

Welcome Break, Hinckley (Land to East of Wolvey Road, Stretton Baskerville)
Lead Local Flood Authority Planning Consultation - Dice Response; Application Ref. R23/1047

Response to Warwickshire County Council Lead Local Flood Authority (LLFA)

In February 2026, Warwickshire County Council LLFA objected to the development of the Welcome Break motorway service area, near Hickley due to numerous points requiring further development of at source SuDS provision and elements requiring clarification from the designer. A copy of the LLFA comments can be found in **Appendix A**. Dice Consulting Engineers have prepared a response to each comment in turn.

Point 1 – The LLFA requires further consideration for opportunities to incorporate additional SuDS features within the drainage strategy that provide wider benefits such as water quality, amenity and biodiversity as per part 4 of condition 4. These may be small source control or conveyance features not explicitly designed to attenuate large volumes of water. It should be noted that the previously approved drainage strategy (associated with application R20/0422) incorporated attenuation basins and swales. It should also be noted that the LLFA does not consider proprietary treatment systems as SuDS.

Designer's Response:

The point was further discussed with an LLFA officer over a Teams meeting and the feedback has been actioned to provide a significant betterment to overall scheme. Within the constraints of the site layout and proposed levels we have provided additional permeable paving to increase treatment at source and have directed further rainfall areas through kerb drains into bioretention raingardens with orifice flow controls to significantly increase the area receiving treatment at source and provide storage at source. Storage has generally not been allowed for within the permeable paving sub-base due to the level constraints meaning that the useable storage capacity before flooding occurs would be disproportionate to the engineering required to throttle the flows to make storage practicable. An exception is the allowance for paving sub-base storage at the lowest part of the site and assigned to manhole S17 within the modelling calculations.

These changes can be reviewed on the revised drainage strategy that can be found in **Appendix B**. Within the drainage strategy a table has been provided to summarise the storage utilisation of the rain gardens. The overall volume of storage provided at source has been estimated as 105.5m³ (based on critical storm period node volumes from modelling). Additional volume would be available in exceedance events.

Within the Teams meeting the LLFA officer requested a rainfall area treatment plan to highlight which treatment trains apply to what area. This has been completed and can be found in **Appendix C**. The rain area plan also includes a summary table of what mitigation indices apply to each area both through the initial treatment method and final indices for the outfall flow after polishing treatment via an SDS

Aquaswirl (or similar approved) vortex separator. This device is situated after the flow control so that it can provide full treatment under all storm return periods and durations modelled up to 100 years plus climate change. Capture capacity is assessed as suitable, due to all medium to high-risk areas receiving a high level of pre-treatment.

Items of further note with reference to the rain area plan:

- Some areas of the HGV parking were not feasible to treat at source through permeable paving or bioretention filtration. This was due to performance requirements for the surfacing against heavy HGV trafficking and suitability for pedestrian footfall from coach parking. This is also constrained by availability of landscaping at a suitable location or size commensurate to the scale of area to be drained. Permeable paving has been provided to enhance the source treatment as much as possible.
- The HGV area and primary access route used by HGVs would be classified as high risk under CIRIA C753, the general parking areas as medium-risk, and roof drainage as low risk. Except for the petrol forecourt roof flows, all areas will meet and exceed the high-risk requirements under CIRIA C753 of **0.8/0.8/0.9** (Total Suspended Solids / Metals / Hydrocarbons).
- With respect to the petrol forecourt roof flows, these would only be treated by the vortex separator, but as the low-risk commercial roof run-off mitigation requirement is only **0.3/0.2/0.05**, the vortex separator will provide indices in excess of x2 the minimum requirement.
- Small areas in proximity to the petrol forecourts will discharge to foul. This is forced by requirements to provide cut-off drains for petrol spills. These flows will be treated by a Class 1 full retention separator. Following manufacturer guidance, we have designed in a limited rainfall area to drain into this catchment. Fresh water must be provided to maintain correct function (ie. must not dry out) and avoid stagnant water within the tank.

Point 2 – Provide standard details and detailed cross section drawings for all drainage features associated with the scheme as per point 5 of condition 4. At the detailed design stage drawings should be approaching a level of detail suitable to instruct tender or construction.

Designer's Response:

Standard construction details and specific construction details for key SuDS features details have been provided and can be found within **Appendix D**.

The raingarden and permeable paving details show clearly how these features collect and distribute, and that they are capable of treating through flows (via filtration media). To address a specific LLFA note given, the raingarden has been provided with an overflow gully to bypass treatment in exceedance events.

Point 3 – At detailed design stage the LLFA requires detailed exceedance flow routing plans to demonstrate that exceedance flows will not put buildings or third parties at risk of flooding. Plans should detail ground elevations, finished floor levels and illustrate anticipated flow routes.

Designer's Response:

The exceedance flow plan has been updated and can be found within **Appendix E**. This plan also includes the proposed finished level contours for the planning layout, further evidencing the exceedance routes outlined on the drawing.

The LLFA also left comments outlining steps to remove their objections to the development, these are addressed specifically as follows:

The LLFA welcomes the inclusion of rain garden features within the drainage scheme. However the LLFA requires further information to demonstrate the benefit that they will provide and that they are designed in accordance with best practice.

o The cross section drawing provided shows upstand kerbs surrounding the rain gardens and does not indicate an inlet whereby run-off can enter the rain gardens. The LLFA requires further information as to how these features will provide attenuation and water quality benefit to the drainage scheme.

Designer's Response:

This item has been evidenced by the previous points, specifically this was discussed with the LLFA officer in the Teams meeting, it was outlined that previously the rain gardens were provided primarily as a biodiversity and amenity feature, not as a storage or treatment feature, on the basis that biodiversity and amenity were the features primarily missing from the first planning design submitted. In this submission the raingardens (those in suitable locations) have been fully integrated into draining, storing, and treating hardstanding run-off.

o Provide further information as to the catchments these features serve and how they incorporate into any water quality and treatment train assessment undertaken to date.

Designer's Response:

The raingardens have been designed within the construction details to function as bioretention. It was not feasible to design to a standard CIRIA C753 bioretention detail, due to the difficulty (primarily safety issues – ie. lack of pedestrian protection) of allowing an overland flow route from carriageway into raingardens. Therefore, a bespoke detail has been proposed providing the core CIRIA

requirements of 400mm depth of suitable filter media, separation geotextiles, an overflow facility, and maintenance access.

Suitable raingardens (per **Appendix B**) will be provided with an orifice outlet, sized to ensure that storage on these features is also well utilised.

The additional supply of the rain area plan (per **Appendix C**) also shows clearly how the proposed SuDS features integrate into providing treatment for surface run-off across the site.

o Further to the above, what consideration has been given to appropriate catchment sizes, inflow rates and overflow mechanisms in the design?

Designer's Response:

These points have been addressed, and can be assessed by the LLFA by review of the drainage modelling calculation summary, provided within **Appendix F**. These demonstrate area allowances, flow rates, and suitable sizing for up to 100yr storms plus 40% climate change. Any flooding within this return period has been analysed and would be retained by kerb upstands.

Overflow mechanisms have been indicated by the overland flow plan (**Appendix E**). Individual features will have some capacity to retain overflow within adjacent kerb upstands but otherwise will flow to the next downstream run-off collection feature. At site low points, ultimate exceedance overflow will be directed offsite, but all exceedance routes are directed to the proposed outfall feature, which is the existing watercourse to the south of the site. This arrangement also mimics the existing overland flow routes on the current undeveloped site.

On specific overflow mechanisms, as previously outlined, the rain gardens are provided with an overflow gully, shown on the construction details drawing (**Appendix D**).

Given the proposed changes to the drainage strategy the LLFA requires updated network calculations that can be cross referenced with the drainage plan provided. This is to demonstrate the performance of the proposed scheme and support the evidence required in point 1 above.

Designer's Response: As per previous designer's response the summary of calculations can be found within **Appendix F**.

The LLFA notes that an exceedance flow routing plan has been provided (HINCK-DCE-XX-XX-DR-C-5004-P01), but the illustrated layout is not consistent with other drawings provided. The LLFA therefore requires drawings with a consistent layout to demonstrate that the exceedance flow routing plans are representative of the proposals. At the detailed design stage these should be sufficiently detailed to illustrate finished levels, landscaping and contours that will influence overland flow routes.

Designer's Response: The error within the previously issued exceedance flow plan has been picked up and resolved, the correct layout has been applied and - similar to the previous issue – proposed finished level contours have been provided.

Based on the specific comment from the LLFA, the landscaped extents have also been highlighted. Note that the highlighted area marks out all soft areas within the site boundary, including both the extents of any proposed enhanced landscaped areas and any existing soft areas to remain as existing.

Refer to the exceedance flow plan to review (**Appendix E**).



Kind Regards,

Alex Marshall
Senior Civil Engineer
Dice Consulting Engineers

E: alex.marshall@diceconsult.co.uk

Appendix A

Your ref: R25/0945
Our ref: WCC003663 R1/FRM/GF/002

Your letter received: 15/01/2026



SENT BY EMAIL

Ms Nicola Smith
Head of Growth and Investment
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Town Hall
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Tel: 01926 412982
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FAO Steven Hoang

03 February 2026

Dear Ms Smith

PROPOSAL: **Approval of condition 4 (surface water drainage) of R23/1047 (Construction of a motorway service area)**

LOCATION: **Land To East Of, Wolvey Road, Stretton Baskerville**

Warwickshire County Council as the Lead Local Flood Authority (LLFA) has reviewed the additional information for this application which was received on the 15 January 2026. It is understood this is in response to the LLFA's prior response on 19 November 2025 where the following was considered outstanding.

1. The LLFA requires further consideration for opportunities to incorporate additional SuDS features within the drainage strategy that provide wider benefits such as water quality, amenity and biodiversity as per part 4 of condition 4. These may be small source control or conveyance features not explicitly designed to attenuate large volumes of water. It should be noted that the previously approved drainage strategy (associated with application R20/0422) incorporated attenuation basins and swales. It should also be noted that the LLFA does not consider proprietary treatment systems as SuDS.
2. Provide standard details and detailed cross section drawings for all drainage features associated with the scheme as per point 5 of condition 4. At the detailed design stage drawings should be approaching a level of detail suitable to instruct tender or construction.
3. At detailed design stage the LLFA requires detailed exceedance flow routing plans to demonstrate that exceedance flows will not put buildings or third parties at risk of flooding. Plans should detail ground elevations, finished floor levels and illustrate anticipated flow routes.

Based on the information submitted the LLFA currently **maintains our objection** to the development based on the following reasons.

This application seeks to discharge Condition 4 set as part of the approval of application reference R23/1047. This condition reads:

No development shall take place until a detailed surface water drainage scheme for the site, based on sustainable drainage principles has been submitted to and approved in writing by the Local Planning Authority in consultation with the LLFA. The scheme shall subsequently be implemented in accordance with the approved details before the development

is completed. The scheme to be submitted shall:

1. Undertake infiltration testing in accordance with the BRE 365 guidance to clarify whether or not an infiltration type drainage strategy is an appropriate means of managing the surface water runoff from the site.
2. Where infiltration is demonstrated to not be feasible, limit the discharge rate generated by all rainfall events up to and including the 1 in 100 year (plus an allowance for climate change) critical rain storm to the run off rate of 3.7l/s for the site in line with the approved surface water drainage strategy (ref: SCHBWB-ZZ-XX-RP-YE0001_FRA, dated: 21/08/23).
3. Where the drainage scheme proposes to connect into a 3rd party asset, for example a public sewer, further information should be provided regarding the ownership, purpose, location and condition of this asset along with confirmation of the right to connect into it. This could take the form of land ownership plans showing riparian ownership, land drainage consent, flood risk activity permit or agreement under Section 106 of the Water Industry Act (1991).
4. Provide drawings / plans illustrating the proposed sustainable surface water drainage scheme. The strategy agreed to date may be treated as a minimum and further source control SuDS should be considered during the detailed design stages as part of a 'SuDS management train' approach to provide additional benefits and resilience within the design.
5. Provide detail drawings including cross sections, of proposed features such as infiltration structures, attenuation features, and outfall structures. These should be feature-specific demonstrating that such the surface water drainage system(s) are designed in accordance with 'The SuDS Manual', CIRIA Report C753
6. Provide detailed, network level calculations demonstrating the performance of the proposed system. This should include:
 - a. Suitable representation of the proposed drainage scheme, details of design criteria used (incl. consideration of a surcharged outfall), and justification of such criteria where relevant.
 - b. Simulation of the network for a range of durations and return periods including the 1 in 2 year, 1 in 30 year and 1 in 100 year plus 40% climate change events
 - c. Results should demonstrate the performance of the drainage scheme including attenuation storage, flows in line with agreed discharge rates, potential flood volumes and network status. Results should be provided as a summary for each return period.
 - d. Evidence should be supported by a suitably labelled plan/schematic (including contributing areas) to allow suitable cross checking of calculations and the proposals.
7. Provide plans such as external levels plans, supporting the exceedance and overland flow routeing provided to date. Such overland flow routing should:
 - a. Demonstrate how runoff will be directed through the development without exposing properties to flood risk.
 - b. Consider property finished floor levels and thresholds in relation to exceedance flows. The LLFA recommend FFLs are set to a minimum of 150mm above surrounding ground levels.
 - c. Recognise that exceedance can occur during any storm event due to a number of factors therefore exceedance management should not rely on calculations demonstrating no flooding

All other conditions sought for discharge under this application do not relate to surface water and as such are not considered as part of this response.

Reason

The information submitted with this application does not comply with the requirements set out in the National Planning Policy Frameworkⁱ (NPPF) and supporting Flood Risk & Coastal Change guidanceⁱⁱ. Specifically:

- The details relating to the surface water drainage are insufficient.

The submitted information does not therefore allow a suitable assessment of the proposed development, considering flood risk and surface water drainage matters.

Overcoming our objection

You can overcome our objection by submitting further information which is detailed below. This information should provide details of the proposed surface water drainage considering the scale and nature of the development to ensure the site will not increase risk elsewhere and where possible reduces flood risk overall. If this cannot be achieved we are likely to maintain our objection to the application.

At the 'discharge of condition' stage proposals for surface water drainage should be approaching a level of detail suitable for tender or construction. Documentation should show the drainage scheme including SuDS features, specific details (e.g. standard details or cross sections) and demonstrate the performance and of the system through calculations and exceedance management respectively. Such



scheme should be in line with the original planning application/permission and where significant changes are made, justification should be provided.

Given the above, the following comments are made and further information required is outlined. This forms the basis of our current objection:

1. The LLFA welcomes the inclusion of rain garden features within the drainage scheme. However the LLFA requires further information to demonstrate the benefit that they will provide and that they are designed in accordance with best practice.
 - The cross section drawing provided shows upstand kerbs surrounding the rain gardens and does not indicate an inlet whereby run-off can enter the rain gardens. The LLFA requires further information as to how these features will provide attenuation and water quality benefit to the drainage scheme.
 - Provide further information as to the catchments these features serve and how they incorporate into any water quality and treatment train assessment undertaken to date.
 - Further to the above, what consideration has been given to appropriate catchment sizes, inflow rates and overflow mechanisms in the design?
2. Given the proposed changes to the drainage strategy the LLFA requires updated network calculations that can be cross referenced with the drainage plan provided. This is to demonstrate the performance of the proposed scheme and support the evidence required in point 1 above.
3. The LLFA notes that an exceedance flow routing plan has been provided (HINCK-DCE-XX-XX-DR-C-5004-P01), but the illustrated layout is not consistent with other drawings provided. The LLFA therefore requires drawings with a consistent layout to demonstrate that the exceedance flow routing plans are representative of the proposals. At the detailed design stage these should be sufficiently detailed to illustrate finished levels, landscaping and contours that will influence overland flow routes.

We ask to be re-consulted with the results of any additional information. We will provide you with bespoke comments within 21 days of receiving formal reconsultation.

Informative

- a) Surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management. Sustainable Drainage Systems (SuDS) are an approach to managing surface water run-off which seeks to mimic natural drainage systems and retain water on-site as opposed to traditional drainage approaches which involve piping water off-site as quickly as possible.
- b) The LLFA does not consider oversized pipes or box culverts as sustainable drainage. Where such attenuation is considered necessary, this should be supplemented with suitable above ground features such as green roofs, rain-gardens and tree pits to provide water quality, amenity and bio-diversity benefits.
- c) Reference is made to the LLFA's *Flood Risk Guidance for Development*ⁱⁱⁱ. This was updated in June 2023 and provides further advice and guidance as to how surface water drainage proposals should be designed.

Yours sincerely

Georgina Flower

Georgina Flower
Flood Risk Management Engineer

cc: Adrian Warwick - Fosse



OFFICIAL

Documents Reviewed:

- HINCK-DCE-XX-XX-DR-C-5000 P04 Drainage Strategy
 - HINCK-DCE-XX-XX-DR-C-5002 P01 Drainage Construction Details
 - HINCK-DCE-XX-XX-DR-C-5003 P01 Drainage Construction Details
 - HINCK-DCE-XX-XX-DR-C-5004 P01 Flood Exceedance Route
 - HINCK-DCE-XX-XX-RP-C-0001 P04 Drainage Maintenance Plan
-

N.B. On 10th January 2023, the Defra published^{iv} “the Review for implementation of Schedule 3 to the Flood & Water Management Act 2010;” this recommended implementation of Schedule 3 which the government has accepted. Warwickshire County Council will take on the role of the SuDS Approval Body (SAB), you can read more about this on our website which we will be updating periodically.

<https://www.warwickshire.gov.uk/severe-weather/planning-and-sustainable-drainage/2>

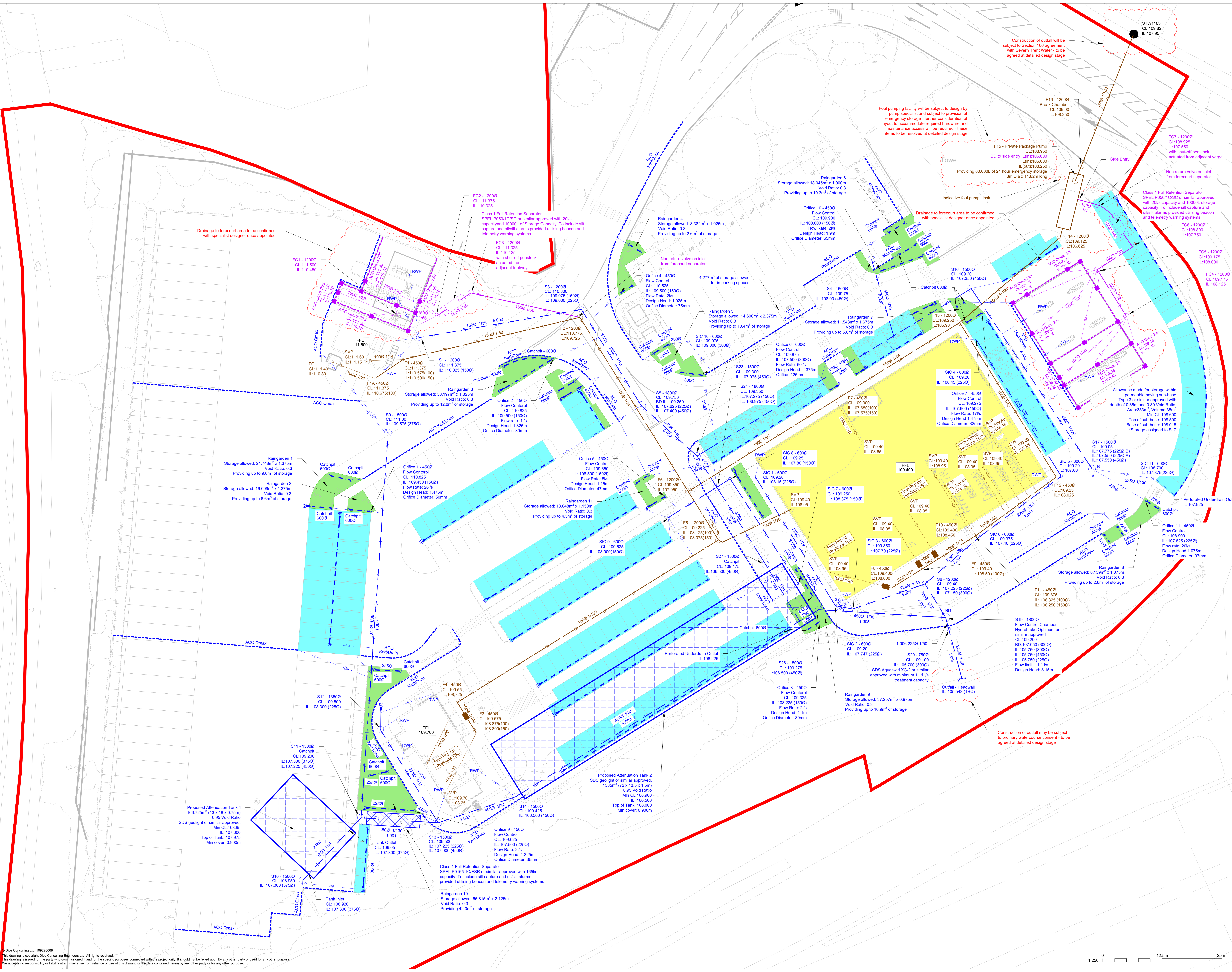
ⁱ https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf

ⁱⁱ <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

ⁱⁱⁱ <https://api.warwickshire.gov.uk/documents/WCCC-453486374-170>

^{iv} <https://www.gov.uk/government/publications/sustainable-drainage-systems-review>

Appendix B



Notes

- All dimensions are in metres unless stated otherwise.
- All levels are in metres unless stated otherwise.
- This drawing shall not be scaled.
- This drawing shall be read in conjunction with all other relevant Engineer and specialist drawings and specifications.
- Drawing is based on Architectural layout drawing 1415-24a.dwg Rev A received from ADS design on 21.09.2023.
- This information is for strategy and coordination purposes only and subject to change following further design development.
- Drainage proposals subject to change during Stage 4 and further design development.
- Only primary drainage runs are shown at this stage. Below slab drainage to be detailed up during Stage 4 detailed design.
- All RWP's and SVP's shown are assumed and illustrative only, positions to be coordinated during Stage 4 detailed design.
- All perforated pipes are 150mm diameter unless otherwise stated.

