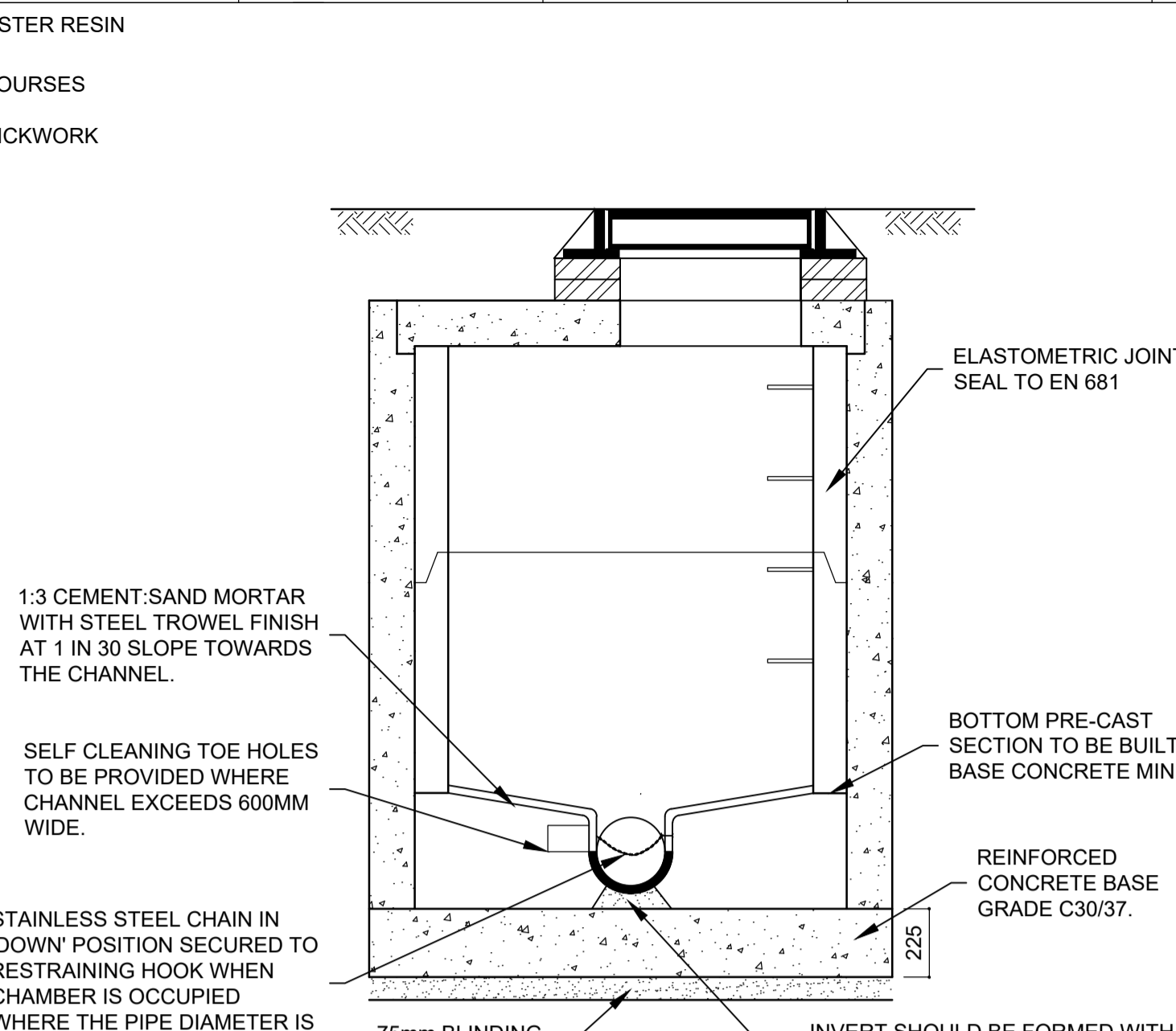
Sectional Plan



Section A-A

Shallow Precast Concrete Manhole

SCALE 1:20
(DEPTHS UP TO 3.0m)



Section B-B

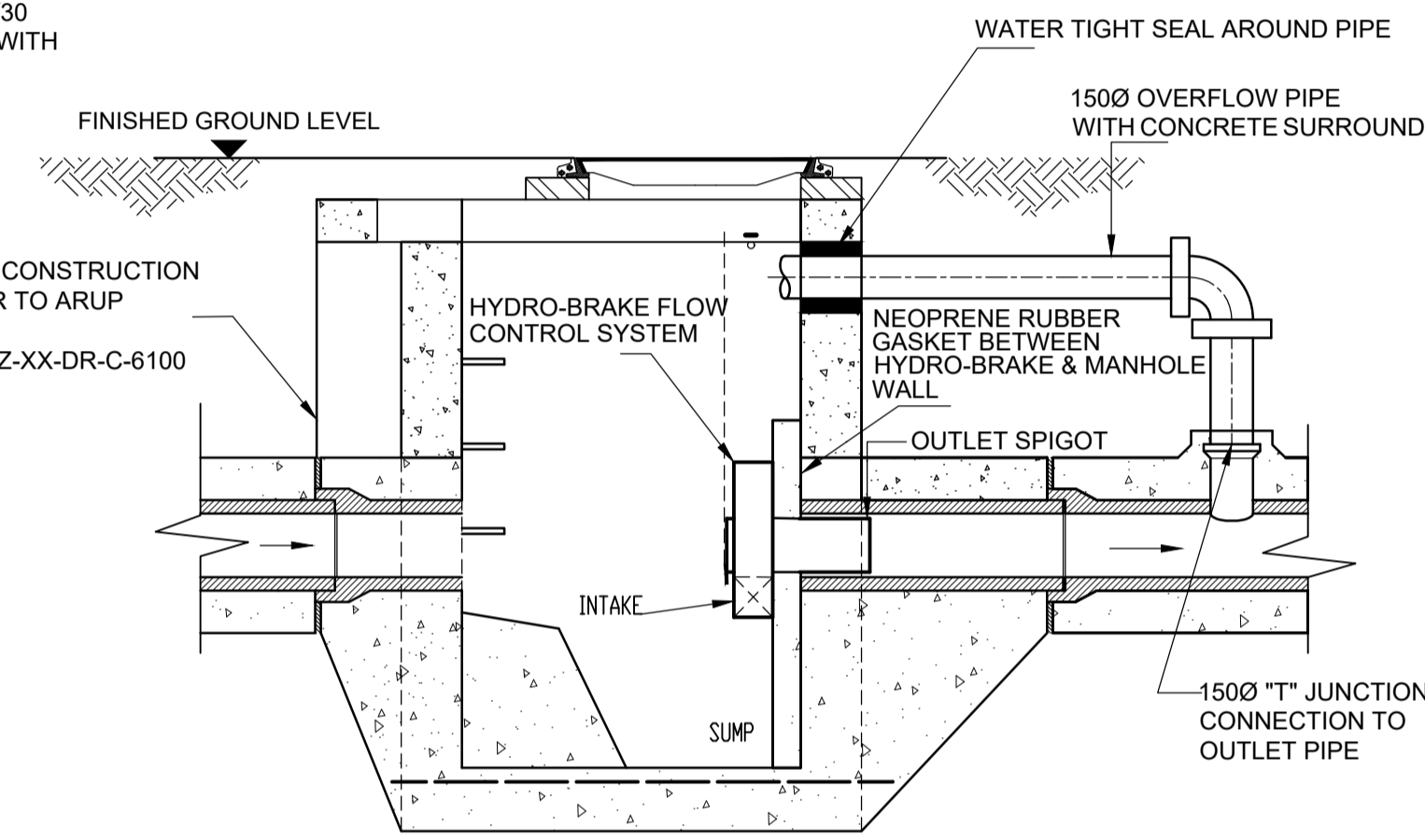
NOTES :

MANHOLE CONSTRUCTION
CONCRETE MANHOLES SHALL BE CONSTRUCTED OF PRECAST UNITS COMPLYING WITH E.N.420 AND SHALL BE OF THE DIMENSIONS AS SHOWN ON THE DRAWING.

COVERS
MANHOLE COVERS AND FRAMES TO COMPLY WITH THE REQUIREMENTS OF EN 124:1994. COVERS IN ROADWAYS TO BE AN APPROVED MINIMUM CLASS D400 WITH 600mm CLEAR OPENING. COVERS SHALL BE STEEL OR IRON FABRICATED GALVANISED WITH 100mm DEEP FRAME, NON ROCK BY MEANS OF V SHAPED SEATING WITH WEDGING. COVERS TO BE THIRD PARTY CERTIFIED e.g. BSI KMI OR SIMILAR UNLESS NOTED OTHERWISE.

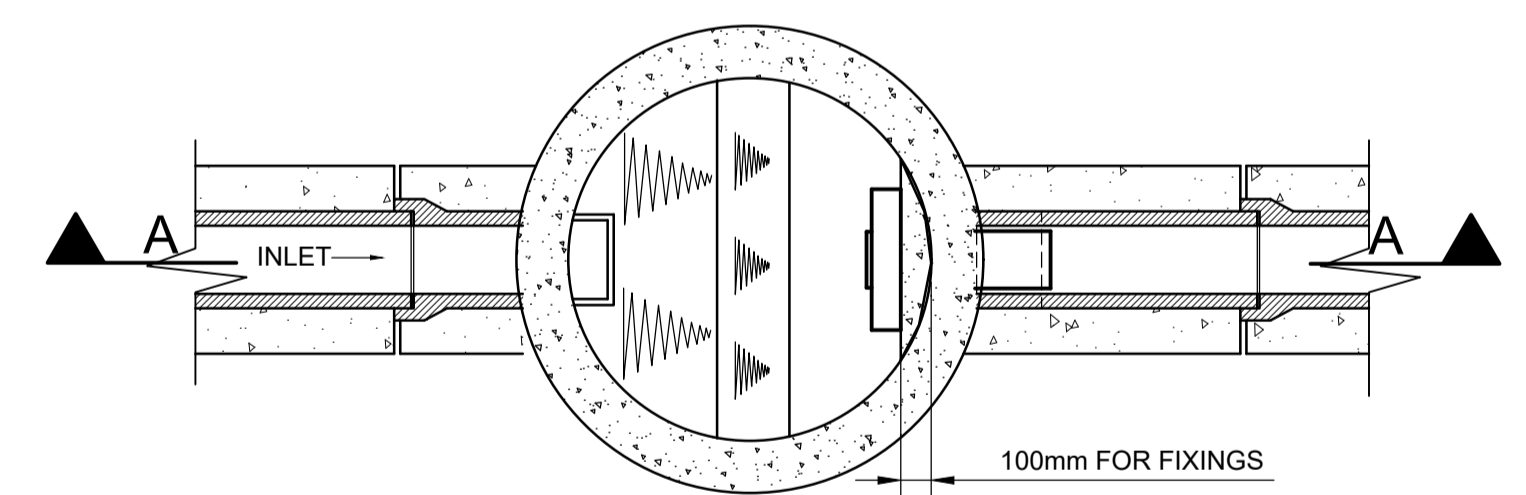
ACCESS STEPS/LADDERS
MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D, CLASS 1, GALVANISED MILD STEEL & PLASTIC ENCAPSULATED. STEPS ARE REQUIRED IN MANHOLES UP TO A GROUND TO PIPE SOFIT DEPTH OF LESS THAN 3.0M. MANHOLE LADDERS ARE REQUIRED FOR MANHOLES WITH A DEPTH IN EXCESS OF 3.0M & LADDERS ARE TO COMPLY WITH IS EN 14396.