Key To Symbols

	Finished Floor Level
	Surface Water Sewer
	Foul Water Sewer
	Road Gully
	Channel / Slot / Kerb Drain
	Perforated Drain
	Attenuation Tank
	Permeable underdrained surfacing
	Planning Boundary
	Site Boundary
	Forecourt emergency spillage drainage - to discharge to foul
	Forecourt emergency spillage channel drain
	Forecourt separator
	Brown Roof Proposed for treatment
	Grease trap
	Full Retention Separator
	Rain Garden
	Rodding Eye

Raingarden Summary

Rain Garden No.	Max Storage Volume	Water Stored in 1 in 100 year + 40% CC Storm event
1	9.0m³	8.4m³
2	6.6m³	6.6m³
3	12.0m³	12.0m³
4	2.6m³	2.6m³
5	10.4m³	10.4m³
6	10.3m³	8.5m³
7	5.8m³	4.6m³
8	2.6m³	2.6m³
9	10.9m³	7.3m³
10	42.0m³	38.0m³
11	4.5m³	4.5m³
Total:	116.7m³	105.5m³

Revision History

Rev	Description	Drawn	Checked	Date
001	Updated to suit LPA Planning Comments	NB	AMNP	27.02.26
002	Updated to show new garden	NB	AMNP	17.12.25
003	Amended as per Network Drain (NDC) comments	AM	JP	03.12.25
004	Drainage confirmed	AM	JP	10.09.25
005	First Issue - Draft	AM	JP	03.09.25

Suitable for Stage Approval

Welcome Break

Welcome Break, Hinckley

Drainage Strategy

Third Floor
36-37 St Marys Gate
Hinckley
NG21 1PU

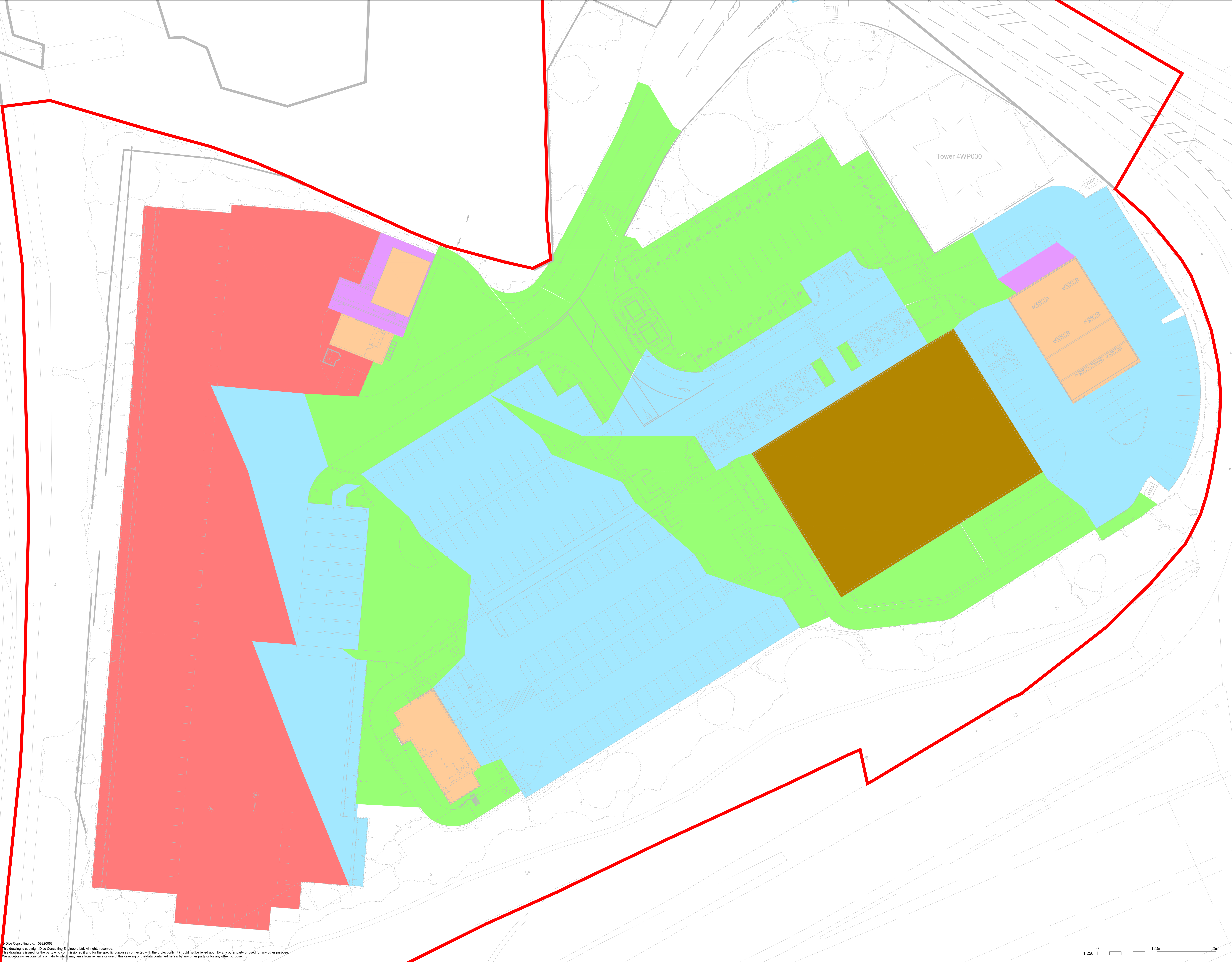
0115 862 9192
info@dice-engineering.co.uk

Drawn	Checked	Stage of AD	Scale	Rev
101653	Stage 3 - Planning	1:250	S4	P05

101653-HINCK-DCE-00-XX-DR-C-5000

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Appendix C



Notes

1. All dimensions are in metres unless stated otherwise.

2. All levels are in metres unless stated otherwise.

3. This drawing shall not be scaled.

4. This drawing shall be read in conjunction with all other relevant Engineer and specialist drawings and specifications.

5. Drawing is based on Architectural layout drawing 1415-24a.dwg Rev A received from ADS design on 21.09.2023.

6. This information is for strategy and coordination purposes only and subject to change following further design development.

7. All areas under Aquaswirl only treatment type are low risk roof flows only, and provided mitigation indices exceed double the recommended mitigation under CIRIA C753

Key To Symbols

Discharges to foul under advice from petrol interceptor supplier that small inflow of fresh water is required for good function

Colour on Plan	Primary Treatment Type	Mitigation Indices	
		TSS / Metals / Hydrocarbons	Primary Treatment
	RainGarden	0.8 / 0.8 / 0.8	1.0 / 1.0 / 1.0
	Full Retention Separator	0.8 / 0.6 / 0.99	1.0 / 0.85 / 1.0
	Permeable Paving	0.7 / 0.6 / 0.7	1.0 / 0.85 / 1.0
	Brown Roof	0.5 / 0.6 / 0.6	0.9 / 0.85 / 0.95
	Aquaswirl	0.8 / 0.5 / 0.35	N/A

Mitigation indices are give as:

Total Suspended Solids / Metals / Hydrocarbons

PS1

Rev:

First Issue

Description

NB

Drawn

AMNP

CHA/APP

27.02.26

Date:

Project Description

Suitable for Stage Approval

Client

Welcome Break

File

Welcome Break, Hinckley

Rainfall Area Treatment Plan

Dice

Third Floor

36-37 St Marys Gate

Nottingham

NG2 1PU

0115 952 9702

info@diceconsulting.co.uk

www.dice.co.uk

Stage/Project Number

101653

Status

Stage 3 - Planning

Scale of A3

1:250

Sub Code

S4

Rev

P01

Drawing Number

HINCK-DCE-00-XX-DR-C-5005

0

12.5m

25m

1:250

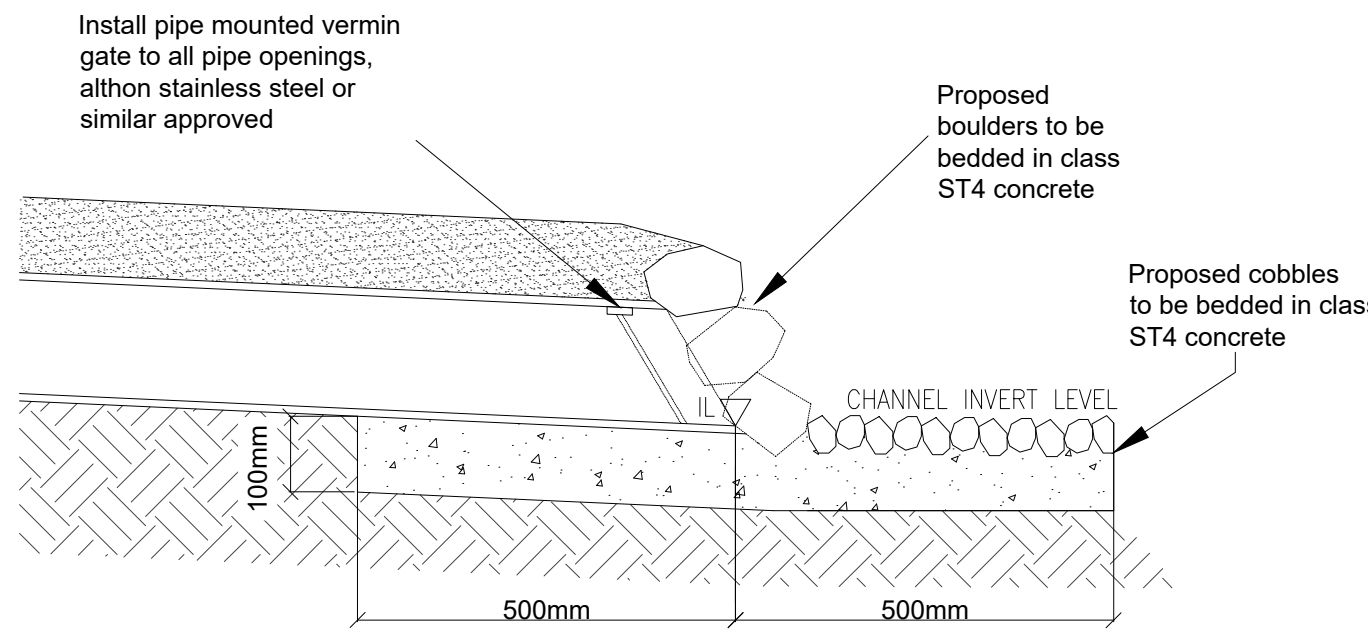
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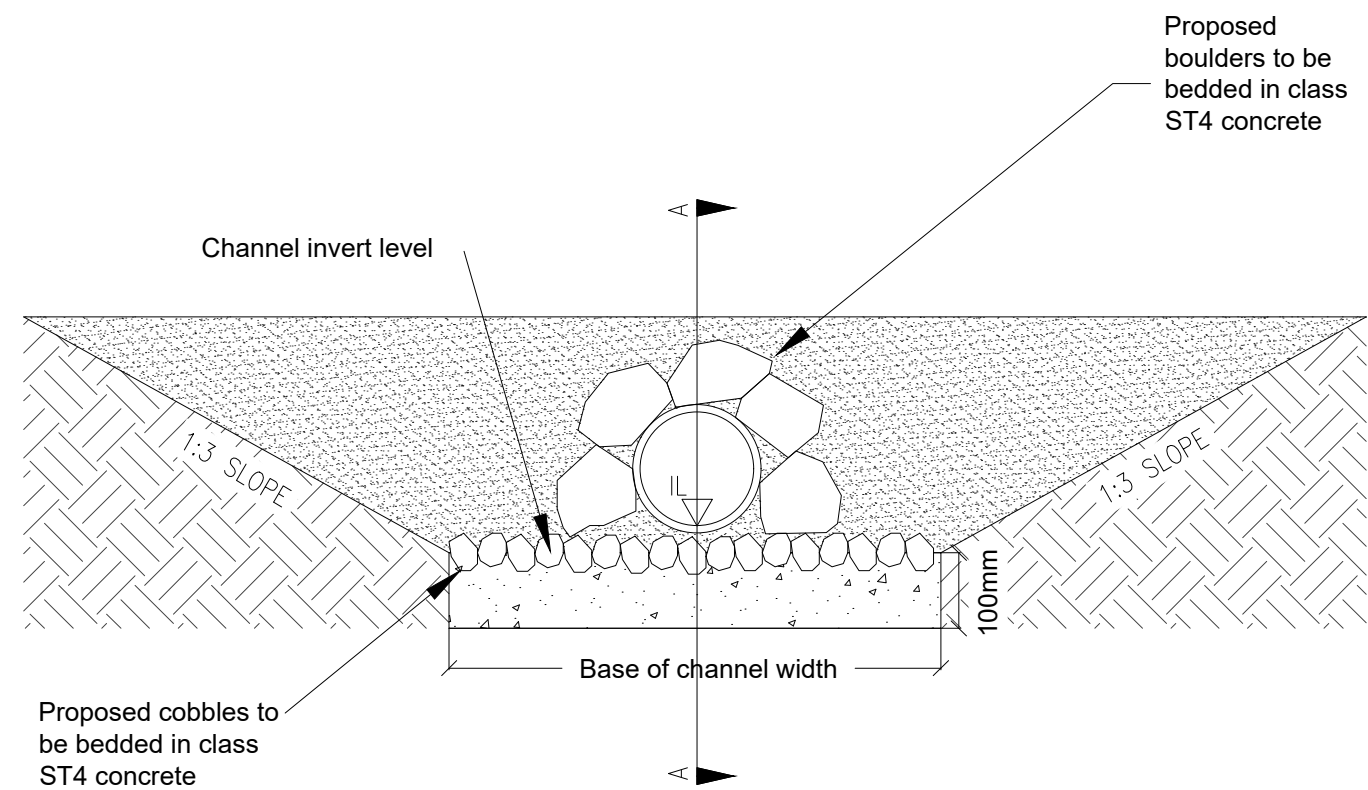
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Appendix D

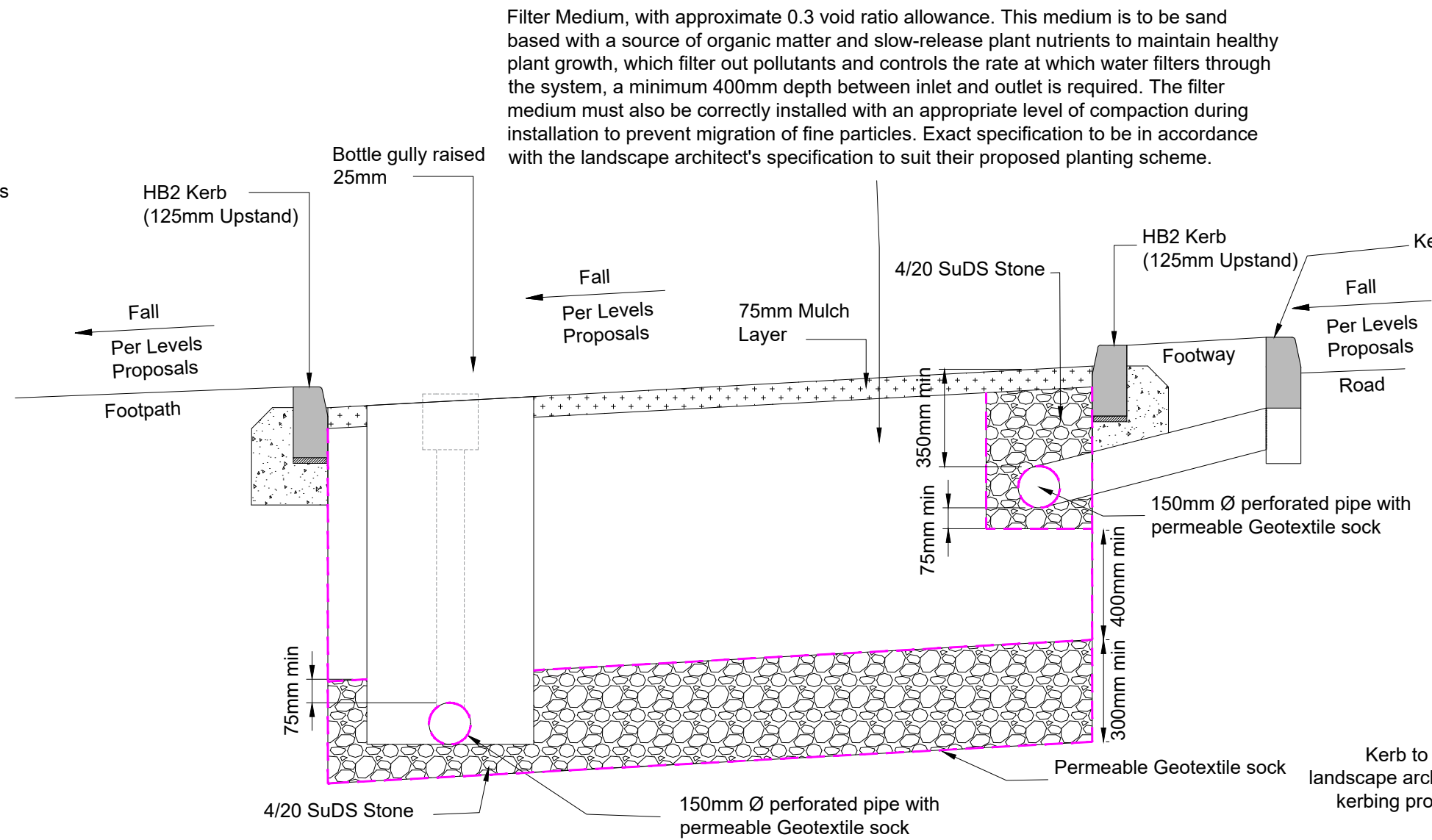


Section A-A



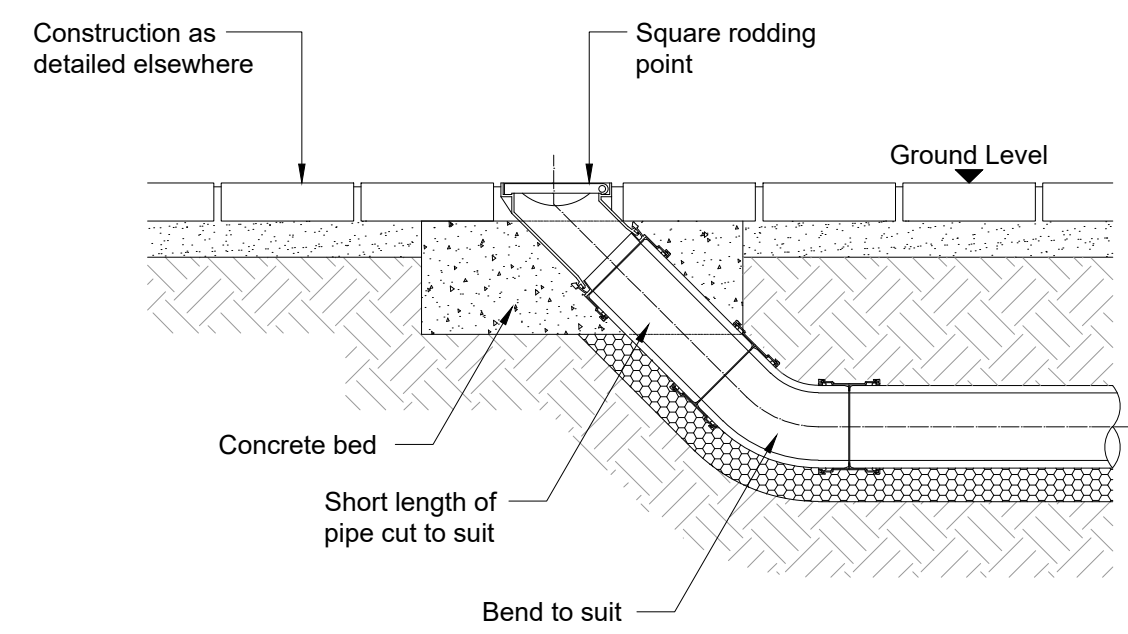
Proposed Stone Headwall

N.T.S.



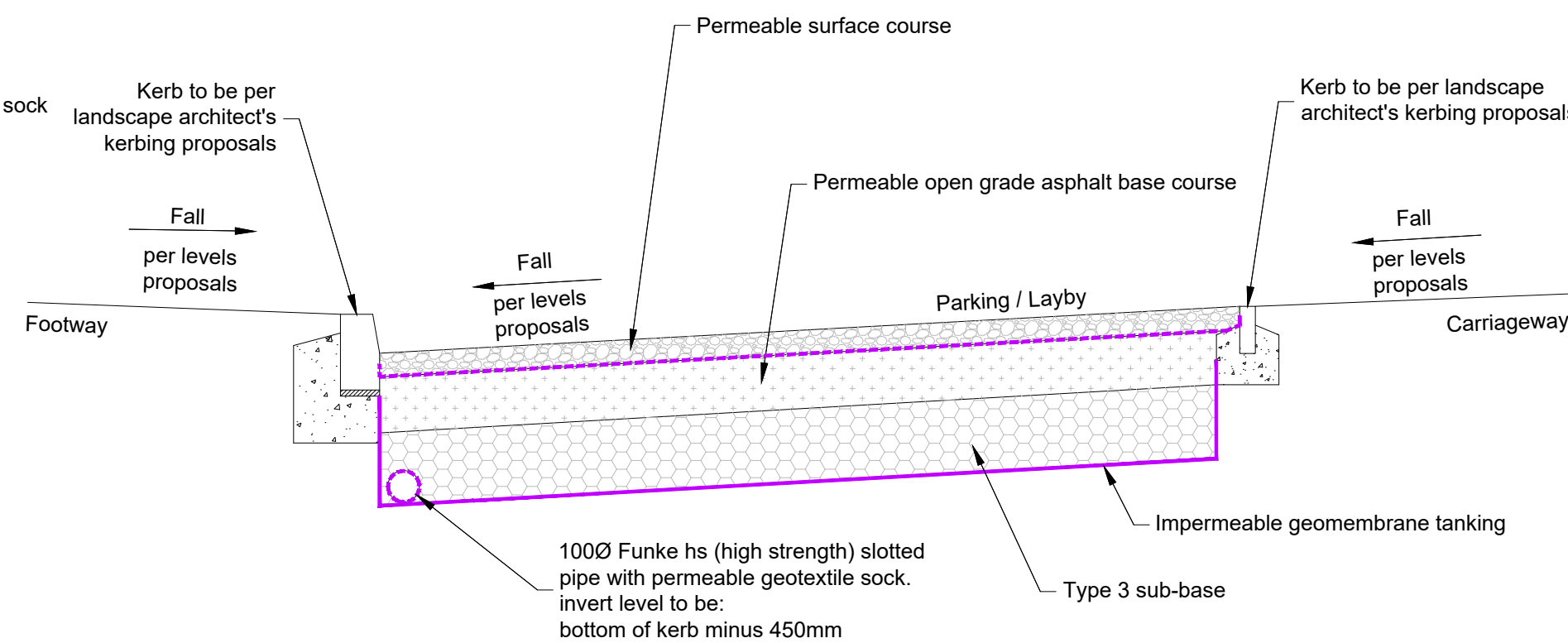
Rain Garden Construction Detail

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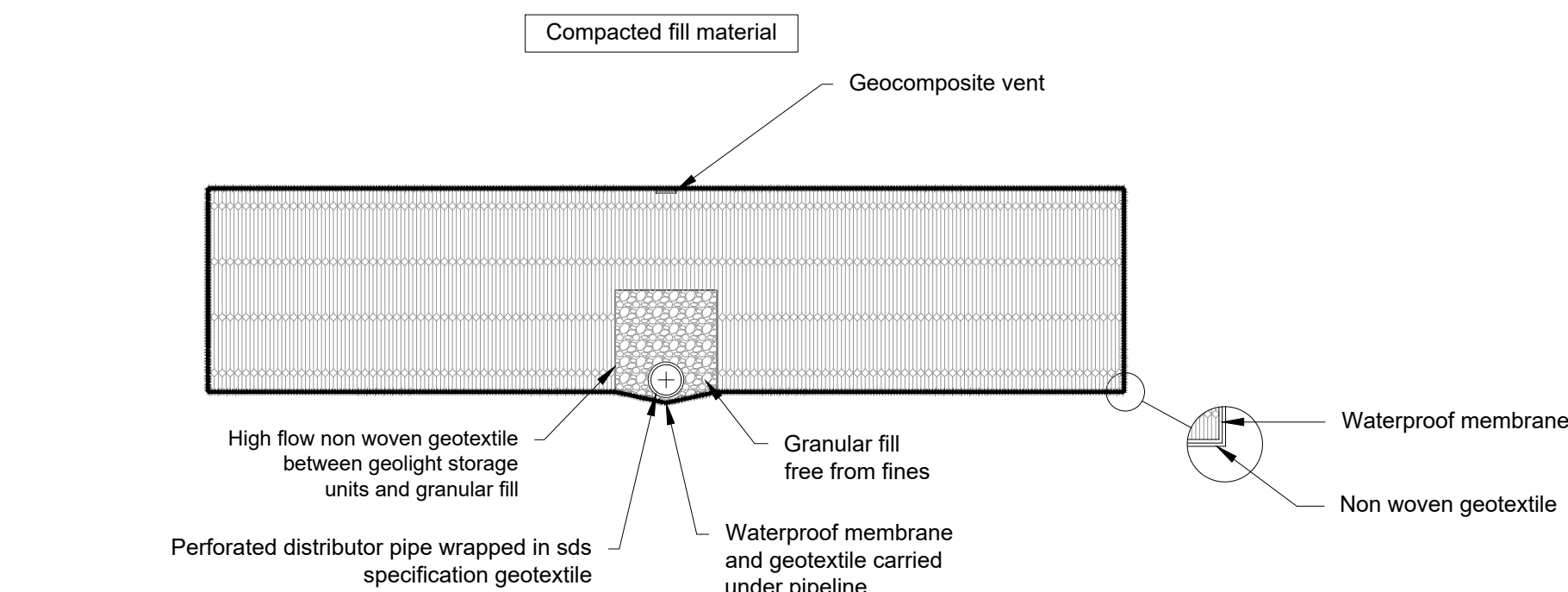
Rodding Point Detail

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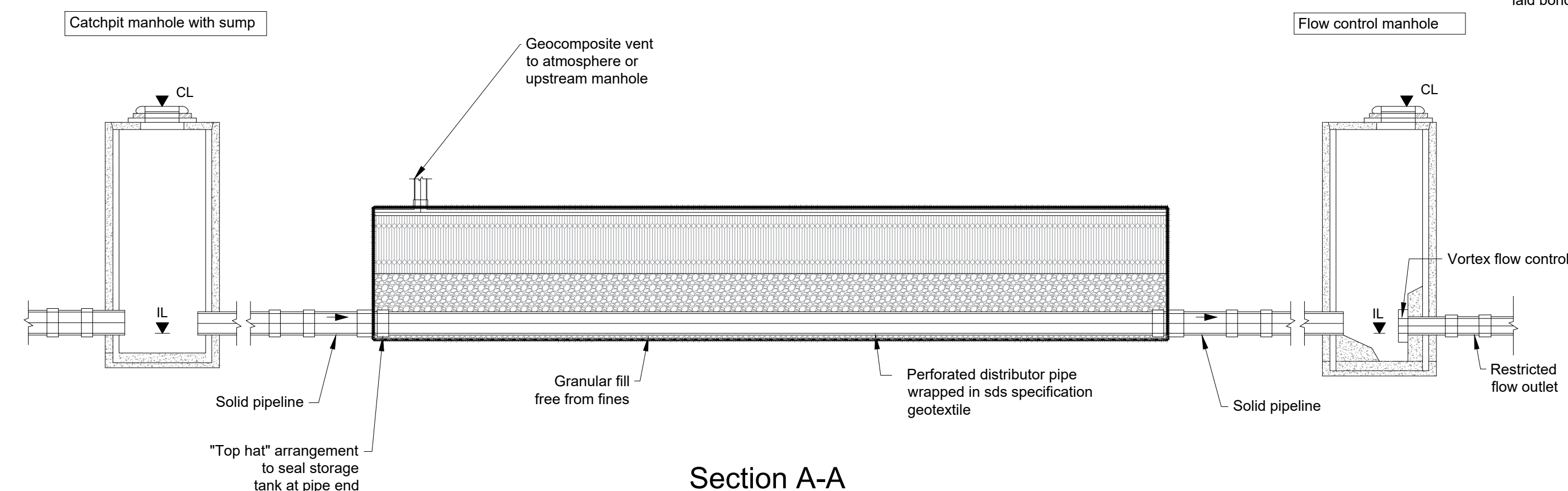


Permeable Parking Underdrainage Indicative Construction Detail

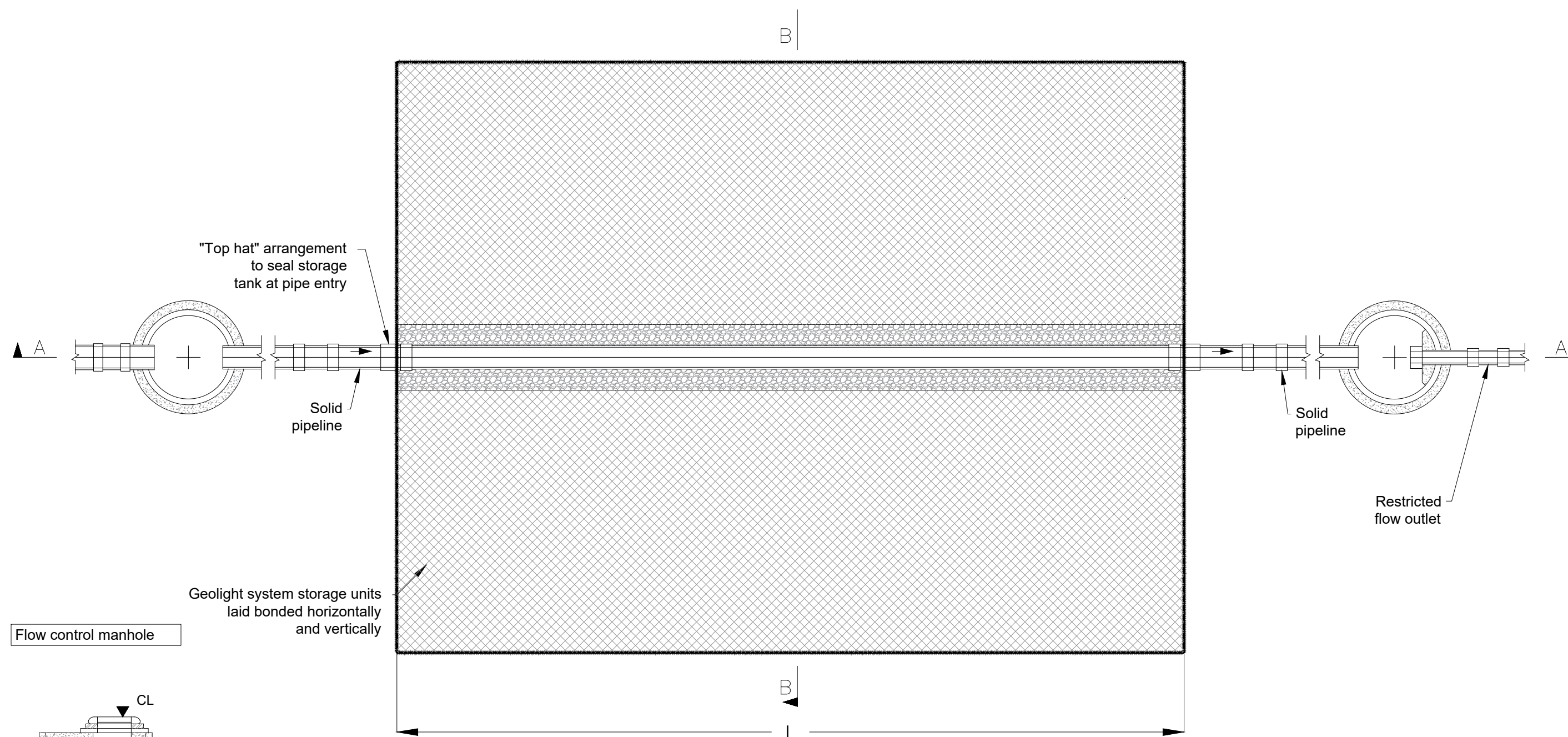
N.T.S.



Section B-B



Section A-A



SDS Online Attenuation Tank

N.T.S.

Notes

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2. All levels are in metres unless stated otherwise.
3. This drawing shall not be scaled.
4. This drawing shall be read in conjunction with all other relevant Engineer and specialist drawings and specifications.
5. This information is for strategy and coordination purposes only and subject to change following further design development.

P02	Updated to Suit LLFA Planning Comments	NB	AM/NP	27.02.26
P01	First Issue	NB	AM/NP	17.12.25
Rev	Description	Drawn	Chk/App	Date

Sustainability Description: Suitable for Stage Approval

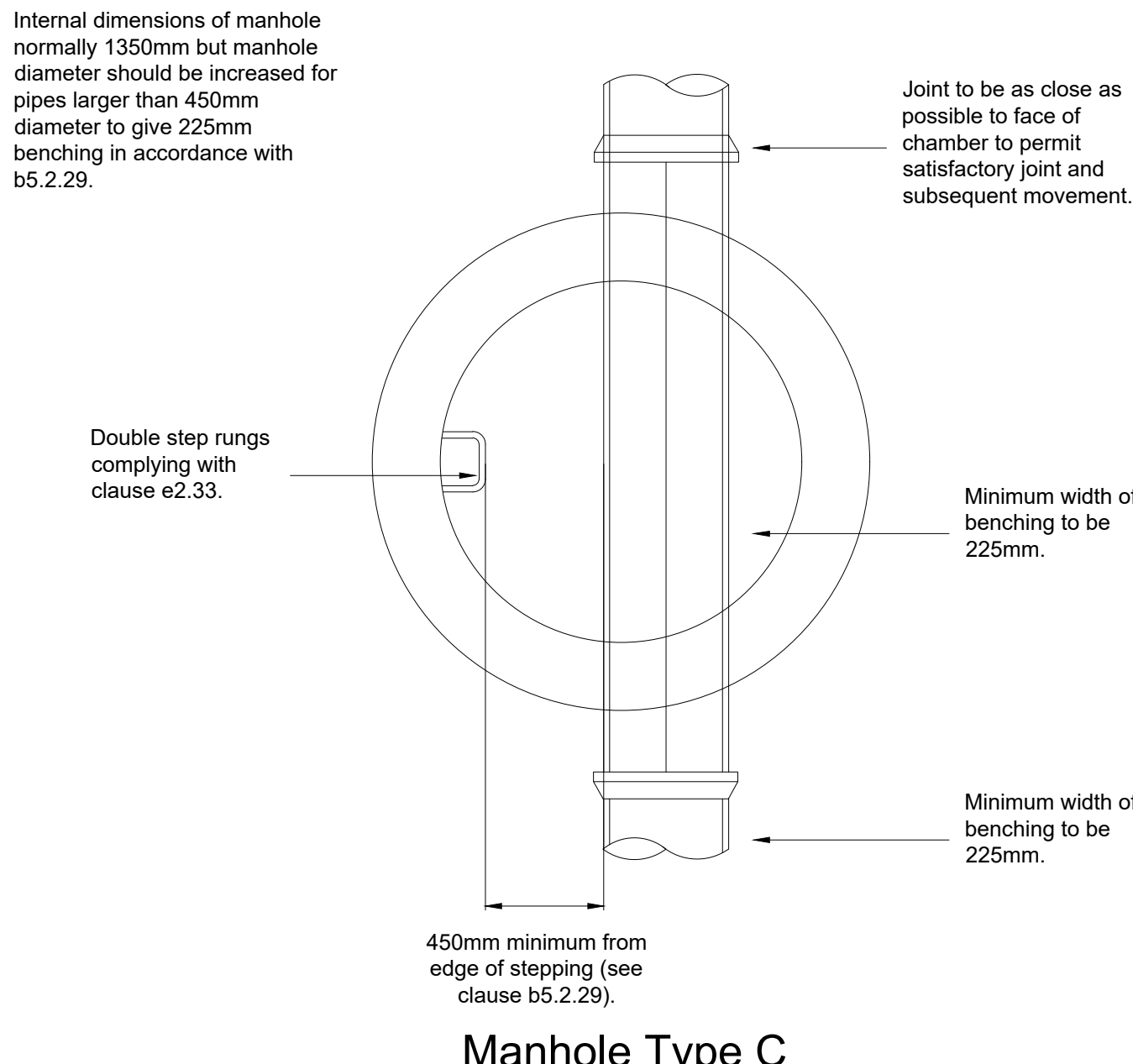
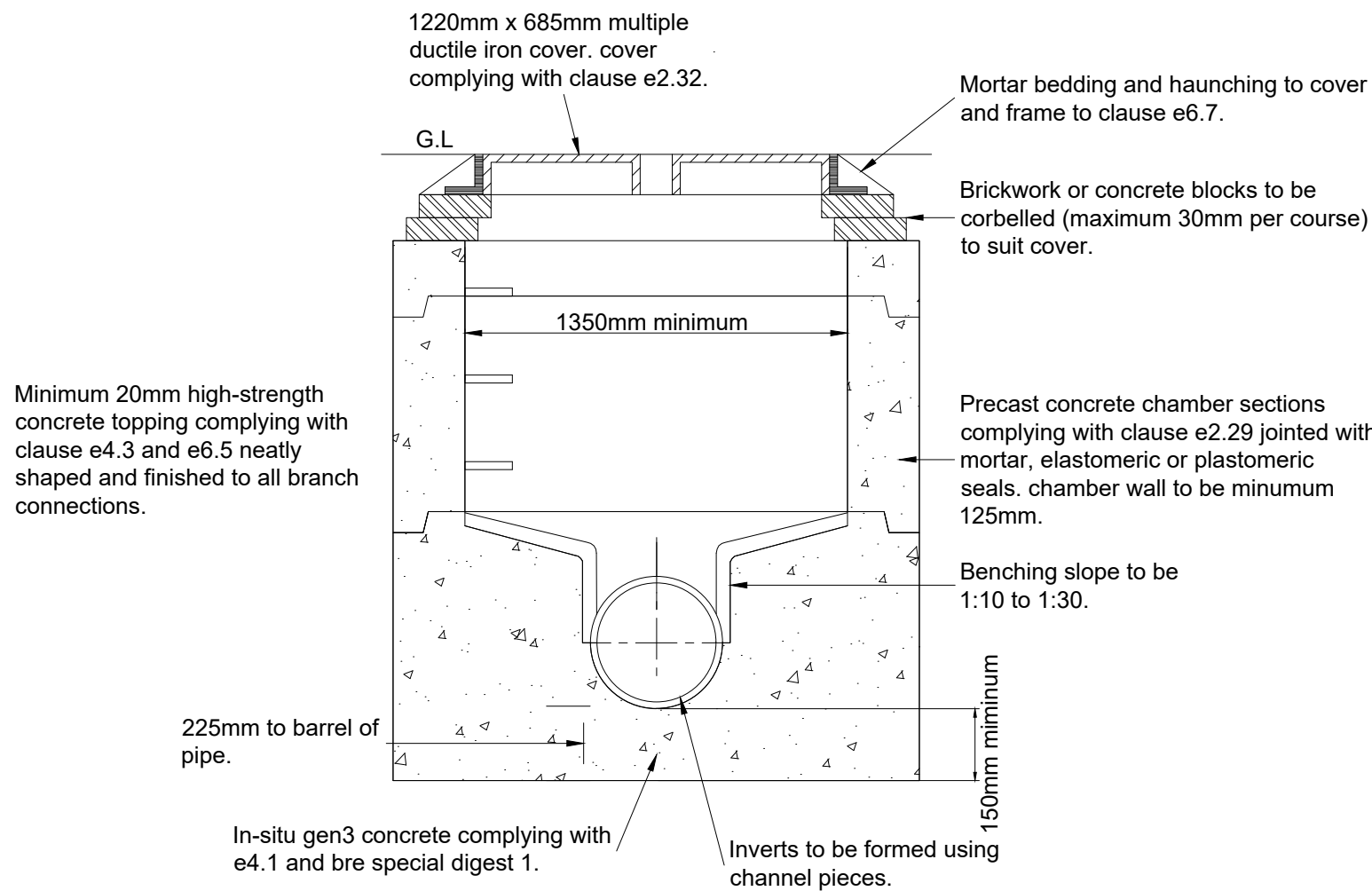
Client: Welcome Break