BENCHING
BENCHING IS TO BE FORMED IN C25/30 CONCRETE AND SHOULD RISE VERTICALLY FROM THE TOP EDGE OF THE CHANNEL TO A HEIGHT NOT LESS THAN THAT OF THE SOFFIT OF THE OUTLET AND SLOPE UPWARDS TO MEET THE WALL OF THE MANHOLE AT A GRADIENT OF 1:6 (MIN RISE 25mm). IT SHOULD BE FLOATED WITH A STEEL FLOAT TO A SMOOTH HARD SURFACE WITH A 25mm THICK COAT OF 1:1 CEMENT MORTAR LAID WHILE THE BENCHING CONCRETE IS STILL GREEN.

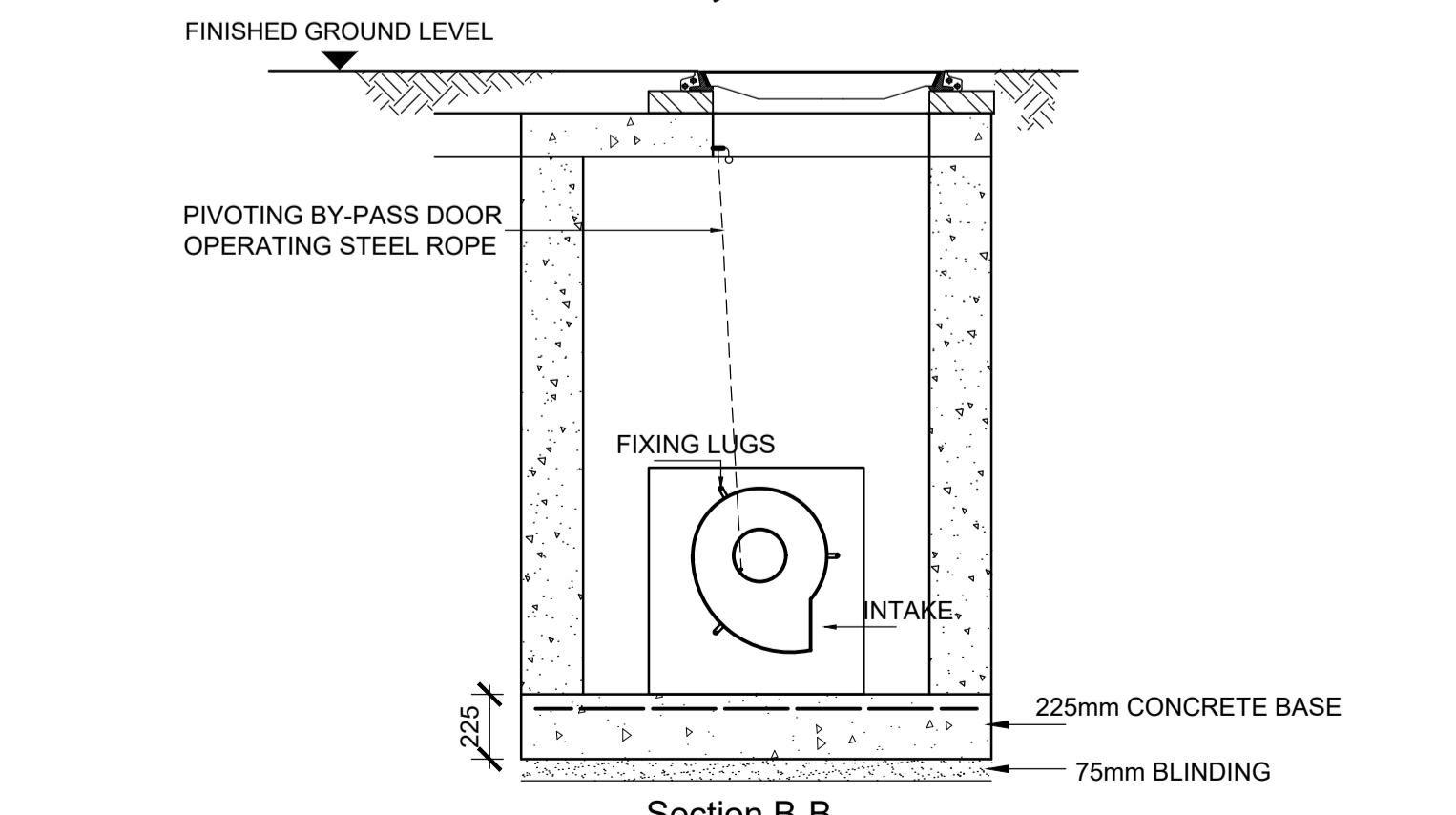


Section A-A

NOTE: HYDRO-BRAKE DEVICE TO BE FITTED STRICTLY IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS



Sectional Plan



Section B-B

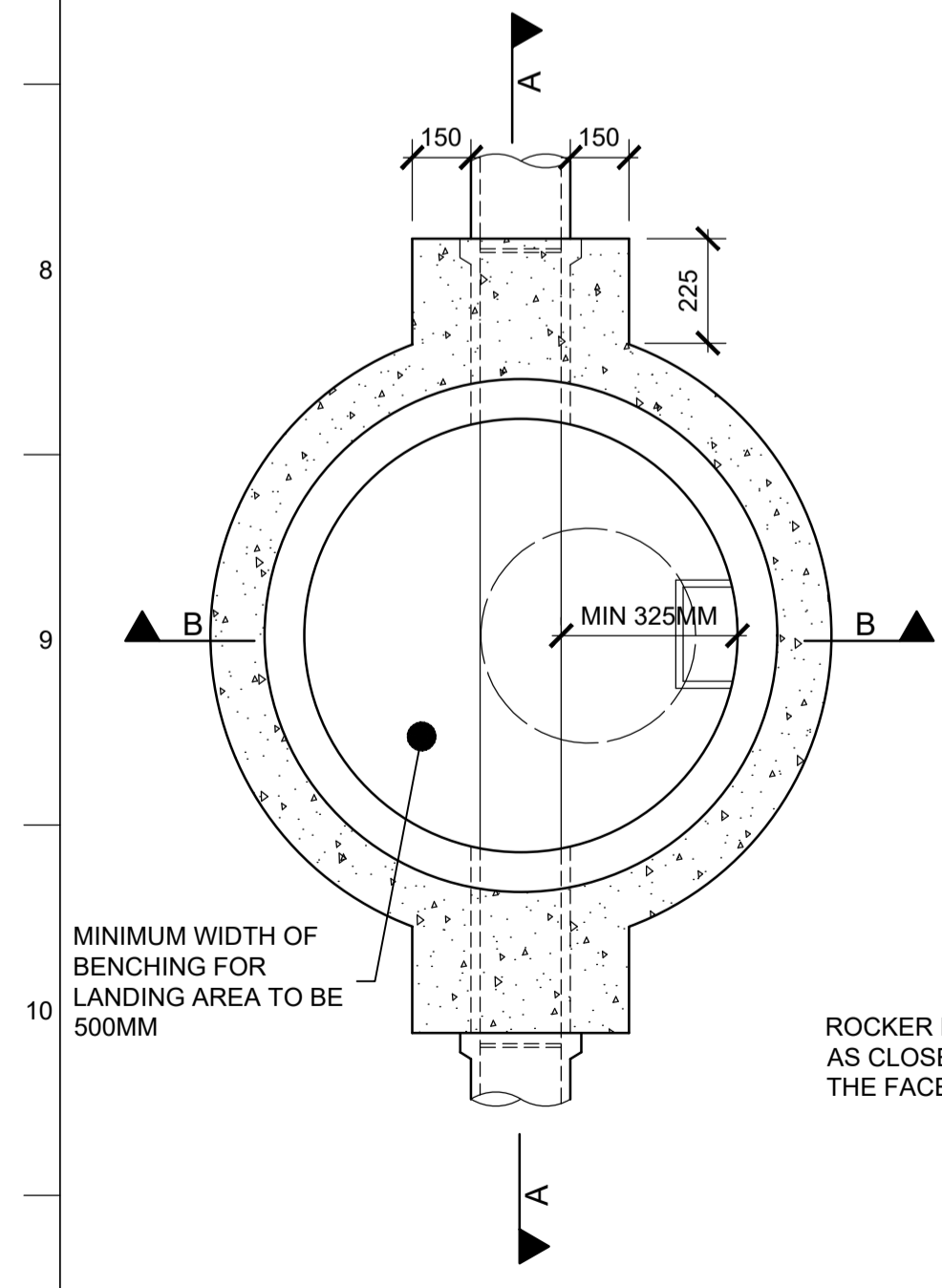
Hydro-Brake Flow Control Chamber

Scale 1:25

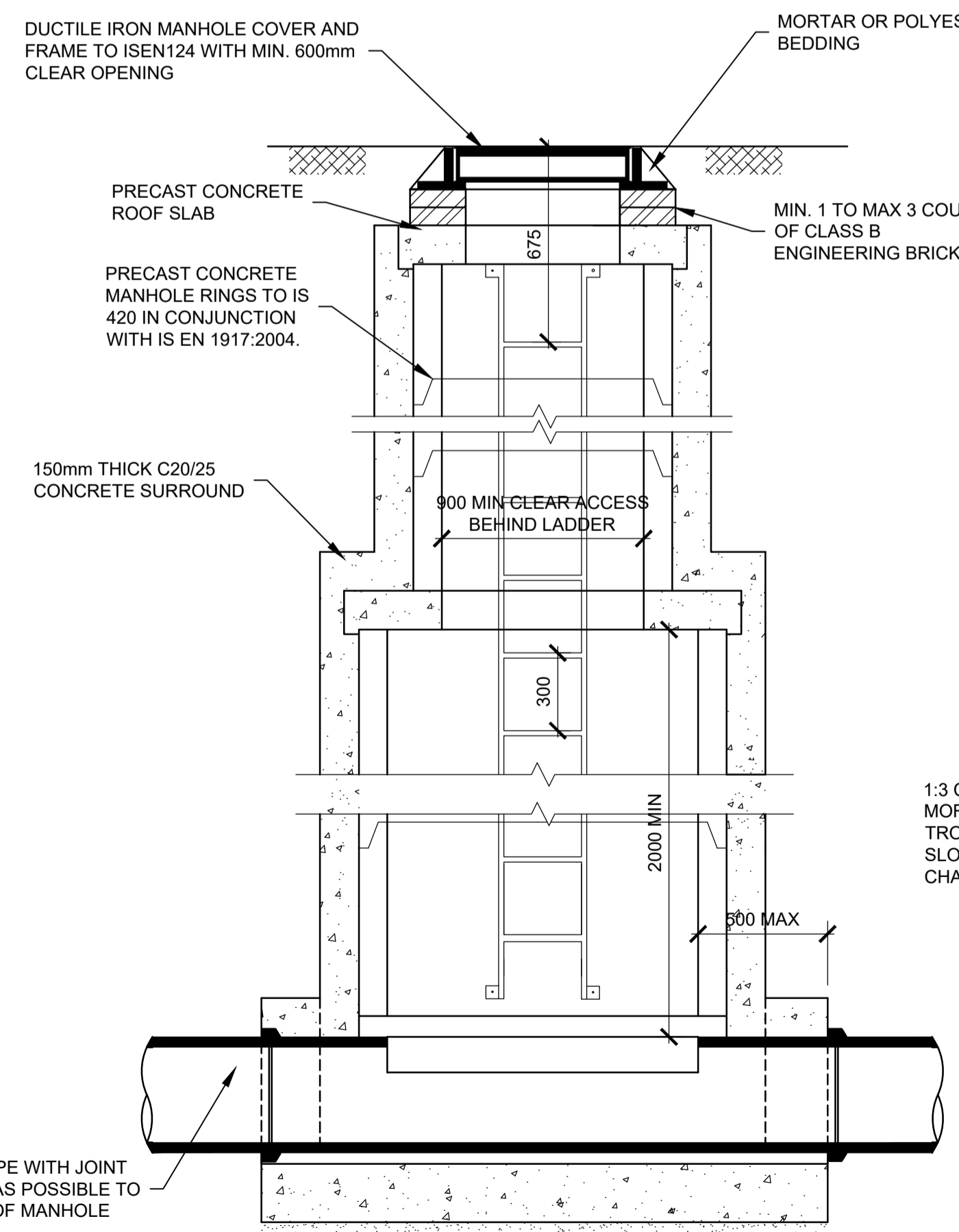
- Notes:
- This Drawing shall be Read in Conjunction with all Other Relevant Specifications & Drawings.
 - All Dimensions in Millimeters (mm) unless noted otherwise.
 - All Foul Water Infrastructure to be Designed and Constructed in Accordance with the Irish Water Code of Practice and Standard Details.
 - All Watermain Infrastructure to be Designed and Constructed in Accordance with the Irish Water Code of Practice and Standard Details.

TABLE A - MANHOLE SIZES

PIPE DIA. mm	MANHOLE SIZE DIA.
100 - 375	1.2m Ø
450 - 750	1.5m Ø
900	1.8m Ø



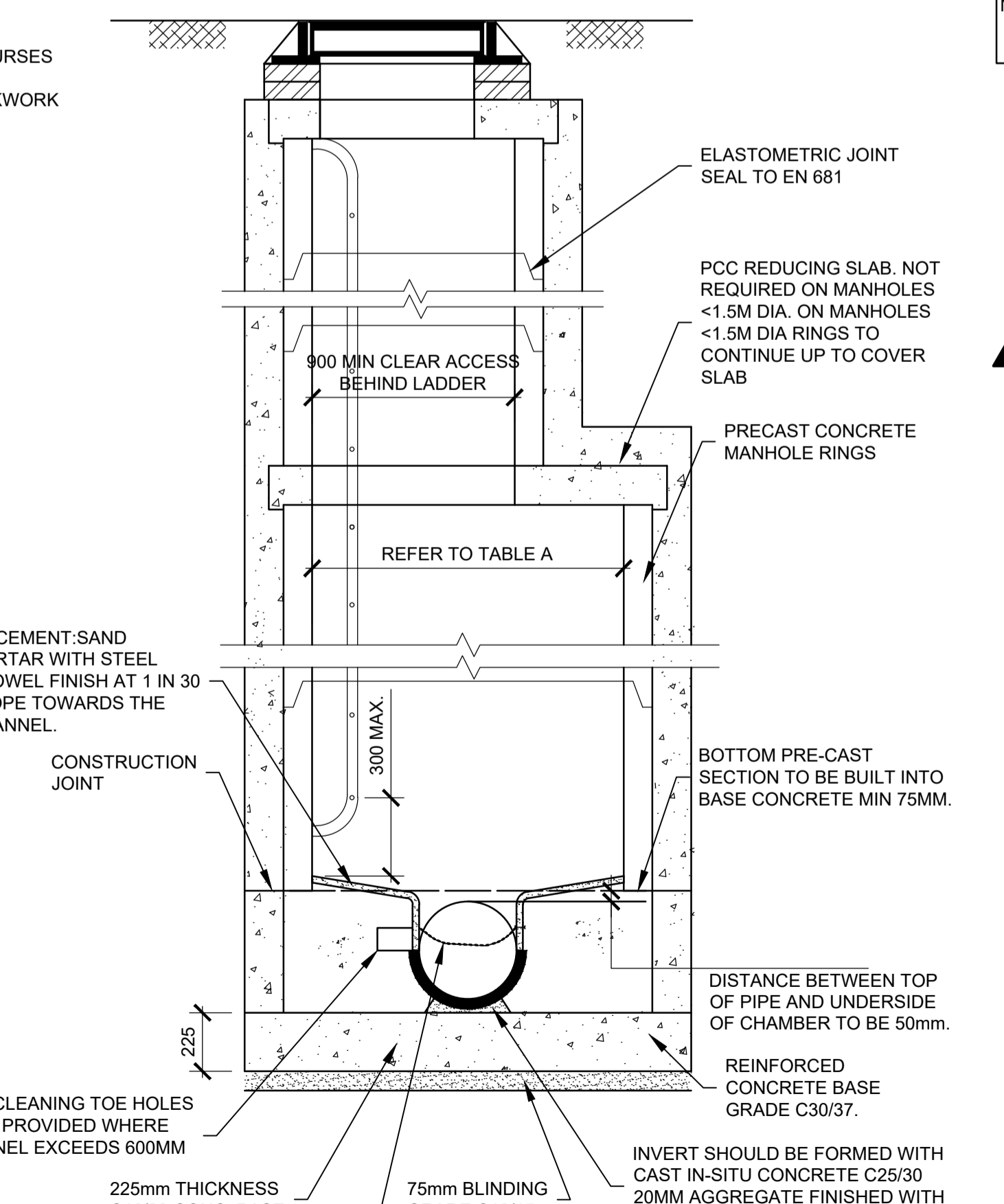
Sectional Plan



Section A-A

Deep Precast Concrete Manhole

Scale 1:20
(Depths Over 3.0m & up to 5.5m)



Section B-B

P01	22/12/21	ROD	RM	JMaC
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Rev	Date	By	Chkd	Appd

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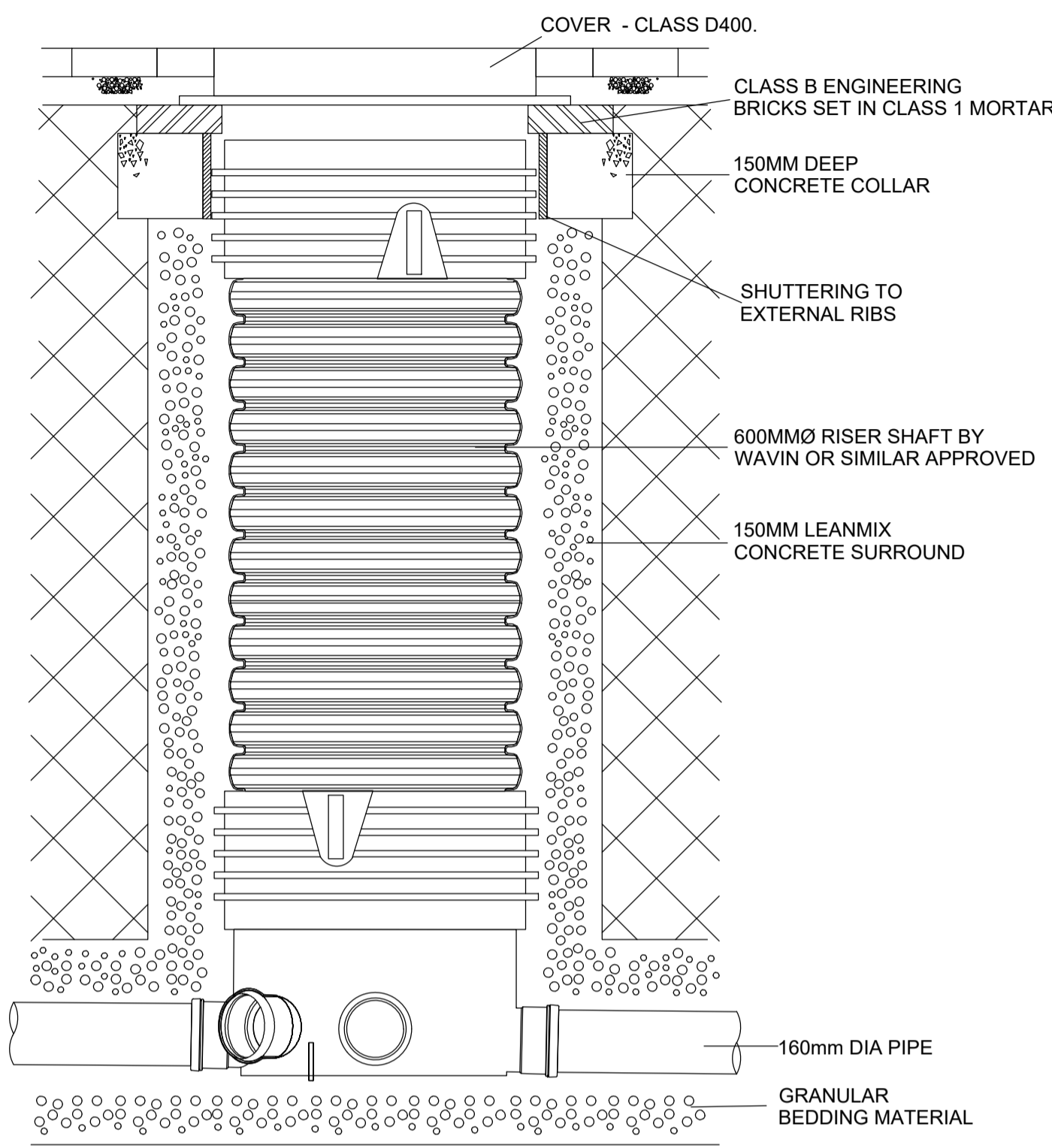
Client
Tiznow Property Company Limited
(Comer Group Ireland)