Title: Welcome Break, Hinckley
Drainage Construction Details

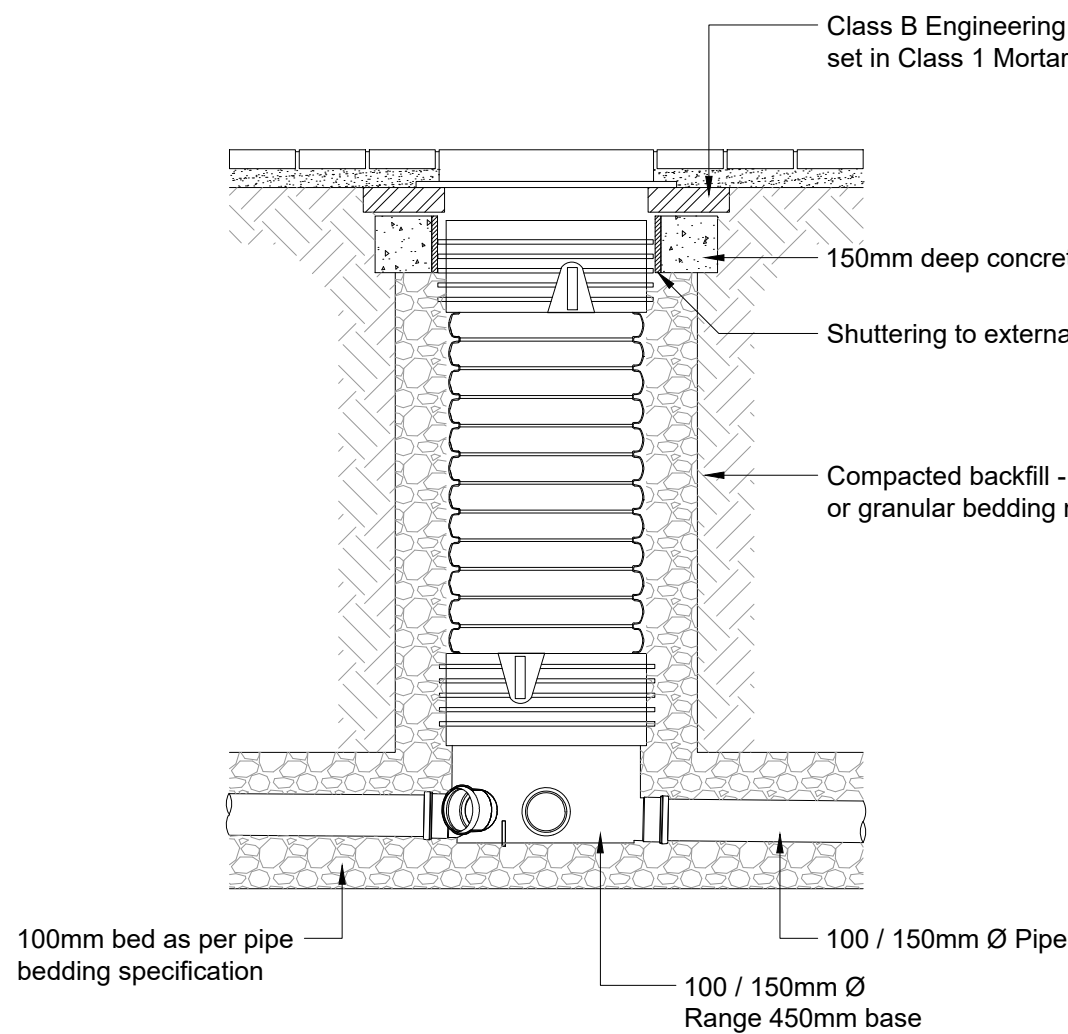
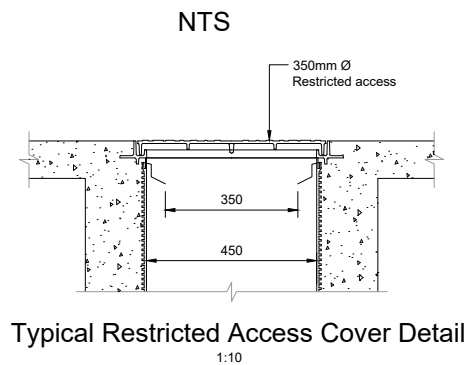


Dice Project Number	Status	Scale at A1	Suit. Code	Rev
101653	Stage 3 - Planning	As Shown	S4	P02

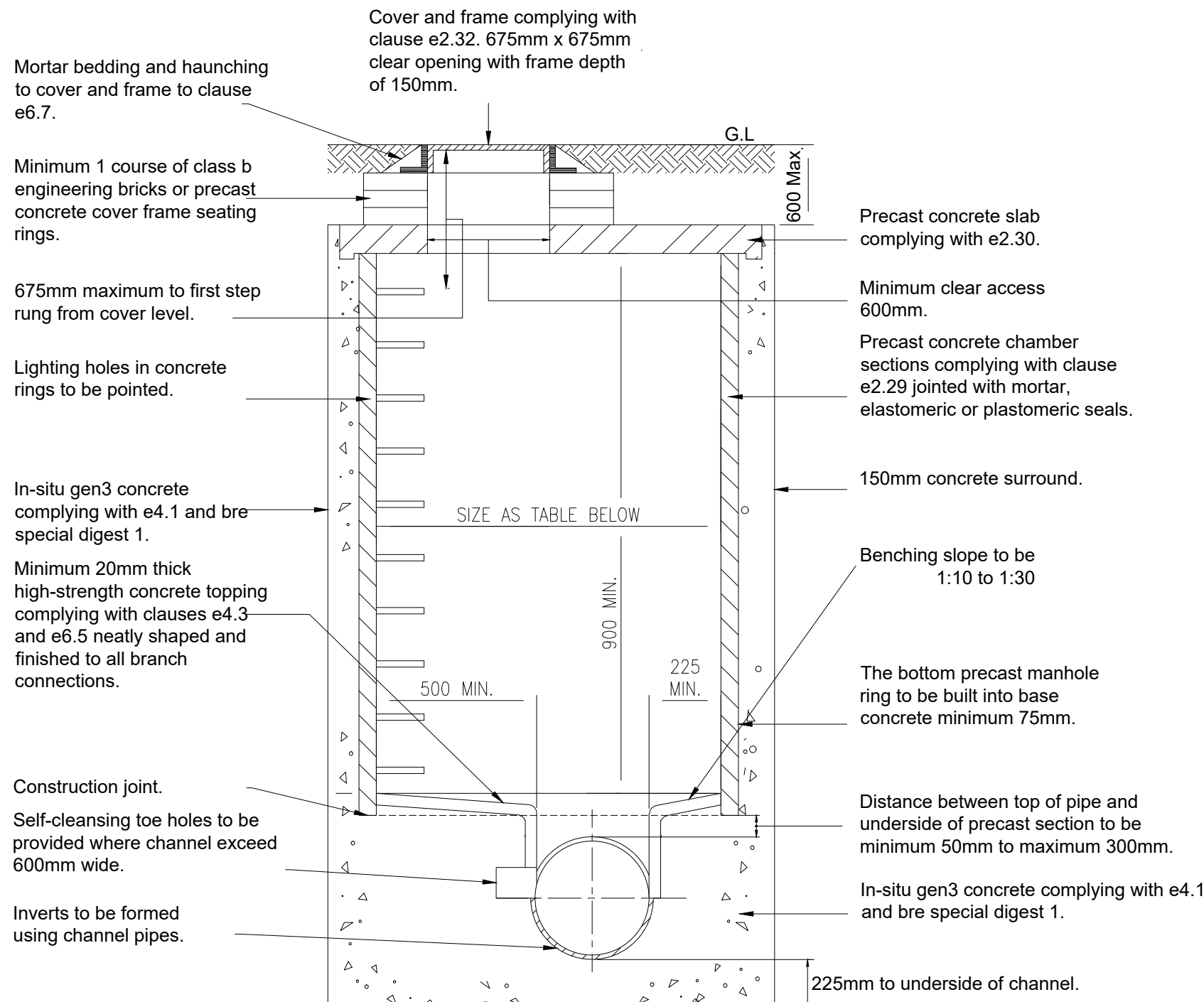
Drawing Number: HINCK-DCE-00-XX-DR-C-5002



Manhole Type C
(Depth to Soffit Up to 1.5m)
Maximum Pipe Size 450mm diameter

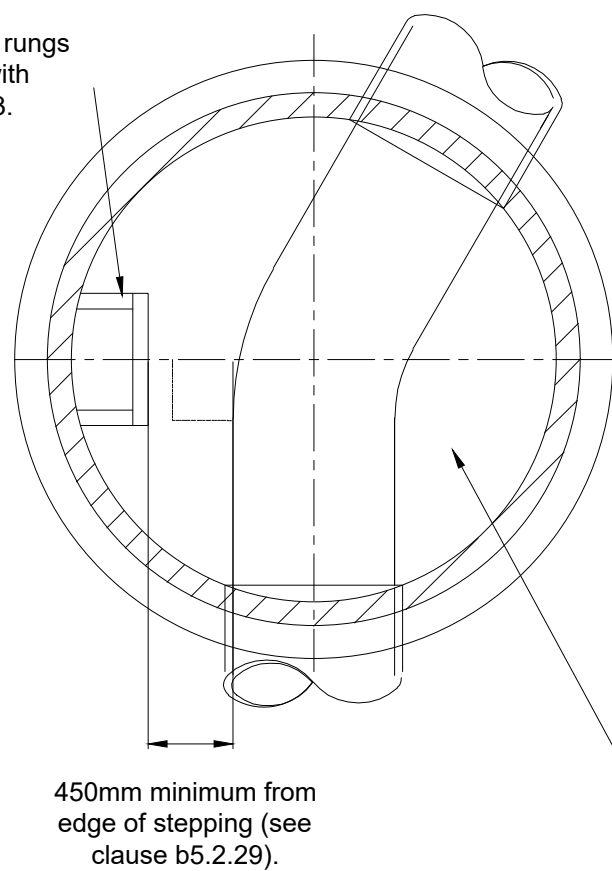


Typical 450mm Ø PPIC Chamber Detail
(Max depth to Soffit 3.0m)



Shaft Diameters	
Diameter of largest pipe in MH (mm)	Int. diameter of MH (mm)
Less than 375	1200
375 to 700	1500
750 to 900	1800

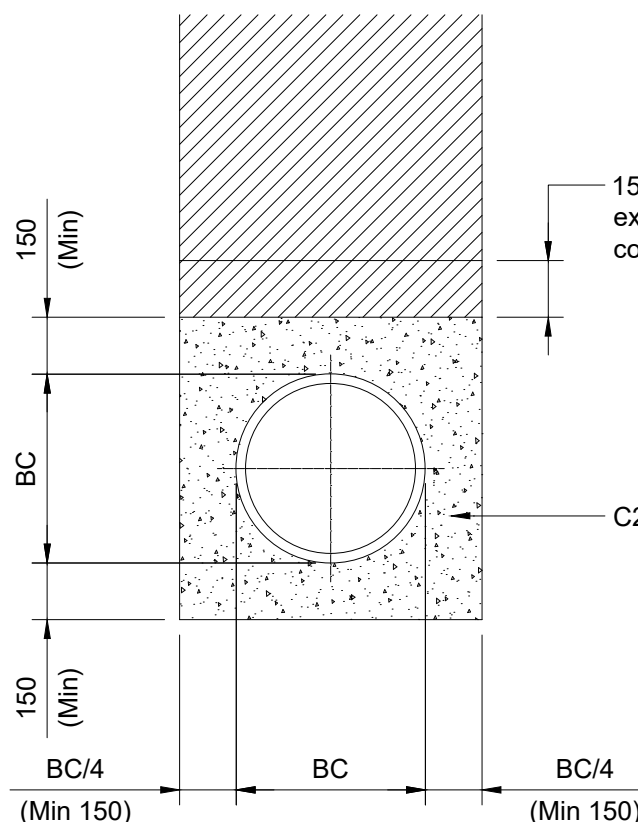
Note: Chamber with outgoing pipes 600mm or greater diameter shall be fitted with removable stainless steel (grade 316) safety chains or polypropylene rope. Manholes greater than 6m depth shall be subject to specific design.



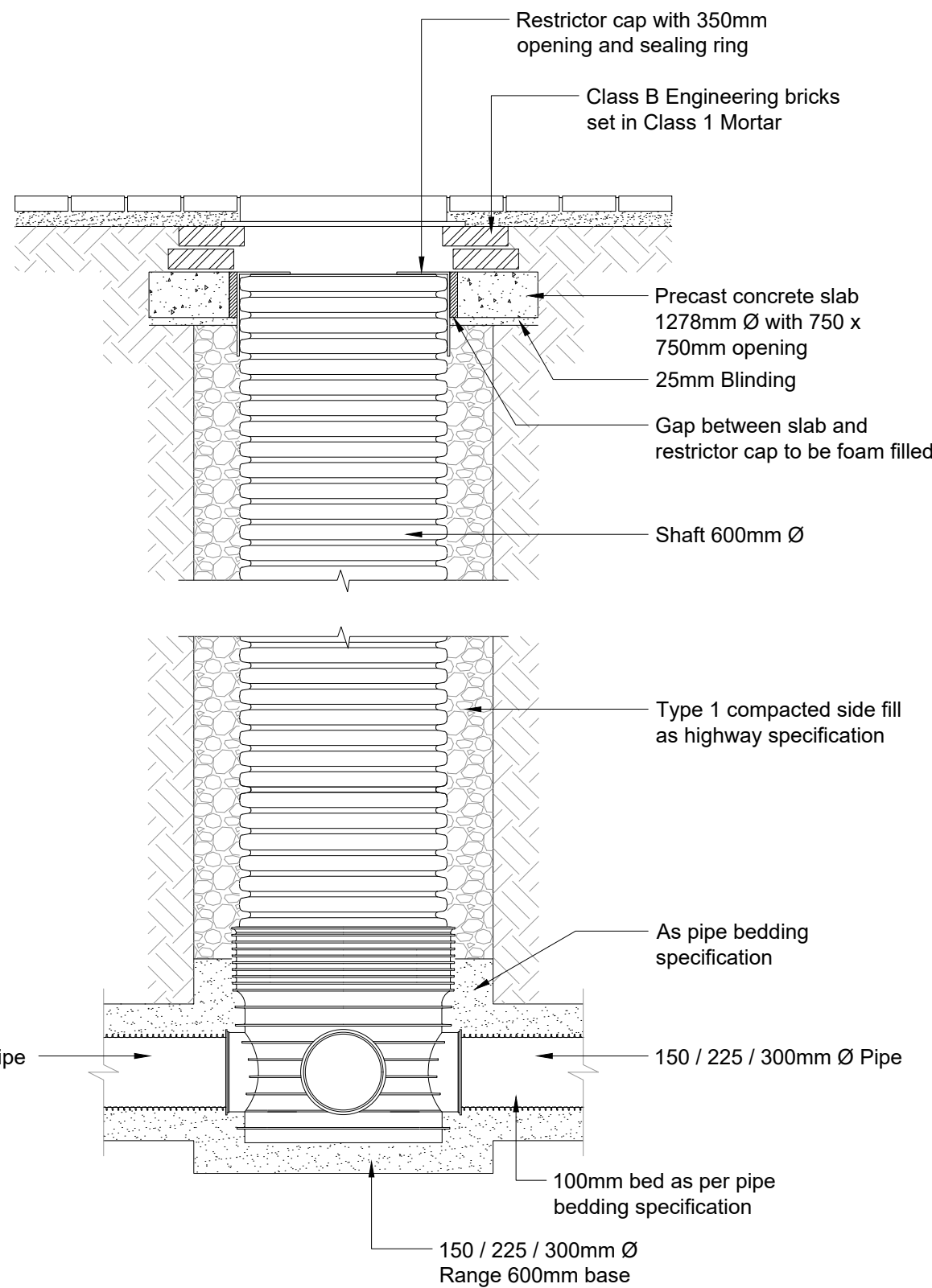
All pipes entering or leaving manholes shall have a flexible joint within 600mm of the inside face of the manhole. The next pipe shall be a short "rocker pipe" with length as per the table below.

Rocker Pipes	
Sewer Diameter (mm)	Effective Length (mm)
150 to 600	600
675 to 750	1000
825 and over	1250

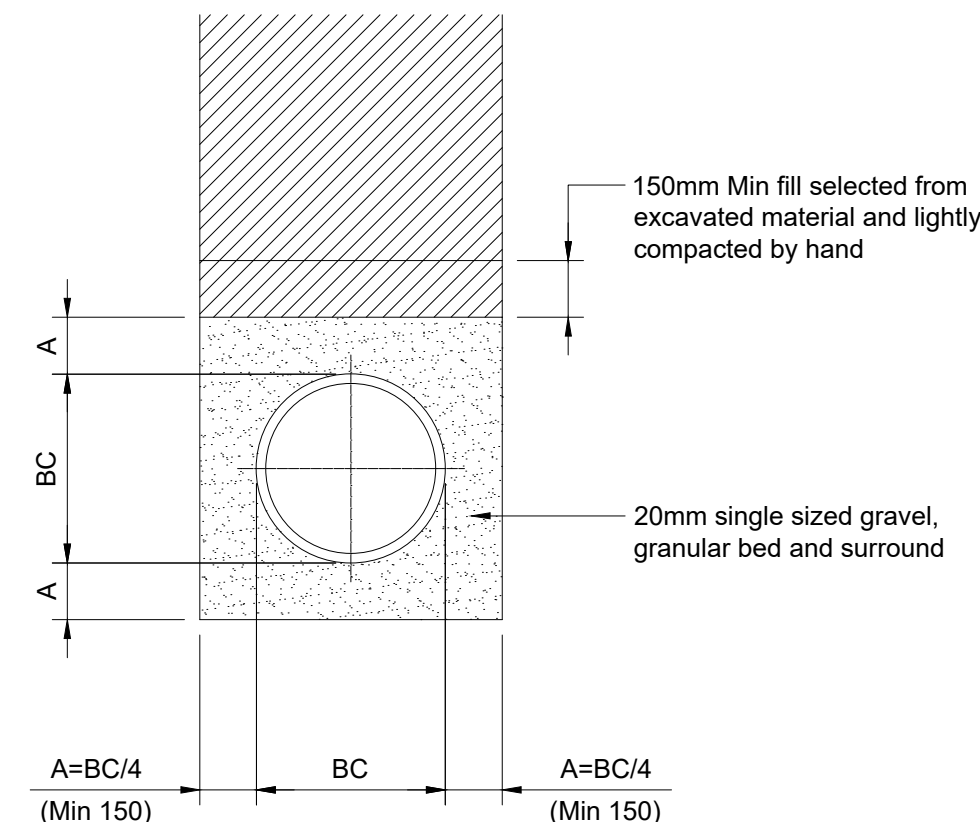
Manhole Type B
(Depth to Soffit 1.5m - 3m)



Concrete Bed and Surround (Class Z)



Typical 600mm Ø PPIC Chamber Detail
(Max depth to Soffit 3.0m)



Granular Bed and Surround (Class S)

- Notes
1. All dimensions are in metres unless stated otherwise.
 2. All levels are in metres unless stated otherwise.
 3. This drawing shall not be scaled.
 4. This drawing shall be read in conjunction with all other relevant Engineer and specialist drawings and specifications.
 5. This information is for strategy and coordination purposes only and subject to change following further design development.