Project Title
The Former
Tedcastles Site

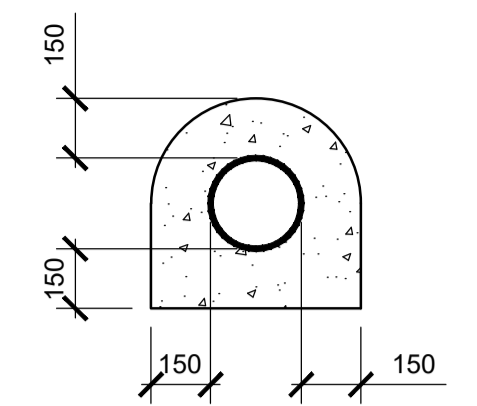
Drawing Title
Proposed Drainage & Water Details
Sheet 1 of 2

Scale at A1	As Shown
Role	Civil Infrastructure
Suitability	S2 - Suitable for Information
Arup Job No	267365-00
Rev	P01
Name	267365-ARUP-ZZ-ZZ-DR-C-6000

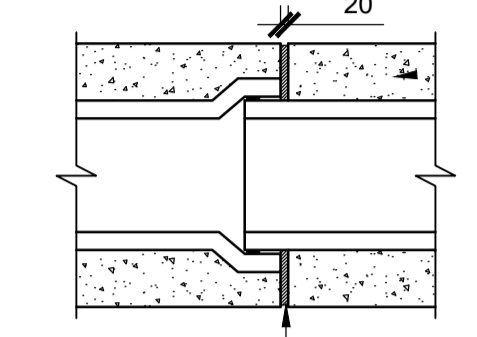
A1
1
2
3
4
5
6
7
8
9
10
11



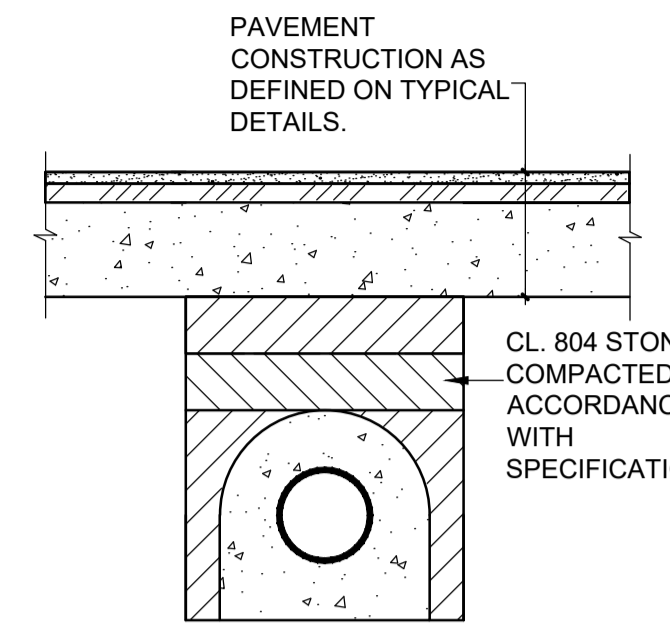
INSPECTION CHAMBER
Scale: 1:10



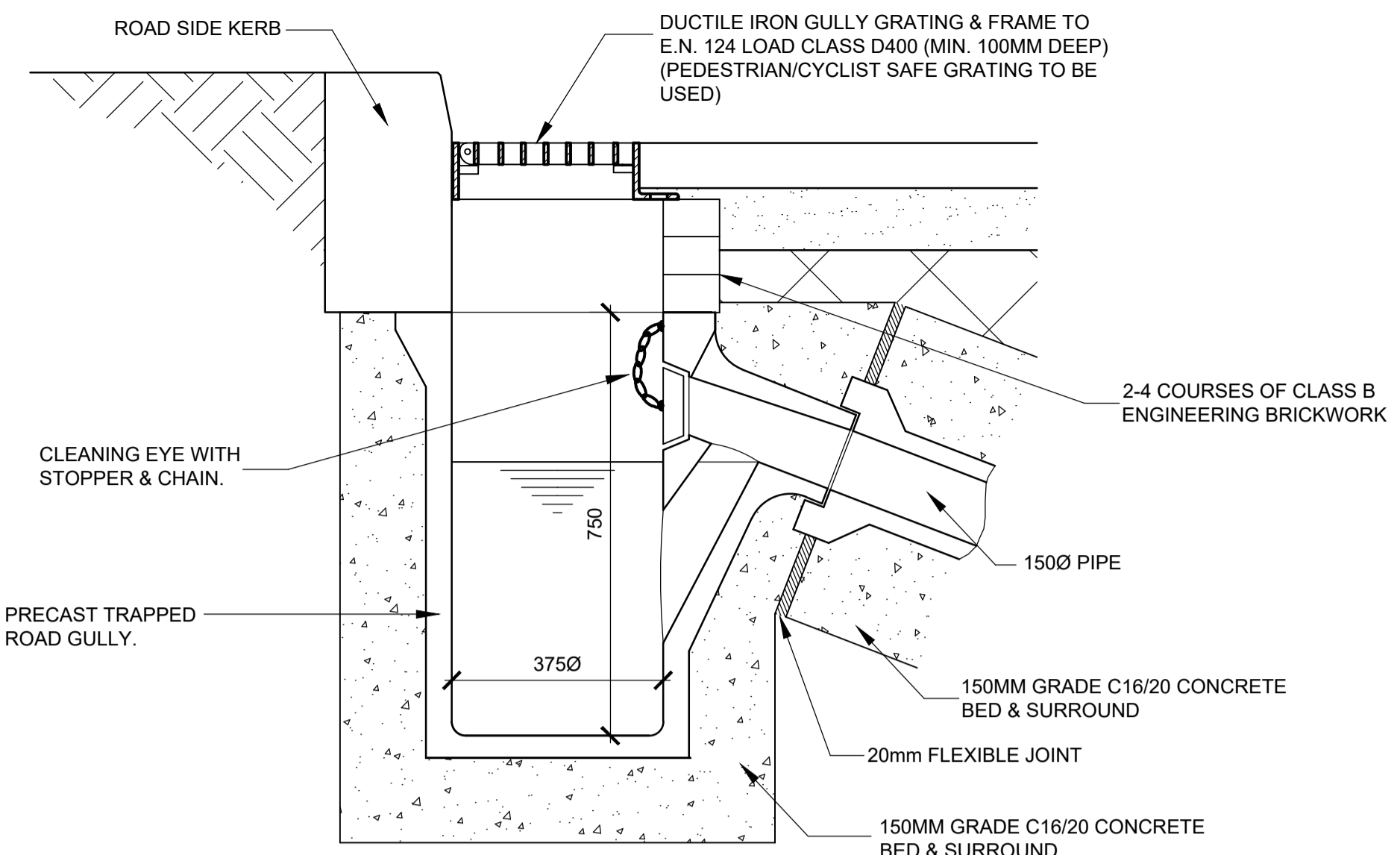
Concrete Bed & Surround



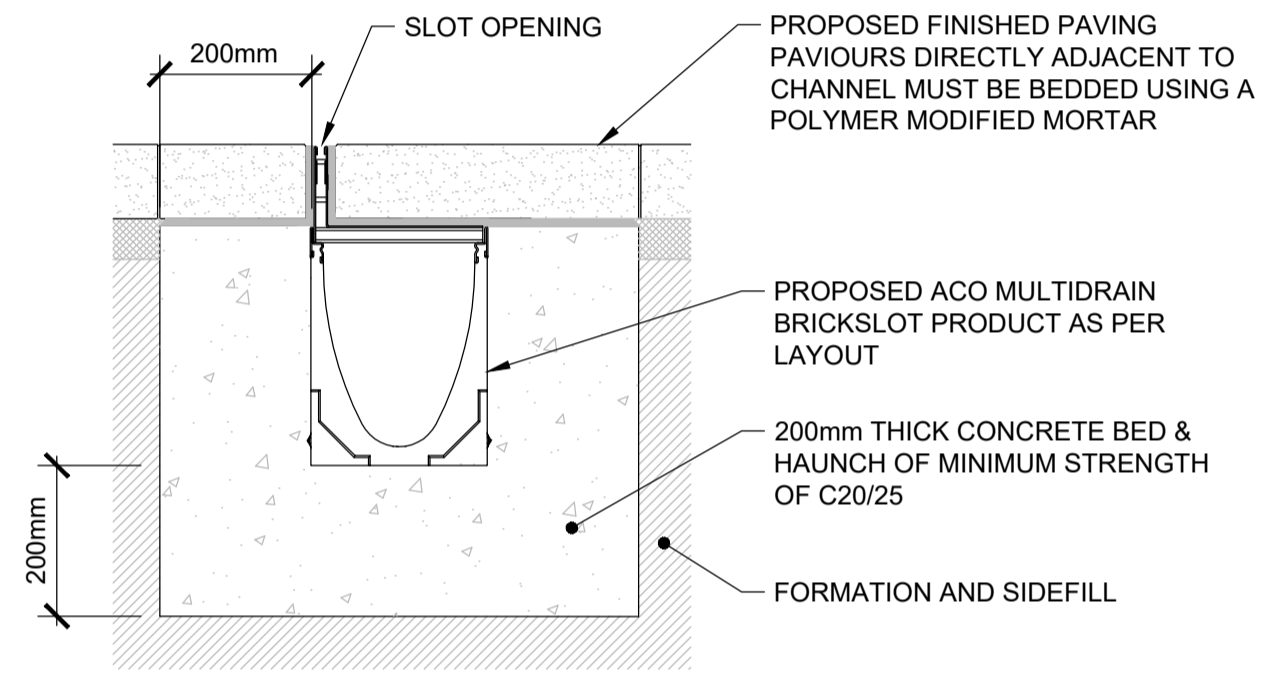
Joint in Concrete Surround to Flexible Jointed Spigot & Socket Pipes
Scale 1:20



Concrete Bed & Surround
Construction Details for Concrete Bed & Surround to Surface Water Drain
Scale 1:20

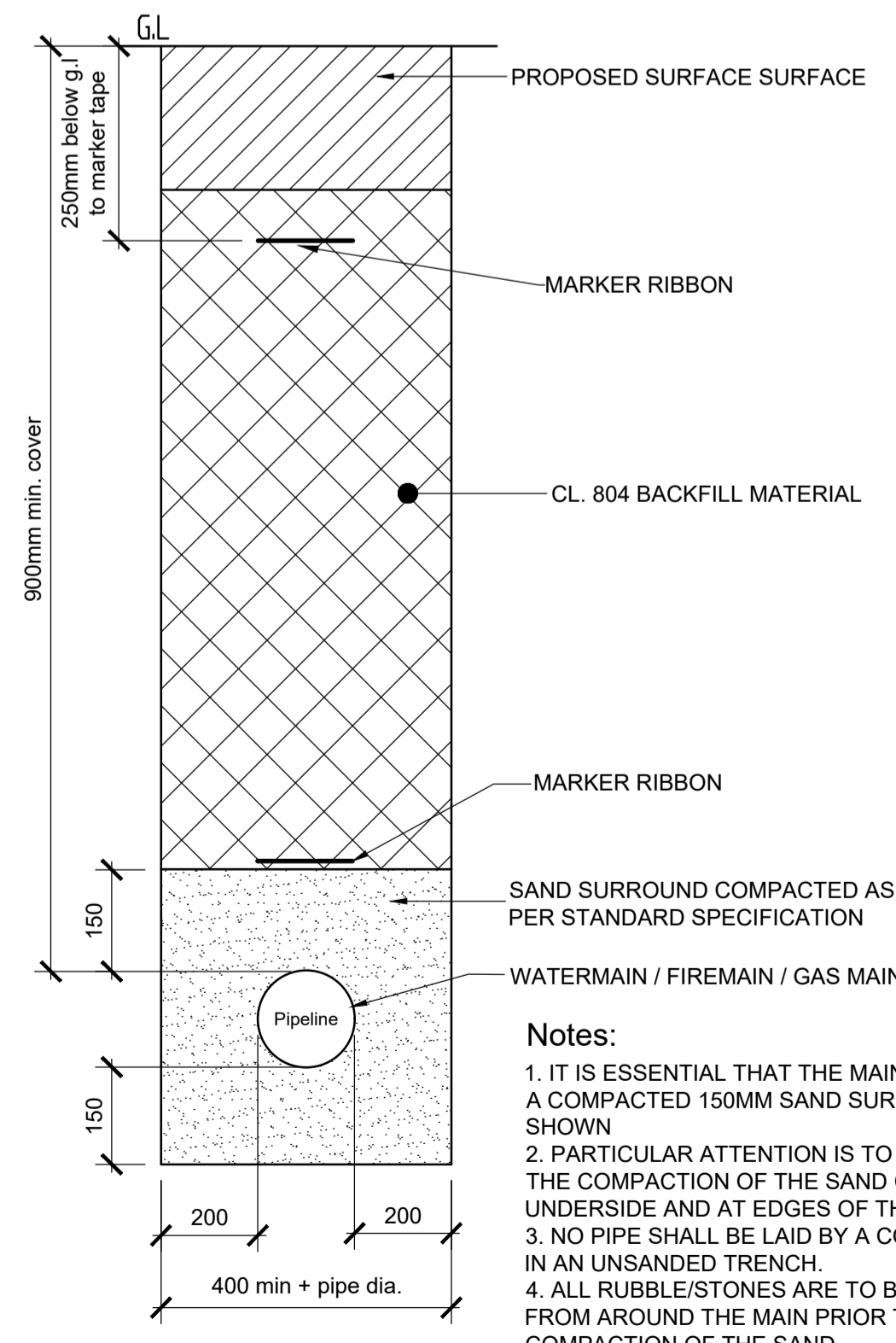


Typical Gully Detail Adjacent to Kerbs
Scale 1:10



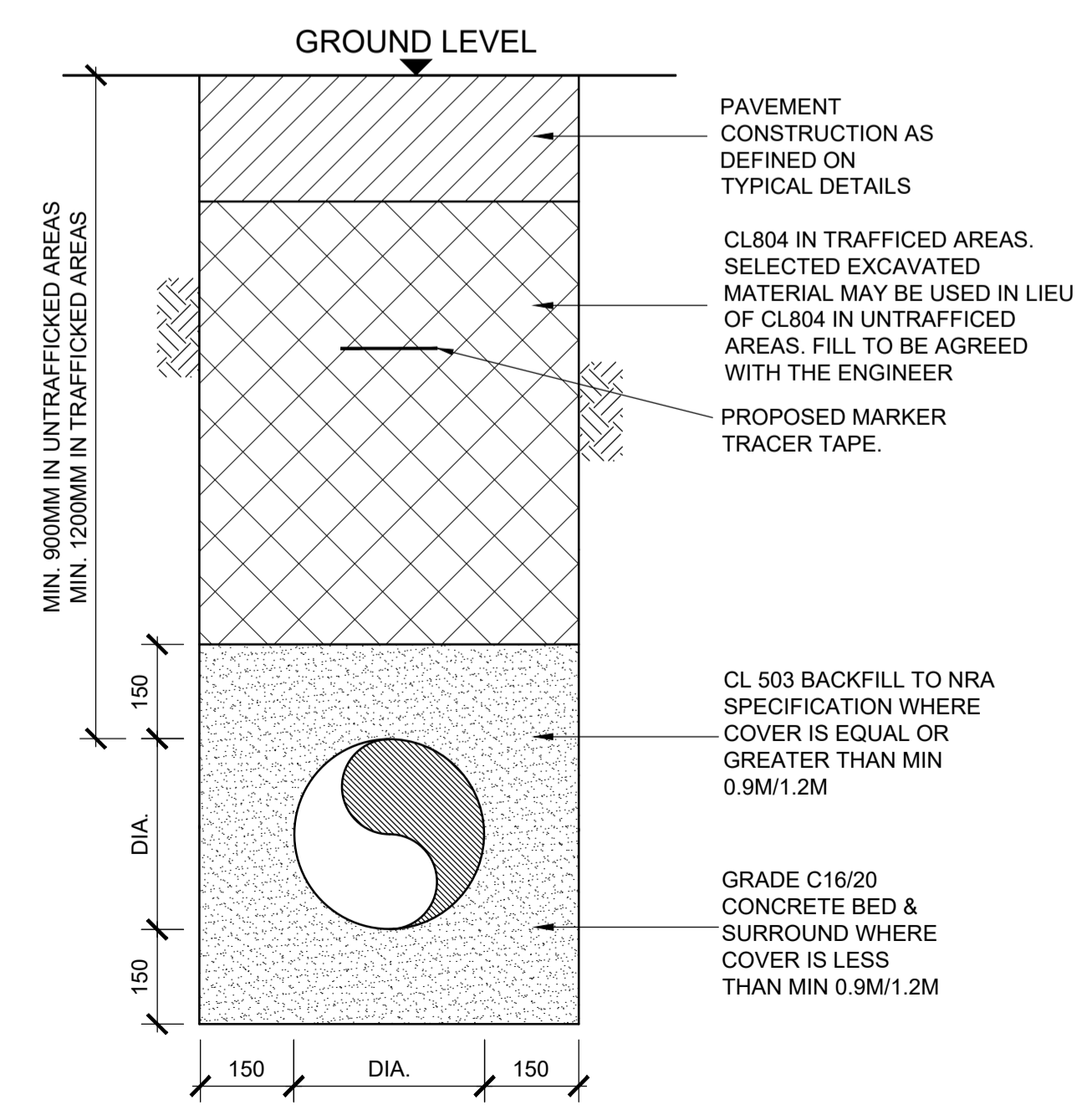
Slot Drain Detail
Scale: 1:10

The following Irish Water Standard Details are to be used:
 Sluice Valve/Chamber: STD-W-15
 On-line Air Valves: STD-W-20/STW-W-22
 Thrust Blocks/Supports: STD-W-28
 Marker Posts/Plates: STD-W-27
 Chambers to be constructed using 10N concrete blockwork in accordance with IS EN 771-3.



Notes:
 1. IT IS ESSENTIAL THAT THE MAIN BE BEDDED IN A COMPACTED 150MM SAND SURROUND AS SHOWN
 2. PARTICULAR ATTENTION IS TO BE GIVEN TO THE COMPACTION OF THE SAND ON THE UNDERSIDE AND AT EDGES OF THE PIPE
 3. NO PIPE SHALL BE LAID BY A CONTRACT CREW IN AN UNSANDED TRENCH.
 4. ALL RUBBLE/STONES ARE TO BE REMOVED FROM AROUND THE MAIN PRIOR TO THE COMPACTION OF THE SAND.

Typical Bedding Detail for Watermain
Scale 1:10



Typical Drainage Trench Detail
Scale 1:10

- Notes:**
- This Drawing shall be Read in Conjunction with all Other Relevant Specifications & Drawings.
 - All Dimensions in Millimeters (mm) unless noted otherwise.
 - All Foul Water Infrastructure to be Designed and Constructed in Accordance with the Irish Water Code of Practice and Standard Details.
 - All Watermain Infrastructure to be Designed and Constructed in Accordance with the Irish Water Code of Practice and Standard Details.