P02	Updated to Suit LLFA Planning Comments	NB	AMNP	27.02.26
P01	First Issue	NB	AMNP	17.12.25

Rev	Description	Drawn	Chk/App	Date
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Sustainability Description

Suitable for Stage Approval

Client

Welcome Break

Title

Welcome Break, Hinckley

Drainage Construction Details

Dice

Third Floor
The Courtyard
35-37 St Mary's Gate
Nottingham
NG1 1PU

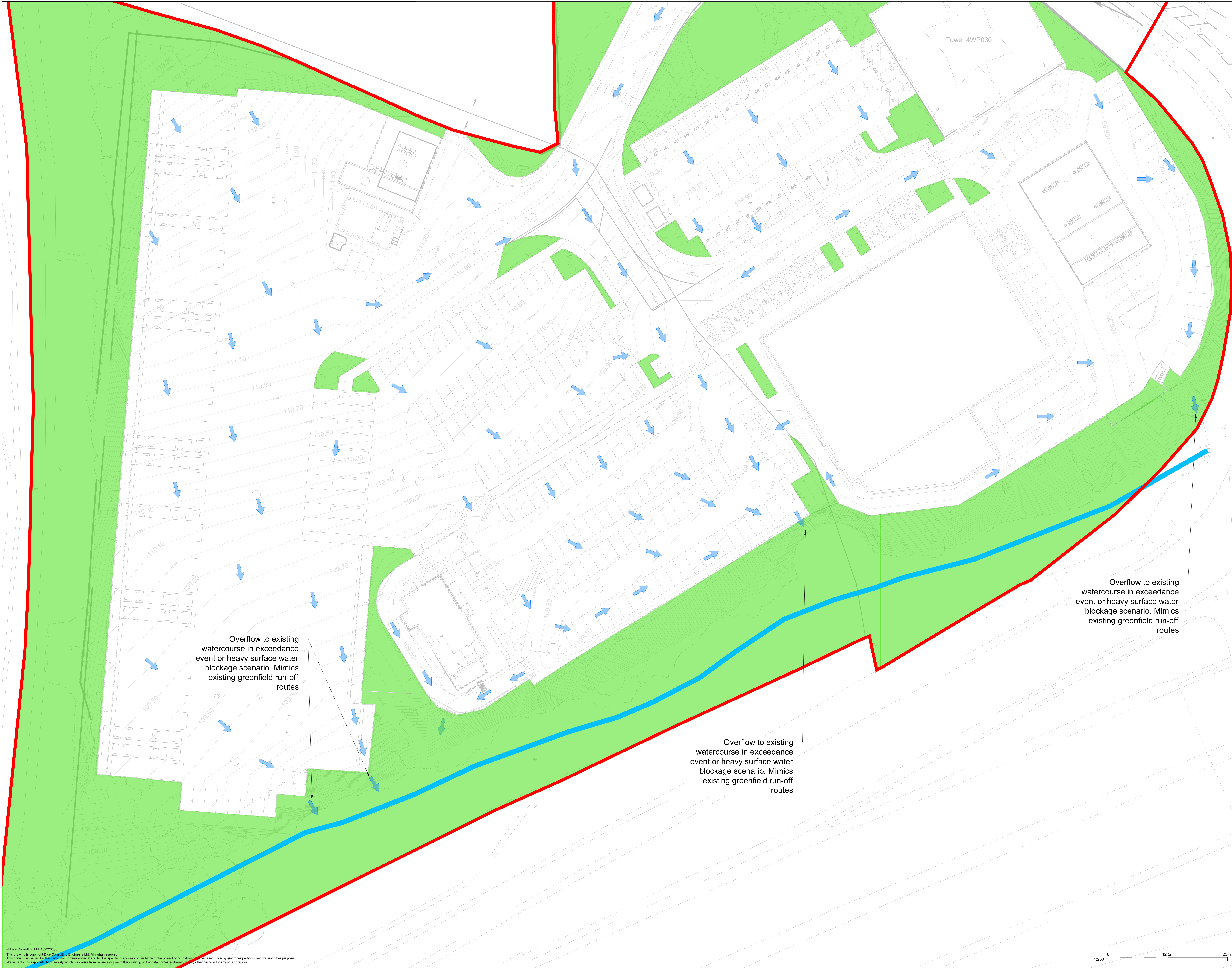
0115 962 8752
info@diceconsult.co.uk
diceconsult.co.uk

Dice Project Number	Status	Scale at A1	Sub. Code	Rev
101653	Stage 3 - Planning	As Shown	S4	P02

Drawing Number

HINCK-DCE-00-XX-DR-C-5003

Appendix E



Notes

1. All dimensions are in metres unless stated otherwise.
2. All levels are in metres unless stated otherwise.
3. This drawing shall not be scaled.
4. This drawing shall be read in conjunction with all other relevant Engineer and specialist drawings and specifications.
5. Drawing is based on Architectural layout drawing 1415-24a.dwg Rev A received from ADS design on 21.09.2023.

Key To Symbols

- Planning Boundary
- Overland Flow Route in The Event of System Failure or storm in exceedance of 100yrs plus 40% climate change
- Existing Watercourse
- Landscape / Permeable areas - existing and proposed
- Proposed Contours

Rev	Description	Rev	Description	Rev	Description
1	Updated to S4 LPA Planning Comments	1	ANM	1	27.02.26
2		2	ANM	2	17.02.25
3		3	CH/APP	3	

Project Description

Suitable for Stage Approval

Client

Welcome Break

File

Welcome Break, Hinckley

Flood Exceedance Plan

Dice

Third Floor
36-37 St Marys Gate
Nottingham
NG1 1PU

0115 952 9702
info@dice-engineering.co.uk
@diceengineer.co.uk

Drawn	101653	Stage	3 - Planning	Scale	1:250	Sheet	S4	Rev	P02
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Drawing number

HINCK-DCE-00-XX-DR-C-5004

0 12.5m 25m

1:250

Appendix F

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	5.00
Return Period (years)	1	Maximum Rainfall (mm/hr)	125.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.200	Minimum Backdrop Height (m)	1.000
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
CP 1	0.064	5.00	111.025	600	443117.072	291017.163	0.725	110.300
CP 2			111.025	600	443112.686	291018.142	0.726	110.299
CP 3			110.925	600	443109.766	291011.636	1.374	109.551
CP 4			110.925	600	443112.984	291011.379	1.375	109.550
CP 5			110.825	600	443116.643	291010.976	1.374	109.451
Orifice 1			110.825	450	443121.075	291010.656	1.375	109.450
S9	0.422	5.00	111.000	1500	443124.815	291027.163	1.425	109.575
junction 2			110.700	1	443123.622	291010.239	1.601	109.099
S10	0.294	5.00	108.900	1500	443106.879	290933.202	1.599	107.301
S11			109.200	1500	443119.116	290946.327	1.975	107.225
CP 27	0.090	5.00	109.825	600	443127.359	290977.114	1.225	108.600
CP 28			109.825	600	443122.009	290977.374	1.226	108.599
CP 29	0.014	5.00	109.425	600	443124.681	290956.030	0.925	108.500
CP 30			109.425	600	443120.955	290955.141	0.926	108.499
CP 31			109.425	600	443121.434	290948.367	1.924	107.501
Orifice 9			109.625	450	443130.295	290947.837	2.125	107.500
S12	0.014	5.00	109.500	1350	443123.174	290964.833	1.200	108.300
S13	0.017	5.00	109.500	1500	443135.318	290945.269	2.500	107.000
S14	0.006	5.00	109.500	1500	443151.569	290950.741	3.000	106.500
CP 37	0.021	5.00	109.225	600	443275.056	291005.849	0.575	108.650
CP 38			109.225	600	443276.232	291004.169	0.576	108.649
CP 39	0.023	5.00	109.225	600	443277.804	291007.505	0.624	108.601
CP 40			109.225	600	443278.944	291005.809	0.625	108.600
CP 41			109.225	600	443286.474	291011.147	1.399	107.826
Orifice 11			109.225	450	443283.991	291012.827	1.400	107.825
S17	0.022	5.00	109.000	1500	443272.550	291019.579	1.450	107.550
CP 18	0.044	5.00	109.375	600	443245.821	291054.535	0.800	108.575
CP 19			109.375	600	443244.029	291053.544	0.801	108.574
CP 20			109.275	600	443246.134	291050.224	1.474	107.801
Oririfice 7			109.275	450	443249.341	291052.234	1.475	107.800
junction 7	0.192	5.00	109.100	1	443250.222	291052.892	1.726	107.374
S16	0.147	5.00	109.200	1500	443247.210	291057.408	1.850	107.350
CP 32	0.046	5.00	109.825	600	443233.361	291071.246	0.600	109.225
CP 33			109.900	600	443229.810	291069.133	0.676	109.224
CP 34	0.014	5.00	109.725	600	443235.576	291066.590	0.549	109.176
CP 35			109.825	600	443232.025	291064.478	0.650	109.175
CP 36		5.00	109.900	600	443237.073	291064.257	1.699	108.201
Orifice 10			109.900	450	443228.206	291061.109	1.700	108.200
S4		5.00	109.750	1500	443226.289	291063.509	1.750	108.000
Junction 11			109.600	1	443227.552	291059.120	1.799	107.801
Junction 10			109.500	1	443230.908	291047.456	2.228	107.272

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SIC 10	0.082	5.00	109.975	600	443187.789	291046.357	0.975	109.000
CP 15	0.049	5.00	110.125	600	443183.775	291045.759	1.275	108.850
CP 16			110.125	600	443180.509	291043.789	1.276	108.849
CP 17			109.975	600	443186.106	291039.817	2.474	107.501
Orifice 6			109.875	600	443190.776	291039.210	2.375	107.500
junction 6			109.300	1	443193.746	291024.750	2.205	107.095
S1	0.036	5.00	111.375	1200	443131.328	291047.117	1.350	110.025
S3			110.800	1200	443165.374	291053.013	1.800	109.000
CP 12	0.036	5.00	111.125	600	443175.528	291066.564	0.600	110.525
CP 13			111.000	600	443177.732	291065.127	0.476	110.524
CP 14			110.625	600	443176.182	291058.124	1.224	109.401
Orifice 4			110.525	450	443173.627	291056.515	1.125	109.400
junction 5			110.700	1	443166.923	291050.524	1.860	108.840
Cp 6	0.040	5.00	110.875	600	443155.960	291042.630	0.600	110.275
CP 7			110.925	600	443149.206	291040.407	0.651	110.274
CP 8			110.825	600	443149.444	291036.591	1.324	109.501
Orifice 2			110.825	450	443159.204	291042.541	1.325	109.500
Junction 3			109.600	1	443169.030	291047.141	0.977	108.623
CP 9	0.034	5.00	110.525	600	443163.875	291037.870	0.600	109.925
CP 10			110.575	600	443160.463	291035.901	0.651	109.924
CP 11			110.525	600	443161.417	291034.449	1.524	109.001
Orifice 3			110.425	450	443165.374	291036.894	1.425	109.000
junction 4			110.150	1	443173.036	291040.707	1.941	108.209
S5	0.074	5.00	109.750	1800	443177.971	291032.781	2.350	107.400
S23			109.300	1500	443189.652	291022.248	2.225	107.075
CP 21	0.090	5.00	109.725	600	443179.205	291018.086	0.825	108.900
CP 22			109.725	600	443176.865	291016.535	0.826	108.899
CP 23			109.650	600	443180.471	291012.230	1.449	108.201
Orifice 5			109.650	450	443182.905	291013.743	1.450	108.200
SIC 9		5.00	109.525	600	443183.588	291009.332	1.425	108.100
Junction 8			109.400	1	443186.058	291010.876	1.425	107.975
SIC 8		5.00	109.250	600	443196.581	291017.472	1.450	107.800
S24	0.412	5.00	109.000	1500	443193.788	291015.706	2.025	106.975
S27			109.175	1500	443204.036	290999.498	2.675	106.500
TANK			109.000	100	443207.907	290993.020	2.501	106.499
Junction 1			109.000	1	443211.185	290987.596	2.502	106.498
CP 24	0.022	5.00	109.325	600	443210.335	290998.541	0.500	108.825
CP 25			109.325	600	443213.859	290992.938	0.501	108.824
CP 26			109.325	600	443212.893	290985.824	1.099	108.226
Orifice 8			109.325	450	443215.203	290987.374	1.100	108.225
S26			109.275	1500	443215.203	290990.010	2.785	106.490
SIC 4	0.045	5.00	109.200	600	443248.340	291046.551	0.750	108.450
SIC 5	0.045	5.00	109.200	600	443266.078	291018.010	1.400	107.800
SIC 6			109.375	600	443248.962	291005.299	1.975	107.400
SIC 1	0.045	5.00	109.200	600	443201.891	291017.861	1.050	108.150
SIC 2			109.200	600	443218.674	290990.857	1.453	107.747
SIC 3	0.045	5.00	109.200	600	443222.288	290990.134	1.500	107.700
S6	0.026	5.00	109.400	1200	443237.484	290995.412	2.250	107.150
S19			109.200	1800	443241.817	290988.358	3.450	105.750
S20			109.100	1200	443242.447	290985.947	3.400	105.700
Outfall			107.000	1350	443245.219	290975.565	1.457	105.543

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	CP 1	CP 2	4.494	0.600	110.300	110.299	0.001	4494.0	150	5.00	55.2
1.001	CP 2	CP 3	7.132	0.600	110.299	109.551	0.748	9.5	150	5.00	55.2
1.002	CP 3	CP 4	3.228	0.600	109.551	109.550	0.001	3228.0	150	5.00	55.2
1.003	CP 4	CP 5	3.681	0.600	109.550	109.451	0.099	37.2	150	5.00	55.2
1.004	CP 5	Orifice 1	4.443	0.600	109.451	109.450	0.001	4443.0	150	5.00	55.2
1.005	Orifice 1	junction 2	2.581	0.600	109.450	109.324	0.126	20.5	150	5.00	55.2
2.000	S9	junction 2	16.966	0.600	109.575	109.099	0.476	35.6	375	5.00	55.2
1.006	junction 2	S11	64.071	0.600	109.099	107.300	1.799	35.6	375	5.00	55.2
3.000	S10	S11	17.945	0.600	107.301	107.300	0.001	17945.0	375	5.00	55.2
1.007	S11	S13	16.236	0.600	107.225	107.000	0.225	72.2	450	5.00	55.2
4.000	CP 27	CP 28	5.356	0.600	108.600	108.599	0.001	5356.0	225	5.00	55.2
4.001	CP 28	CP 30	22.258	0.600	108.599	108.500	0.099	224.8	225	5.00	55.2
5.000	CP 29	CP 30	3.830	0.600	108.500	108.499	0.001	3830.0	225	5.00	55.2
4.002	CP 30	CP 31	6.790	0.600	108.500	107.501	0.999	6.8	225	5.00	55.2
4.003	CP 31	Orifice 9	8.877	0.600	107.501	107.500	0.001	8877.0	225	5.00	55.2
4.004	Orifice 9	S13	5.641	0.600	107.500	107.300	0.200	28.2	225	5.00	55.2
6.000	S12	S13	23.027	0.600	108.300	107.225	1.075	21.4	225	5.00	55.2
1.008	S13	S14	17.148	0.600	107.000	106.650	0.350	49.0	450	5.00	55.2
1.009	S14	Junction 1	70.088	0.600	106.500	106.498	0.002	35044.0	600	5.00	55.2
7.000	CP 37	CP 38	2.054	0.600	108.650	108.649	0.001	2054.0	225	5.00	55.2
7.001	CP 38	CP 40	3.185	0.600	108.649	108.600	0.049	65.0	225	5.00	55.2
8.000	CP 39	CP 40	2.044	0.600	108.601	108.600	0.001	2044.0	225	5.00	55.2
7.002	CP 40	CP 41	8.638	0.600	108.600	107.826	0.774	11.2	225	5.00	55.2
9.000	CP 41	Orifice 11	3.008	0.600	107.826	107.825	0.001	3008.0	225	5.00	55.2

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.141	2.5	9.6	0.575	0.576	0.064	0.0	150	0.144
1.001	3.282	58.0	9.6	0.576	1.224	0.064	0.0	41	2.442
1.002	0.168	3.0	9.6	1.224	1.225	0.064	0.0	150	0.171
1.003	1.656	29.3	9.6	1.225	1.224	0.064	0.0	59	1.483
1.004	0.142	2.5	9.6	1.224	1.225	0.064	0.0	150	0.145
1.005	2.235	39.5	9.6	1.225	1.226	0.064	0.0	50	1.845
2.000	3.043	336.1	63.2	1.050	1.226	0.422	0.0	109	2.356
1.006	3.044	336.2	72.8	1.226	1.525	0.486	0.0	118	2.446
3.000	0.126	13.9	44.0	1.224	1.525	0.294	0.0	375	0.128
1.007	2.395	380.9	116.8	1.525	2.050	0.780	0.0	170	2.115
4.000	0.170	6.7	13.5	1.000	1.001	0.090	0.0	225	0.173
4.001	0.868	34.5	13.5	1.001	0.700	0.090	0.0	98	0.817
5.000	0.202	8.0	2.1	0.700	0.701	0.014	0.0	79	0.170
4.002	5.051	200.8	15.6	0.700	1.699	0.104	0.0	42	3.013
4.003	0.130	5.2	15.6	1.699	1.900	0.104	0.0	225	0.132
4.004	2.473	98.3	15.6	1.900	1.975	0.104	0.0	60	1.818
6.000	2.839	112.9	2.1	0.975	2.050	0.014	0.0	22	1.120
1.008	2.910	462.8	137.0	2.050	2.400	0.915	0.0	167	2.550
1.009	0.121	34.2	137.9	2.400	1.902	0.921	0.0	600	0.122
7.000	0.280	11.1	3.1	0.350	0.351	0.021	0.0	82	0.241
7.001	1.624	64.6	3.1	0.351	0.400	0.021	0.0	34	0.850
8.000	0.280	11.1	3.4	0.399	0.400	0.023	0.0	86	0.247
7.002	3.939	156.6	6.6	0.400	1.174	0.044	0.0	31	1.968
9.000	0.229	9.1	6.6	1.174	1.175	0.044	0.0	142	0.250

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
7.003	Orifice 11	S17	13.275	0.600	107.825	107.550	0.275	48.3	225	5.00	55.2
7.004	S17	junction 7	40.103	0.600	107.550	107.374	0.176	227.9	450	5.00	55.2
10.000	CP 18	CP 19	2.048	0.600	108.575	108.574	0.001	2048.0	150	5.00	55.2
10.001	CP 19	CP 20	3.931	0.600	108.574	107.801	0.773	5.1	150	5.00	55.2
10.002	CP 20	Oririfice 7	3.785	0.600	107.801	107.800	0.001	3785.0	150	5.00	55.2
10.003	Oririfice 7	junction 7	1.100	0.600	107.800	107.675	0.125	8.8	150	5.00	55.2
7.005	junction 7	S16	5.437	0.600	107.374	107.350	0.024	226.5	450	5.00	55.2
7.006	S16	Junction 10	19.087	0.600	107.350	107.272	0.078	244.7	450	5.00	55.2
11.000	CP 32	CP 33	4.132	0.600	109.225	109.224	0.001	4132.0	150	5.00	55.2
11.001	CP 33	CP 35	5.155	0.600	109.224	109.175	0.049	105.2	150	5.00	55.2
12.000	CP 34	CP 35	4.132	0.600	109.176	109.175	0.001	4132.0	150	5.00	55.2
11.002	CP 35	Orifice 10	5.093	0.600	109.175	108.200	0.975	5.2	150	5.00	55.2
13.000	CP 36	Orifice 10	9.410	0.600	108.201	108.200	0.001	9410.0	150	5.00	55.2
11.003	Orifice 10	Junction 11	2.093	0.600	108.200	108.101	0.099	21.1	150	5.00	55.2
14.000	S4	Junction 11	4.567	0.600	108.000	107.801	0.199	22.9	450	5.00	55.2
11.004	Junction 11	Junction 10	12.137	0.600	107.801	107.272	0.529	22.9	450	5.00	55.2
7.007	Junction 10	junction 6	43.550	0.600	107.272	107.095	0.177	246.0	450	5.00	55.2
15.000	SIC 10	CP 15	4.030	0.600	109.000	108.850	0.150	26.9	300	5.00	55.2
15.001	CP 15	CP 16	3.815	0.600	108.850	108.849	0.001	3815.0	300	5.00	55.2
15.002	CP 16	CP 17	6.863	0.600	108.849	107.501	1.348	5.1	300	5.00	55.2
15.003	CP 17	Orifice 6	4.709	0.600	107.501	107.500	0.001	4709.0	300	5.00	55.2
15.004	Orifice 6	junction 6	14.762	0.600	107.500	107.245	0.255	57.9	300	5.00	55.2
7.008	junction 6	S23	4.797	0.600	107.095	107.075	0.020	239.9	450	5.00	55.2
16.000	S1	S3	34.552	0.600	110.025	109.075	0.950	36.4	150	5.00	55.2

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
7.003	1.887	75.0	6.6	1.175	1.225	0.044	0.0	44	1.164
7.004	1.342	213.5	9.9	1.000	1.276	0.066	0.0	65	0.697
10.000	0.214	3.8	6.6	0.650	0.651	0.044	0.0	150	0.218
10.001	4.499	79.5	6.6	0.651	1.324	0.044	0.0	29	2.730
10.002	0.155	2.7	6.6	1.324	1.325	0.044	0.0	150	0.158
10.003	3.417	60.4	6.6	1.325	1.275	0.044	0.0	33	2.241
7.005	1.346	214.1	45.2	1.276	1.400	0.302	0.0	139	1.075
7.006	1.295	205.9	67.2	1.400	1.778	0.449	0.0	176	1.162
11.000	0.148	2.6	6.9	0.450	0.526	0.046	0.0	150	0.151
11.001	0.979	17.3	6.9	0.526	0.500	0.046	0.0	66	0.925
12.000	0.148	2.6	2.1	0.399	0.500	0.014	0.0	102	0.165
11.002	4.439	78.4	9.0	0.500	1.550	0.060	0.0	34	2.973
13.000	0.095	1.7	0.0	1.549	1.550	0.000	0.0	0	0.000
11.003	2.200	38.9	9.0	1.550	1.349	0.060	0.0	49	1.793
14.000	4.257	677.1	0.0	1.300	1.349	0.000	0.0	0	0.000
11.004	4.258	677.2	9.0	1.349	1.778	0.060	0.0	36	1.525
7.007	1.291	205.4	76.2	1.778	1.755	0.509	0.0	189	1.199
15.000	3.045	215.2	12.3	0.675	0.975	0.082	0.0	48	1.676
15.001	0.245	17.3	19.6	0.975	0.976	0.131	0.0	300	0.249
15.002	7.011	495.6	19.6	0.976	2.174	0.131	0.0	40	3.456
15.003	0.220	15.5	19.6	2.174	2.075	0.131	0.0	300	0.223
15.004	2.070	146.3	19.6	2.075	1.755	0.131	0.0	74	1.453
7.008	1.308	208.0	95.8	1.755	1.775	0.640	0.0	214	1.281
16.000	1.674	29.6	5.4	1.200	1.575	0.036	0.0	43	1.273