P02	10/01/22	ROD	RM	JMaC
Issued for Information (Status S2)				
P01	22/12/21	ROD	RM	JMaC
Issued for Information (Status S2)				
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Project Title
The Former
Tedcastles Site

Drawing Title
Proposed Drainage & Water Details
Sheet 2 of 2

Scale at A1	As Shown
Role	Civil Infrastructure
Suitability	S2 - Suitable for Information
Arup Job No	Rev
267365-00	P02
Name	
267365-ARUP-ZZ-ZZ-DR-C-6001	



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 - 2) Do not scale from this drawing. If in doubt, ask.
 - 3) This drawing should be read in conjunction with all relevant and available documentation.
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- Legend:**
- Existing Foul Water Sewer & Manhole
 - Proposed Foul Water Drain & Manhole
 - Proposed Backdrop Manhole
 - Proposed Foul Water Building Connection & Inspection Chamber
 - Proposed Culvert
 - Existing Open Channel
 - Existing Surface Water Drain
 - Proposed Surface Water Drain & Manhole
 - Proposed Backdrop Manhole
 - Proposed Geocellular Attenuation/Detention Basin
 - Proposed Under-Drained Planter
 - Proposed Bio-Swale
 - Proposed Permeable Paving
 - Proposed Road Gully
 - Proposed Linear Drainage Channel & Sump
 - Proposed Hydrocarbon Interceptor
 - Proposed Planning Boundary
 - Proposed Building Outline
 - Extent of Podium

P02	08/03/22	ROD	RM	JMacC
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Client
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 (Cormer Group Ireland)

Project Title
The Former Tedcastles Site

Drawing Title
Proposed Combined Utilities Layout

Scale of A0	1:500
Site	Site Infrastructure
Suitability	S2 - Suitable for Information
Arup Job No	267365-00
Rev	P02
Name	267365-ARUP-ZZ-ZZ-DR-C-9000

The Arup Campus
Blyth Gate
Solihull B90 8AE

The Former Tedcastles Site
Foul Water Longsections
267365-ARUP-ZZ-ZZ-SK-C-0001

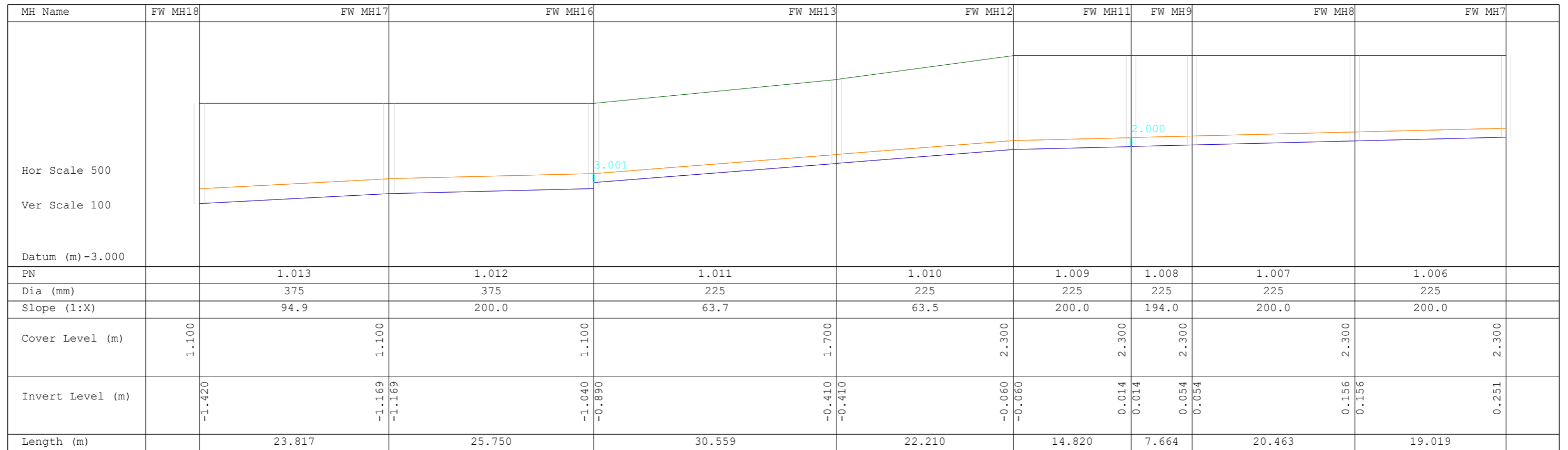
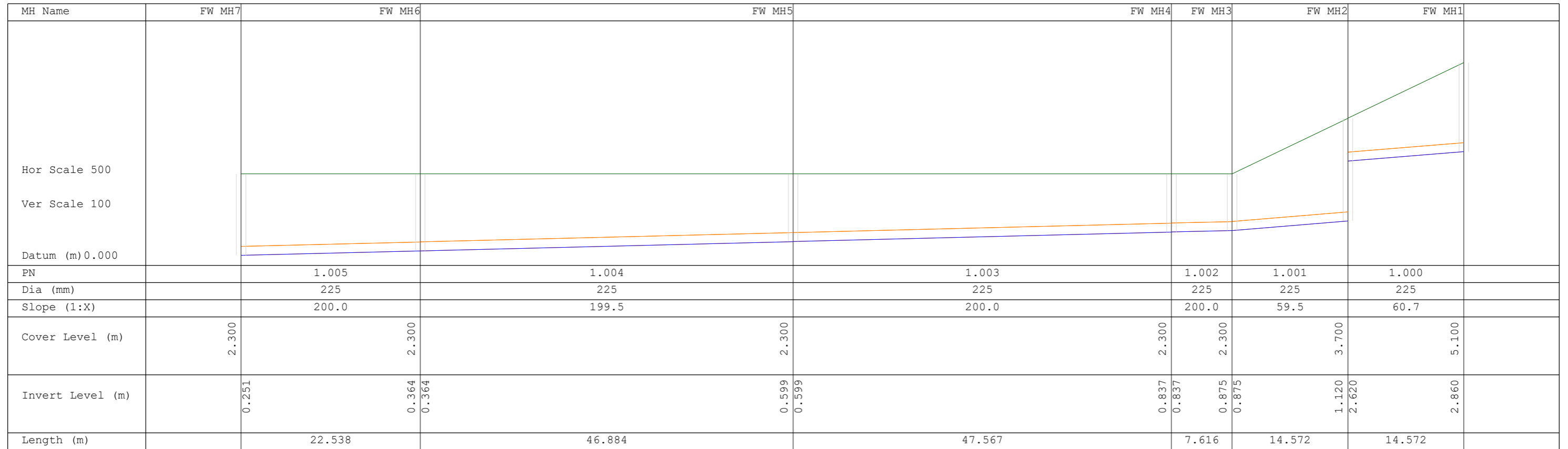


Date 11/03/2022
File 2021.12.06 Foul Water Model - Tedcastles Site.MDX

Designed by ROD
Checked by RM

XP Solutions

Network 2020.1.3



The Arup Campus
 Blyth Gate
 Solihull B90 8AE

The Former Tedcastles Site
 Foul Water Longsections
 267365-ARUP-ZZ-ZZ-SK-C-0001

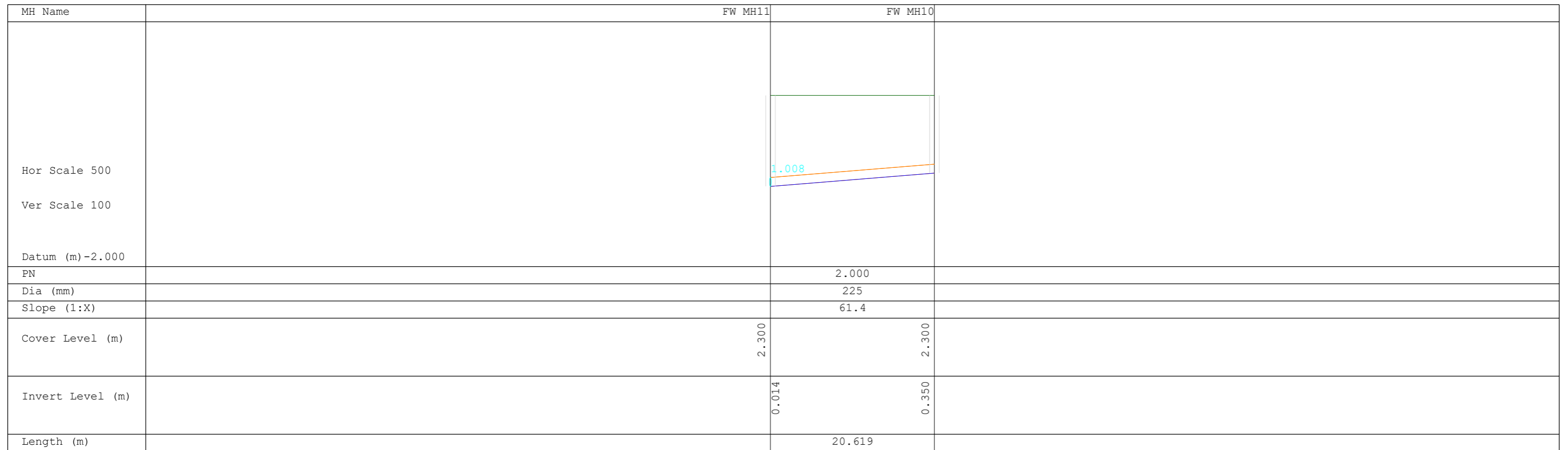
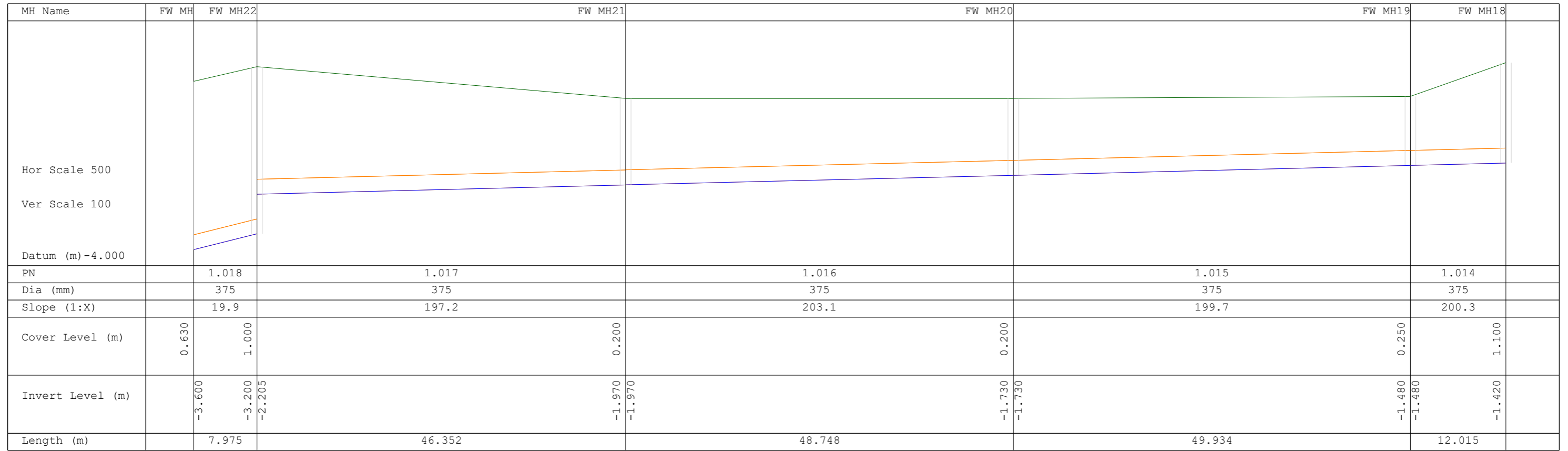


Date 11/03/2022
 File 2021.12.06 Foul Water Model - Tedcastles Site.MDX

Designed by ROD
 Checked by RM

XP Solutions

Network 2020.1.3



The Arup Campus
 Blyth Gate
 Solihull B90 8AE

The Former Tedcastles Site
 Foul Water Longsections
 267365-ARUP-ZZ-ZZ-SK-C-0001

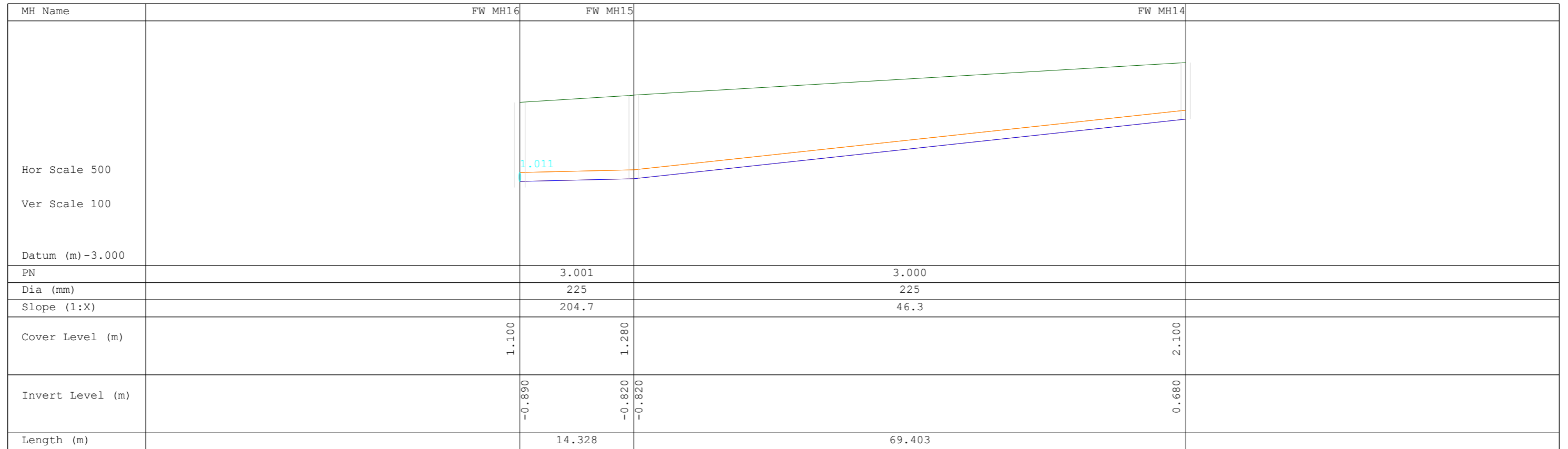


Date 11/03/2022
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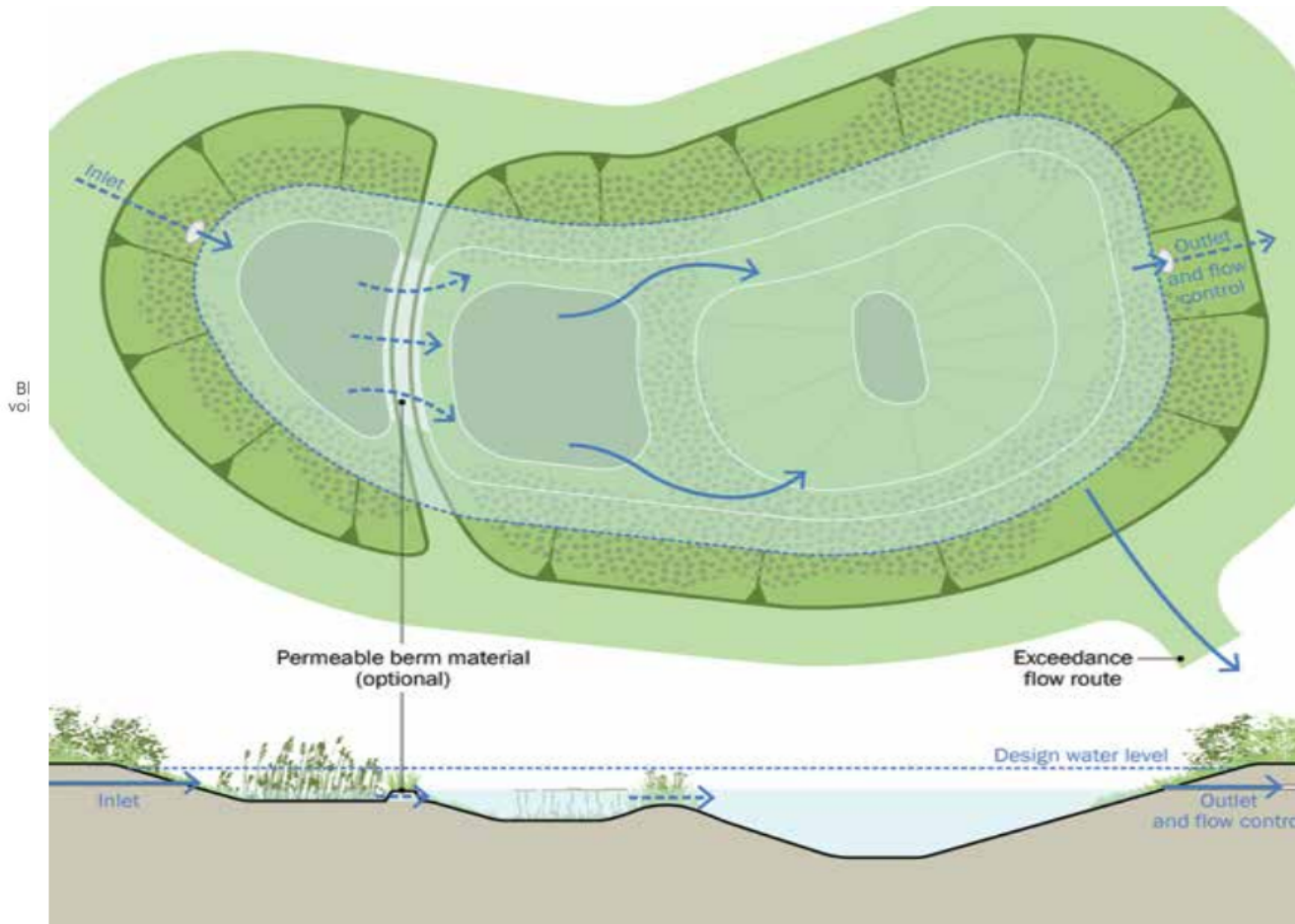
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Appendix D – Proposed SuDS measures