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
16.001	S3	junction 5	2.932	0.600	109.000	108.840	0.160	18.3	225	5.00	55.2
17.000	CP 12	CP 13	2.631	0.600	110.525	110.524	0.001	2631.0	150	5.00	55.2
17.001	CP 13	CP 14	7.173	0.600	110.524	109.401	1.123	6.4	150	5.00	55.2
17.002	CP 14	Orifice 4	3.020	0.600	109.401	109.400	0.001	3020.0	150	5.00	55.2
17.003	Orifice 4	junction 5	8.990	0.600	109.400	108.915	0.485	18.5	150	5.00	55.2
16.002	junction 5	Jucntion 3	3.985	0.600	108.840	108.623	0.217	18.4	225	5.00	55.2
18.000	Cp 6	CP 7	7.111	0.600	110.275	110.274	0.001	7111.0	150	5.00	55.2
18.001	CP 7	CP 8	3.823	0.600	110.274	109.501	0.773	4.9	150	5.00	55.2
18.002	CP 8	Orifice 2	11.430	0.600	109.501	109.500	0.001	11430.0	150	5.00	55.2
18.003	Orifice 2	Jucntion 3	10.849	0.600	109.500	108.698	0.802	13.5	150	5.00	55.2
16.003	Jucntion 3	junction 4	7.579	0.600	108.623	108.209	0.414	18.3	225	5.00	55.2
19.000	CP 9	CP 10	3.939	0.600	109.925	109.924	0.001	3939.0	150	5.00	55.2
19.001	CP 10	CP 11	1.737	0.600	109.924	109.001	0.923	1.9	150	5.00	55.2
19.002	CP 11	Orifice 3	4.637	0.600	109.001	109.000	0.001	4637.0	150	5.00	55.2
19.003	Orifice 3	junction 4	8.573	0.600	109.000	108.284	0.716	12.0	150	5.00	55.2
16.004	junction 4	S5	9.337	0.600	108.209	107.600	0.609	15.3	225	5.00	55.2
16.005	S5	S23	15.729	0.600	107.400	107.075	0.325	48.4	450	5.00	55.2
7.009	S23	S24	7.740	0.600	107.075	106.975	0.100	77.4	450	5.00	55.2
20.000	CP 21	CP 22	2.807	0.600	108.900	108.899	0.001	2807.0	225	5.00	55.2
20.001	CP 22	CP 23	5.616	0.600	108.899	108.201	0.698	8.0	225	5.00	55.2
20.002	CP 23	Orifice 5	2.866	0.600	108.210	108.200	0.010	286.6	225	5.00	55.2
20.003	Orifice 5	Junction 8	4.262	0.600	108.200	107.975	0.225	18.9	225	5.00	55.2
21.000	SIC 9	Junction 8	2.913	0.600	108.100	107.975	0.125	23.3	225	5.00	55.2
20.004	Junction 8	S24	9.116	0.600	107.975	107.200	0.775	11.8	225	5.00	55.2

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
16.001	3.071	122.1	5.4	1.575	1.635	0.036	0.0	32	1.560
17.000	0.187	3.3	5.4	0.450	0.326	0.036	0.0	150	0.191
17.001	4.013	70.9	5.4	0.326	1.074	0.036	0.0	28	2.375
17.002	0.174	3.1	5.4	1.074	0.975	0.036	0.0	150	0.178
17.003	2.350	41.5	5.4	0.975	1.635	0.036	0.0	37	1.633
16.002	3.067	122.0	10.8	1.635	0.752	0.072	0.0	45	1.917
18.000	0.111	2.0	6.0	0.450	0.501	0.040	0.0	150	0.113
18.001	4.562	80.6	6.0	0.501	1.174	0.040	0.0	28	2.701
18.002	0.086	1.5	6.0	1.174	1.175	0.040	0.0	150	0.087
18.003	2.753	48.7	6.0	1.175	0.752	0.040	0.0	35	1.878
16.003	3.072	122.2	16.8	0.752	1.716	0.112	0.0	56	2.166
19.000	0.151	2.7	5.1	0.450	0.501	0.034	0.0	150	0.154
19.001	7.404	130.8	5.1	0.501	1.374	0.034	0.0	20	3.603
19.002	0.139	2.5	5.1	1.374	1.275	0.034	0.0	150	0.142
19.003	2.927	51.7	5.1	1.275	1.716	0.034	0.0	32	1.879
16.004	3.358	133.5	21.9	1.716	1.925	0.146	0.0	61	2.490
16.005	2.928	465.6	32.9	1.900	1.775	0.220	0.0	80	1.725
7.009	2.312	367.8	128.8	1.775	1.575	0.860	0.0	183	2.115
20.000	0.238	9.5	13.5	0.600	0.601	0.090	0.0	225	0.242
20.001	4.641	184.5	13.5	0.601	1.224	0.090	0.0	41	2.734
20.002	0.767	30.5	13.5	1.215	1.225	0.090	0.0	105	0.745
20.003	3.020	120.1	13.5	1.225	1.200	0.090	0.0	51	2.012
21.000	2.722	108.2	0.0	1.200	1.200	0.000	0.0	0	0.000
20.004	3.836	152.5	13.5	1.200	1.575	0.090	0.0	45	2.399

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
22.000	SIC 8	S24	3.304	0.600	107.800	107.275	0.525	6.3	150	5.00	55.2
7.010	S24	S27	19.176	0.600	106.975	106.500	0.475	40.4	450	5.00	55.2
7.011	S27	TANK	7.547	0.600	106.500	106.499	0.001	7547.0	600	5.00	55.2
7.012	TANK	Junction 1	6.337	0.600	106.499	106.498	0.001	6337.0	600	5.00	55.2
1.010	Junction 1	S26	4.687	0.600	106.498	106.490	0.008	585.9	600	5.00	55.2
23.000	CP 24	CP 25	6.627	0.600	108.825	108.824	0.001	6627.0	150	5.00	55.2
23.001	CP 25	CP 26	7.179	0.600	108.824	108.226	0.598	12.0	150	5.00	55.2
23.002	CP 26	Oririfice 8	2.781	0.600	108.226	108.225	0.001	2781.0	150	5.00	55.2
23.003	Oririfice 8	S26	2.636	0.600	108.225	106.948	1.277	2.1	150	5.00	55.2
1.011	S26	S19	26.666	0.600	106.497	105.750	0.747	35.7	300	5.00	55.2
24.000	SIC 4	SIC 5	33.604	0.600	108.450	107.800	0.650	51.7	225	5.00	55.2
24.001	SIC 5	SIC 6	21.320	0.600	107.800	107.400	0.400	53.3	225	5.00	55.2
24.002	SIC 6	S6	15.149	0.600	107.400	107.225	0.175	86.6	225	5.00	55.2
25.000	SIC 1	SIC 2	31.795	0.600	108.150	107.747	0.403	78.9	225	5.00	55.2
25.001	SIC 2	SIC 3	3.686	0.600	107.747	107.700	0.047	78.4	225	5.00	55.2
25.002	SIC 3	S6	16.086	0.600	107.700	107.225	0.475	33.9	225	5.00	55.2
24.003	S6	S19	8.279	0.600	107.150	105.750	1.400	5.9	300	5.00	55.2
1.012	S19	S20	2.491	0.600	105.750	105.700	0.050	49.8	225	5.00	55.2
1.013	S20	Outfall	10.746	0.600	105.700	105.543	0.157	68.4	450	5.00	55.2

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
22.000	4.043	71.4	0.0	1.300	1.575	0.000	0.0	0	0.000
7.010	3.207	510.0	204.0	1.575	2.225	1.362	0.0	197	3.034
7.011	0.270	76.5	204.0	2.075	1.901	1.362	0.0	600	0.273
7.012	0.296	83.7	204.0	1.901	1.902	1.362	0.0	600	0.299
1.010	0.999	282.3	341.9	1.902	2.185	2.283	0.0	600	1.008
23.000	0.115	2.0	3.3	0.350	0.351	0.022	0.0	150	0.117
23.001	2.923	51.7	3.3	0.351	0.949	0.022	0.0	25	1.639
23.002	0.182	3.2	3.3	0.949	0.950	0.022	0.0	126	0.208
23.003	7.069	124.9	3.3	0.950	2.177	0.022	0.0	17	3.045
1.011	2.640	186.6	345.2	2.478	3.150	2.305	0.0	300	2.674
24.000	1.823	72.5	6.7	0.525	1.175	0.045	0.0	46	1.151
24.001	1.795	71.4	13.5	1.175	1.750	0.090	0.0	66	1.391
24.002	1.406	55.9	13.5	1.750	1.950	0.090	0.0	75	1.163
25.000	1.473	58.6	6.7	0.825	1.228	0.045	0.0	51	0.989
25.001	1.478	58.8	6.7	1.228	1.275	0.045	0.0	51	0.992
25.002	2.255	89.7	13.5	1.275	1.950	0.090	0.0	58	1.631
24.003	6.505	459.8	30.8	1.950	3.150	0.206	0.0	52	3.741
1.012	1.857	73.8	376.0	3.225	3.175	2.511	0.0	225	1.891
1.013	2.460	391.2	376.0	2.950	1.007	2.511	0.0	356	2.781

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	4.494	4494.0	150	Circular	111.025	110.300	0.575	111.025	110.299	0.576
1.001	7.132	9.5	150	Circular	111.025	110.299	0.576	110.925	109.551	1.224
1.002	3.228	3228.0	150	Circular	110.925	109.551	1.224	110.925	109.550	1.225
1.003	3.681	37.2	150	Circular	110.925	109.550	1.225	110.825	109.451	1.224
1.004	4.443	4443.0	150	Circular	110.825	109.451	1.224	110.825	109.450	1.225
1.005	2.581	20.5	150	Circular	110.825	109.450	1.225	110.700	109.324	1.226
2.000	16.966	35.6	375	Circular	111.000	109.575	1.050	110.700	109.099	1.226
1.006	64.071	35.6	375	Circular	110.700	109.099	1.226	109.200	107.300	1.525
3.000	17.945	17945.0	375	Circular	108.900	107.301	1.224	109.200	107.300	1.525
1.007	16.236	72.2	450	Circular	109.200	107.225	1.525	109.500	107.000	2.050
4.000	5.356	5356.0	225	Circular	109.825	108.600	1.000	109.825	108.599	1.001
4.001	22.258	224.8	225	Circular	109.825	108.599	1.001	109.425	108.500	0.700
5.000	3.830	3830.0	225	Circular	109.425	108.500	0.700	109.425	108.499	0.701
4.002	6.790	6.8	225	Circular	109.425	108.500	0.700	109.425	107.501	1.699
4.003	8.877	8877.0	225	Circular	109.425	107.501	1.699	109.625	107.500	1.900
4.004	5.641	28.2	225	Circular	109.625	107.500	1.900	109.500	107.300	1.975
6.000	23.027	21.4	225	Circular	109.500	108.300	0.975	109.500	107.225	2.050
1.008	17.148	49.0	450	Circular	109.500	107.000	2.050	109.500	106.650	2.400
1.009	70.088	35044.0	600	Circular	109.500	106.500	2.400	109.000	106.498	1.902
7.000	2.054	2054.0	225	Circular	109.225	108.650	0.350	109.225	108.649	0.351
7.001	3.185	65.0	225	Circular	109.225	108.649	0.351	109.225	108.600	0.400
8.000	2.044	2044.0	225	Circular	109.225	108.601	0.399	109.225	108.600	0.400
7.002	8.638	11.2	225	Circular	109.225	108.600	0.400	109.225	107.826	1.174
9.000	3.008	3008.0	225	Circular	109.225	107.826	1.174	109.225	107.825	1.175
7.003	13.275	48.3	225	Circular	109.225	107.825	1.175	109.000	107.550	1.225

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	CP 1	600	Manhole	Adoptable	CP 2	600	Manhole	Adoptable
1.001	CP 2	600	Manhole	Adoptable	CP 3	600	Manhole	Adoptable
1.002	CP 3	600	Manhole	Adoptable	CP 4	600	Manhole	Adoptable
1.003	CP 4	600	Manhole	Adoptable	CP 5	600	Manhole	Adoptable
1.004	CP 5	600	Manhole	Adoptable	Orifice 1	450	Manhole	Adoptable
1.005	Orifice 1	450	Manhole	Adoptable	junction 2	1	Manhole	Adoptable
2.000	S9	1500	Manhole	Adoptable	junction 2	1	Manhole	Adoptable
1.006	junction 2	1	Manhole	Adoptable	S11	1500	Manhole	Adoptable
3.000	S10	1500	Manhole	Adoptable	S11	1500	Manhole	Adoptable
1.007	S11	1500	Manhole	Adoptable	S13	1500	Manhole	Adoptable
4.000	CP 27	600	Manhole	Adoptable	CP 28	600	Manhole	Adoptable
4.001	CP 28	600	Manhole	Adoptable	CP 30	600	Manhole	Adoptable
5.000	CP 29	600	Manhole	Adoptable	CP 30	600	Manhole	Adoptable
4.002	CP 30	600	Manhole	Adoptable	CP 31	600	Manhole	Adoptable
4.003	CP 31	600	Manhole	Adoptable	Orifice 9	450	Manhole	Adoptable
4.004	Orifice 9	450	Manhole	Adoptable	S13	1500	Manhole	Adoptable
6.000	S12	1350	Manhole	Adoptable	S13	1500	Manhole	Adoptable
1.008	S13	1500	Manhole	Adoptable	S14	1500	Manhole	Adoptable
1.009	S14	1500	Manhole	Adoptable	Junction 1	1	Manhole	Adoptable
7.000	CP 37	600	Manhole	Adoptable	CP 38	600	Manhole	Adoptable
7.001	CP 38	600	Manhole	Adoptable	CP 40	600	Manhole	Adoptable
8.000	CP 39	600	Manhole	Adoptable	CP 40	600	Manhole	Adoptable
7.002	CP 40	600	Manhole	Adoptable	CP 41	600	Manhole	Adoptable
9.000	CP 41	600	Manhole	Adoptable	Orifice 11	450	Manhole	Adoptable
7.003	Orifice 11	450	Manhole	Adoptable	S17	1500	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.004	40.103	227.9	450	Circular	109.000	107.550	1.000	109.100	107.374	1.276
10.000	2.048	2048.0	150	Circular	109.375	108.575	0.650	109.375	108.574	0.651
10.001	3.931	5.1	150	Circular	109.375	108.574	0.651	109.275	107.801	1.324
10.002	3.785	3785.0	150	Circular	109.275	107.801	1.324	109.275	107.800	1.325
10.003	1.100	8.8	150	Circular	109.275	107.800	1.325	109.100	107.675	1.275
7.005	5.437	226.5	450	Circular	109.100	107.374	1.276	109.200	107.350	1.400
7.006	19.087	244.7	450	Circular	109.200	107.350	1.400	109.500	107.272	1.778
11.000	4.132	4132.0	150	Circular	109.825	109.225	0.450	109.900	109.224	0.526
11.001	5.155	105.2	150	Circular	109.900	109.224	0.526	109.825	109.175	0.500
12.000	4.132	4132.0	150	Circular	109.725	109.176	0.399	109.825	109.175	0.500
11.002	5.093	5.2	150	Circular	109.825	109.175	0.500	109.900	108.200	1.550
13.000	9.410	9410.0	150	Circular	109.900	108.201	1.549	109.900	108.200	1.550
11.003	2.093	21.1	150	Circular	109.900	108.200	1.550	109.600	108.101	1.349
14.000	4.567	22.9	450	Circular	109.750	108.000	1.300	109.600	107.801	1.349
11.004	12.137	22.9	450	Circular	109.600	107.801	1.349	109.500	107.272	1.778
7.007	43.550	246.0	450	Circular	109.500	107.272	1.778	109.300	107.095	1.755
15.000	4.030	26.9	300	Circular	109.975	109.000	0.675	110.125	108.850	0.975
15.001	3.815	3815.0	300	Circular	110.125	108.850	0.975	110.125	108.849	0.976
15.002	6.863	5.1	300	Circular	110.125	108.849	0.976	109.975	107.501	2.174
15.003	4.709	4709.0	300	Circular	109.975	107.501	2.174	109.875	107.500	2.075
15.004	14.762	57.9	300	Circular	109.875	107.500	2.075	109.300	107.245	1.755
7.008	4.797	239.9	450	Circular	109.300	107.095	1.755	109.300	107.075	1.775
16.000	34.552	36.4	150	Circular	111.375	110.025	1.200	110.800	109.075	1.575
16.001	2.932	18.3	225	Circular	110.800	109.000	1.575	110.700	108.840	1.635
17.000	2.631	2631.0	150	Circular	111.125	110.525	0.450	111.000	110.524	0.326

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.004	S17	1500	Manhole	Adoptable	junction 7	1	Manhole	Adoptable
10.000	CP 18	600	Manhole	Adoptable	CP 19	600	Manhole	Adoptable
10.001	CP 19	600	Manhole	Adoptable	CP 20	600	Manhole	Adoptable
10.002	CP 20	600	Manhole	Adoptable	Oririfice 7	450	Manhole	Adoptable
10.003	Oririfice 7	450	Manhole	Adoptable	junction 7	1	Manhole	Adoptable
7.005	junction 7	1	Manhole	Adoptable	S16	1500	Manhole	Adoptable
7.006	S16	1500	Manhole	Adoptable	Junction 10	1	Manhole	Adoptable
11.000	CP 32	600	Manhole	Adoptable	CP 33	600	Manhole	Adoptable
11.001	CP 33	600	Manhole	Adoptable	CP 35	600	Manhole	Adoptable
12.000	CP 34	600	Manhole	Adoptable	CP 35	600	Manhole	Adoptable
11.002	CP 35	600	Manhole	Adoptable	Orifice 10	450	Manhole	Adoptable
13.000	CP 36	600	Manhole	Adoptable	Orifice 10	450	Manhole	Adoptable
11.003	Orifice 10	450	Manhole	Adoptable	Junction 11	1	Manhole	Adoptable
14.000	S4	1500	Manhole	Adoptable	Junction 11	1	Manhole	Adoptable
11.004	Junction 11	1	Manhole	Adoptable	Junction 10	1	Manhole	Adoptable
7.007	Junction 10	1	Manhole	Adoptable	junction 6	1	Manhole	Adoptable
15.000	SIC 10	600	Manhole	Adoptable	CP 15	600	Manhole	Adoptable
15.001	CP 15	600	Manhole	Adoptable	CP 16	600	Manhole	Adoptable
15.002	CP 16	600	Manhole	Adoptable	CP 17	600	Manhole	Adoptable
15.003	CP 17	600	Manhole	Adoptable	Orifice 6	600	Manhole	Adoptable
15.004	Orifice 6	600	Manhole	Adoptable	junction 6	1	Manhole	Adoptable
7.008	junction 6	1	Manhole	Adoptable	S23	1500	Manhole	Adoptable
16.000	S1	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
16.001	S3	1200	Manhole	Adoptable	junction 5	1	Manhole	Adoptable
17.000	CP 12	600	Manhole	Adoptable	CP 13	600	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
17.001	7.173	6.4	150	Circular	111.000	110.524	0.326	110.625	109.401	1.074
17.002	3.020	3020.0	150	Circular	110.625	109.401	1.074	110.525	109.400	0.975
17.003	8.990	18.5	150	Circular	110.525	109.400	0.975	110.700	108.915	1.635
16.002	3.985	18.4	225	Circular	110.700	108.840	1.635	109.600	108.623	0.752
18.000	7.111	7111.0	150	Circular	110.875	110.275	0.450	110.925	110.274	0.501
18.001	3.823	4.9	150	Circular	110.925	110.274	0.501	110.825	109.501	1.174
18.002	11.430	11430.0	150	Circular	110.825	109.501	1.174	110.825	109.500	1.175
18.003	10.849	13.5	150	Circular	110.825	109.500	1.175	109.600	108.698	0.752
16.003	7.579	18.3	225	Circular	109.600	108.623	0.752	110.150	108.209	1.716
19.000	3.939	3939.0	150	Circular	110.525	109.925	0.450	110.575	109.924	0.501
19.001	1.737	1.9	150	Circular	110.575	109.924	0.501	110.525	109.001	1.374
19.002	4.637	4637.0	150	Circular	110.525	109.001	1.374	110.425	109.000	1.275
19.003	8.573	12.0	150	Circular	110.425	109.000	1.275	110.150	108.284	1.716
16.004	9.337	15.3	225	Circular	110.150	108.209	1.716	109.750	107.600	1.925
16.005	15.729	48.4	450	Circular	109.750	107.400	1.900	109.300	107.075	1.775
7.009	7.740	77.4	450	Circular	109.300	107.075	1.775	109.000	106.975	1.575
20.000	2.807	2807.0	225	Circular	109.725	108.900	0.600	109.725	108.899	0.601
20.001	5.616	8.0	225	Circular	109.725	108.899	0.601	109.650	108.201	1.224
20.002	2.866	286.6	225	Circular	109.650	108.210	1.215	109.650	108.200	1.225
20.003	4.262	18.9	225	Circular	109.650	108.200	1.225	109.400	107.975	1.200
21.000	2.913	23.3	225	Circular	109.525	108.100	1.200	109.400	107.975	1.200
20.004	9.116	11.8	225	Circular	109.400	107.975	1.200	109.000	107.200	1.575
22.000	3.304	6.3	150	Circular	109.250	107.800	1.300	109.000	107.275	1.575
7.010	19.176	40.4	450	Circular	109.000	106.975	1.575	109.175	106.500	2.225
7.011	7.547	7547.0	600	Circular	109.175	106.500	2.075	109.000	106.499	1.901