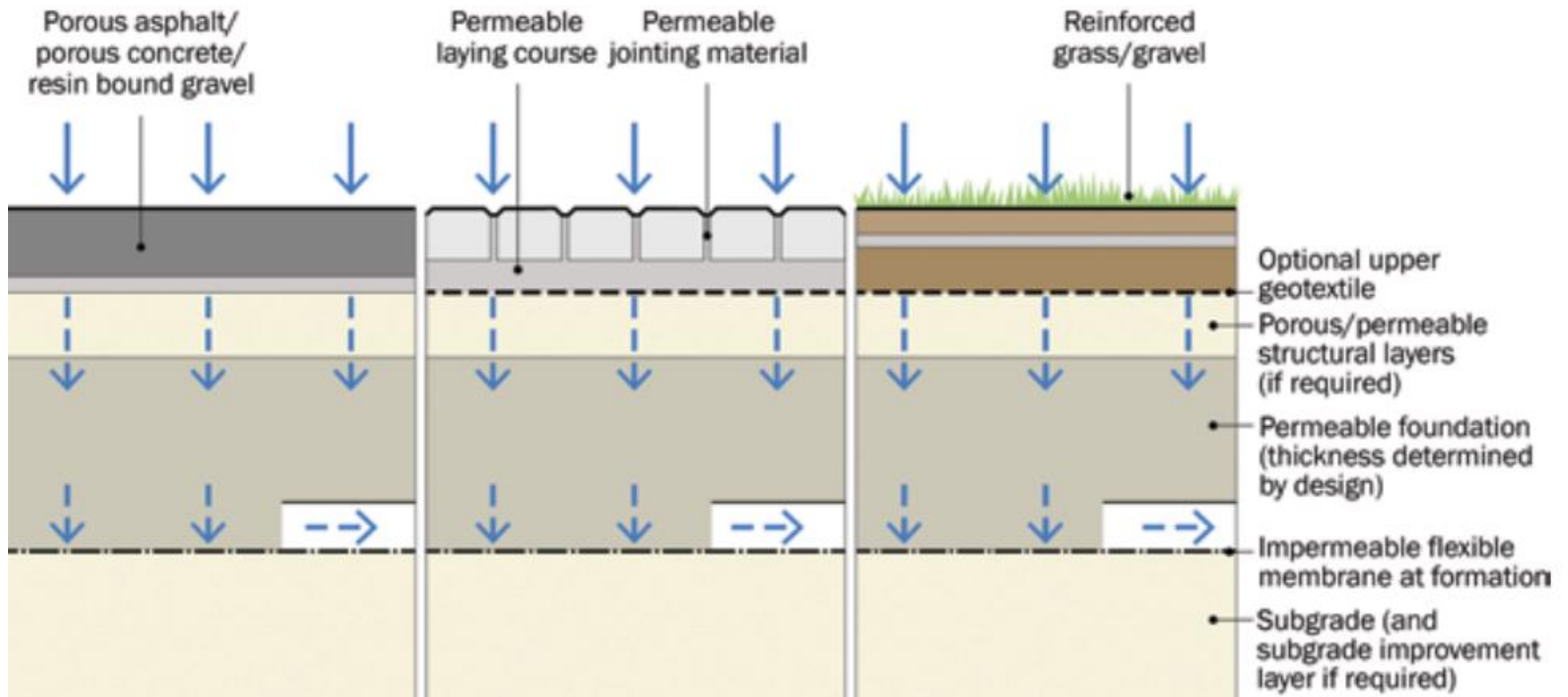
SuDS components

Attenuation Pond



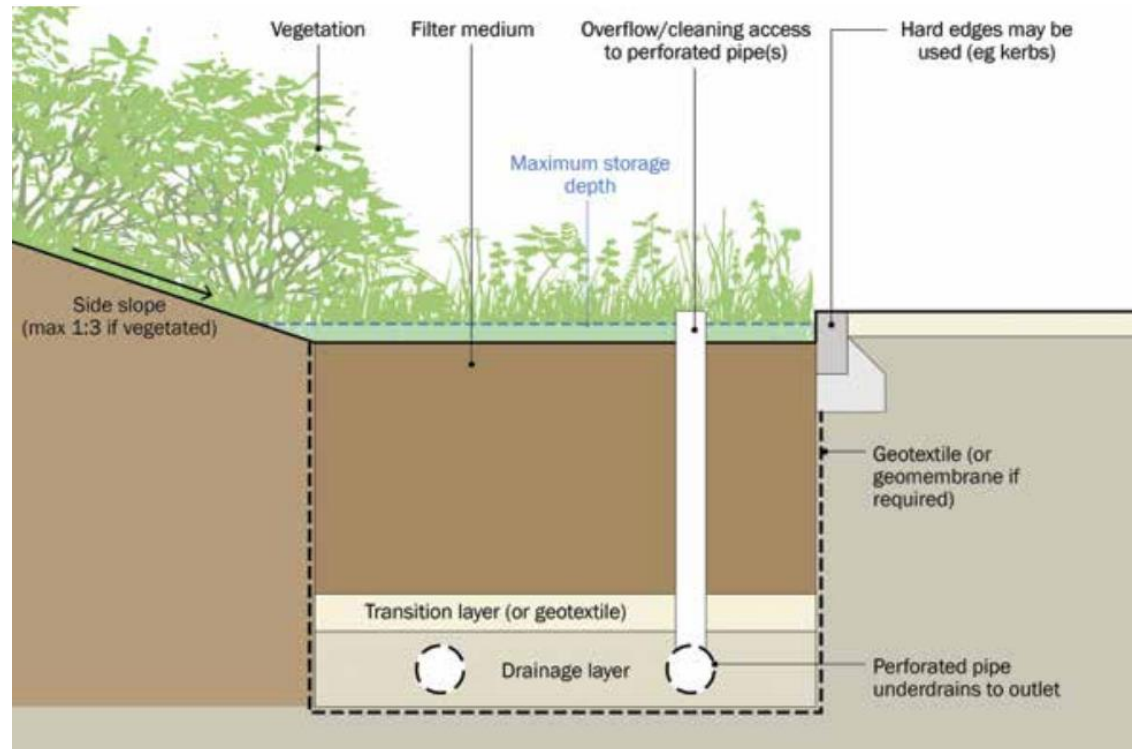
SuDS components

Permeable Paving (no infiltration)



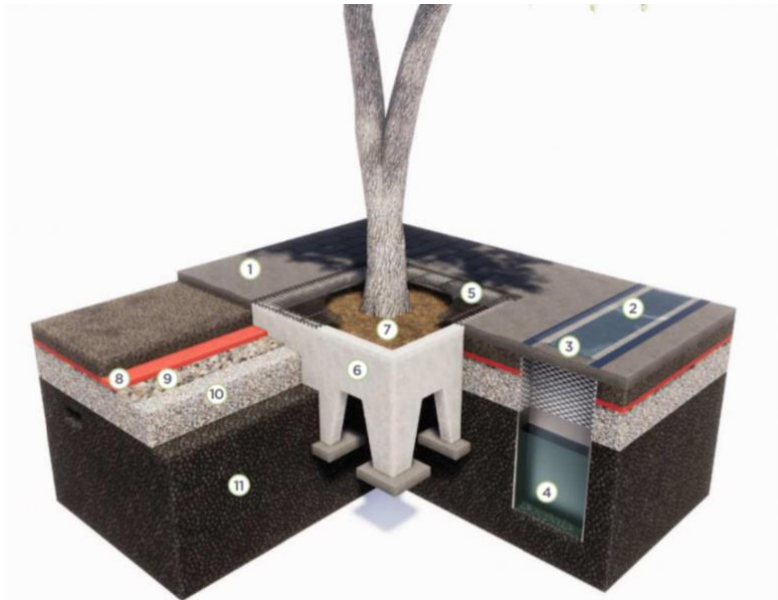
SuDS components

Bioretention systems - Underdrained roadside planters

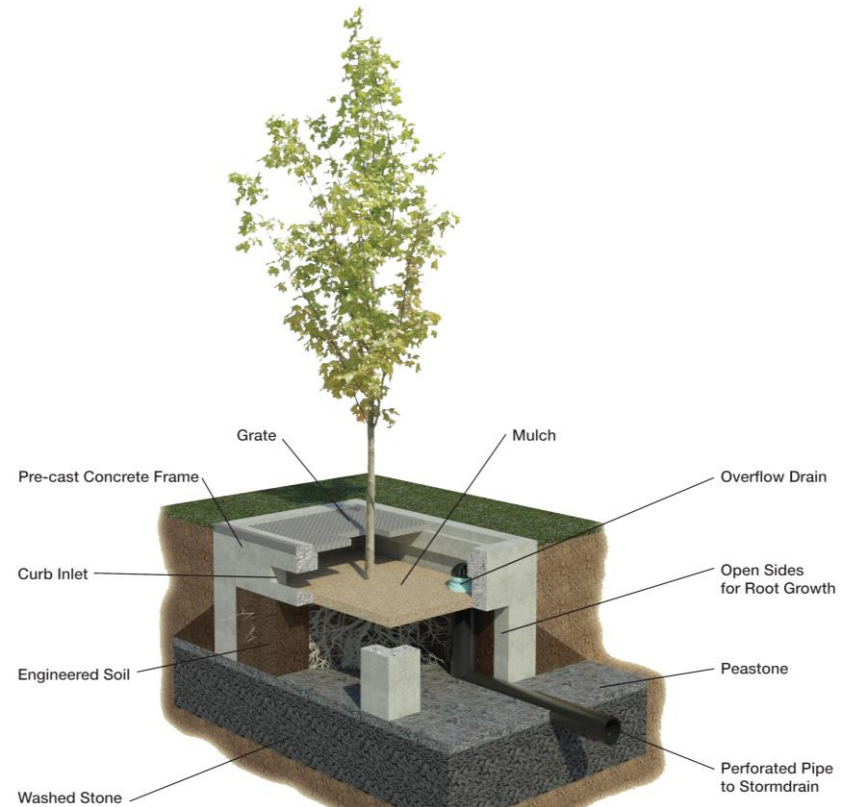


SuDS components

Bioretention systems – Stockholm tree pits

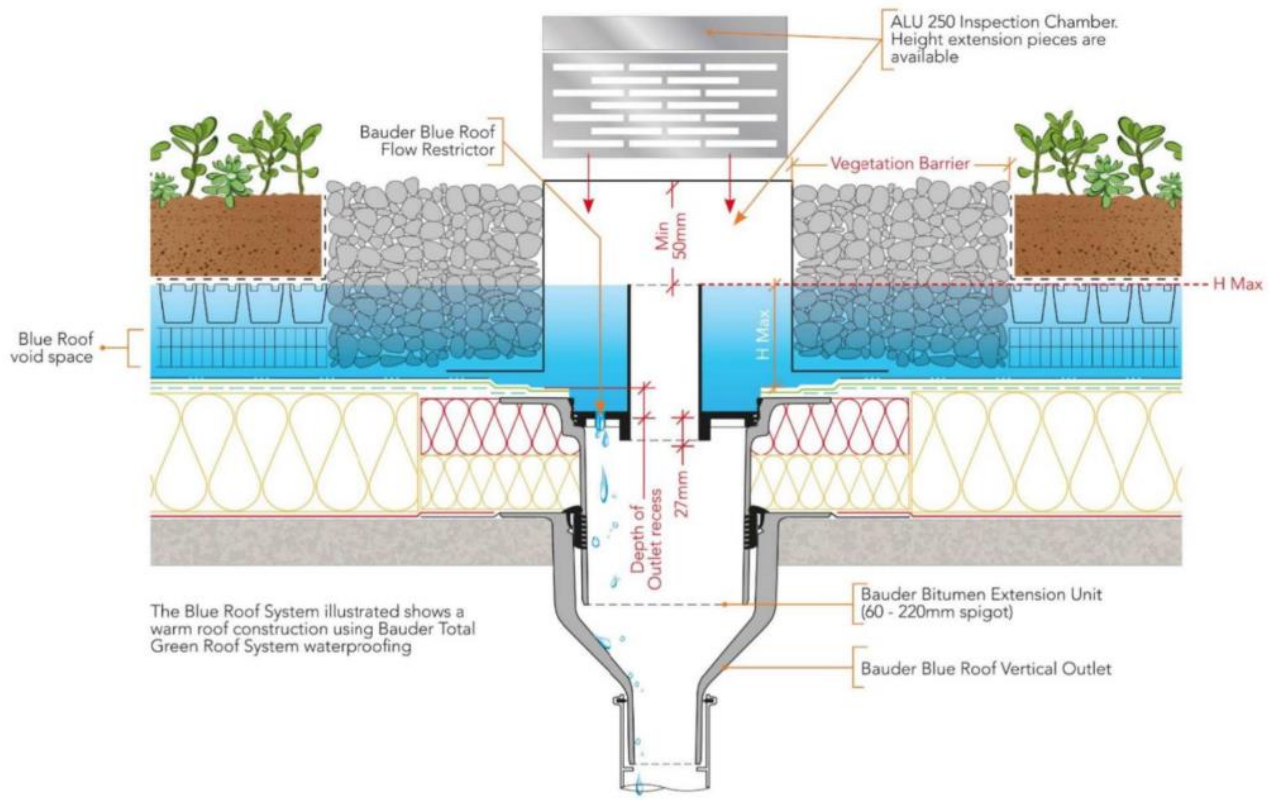


[Image courtesy of Davies Landscape Architects]



SuDS components

Blue Roofs



The Blue Roof System illustrated shows a warm roof construction using Bauder Total Green Roof System waterproofing