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
17.001	CP 13	600	Manhole	Adoptable	CP 14	600	Manhole	Adoptable
17.002	CP 14	600	Manhole	Adoptable	Orifice 4	450	Manhole	Adoptable
17.003	Orifice 4	450	Manhole	Adoptable	junction 5	1	Manhole	Adoptable
16.002	junction 5	1	Manhole	Adoptable	Jucntion 3	1	Manhole	Adoptable
18.000	Cp 6	600	Manhole	Adoptable	CP 7	600	Manhole	Adoptable
18.001	CP 7	600	Manhole	Adoptable	CP 8	600	Manhole	Adoptable
18.002	CP 8	600	Manhole	Adoptable	Orifice 2	450	Manhole	Adoptable
18.003	Orifice 2	450	Manhole	Adoptable	Jucntion 3	1	Manhole	Adoptable
16.003	Jucntion 3	1	Manhole	Adoptable	junction 4	1	Manhole	Adoptable
19.000	CP 9	600	Manhole	Adoptable	CP 10	600	Manhole	Adoptable
19.001	CP 10	600	Manhole	Adoptable	CP 11	600	Manhole	Adoptable
19.002	CP 11	600	Manhole	Adoptable	Orifice 3	450	Manhole	Adoptable
19.003	Orifice 3	450	Manhole	Adoptable	junction 4	1	Manhole	Adoptable
16.004	junction 4	1	Manhole	Adoptable	S5	1800	Manhole	Adoptable
16.005	S5	1800	Manhole	Adoptable	S23	1500	Manhole	Adoptable
7.009	S23	1500	Manhole	Adoptable	S24	1500	Manhole	Adoptable
20.000	CP 21	600	Manhole	Adoptable	CP 22	600	Manhole	Adoptable
20.001	CP 22	600	Manhole	Adoptable	CP 23	600	Manhole	Adoptable
20.002	CP 23	600	Manhole	Adoptable	Orifice 5	450	Manhole	Adoptable
20.003	Orifice 5	450	Manhole	Adoptable	Junction 8	1	Manhole	Adoptable
21.000	SIC 9	600	Manhole	Adoptable	Junction 8	1	Manhole	Adoptable
20.004	Junction 8	1	Manhole	Adoptable	S24	1500	Manhole	Adoptable
22.000	SIC 8	600	Manhole	Adoptable	S24	1500	Manhole	Adoptable
7.010	S24	1500	Manhole	Adoptable	S27	1500	Manhole	Adoptable
7.011	S27	1500	Manhole	Adoptable	TANK	100	Manhole	Adoptable

Pipeline Schedule

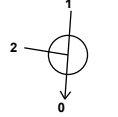
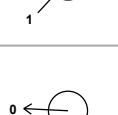
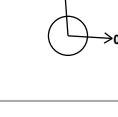
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.012	6.337	6337.0	600	Circular	109.000	106.499	1.901	109.000	106.498	1.902
1.010	4.687	585.9	600	Circular	109.000	106.498	1.902	109.275	106.490	2.185
23.000	6.627	6627.0	150	Circular	109.325	108.825	0.350	109.325	108.824	0.351
23.001	7.179	12.0	150	Circular	109.325	108.824	0.351	109.325	108.226	0.949
23.002	2.781	2781.0	150	Circular	109.325	108.226	0.949	109.325	108.225	0.950
23.003	2.636	2.1	150	Circular	109.325	108.225	0.950	109.275	106.948	2.177
1.011	26.666	35.7	300	Circular	109.275	106.497	2.478	109.200	105.750	3.150
24.000	33.604	51.7	225	Circular	109.200	108.450	0.525	109.200	107.800	1.175
24.001	21.320	53.3	225	Circular	109.200	107.800	1.175	109.375	107.400	1.750
24.002	15.149	86.6	225	Circular	109.375	107.400	1.750	109.400	107.225	1.950
25.000	31.795	78.9	225	Circular	109.200	108.150	0.825	109.200	107.747	1.228
25.001	3.686	78.4	225	Circular	109.200	107.747	1.228	109.200	107.700	1.275
25.002	16.086	33.9	225	Circular	109.200	107.700	1.275	109.400	107.225	1.950
24.003	8.279	5.9	300	Circular	109.400	107.150	1.950	109.200	105.750	3.150
1.012	2.491	49.8	225	Circular	109.200	105.750	3.225	109.100	105.700	3.175
1.013	10.746	68.4	450	Circular	109.100	105.700	2.950	107.000	105.543	1.007

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.012	TANK	100	Manhole	Adoptable	Junction 1	1	Manhole	Adoptable
1.010	Junction 1	1	Manhole	Adoptable	S26	1500	Manhole	Adoptable
23.000	CP 24	600	Manhole	Adoptable	CP 25	600	Manhole	Adoptable
23.001	CP 25	600	Manhole	Adoptable	CP 26	600	Manhole	Adoptable
23.002	CP 26	600	Manhole	Adoptable	Oririfice 8	450	Manhole	Adoptable
23.003	Oririfice 8	450	Manhole	Adoptable	S26	1500	Manhole	Adoptable
1.011	S26	1500	Manhole	Adoptable	S19	1800	Manhole	Adoptable
24.000	SIC 4	600	Manhole	Adoptable	SIC 5	600	Manhole	Adoptable
24.001	SIC 5	600	Manhole	Adoptable	SIC 6	600	Manhole	Adoptable
24.002	SIC 6	600	Manhole	Adoptable	S6	1200	Manhole	Adoptable
25.000	SIC 1	600	Manhole	Adoptable	SIC 2	600	Manhole	Adoptable
25.001	SIC 2	600	Manhole	Adoptable	SIC 3	600	Manhole	Adoptable
25.002	SIC 3	600	Manhole	Adoptable	S6	1200	Manhole	Adoptable
24.003	S6	1200	Manhole	Adoptable	S19	1800	Manhole	Adoptable
1.012	S19	1800	Manhole	Adoptable	S20	1200	Manhole	Adoptable
1.013	S20	1200	Manhole	Adoptable	Outfall	1350	Manhole	Adoptable

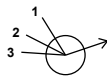
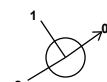
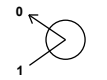
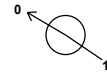
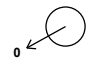
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CP 1	443117.072	291017.163	111.025	0.725	600				
						0	1.000	110.300	150
CP 2	443112.686	291018.142	111.025	0.726	600				
						0	1.001	110.299	150
CP 3	443109.766	291011.636	110.925	1.374	600				
						1	1.001	109.551	150
						0	1.002	109.551	150

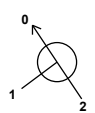
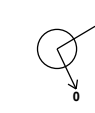
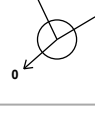
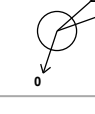
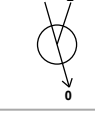
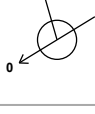
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
CP 4	443112.984	291011.379	110.925	1.375	600		1	1.002	109.550	150
							0	1.003	109.550	150
CP 5	443116.643	291010.976	110.825	1.374	600		1	1.003	109.451	150
							0	1.004	109.451	150
Orifice 1	443121.075	291010.656	110.825	1.375	450		1	1.004	109.450	150
							0	1.005	109.450	150
S9	443124.815	291027.163	111.000	1.425	1500		0	2.000	109.575	375
junction 2	443123.622	291010.239	110.700	1.601	1		1	2.000	109.099	375
							2	1.005	109.324	150
							0	1.006	109.099	375
S10	443106.879	290933.202	108.900	1.599	1500		0	3.000	107.301	375
S11	443119.116	290946.327	109.200	1.975	1500		1	3.000	107.300	375
							2	1.006	107.300	375
							0	1.007	107.225	450
CP 27	443127.359	290977.114	109.825	1.225	600		0	4.000	108.600	225
CP 28	443122.009	290977.374	109.825	1.226	600		1	4.000	108.599	225
							0	4.001	108.599	225
CP 29	443124.681	290956.030	109.425	0.925	600		0	5.000	108.500	225
CP 30	443120.955	290955.141	109.425	0.926	600		1	5.000	108.499	225
							2	4.001	108.500	225
							0	4.002	108.500	225
CP 31	443121.434	290948.367	109.425	1.924	600		1	4.002	107.501	225
							0	4.003	107.501	225
Orifice 9	443130.295	290947.837	109.625	2.125	450		1	4.003	107.500	225
							0	4.004	107.500	225

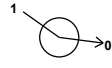
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S12	443123.174	290964.833	109.500	1.200	1350	 0	6.000	108.300	225
S13	443135.318	290945.269	109.500	2.500	1500	 1 2 3 0	6.000 4.004 1.007 1.008	107.225 107.300 107.000 107.000	225 225 450 450
S14	443151.569	290950.741	109.500	3.000	1500	 1 0	1.008 1.009	106.650 106.500	450 600
CP 37	443275.056	291005.849	109.225	0.575	600	 0	7.000	108.650	225
CP 38	443276.232	291004.169	109.225	0.576	600	 1 0	7.000 7.001	108.649 108.649	225 225
CP 39	443277.804	291007.505	109.225	0.624	600	 0	8.000	108.601	225
CP 40	443278.944	291005.809	109.225	0.625	600	 1 2 0	8.000 7.001 7.002	108.600 108.600 108.600	225 225 225
CP 41	443286.474	291011.147	109.225	1.399	600	 0 1	7.002 9.000	107.826 107.826	225 225
Orifice 11	443283.991	291012.827	109.225	1.400	450	 0 1	9.000 7.003	107.825 107.825	225 225
S17	443272.550	291019.579	109.000	1.450	1500	 0 1	7.003 7.004	107.550 107.550	225 450
CP 18	443245.821	291054.535	109.375	0.800	600	 0	10.000	108.575	150
CP 19	443244.029	291053.544	109.375	0.801	600	 1 0	10.000 10.001	108.574 108.574	150 150
CP 20	443246.134	291050.224	109.275	1.474	600	 1 0	10.001 10.002	107.801 107.801	150 150

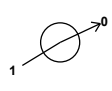
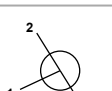
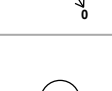
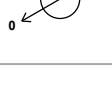
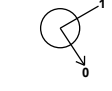
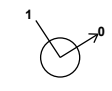
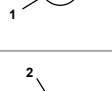
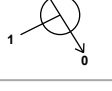
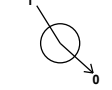
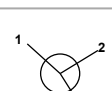
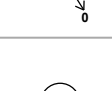
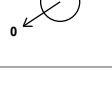
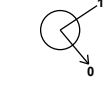
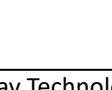
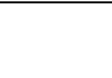
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
Oririfice 7	443249.341	291052.234	109.275	1.475	450		1	10.002	107.800	150
junction 7	443250.222	291052.892	109.100	1.726	1		0	10.003	107.800	150
							1	10.003	107.675	150
							2	7.004	107.374	450
S16	443247.210	291057.408	109.200	1.850	1500		0	7.005	107.374	450
							1	7.005	107.350	450
CP 32	443233.361	291071.246	109.825	0.600	600		0	11.000	109.225	150
CP 33	443229.810	291069.133	109.900	0.676	600		1	11.000	109.224	150
CP 34	443235.576	291066.590	109.725	0.549	600		0	11.001	109.224	150
							0	12.000	109.176	150
CP 35	443232.025	291064.478	109.825	0.650	600		1	12.000	109.175	150
CP 36	443237.073	291064.257	109.900	1.699	600		2	11.001	109.175	150
							0	11.002	109.175	150
							0	13.000	108.201	150
Orifice 10	443228.206	291061.109	109.900	1.700	450		1	13.000	108.200	150
S4	443226.289	291063.509	109.750	1.750	1500		2	11.002	108.200	150
							0	11.003	108.200	150
							0	14.000	108.000	450
Junction 11	443227.552	291059.120	109.600	1.799	1		1	14.000	107.801	450
Junction 10	443230.908	291047.456	109.500	2.228	1		2	11.003	108.101	150
							0	11.004	107.801	450
							1	11.004	107.272	450
SIC 10	443187.789	291046.357	109.975	0.975	600		2	7.006	107.272	450
							0	7.007	107.272	450
							0	15.000	109.000	300

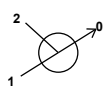
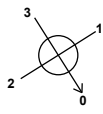
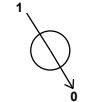
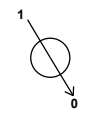
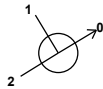
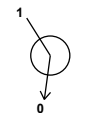
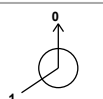
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CP 15	443183.775	291045.759	110.125	1.275	600	 1	15.000	108.850	300
						0	15.001	108.850	300
CP 16	443180.509	291043.789	110.125	1.276	600	 1	15.001	108.849	300
						0	15.002	108.849	300
CP 17	443186.106	291039.817	109.975	2.474	600	 1	15.002	107.501	300
						0	15.003	107.501	300
Orifice 6	443190.776	291039.210	109.875	2.375	600	 1	15.003	107.500	300
						0	15.004	107.500	300
junction 6	443193.746	291024.750	109.300	2.205	1	 1	15.004	107.245	300
						2	7.007	107.095	450
						0	7.008	107.095	450
S1	443131.328	291047.117	111.375	1.350	1200	 0	16.000	110.025	150
						0	16.000	109.075	150
S3	443165.374	291053.013	110.800	1.800	1200	 1	16.001	109.000	225
						0	17.000	110.525	150
CP 12	443175.528	291066.564	111.125	0.600	600	 0	17.000	110.524	150
						1	17.001	110.524	150
CP 13	443177.732	291065.127	111.000	0.476	600	 1	17.001	109.401	150
						0	17.002	109.401	150
CP 14	443176.182	291058.124	110.625	1.224	600	 1	17.002	109.400	150
						0	17.003	109.400	150
Orifice 4	443173.627	291056.515	110.525	1.125	450	 0	17.003	108.915	150
						1	16.001	108.840	225
junction 5	443166.923	291050.524	110.700	1.860	1	 2	16.002	108.840	225
						0	18.000	110.275	150
Cp 6	443155.960	291042.630	110.875	0.600	600	 0			
						0	18.000	110.275	150

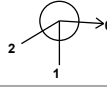
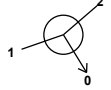
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CP 7	443149.206	291040.407	110.925	0.651	600	 1	18.000	110.274	150
CP 8	443149.444	291036.591	110.825	1.324	600	 1	18.001	110.274	150
Orifice 2	443159.204	291042.541	110.825	1.325	450	 1	18.001	109.501	150
Junction 3	443169.030	291047.141	109.600	0.977	1	 1	18.002	109.501	150
CP 9	443163.875	291037.870	110.525	0.600	600	 1	18.002	109.500	150
CP 10	443160.463	291035.901	110.575	0.651	600	 1	18.003	109.500	150
CP 11	443161.417	291034.449	110.525	1.524	600	 1	18.003	108.698	150
Orifice 3	443165.374	291036.894	110.425	1.425	450	 1	16.002	108.623	225
Junction 4	443173.036	291040.707	110.150	1.941	1	 1	16.003	108.623	225
S5	443177.971	291032.781	109.750	2.350	1800	 1	19.000	109.925	150
S23	443189.652	291022.248	109.300	2.225	1500	 1	19.000	109.924	150
CP 21	443179.205	291018.086	109.725	0.825	600	 1	19.001	109.924	150
CP 22	443176.865	291016.535	109.725	0.826	600	 1	19.001	109.001	150
						 1	19.002	109.001	150
						 1	19.002	109.000	150
						 1	19.003	109.000	150
						 1	19.003	108.284	150
						 1	16.003	108.209	225
						1	16.004	108.209	225
						1	16.004	107.600	225
						1	16.005	107.400	450
						1	16.005	107.075	450
						1	7.008	107.075	450
						1	7.009	107.075	450
						1	20.000	108.900	225
						1	20.000	108.899	225
						1	20.001	108.899	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
CP 23	443180.471	291012.230	109.650	1.449	600		1	20.001	108.201	225
Orifice 5	443182.905	291013.743	109.650	1.450	450		0	20.002	108.210	225
							1	20.002	108.200	225
SIC 9	443183.588	291009.332	109.525	1.425	600		0	20.003	108.200	225
							0	21.000	108.100	225
Junction 8	443186.058	291010.876	109.400	1.425	1		1	21.000	107.975	225
							2	20.003	107.975	225
							0	20.004	107.975	225
SIC 8	443196.581	291017.472	109.250	1.450	600		0	22.000	107.800	150
							1	22.000	107.275	150
S24	443193.788	291015.706	109.000	2.025	1500		2	20.004	107.200	225
							3	7.009	106.975	450
							0	7.010	106.975	450
S27	443204.036	290999.498	109.175	2.675	1500		1	7.010	106.500	450
							0	7.011	106.500	600
TANK	443207.907	290993.020	109.000	2.501	100		1	7.011	106.499	600
							0	7.012	106.499	600
Junction 1	443211.185	290987.596	109.000	2.502	1		1	7.012	106.498	600
							2	1.009	106.498	600
CP 24	443210.335	290998.541	109.325	0.500	600		0	1.010	106.498	600
							0	23.000	108.825	150
CP 25	443213.859	290992.938	109.325	0.501	600		1	23.000	108.824	150
							0	23.001	108.824	150
CP 26	443212.893	290985.824	109.325	1.099	600		1	23.001	108.226	150
							0	23.002	108.226	150
Oririfice 8	443215.203	290987.374	109.325	1.100	450		1	23.002	108.225	150
							0	23.003	108.225	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S26	443215.203	290990.010	109.275	2.785	1500		1	23.003	106.948	150
							2	1.010	106.490	600
							0	1.011	106.497	300
SIC 4	443248.340	291046.551	109.200	0.750	600		0	24.000	108.450	225
SIC 5	443266.078	291018.010	109.200	1.400	600		1	24.000	107.800	225
							0	24.001	107.800	225
SIC 6	443248.962	291005.299	109.375	1.975	600		1	24.001	107.400	225
							0	24.002	107.400	225
SIC 1	443201.891	291017.861	109.200	1.050	600		0	25.000	108.150	225
SIC 2	443218.674	290990.857	109.200	1.453	600		1	25.000	107.747	225
							0	25.001	107.747	225
SIC 3	443222.288	290990.134	109.200	1.500	600		1	25.001	107.700	225
							0	25.002	107.700	225
S6	443237.484	290995.412	109.400	2.250	1200		1	25.002	107.225	225
							2	24.002	107.225	225
							0	24.003	107.150	300
S19	443241.817	290988.358	109.200	3.450	1800		1	24.003	105.750	300
							2	1.011	105.750	300
							0	1.012	105.750	225
S20	443242.447	290985.947	109.100	3.400	1200		1	1.012	105.700	225
							0	1.013	105.700	450
Outfall	443245.219	290975.565	107.000	1.457	1350		1	1.013	105.543	450

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	1440
M5-60 (mm)	20.200	Additional Storage (m³/ha)	0.0
Ratio-R	0.400	Starting Level (m)	
Winter CV	0.840	Check Discharge Rate(s)	x

Simulation Settings

Check Discharge Volume x |

Storm Durations

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

Return Period
(years)

100

Climate Change
(CC %)

40

Additional Area
(A %)

0

Additional Flow
(Q %)

0

Node S19 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	105.750	Product Number	CTL-SHE-0124-1110-3150-1110
Design Depth (m)	3.150	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	11.1	Min Node Diameter (mm)	1500

Node Orifice 1 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.475	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	26.0		
Invert Level (m)	109.450	Diameter (m)	0.050		

Node Orifice 2 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.325	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	109.500	Diameter (m)	0.030		

Node Orifice 4 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.025	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	109.400	Diameter (m)	0.075		

Node Orifice 6 Online Orifice Control

Flap Valve	x	Design Depth (m)	2.375	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	50.0		
Invert Level (m)	107.500	Diameter (m)	0.125		

Node Orifice 10 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.900	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	108.200	Diameter (m)	0.065		

Node Orifice 11 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.075	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	20.0		
Invert Level (m)	107.825	Diameter (m)	0.097		

Node Oririfice 8 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.100	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	108.225	Diameter (m)	0.030		

Node Orifice 9 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.325	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	107.500	Diameter (m)	0.035		

Node Oririfice 7 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.475	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	17.0		
Invert Level (m)	107.800	Diameter (m)	0.082		

Node Orifice 5 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.150	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	40.0		
Invert Level (m)	108.200	Diameter (m)	0.135		

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	106.499
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	972.0	0.0	1.500	972.0	0.0	1.501	0.0	0.0

Node S10 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.301
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	810

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	234.0	0.0	0.750	234.0	0.0	0.751	0.0	0.0

Node CP 8 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	109.501
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	108

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	30.2	0.0	1.325	30.2	0.0	1.326	0.0	0.0

Node CP 14 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	109.401
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	7

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	12.1	0.0	1.025	12.1	0.0	1.026	0.0	0.0

Node CP 17 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.501
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	7

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.6	0.0	2.375	14.6	0.0	2.376	0.0	0.0

Node CP 36 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	108.201
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	19

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	18.0	0.0	1.900	18.0	0.0	1.901	0.0	0.0

Node CP 41 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.826
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	7

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	8.1	0.0	1.075	8.1	0.0	1.076	0.0	0.0

Node CP 20 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.801
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	8

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	11.5	0.0	1.675	11.5	0.0	1.676	0.0	0.0

Node CP 26 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	108.226
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	90

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	37.0	0.0	0.975	37.0	0.0	0.976	0.0	0.0

Node CP 31 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.501
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	178

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	65.8	0.0	2.125	65.8	0.0	2.126	0.0	0.0

Node CP 4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	109.550
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	45

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	21.7	0.0	1.375	21.7	0.0	1.376	0.0	0.0

Node CP 5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	109.451
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	51

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	16.0	0.0	1.375	16.0	0.0	1.376	0.0	0.0

Node CP 23 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	108.201
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	5

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	13.0	0.0	1.120	13.0	0.0	1.121	0.0	0.0

Node S17 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	107.550
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	90

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	0.0	0.0	0.500	333.0	333.0	0.851	0.0	355.6
0.499	0.0	0.0	0.850	333.0	355.6			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CP 1	11	111.025	0.725	40.7	0.2052	0.2405	FLOOD
30 minute winter	CP 2	21	110.809	0.510	29.6	0.1442	0.0000	FLOOD RISK
60 minute winter	CP 3	47	110.786	1.235	19.9	0.3496	0.0000	FLOOD RISK
60 minute winter	CP 4	47	110.780	1.230	18.7	8.3529	0.0000	FLOOD RISK
60 minute winter	CP 5	47	110.772	1.321	11.3	6.7162	0.0000	FLOOD RISK
60 minute winter	Orifice 1	47	110.764	1.314	6.2	0.2090	0.0000	FLOOD RISK
15 minute winter	S9	10	109.883	0.308	268.1	0.5434	0.0000	OK
15 minute winter	junction 2	10	109.365	0.266	270.5	0.0000	0.0000	OK
960 minute winter	S10	930	108.881	1.580	16.8	169.6287	0.0000	FLOOD RISK
960 minute winter	S11	930	108.881	1.656	30.1	2.9268	0.0000	SURCHARGED
120 minute winter	CP 27	114	109.403	0.803	18.1	0.2273	0.0000	SURCHARGED
120 minute winter	CP 28	114	109.403	0.804	18.1	0.2274	0.0000	SURCHARGED
120 minute winter	CP 29	114	109.402	0.902	2.8	0.2552	0.0000	FLOOD RISK
120 minute winter	CP 30	114	109.402	0.903	20.3	0.2555	0.0000	FLOOD RISK
120 minute winter	CP 31	114	109.401	1.900	20.3	38.0499	0.0000	FLOOD RISK
120 minute winter	Orifice 9	114	109.401	1.901	3.7	0.3022	0.0000	FLOOD RISK
960 minute winter	S12	930	108.881	0.581	0.6	0.8319	0.0000	SURCHARGED
960 minute winter	S13	930	108.881	1.881	38.4	3.3243	0.0000	SURCHARGED
960 minute winter	S14	930	108.881	2.381	34.4	4.2077	0.0000	SURCHARGED
15 minute winter	CP 37	13	108.903	0.252	13.3	0.0714	0.0000	SURCHARGED
15 minute winter	CP 38	13	108.901	0.252	13.2	0.0714	0.0000	SURCHARGED
15 minute winter	CP 39	13	108.901	0.300	14.6	0.0850	0.0000	SURCHARGED
15 minute winter	CP 40	13	108.900	0.300	27.2	0.0849	0.0000	SURCHARGED
15 minute winter	CP 41	13	108.889	1.063	25.8	2.8847	0.0000	SURCHARGED
15 minute winter	Orifice 11	13	108.884	1.058	15.8	0.1683	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CP 1	1.000	CP 2	37.0	2.103	14.834	0.0791	
30 minute winter	CP 2	1.001	CP 3	28.2	1.623	0.486	0.1256	
60 minute winter	CP 3	1.002	CP 4	18.7	1.064	6.301	0.0568	
60 minute winter	CP 4	1.003	CP 5	11.3	1.143	0.385	0.0648	
60 minute winter	CP 5	1.004	Orifice 1	6.2	0.376	2.467	0.0782	
60 minute winter	Orifice 1	1.005	junction 2	5.9	1.460	0.149	0.0104	
15 minute winter	S9	2.000	junction 2	266.8	2.951	0.794	1.5293	
15 minute winter	junction 2	1.006	S11	265.2	3.308	0.789	5.1359	
960 minute winter	S10	3.000	S11	12.8	0.514	0.919	1.9793	
960 minute winter	S11	1.007	S13	34.8	1.363	0.091	2.5725	
120 minute winter	CP 27	4.000	CP 28	18.1	0.728	2.681	0.2130	
120 minute winter	CP 28	4.001	CP 30	18.0	0.876	0.522	0.8852	
120 minute winter	CP 29	5.000	CP 30	2.8	0.372	0.346	0.1523	
120 minute winter	CP 30	4.002	CP 31	20.3	2.094	0.101	0.2700	
120 minute winter	CP 31	4.003	Orifice 9	3.7	0.159	0.714	0.3530	
120 minute winter	Orifice 9	4.004	S13	3.5	1.077	0.035	0.2243	
960 minute winter	S12	6.000	S13	0.6	0.712	0.005	0.9158	
960 minute winter	S13	1.008	S14	34.2	1.249	0.074	2.7170	
960 minute winter	S14	1.009	Junction 1	31.9	0.260	0.932	19.7422	
15 minute winter	CP 37	7.000	CP 38	13.2	0.858	1.187	0.0817	
15 minute winter	CP 38	7.001	CP 40	13.0	1.187	0.202	0.1267	
15 minute winter	CP 39	8.000	CP 40	14.2	1.086	1.274	0.0813	
15 minute winter	CP 40	7.002	CP 41	25.8	1.422	0.165	0.3435	
15 minute winter	CP 41	9.000	Orifice 11	15.8	0.505	1.736	0.1196	
15 minute winter	Orifice 11	7.003	S17	15.9	1.147	0.212	0.5280	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S17	930	108.882	1.332	25.9	37.4177	0.0000	FLOOD RISK
15 minute winter	CP 18	13	109.120	0.545	28.0	0.1543	0.0000	FLOOD RISK
15 minute winter	CP 19	14	109.085	0.511	25.4	0.1447	0.0000	FLOOD RISK
15 minute winter	CP 20	14	109.055	1.254	24.7	4.6828	0.0000	FLOOD RISK
15 minute winter	Oririfice 7	14	109.025	1.225	12.7	0.1947	0.0000	FLOOD RISK
960 minute winter	junction 7	930	108.882	1.508	25.6	0.0000	0.0000	FLOOD RISK
960 minute winter	S16	930	108.882	1.532	22.8	2.7062	0.0000	SURCHARGED
15 minute winter	CP 32	12	109.825	0.600	29.2	0.1698	0.0613	FLOOD
30 minute winter	CP 33	22	109.770	0.546	21.4	0.1546	0.0000	FLOOD RISK
30 minute winter	CP 34	22	109.725	0.549	6.9	0.1554	0.2139	FLOOD
30 minute winter	CP 35	23	109.725	0.550	25.7	0.1556	0.0000	FLOOD RISK
30 minute winter	CP 36	24	109.695	1.494	14.6	8.4912	0.0000	FLOOD RISK
30 minute winter	Orifice 10	24	109.694	1.494	25.1	0.2376	0.0000	FLOOD RISK
960 minute winter	S4	930	108.882	0.881	0.3	1.5576	0.0000	SURCHARGED
960 minute winter	Junction 11	930	108.882	1.081	2.4	0.0000	0.0000	SURCHARGED
960 minute winter	Junction 10	930	108.882	1.610	21.1	0.0000	0.0000	SURCHARGED
15 minute winter	SIC 10	13	109.912	0.912	52.1	0.2580	0.0000	FLOOD RISK
15 minute winter	CP 15	13	109.905	1.055	78.2	0.2985	0.0000	FLOOD RISK
15 minute winter	CP 16	13	109.887	1.038	77.1	0.2938	0.0000	FLOOD RISK
15 minute winter	CP 17	13	109.865	2.364	74.2	11.0223	0.0000	FLOOD RISK
15 minute winter	Orifice 6	13	109.847	2.347	44.5	0.6641	0.0000	FLOOD RISK
960 minute winter	junction 6	930	108.881	1.786	24.6	0.0000	0.0000	SURCHARGED
15 minute winter	S1	10	110.127	0.102	22.9	0.1149	0.0000	OK
15 minute winter	S3	10	109.078	0.078	22.4	0.0885	0.0000	OK
15 minute winter	CP 12	10	110.718	0.193	22.9	0.0545	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	S17	7.004	junction 7	-25.6	0.214	-0.120	6.3541	
15 minute winter	CP 18	10.000	CP 19	25.4	1.594	6.740	0.0361	
15 minute winter	CP 19	10.001	CP 20	24.7	2.500	0.310	0.0692	
15 minute winter	CP 20	10.002	Oririfice 7	12.7	0.719	4.630	0.0666	
15 minute winter	Oririfice 7	10.003	junction 7	14.3	2.128	0.237	0.0194	
960 minute winter	junction 7	7.005	S16	-22.8	0.545	-0.107	0.8615	
960 minute winter	S16	7.006	Junction 10	-21.1	0.749	-0.102	3.0242	
15 minute winter	CP 32	11.000	CP 33	27.1	1.540	10.387	0.0727	
30 minute winter	CP 33	11.001	CP 35	20.0	1.465	1.157	0.0908	
30 minute winter	CP 34	12.000	CP 35	6.2	0.626	2.365	0.0727	
30 minute winter	CP 35	11.002	Orifice 10	25.1	1.552	0.319	0.0897	
30 minute winter	CP 36	13.000	Orifice 10	-14.6	-0.828	-8.662	0.1657	
30 minute winter	Orifice 10	11.003	Junction 11	10.5	1.616	0.271	0.0137	
960 minute winter	S4	14.000	Junction 11	-0.3	0.003	0.000	0.7236	
960 minute winter	Junction 11	11.004	Junction 10	2.4	0.204	0.004	1.9230	
960 minute winter	Junction 10	7.007	junction 6	-20.4	0.694	-0.099	6.9002	
15 minute winter	SIC 10	15.000	CP 15	48.8	1.108	0.227	0.2838	
15 minute winter	CP 15	15.001	CP 16	77.1	2.029	4.449	0.2686	
15 minute winter	CP 16	15.002	CP 17	74.2	2.316	0.150	0.4833	
15 minute winter	CP 17	15.003	Orifice 6	44.5	0.632	2.863	0.3316	
15 minute winter	Orifice 6	15.004	junction 6	46.4	1.551	0.317	1.0395	
960 minute winter	junction 6	7.008	S23	23.8	0.827	0.114	0.7601	
15 minute winter	S1	16.000	S3	22.4	1.805	0.757	0.4288	
15 minute winter	S3	16.001	junction 5	22.3	1.612	0.183	0.0409	
15 minute winter	CP 12	17.000	CP 13	22.7	1.569	6.852	0.0339	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CP 13	12	110.595	0.071	22.7	0.0200	0.0000	OK
15 minute winter	CP 14	14	110.365	0.964	22.5	3.7732	0.0000	FLOOD RISK
15 minute winter	Orifice 4	14	110.344	0.944	12.1	0.1501	0.0000	FLOOD RISK
15 minute winter	junction 5	11	108.934	0.094	31.8	0.0000	0.0000	OK
120 minute winter	Cp 6	92	110.792	0.517	8.0	0.1463	0.0000	FLOOD RISK
120 minute winter	CP 7	92	110.791	0.517	8.0	0.1462	0.0000	FLOOD RISK
120 minute winter	CP 8	92	110.790	1.289	7.9	12.0389	0.0000	FLOOD RISK
120 minute winter	Orifice 2	92	110.787	1.287	2.3	0.2047	0.0000	FLOOD RISK
960 minute winter	Jucntion 3	930	108.881	0.258	4.1	0.0000	0.0000	SURCHARGED
15 minute winter	CP 9	10	110.152	0.227	21.6	0.0642	0.0000	SURCHARGED
15 minute winter	CP 10	10	109.965	0.041	21.3	0.0115	0.0000	OK
15 minute winter	CP 11	10	109.211	0.210	21.3	0.0593	0.0000	SURCHARGED
15 minute winter	Orifice 3	11	109.073	0.073	21.0	0.0116	0.0000	OK
960 minute winter	junction 4	930	108.881	0.672	5.4	0.0000	0.0000	SURCHARGED
960 minute winter	S5	930	108.882	1.481	8.3	3.7703	0.0000	SURCHARGED
960 minute winter	S23	930	108.881	1.806	31.9	3.1919	0.0000	SURCHARGED
15 minute winter	CP 21	12	109.593	0.693	57.4	0.1960	0.0000	FLOOD RISK
15 minute winter	CP 22	12	109.541	0.642	53.8	0.1818	0.0000	FLOOD RISK
15 minute winter	CP 23	12	109.473	1.271	50.8	4.7298	0.0000	FLOOD RISK
15 minute winter	Orifice 5	12	109.426	1.226	41.6	0.1949	0.0000	FLOOD RISK
960 minute winter	SIC 9	930	108.881	0.781	0.2	0.2211	0.0000	SURCHARGED
960 minute winter	Junction 8	930	108.881	0.906	3.6	0.0000	0.0000	SURCHARGED
960 minute winter	SIC 8	930	108.881	1.081	1.1	0.3060	0.0000	SURCHARGED
960 minute winter	S24	930	108.881	1.906	51.2	3.3686	0.0000	FLOOD RISK
960 minute winter	S27	930	108.881	2.381	50.7	4.2077	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CP 13	17.001	CP 14	22.5	2.184	0.317	0.0924	
15 minute winter	CP 14	17.002	Orifice 4	12.1	0.690	3.943	0.0532	
15 minute winter	Orifice 4	17.003	junction 5	11.1	1.909	0.267	0.0521	
15 minute winter	junction 5	16.002	Jucntion 3	31.8	2.175	0.261	0.0582	
120 minute winter	Cp 6	18.000	CP 7	8.0	1.073	4.099	0.1252	
120 minute winter	CP 7	18.001	CP 8	7.9	1.836	0.098	0.0673	
120 minute winter	CP 8	18.002	Orifice 2	2.3	0.151	1.530	0.2012	
120 minute winter	Orifice 2	18.003	Jucntion 3	2.1	1.362	0.043	0.0168	
960 minute winter	Jucntion 3	16.003	junction 4	4.1	1.294	0.033	0.3014	
15 minute winter	CP 9	19.000	CP 10	21.3	1.654	7.958	0.0423	
15 minute winter	CP 10	19.001	CP 11	21.3	2.388	0.163	0.0187	
15 minute winter	CP 11	19.002	Orifice 3	21.0	1.401	8.540	0.0604	
15 minute winter	Orifice 3	19.003	junction 4	21.0	2.624	0.406	0.0686	
960 minute winter	junction 4	16.004	S5	5.4	1.613	0.040	0.3713	
960 minute winter	S5	16.005	S23	8.2	0.489	0.018	2.4922	
960 minute winter	S23	7.009	S24	31.3	1.230	0.085	1.2264	
15 minute winter	CP 21	20.000	CP 22	53.8	1.704	5.694	0.1116	
15 minute winter	CP 22	20.001	CP 23	50.8	2.101	0.275	0.2234	
15 minute winter	CP 23	20.002	Orifice 5	41.6	1.045	1.363	0.1140	
15 minute winter	Orifice 5	20.003	Junction 8	40.2	2.441	0.334	0.0768	
960 minute winter	SIC 9	21.000	Junction 8	-0.2	-0.006	-0.001	0.1159	
960 minute winter	Junction 8	20.004	S24	3.6	1.549	0.024	0.3626	
960 minute winter	SIC 8	22.000	S24	-1.1	-0.063	-0.015	0.0582	
960 minute winter	S24	7.010	S27	50.7	0.814	0.099	3.0383	
960 minute winter	S27	7.011	TANK	50.5	0.921	0.660	2.1258	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	TANK	930	108.881	2.382	81.3	1385.5810	0.0000	FLOOD RISK
960 minute winter	Junction 1	930	108.881	2.383	31.9	0.0000	0.0000	FLOOD RISK
15 minute winter	CP 24	10	108.962	0.137	14.0	0.0389	0.0000	OK
15 minute winter	CP 25	10	108.877	0.053	13.9	0.0150	0.0000	OK
960 minute winter	CP 26	945	108.869	0.643	0.9	7.3144	0.0000	SURCHARGED
960 minute winter	Oririfice 8	945	108.869	0.644	0.8	0.1023	0.0000	SURCHARGED
960 minute winter	S26	930	108.881	2.391	10.7	4.2252	0.0000	SURCHARGED
960 minute winter	SIC 4	930	108.879	0.428	1.8	0.1213	0.0000	SURCHARGED
960 minute winter	SIC 5	930	108.879	1.078	3.6	0.3052	0.0000	SURCHARGED
960 minute winter	SIC 6	930	108.878	1.478	3.6	0.4184	0.0000	SURCHARGED
960 minute winter	SIC 1	930	108.879	0.728	1.8	0.2062	0.0000	SURCHARGED
960 minute winter	SIC 2	930	108.878	1.131	1.8	0.3202	0.0000	SURCHARGED
960 minute winter	SIC 3	930	108.878	1.178	3.6	0.3335	0.0000	SURCHARGED
960 minute winter	S6	930	108.878	1.728	8.2	1.9548	0.0000	SURCHARGED
960 minute winter	S19	930	108.878	3.128	13.4	7.9617	0.0000	SURCHARGED
960 minute winter	S20	930	105.754	0.054	11.0	0.0609	0.0000	OK
960 minute winter	Outfall	930	105.594	0.051	11.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	TANK	7.012	Junction 1	-31.1	-0.254	-0.372	1.7850	
960 minute winter	Junction 1	1.010	S26	10.7	0.614	0.038	1.3202	
15 minute winter	CP 24	23.000	CP 25	13.9	1.178	6.839	0.0745	
15 minute winter	CP 25	23.001	CP 26	13.9	1.926	0.268	0.0832	
960 minute winter	CP 26	23.002	Oririfice 8	0.8	0.094	0.250	0.0490	
960 minute winter	Oririfice 8	23.003	S26	0.9	1.699	0.007	0.0464	
960 minute winter	S26	1.011	S19	10.1	0.221	0.054	1.8778	
960 minute winter	SIC 4	24.000	SIC 5	1.8	0.594	0.025	1.3365	
960 minute winter	SIC 5	24.001	SIC 6	3.6	0.868	0.050	0.8479	
960 minute winter	SIC 6	24.002	S6	3.6	0.771	0.064	0.6025	
960 minute winter	SIC 1	25.000	SIC 2	1.8	0.645	0.031	1.2645	
960 minute winter	SIC 2	25.001	SIC 3	1.8	0.587	0.031	0.1466	
960 minute winter	SIC 3	25.002	S6	3.6	1.077	0.040	0.6398	
960 minute winter	S6	24.003	S19	12.1	0.284	0.026	0.5830	
960 minute winter	S19	1.012	S20	11.0	1.250	0.148	0.0219	
960 minute winter	S20	1.013	Outfall	11.0	1.064	0.028	0.1108	1244.3

